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JOURNAL  
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ASIATIC SOCIETY OF BENGAL.

VOL. LV.

PART II. (NATURAL HISTORY, &C.)

(Nos. I. to V.—1886.)

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THE NATURAL HISTORY SECRETARY.

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"It will flourish, if naturalists, chemists, antiquaries, philologers, and men of science in different parts of *Asia* will commit their observations to writing, and send them to the Asiatic Society at Calcutta. It will languish, if such communications shall be long intermitted; and it will die away, if they shall entirely cease."  
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SIR WM. JONES.

CALCUTTA:

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- Fig. 3. Row of æcidiospores towards the base of a series: showing intercalary cells or lamellæ most distinctly between the upper spores, × 340.
- „ 4. Mature æcidiospore, × 340.
- „ 5. Peridial cells, × 340.
- „ 6. Showing a few mycelial filaments in an air-cavity below a stoma, × 849.

PLATE V (Photographs).

- Fig. 7. Transverse section of a needle through an æcidium shewing the depth to which its base extends, and a fragment of the pseudoperidium outside.
- „ 8. Longitudinal section of a needle showing a spermagonium above and the margin of an æcidium below.



VII.—*Notes on Indian Rhynchota.* No. 6.—*Addenda and Index.*

By E. T. ATKINSON, B. A., PRESIDENT OF THE SOCIETY.

[Read November 4th, 1885.]

Genus PÆCILOPSALTRIA, Stål.

J. A. S. B. liii, (2), p. 211.

Basal cell of tegmina irregularly four or somewhat five-angled, very often broad; ulnar veins altogether distant at the base: head broad, obtuse, with the eyes broader than the scutellum; vertex more than twice broader than the eyes; ocelli twice and often thrice more distant from the eyes than from each other; frons slightly or moderately convex, at the base before the vertex scarcely or but a little prominent: thorax angulated on both sides: first femora without distinct spines; metasternum elevated, the elevated part furrowed, and somewhat sinuately truncated (*Stål*, Hem. Afr. iv, p. 2).

1. PÆCILOPSALTRIA AFFINIS, Fabricius.

J. A. S. B. liii, (2), p. 211, no. 2.

Body of a moderate size, spotted black: margin of thorax dilated: tegmina obscurely greyish, posterior margin broadly hyaline with several fuscous spots: wings much shorter, fulvous, black before the margin, striated fulvous, margin itself not hyaline but fulvous (*Fabr.*).

♂ ♀. Pale olivaceous-flavescent or virescent: lores (margin excepted), clypeus (ridge excepted), two small apical spots on, and two



transverse lines towards, the base of the frons, a band on the genæ, a spot including the ocelli, two spots at the eyes and a transverse line (sometimes obliterated) on the vertex, a broadish lateral intramarginal line on the thorax, four basal spots (the median pair somewhat large), a narrow oblique lateral line (posteriorly abbreviated), and three small posterior spots on the scutellum, basal limbus of the dorsal segments of the abdomen and a lateral spot on the four last ventral segments, black. Tegmina opaque whitish yellow, clouded fuscous, a median spot in the radial area and a spot occupying the middle of the 1-2 paler ulnar areas, the apical areas (the entire eighth area and basal and apical parts of the first area excepted) vitreous, colourless; ulnar veins marked at the apex and near the apex on both sides with a small fuscous spot: wings lutescent; a narrow streak and the apical part, outwards broadly, and inwards narrowly, obscurely fuscous; this apical part at the veins and the veinless limbus and anal area, weakly lutescent. Head obtuse, frons slightly convex: lateral apical part of the vertex lying between the frons and the eyes subequal in breadth to the subbasal part of the frons; clypeus sinuately truncated at the apex: ocelli more than twice as distant from each other as from the eyes: sides of thorax much angularly dilated, angles somewhat straight, rounded at the extreme apex: sides of the interior ulnar area somewhat parallel behind the middle: metasternum elevated, longitudinally impressed in the middle, sinuated anteriorly: the veinless limbus of both tegmina and wings of equal breadth (*Stål*).

#### Genus PLATYPLEURA, Amyot & Serville, *Stål*.

J. A. S. B. liii, (2), p. 211.

Body stout, large: head not or scarcely broader than the scutellum, rarely narrower: ocelli rarely a little more than twice as distant from the eyes as from each other: the sides of the thorax much flattened out, foliaceous, horizontal, anterior angles turning towards the middle of the eyes, anterior margin sinuated behind the eyes; posterior limbus broad: basal cell of tegmina broad; ulnar veins emitted from it, distant at the base, interior ulnar area gradually broader towards the apex: entire tympana or the greater part concealed; opercula moderate, transverse, rounded at the apex, slightly valvate (*Stål*).

#### 2. PLATYPLEURA CILIARIS, Linnæus.

*Cicada ciliaris*, Linn., Syst. Nat. (10th ed.) i, p. 436 (1758); Mus. Lud. Ulr. p. 155 (1764); Olivier, Enc. Méth. v, p. 757 (1790); Germar in Thon's Arch. ii, (2), p. 2 (1830); Silb., Rev. Ent. ii, p. 78 (1834); Stoll, Cig., p. 102, t. 26, f. 147 (1788).



*Cicada ocellata*, De Géer, Mem. iii, p. 220, t. 33, f. 2-3 (1773) : Olivier, Enc. Méth. v, p. 751. t. 112, f. 3 (1790) : Cape.

*Tettigonia marmorata*, Fabr., Syst. Rhyng. p. 38 (1803), Amboina.

*Cicada marmorata*, Germar, Thon's Archiv. ii (2), p. 17 (1830) ; Silb., Rev. Ent. ii, p. 79 (1834) : *Platypleuraid*. Sign., B. S. E. F. (6 sér.) i, p. xlii (1881), China.

*Oxypleura* (?) *marmorata*, Walker, l. c. p. 24 (1850).

*Platypleura ciliaris* Stål, Hem. Fabr. ii, p. 3 (1869) ; Ofvers. K. V.-A. Förh. p. 500 (1862) ; id. p. 707 (1870) : Butler, Cist. Ent. i, p. 185 (1874).

Stål (in Hem. Afric. iv, p. 16, 1866) makes *P. ocellata*, De Géer of Walker, (excl. syn.) and *P. capensis*, Am. & Serv., one with *P. hirtipennis*, Germar, and also *Cicada plumosa*, Germar, a variety of the same species ; again (in Ofvers. K. V.-A. Förh., p. 500, 1862) he unites *Cicada ocellata*, De Géer, *Cicada varia*, Olivier, from the Cape, and *Platypleura arcuata*, Walker (Ins. Saund. p. 1), from Ceram, with *P. ciliaris*, Linn., but Butler (l. c.) keeps the last two separate. Olivier is the only one that gives India as the locality ; and I include the species in our Indian list as it is also recorded from Java and the Philippines, the fauna of which have a marked affinity with that of India.

Thorax with a rim : tegmina pale with white patches : wings blackish ferruginous, with a yellowish band bent back towards the disc and sometimes triple : abdomen blackish with pale and ciliated rings (*Olivier*). Head and thorax green, spotted black : tegmina fuscous and variegated cinereous, with two whitish spots before the costa, which is virescent at the base : wings dull black with two small lines at the base, and a spot towards the margin, rufous ; body cinereous (*Fabr.*).

### 3. PLATYPLEURA SPHINX, Walker.

J. A. S. B. liii, (2), p. 213, no. 6.

♂ ♀. Body pale tawny, tinged with white, briefly whitish pilose : vertex with two brown bands : rostrum tawny, tip brown reaching the hind coxæ : antennæ dark tawny : mesonotum with four obconical dark brown marks, outer pair long, inner pair short and pointing to two dots of the same colour : legs pale tawny ; tips of the tibiæ darker ; claws piceous, tawny at the base ; first femora with tawny teeth which hardly rise above the surface ; hind tibiæ with tawny spines which are piceous at the tips : tegmina whitish, brownish tawny towards the base and having elsewhere some irregular pale brown marks which, here and there, include white spots ; veins yellow : wings brown, mostly yellowish white towards the base and having a large spot of the same colour in the disc, white at the tips with a white spot on the hind border which elsewhere is brown ; flaps yellowish-white, with broad brown borders.



## 4. PLATYPLEURA CÆLEBS, Stål.

J. A. S. B. liii, (2), p. 213, no. 7.

♂. Sericeous, above testaceous; beneath with feet greyish: head above and wings sordid flavescent, middle of the vertex and apical lateral band, frons (basal spot excepted), two minute spots behind the middle of the thorax, two median basal spots on the scutellum, an oblong discoidal spot, and another very large, oblong-obtriangular, lateral spot on both sides, extended from the base beyond the middle, also the dorsum of the abdomen, black: venter fuscous: tegmina clouded pale fuscous and greyish-sericeous from the base beyond the middle, vitreous towards the apex; anastomoses and the apical and subapical spots on the longitudinal veins, fuscous: wings very slightly infusate towards the apex, limbus sordid whitish, very slightly infusate in the middle. Allied to *P. subrufa*, Walker, in stature, breadth of apical limbus of the tegmina and wings, and the form of the thorax, but the frons is more obtuse, much less prominent and the coloration and marking very distinct. Vertex more than twice as broad as the transverse eye; ocelli almost thrice as distant from each other as from the eyes: frons occupying a little more than one-third of the face: thorax gradually dilated from the base to a distance beyond the middle, thence rounded and abruptly narrowed: costa moderately dilated, subcostal vein and costa contiguous throughout their entire length: seventh apical area of the tegmina shorter than the eighth: apical limbus of tegmina and wings of equal breadth, that of the tegmina colourless: opercula somewhat longer than their greatest breadth, yellow-greyish, infusate at the base (*Stål*).

## 5. PLATYPLEURA ANDAMANA, Distant.

J. A. S. B. liii, (2), p. 214, no. 8.

♀. Tawny pubescent: face moderately convex, transversely furrowed, with a deep central longitudinal furrow; luteous with two short black basal lines on each side of the vertex: a narrow black fascia, extending from eye to eye immediately in front of the ocelli: eyes brilliant, castaneous, broadly pilose behind: pronotum deeply furrowed with frontal edge and two small foveæ, placed close together near the middle of the hind border, piceous: mesonotum with two large obconical spots extending backwards from the fore border midway between which there is a discal dart-shaped mark and two dots wide apart near the hind border, black: there are also two other somewhat obscure black marks situate on the fore border on the outer sides of the large obconical spots: metathoracic cross with its fore borders piceous: abdomen above with the segmental sutures black, clothed with a luteous pubescence; anal append-



age piceous, castaneous. Underside with legs ochraceous : rostrum extending to the second abdominal segment ; its tip, two spots on the sixth abdominal segment, knees, and tarsi piceous : tegmina dark brown with pale semi-opaque markings, especially on the apical half. Basal third thickly covered with pale pubescence and containing five dark-brown spots, of which the most prominent are two which are subcostal, situate beyond the middle of this space, and a third one below the basal of those two spots. Remainder of tegmina less pubescent with a number of whitish spots, of which the most prominent are a transverse row stretching across from near the costa to the inner border, immediately beyond the basal third pubescent space ; another more waved row beyond the middle, confluent near the costa, where they are very visible below : a subapical marginal row of five whitish oblong spots, arranged on the veins of which the apical ends are dull brown ; and an outer marginal row of six dark-brown spots, also arranged on the veins and of which the lowest is the largest ; a dull whitish fusiform spot on the inner angle which is very distinct on the underside : wings castaneous with a dark brown marginal border and some suffused dark-brown discal streaks extending across the wings (*Distant*).

#### 6. PLATYPLEURA NICOBARICA, Butler.

J. A. S. B. liii, (2), p. 233.

Allied to *P. fulvigera*, Walker, from the Philippines, but larger, with tegmina longer ; the whole of the spots crossing the coriaceous area, testaceous ; those crossing its apex, smaller : the blackish transverse spots considerably smaller : the wings longer, the subapical, transverse, fasciolæ replaced by 3-4 decreasing longitudinal fulvous streaks : pronotum considerably broader, its lateral angles more oblique and therefore more prominent (*Butler*). Body long, 21 : exp. teg. 77 millims.

#### 7. PLATYPLEURA BASIALBA, Walker.

J. A. S. B. liii, (2), p. 214, no. 10.

♂. Body yellow, whitish pubescent, whitish pulverulous beneath : band in front and behind on the frons, also a stripe of short bands on each side, slender bands on the genæ, bands on the antennæ and their tips, seven small marks on the pronotum, three stripes on the mesonotum of which the side pair are oblique and the middle one straight, widened on each side by the fore border, and a small spot on each side near the hind border, black : eyes and antennæ tawny ; ocelli red : abdomen black ; drums, tip and hind borders of the segments yellow : legs yellow, briefly whitish pubescent ; tips of claws black : hind tibiæ



with tawny spines; first femora with two small teeth beneath: tegmina colourless, white at the base above, brown at the base beneath; from this brown hue a short tawny stripe proceeds along the hind border and communicates with an oblique brown band which crosses the tegmen near its base: wings colourless, dark brown with a whitish outline for near half the surface from the base which is tawny; flaps dark brown; veins tawny; piceous at the tips of the tegmina.

#### 8. PLATYPLEURA OCTOGUTTATA, Fabricius.

J. A. S. B. liii, (2), p. 216, no. 13.

Head pallid with two dull-black parallel bands, three ocelli in the middle of the upper dilated band, two dots and a pale spot in the middle of the lower: thorax anteriorly rufous, a broad pallid band in the middle, posteriorly dull black with a great trifurcate spot, testaceous: abdomen black: tegmina at the base black; at the middle with four, large white spots 3-1; at the apex, hyaline: wings short, black, posterior margin, white (*Fabr.*).

♂, ♀. Testaceous-flavescent, whitish sericeous: disc of thorax, testaceous: two bands on the head and spots on the scutellum, black: anterior band on the head in front spotted yellow: tegmina vitreous, scarcely basal half fuscous; spot near the apex of the radial area and anterior band, whitish, opaque; anastomoses margined fuscous; small spots (sometimes wanting) arranged in two subapical rows, fuscous: wings black-fuscous, veins sanguineous towards the base; broad veinless limbus colourless, vitreous; head very broad (*Stål*).

#### 9. PLATYPLEURA SUBRUFATA, Walker.

J. A. S. B. liii, (2), p. 216, no. 14.

♀. Body tawny: two stripes on the head of which the fore one forms a circlet on the face, a row of bands on each side of the face, tip of rostrum, the antennæ, two marks on each side of the scutellum, black: rostrum tawny reaching the hind coxæ: posterior lobe of the pronotum pale tawny, piceous; mesonotum with four black marks, side pair large and obconical, inner pair smaller and nearly round, a black dot behind each of the latter: posterior margins of the abdominal segments and the tip mostly black: legs tawny, claws paler with black tips; tegmina colourless with a broad white band one-third of the length from the base; the colourless part includes a brown band, its cross-veins are clouded with brown and there are two imperfect rows of brown dots on the tips of the longitudinal veins of the marginal areolets:



wings brown, tawny at the base with a broad, interrupted white band and a white spot at the tips; veins dark tawny, flaps brown.

Specimen from Nagar (Sind).

#### 10. *PLATYPLEURA BUFO*, Walker.

J. A. S. B. liii, (2), p. 216, no. 15.

♂. Body tawny: two irregular bands on the head of which the hinder one passes over the region of the ocelli, tip of rostrum, the antennæ, and median mark on pronotum, black: rostrum tawny reaching the posterior margin of the drums: posterior lobe of pronotum pale tawny, ferruginous: mesonotum and abdomen ferruginous, the latter tawny at the tip and beneath: legs tawny, tips of claws, black; first femora armed with two very short and blunt tawny teeth: wings very slightly tinged tawny, but tawny towards the base and bright tawny along the costal margin; veins tawny, darker towards the tips; transverse veins darker.

#### 11. *PLATYPLEURA CERVINA*, Walker.

J. A. S. B. liii, (2), p. 217, no. 16.

♀. Body and rostrum pale buff; tip of the latter black, reaching the hind coxæ: antennæ piceous, buff at the base: legs pale buff; claws black, tawny towards the base; first femora with small teeth; hind tibiæ with buff spines having black tips: tegmina and wings whitish, veins yellow, the former buff along the costal margin; transverse veins clouded brown and a row of brown dots on the tips of the longitudinal veins of the apical areas.

#### 12. *PLATYPLEURA HILPA*, Walker.

*Platypleura hilpa*, Walker, List Hom. B. M. i, p. 6 (1850); Butler, Cist. Ent. i, p. 185 (1874).

*Pæcilopsaltria hilpa*, Stål, Berlin Ent. Zeitschr. x, p. 168 (1866).

*Platypleura fenestrata*, Uhler, Proc. Acad. N. S. Phil., p. 282 (1861).

Body in ♂, tawny and in ♀, dark tawny: a broad irregular band across the vertex, bands on the face, the rostrum, the antennæ, sides of the posterior lobe of the pronotum, four broad obconical stripes on the mesonotum of which the inner pair are not more than half the length of the outer pair and between these latter a conical stripe and behind them five spots of which two on each side of the middle one which is angular and joins the conical stripe above mentioned, parts of the pectus and the abdomen, black: abdomen at the tip beneath and opercula and drums in the ♂, tawny; the opercula rather large: legs very dark tawny, claws black towards the tips, first femora not spinose: tegmina and wings in ♂



paler than in ♀, the former nearly colourless, dark tawny towards the base with four broad irregular brown bands and along the hind border two connected rows of brown spots: wings dull tawny with two brown bands, the inner one broader than the other but not extending more than half across the wing; flaps tawny (*Walk.*) Long, 21; teg., 67 millims. Reported from China.

### 13. PLATYPLEURA HYALINOLIMBATA, Signoret.

*Platypleura hyalinolimbata*, Sign., Bull. S. E. F. (6 sér.), i, p. xlii (1881).

Close to *P. repanda*, Linn., from which it differs in having the wings entirely of a velvety blackish brown, bordered by a broad hyaline limbus, veins of a distinct yellow: tegmina with the flattened marginal space between the side and the veins broader than in *P. repanda*; the expansion of the pronotum is concave and sinuated below, whilst in *P. repanda* it is convex (*Sign.*).

Reported from China.

### 14. PLATYPLEURA REPANDA, Linnæus.

*Cicada repanda*, Linn., Syst. Nat. i (2) p. 707 (1766): Mus. Lud. Ulr. p. 159 (1764): Gmelin ed. Syst. Nat. i (3) p. 2097 (1782): De Géer, Mém. iii, p. 209, t. 33, f. 1 (1773): Olivier, Enc. Méth., V, p. 754 (1790): Germar, Thon's Arch. ii, fasc. 2, p. 220 (1830); Silb., Rev. Ent. ii, p. 78 (1834): Guérin in Tigny Hist. Ins. vi, p. 189 (1830).

*Tettigonia repanda*, Fabricius, Spec. Ins. ii, p. 321 (1781); Mant. Ins. ii, p. 267 (1787); Ent. Syst. iv, p. 23 (1798); Syst. Rhyng. p. 41 (1803).

*Fidicina ? repanda*, Walker, List Hom. B. M. ii, p. 90 (1851).

*Platypleura ? repanda*, Walker, l. c. Suppt. p. 13 (1858).

Tawny or yellowish brown; a black line and several small black patches on the thorax: opercula very large: abdomen black above: tegmina and wings tawny, transparent along the posterior margin near which is a series of transparent oval patches; tegmina have a like patch on the exterior border and a waved transverse line, brown in the middle. Body long, 27 millims.

Reported from India.

### Genus TACUA, Amyot & Serville.

J. A. S. B. liii, (2), p. 217.

Head broad, as broad as the thorax, triangular, with a longitudinal groove in the middle of the frons: eyes stout, prominulous: entire lateral margins of thorax somewhat flattened out, anterior angles rounded, tegmina and wings entirely opaque: abdomen stout, tumid; opercula in ♂ very large, reaching at least the middle of the abdomen (*A. & S.*).



15. *TACUA SPECIOSA*, Illiger.

J. A. S. B. liii, (2), p. 217, no. 17.

Black: pronotum with a narrow border anteriorly and a broad posterior band yellow with a greenish tinge, posterior margin of mesonotal cruciform elevation and two spots confluent with the margin orange-yellow: abdomen black, 5-7 segments yellow above with a greenish tinge and with a rounded black spot on the fifth segment: tegmina black or brownish olive with a dark green tinge, veins sanguineous: wings black with a broad sordid whitish limbus: feet black.

Genus *TOSENA*, Amyot & Serville.

J. A. S. B. liii, (2), p. 217.

Head broad, triangular; frons very tumid without a longitudinal groove in the middle: eyes stout, prominulous: lateral margins of thorax very narrowly somewhat dilated, forming a tooth before the middle: the tegmina and wings entirely opaque with a weak, elevated, transverse line in the middle of each tegmen: abdomen stout, inflated; opercula as in *Tacua* (A. & S.).

16. *TOSENA MELANOPTERA*, White.

J. A. S. B. liii, (2), p. 217, no. 18.

In size and colour resembles *T. fasciata*, Fabr. (reported from Java) but in the latter, the veins of both tegmina and wings are of a very clear ferruginous colour, the band is obscure yellow, there is a ferruginous line (sometimes interrupted) on the front of the clypeus, the anterior margin of the pronotum has four small ferruginous spots and the tips of the femora are yellow. In *T. melanoptera*, White, the veins of the tegmina and wings are nearly entirely black, the band on the tegmina is whiter and generally broader than in *T. fasciata*, the clypeus is entirely black, there are no spots on the anterior margin of the pronotum, the yellow marks above the antennæ are smaller and the legs are of an uniform black (*White*).

17. *TOSENA MEARESIANA*, Westwood.

J. A. S. B. liii, (2), p. 217, no. 19.

Black: posterior margin of pronotum, yellow: mesonotum posteriorly on both sides with an oblong, ferruginous spot: metanotum margined fulvous: tegmina black fuscous, veins black: wings broadly testaceous: anal area and slender apical margin, fuscous; veins black (*Westwood*).



18. *TOSENA ALBATA*, Distant.

J. A. S. B. liii, (2), p. 217, no. 20.

General colour and markings of *T. melanoptera*, White, but tegmina with five longitudinal whitish fasciæ situate between the veins commencing near the base, two of which amalgamate with the broad median transverse band, and a subapical row of five irregular longitudinal fasciæ of the same colour, the first of which is placed at about one-third the length of the outer border from the apical point of the tegmina, and the last is fused into the median band near the inner margin. Wings as in *T. melanoptera*, but with a submarginal row of nine whitish fasciæ commencing near the costa, of which the seventh and ninth are largest, the last very much so; two-thirds of the outer border narrowly edged with the same colour (*Distant*).

19. *TOSENA SPLENDIDA*, *Distant*.

J. A. S. B. liii, (2), p. 217, no. 21.

♂ Body black: face with the lateral borders dull reddish, with a well-pronounced, central, longitudinal impression; transversely costate, with the interstices wide and irregularly punctate: eyes prominent, luteous and fringed behind with long hairs, pronotum deeply furrowed, much as in *T. melanoptera*, White, with four large luteous spots; two on the disc, sub-oval, converging from immediately behind the eyes towards each other, through two-thirds of the width of the pronotum, their bases widened and separated by a space of about two millimètres; the other two somewhat larger and much more irregular, occupying the posterior lateral angles; mesonotum very sparingly pilose (except near the lateral borders, where the hairs are much longer and more regularly abundant) and with two subcordate luteous spots on the disc, parallel with the pronotal central spots, and, like them, converging towards each other at base: metanotum with two small luteous spots at the base, very indistinct in ♂, but clearly exhibited in ♀: abdomen above pilose: rostrum black, with a small luteous spot near the base, in length just reaching the posterior coxæ. Body beneath and legs pilose; femora with a wide central, rufous band, fore-femoral spines apparently well developed: drums of the usual generic size, but situated close together, and divided by a very slight emargination behind: abdomen with a longitudinal discal row of sub-triangular reddish markings, the bases of which are situate on the posterior borders of abdominal segment. Tegmina and wings, where not obscured by darker markings, transparent, exhibiting varied opaline lustre, which in some lights is found to be varied with a close and regular series of transverse darker striæ:



tegmina at base narrowly dark fuscous: costal area fuscous for rather more than half its length, veins and veinlets bright luteous, and for two-thirds the length of the tegmina, bordered on each side with fuscous: the apical border is also fuscous, very broadly so at the apex, and narrowing towards the inner margin, containing a sub-marginal row of pale luteous spots, which are the outer terminations of an equal number of narrow transverse linear, pale luteous striæ: claval area greenish: wings pale greenish for nearly two-thirds their area from the base, remaining portion shining fuscous, enclosing a sub-marginal row of pale opaline spots, of which the largest is sub-costal and irregular in shape, being somewhat sub-quadrate, hollowed out externally, and produced at the base towards the outer edge: veins and veinlets pale luteous, in some places tinged with green.

♀. Differs principally from the ♂ in having all the colour markings intensified, the tegminal row of sub-marginal spots, which are luteous in the ♂ being pale opaline in the ♀: the abdomen is more thickly clothed with pilosity and the rostrum is somewhat shorter in length than in the ♂. (*Distant*).

♂. Differs from the others in its paler coloration and more transparent appearance but the last peculiarity is shadowed in *T. albata*, Dist. whilst the pronotal and mesonotal spots which ally it to *Gæana* may be seen indicated on the pronotum of *T. melanoptera*, White in which the two discal spots are jointly recognizable whilst the broad pronotal luteous band of that species appears only as two angular spots in *T. splendida*.

#### Genus HUECHYS, Amyot & Serville.

J. A. S. B. liii, (2), p. 218.

Body slender: head small, triangular, as broad as the pronotum; frons angular, slightly compressed on each side, furnished with a distinct abbreviated longitudinal groove: eyes stout, slightly prominulous: the lateral margins of the thorax not dilated unless anteriorly and not dentated: tegmina entirely opaque, ulnar veins distant at the base: abdomen elongate (*A. & S., Stål*).

#### 20. HUECHYS PHILÆMATA, Fabricius.

J. A. S. B. liii, (2), p. 218, no. 22.

Black: frons, scutellum on both sides and the abdomen, sanguineous: wings fuscous-diaphanous. Differs from *H. sanguinolenta*, Fabr. (same as *H. sanguinea*, De Géer) in its larger size, and in having the red frons immaculate; scutellum red; and dorsal streak, black: tegmina dull



black not piceous and the wings smoky-diaphanous (*Fabr.*) Head thorax and feet, black; entire frons, two large patches on the mesonotum and the abdomen, red: tegmina black, tip sordid white: wings smoky (*A. ♂ S.*)

## 21. HUECHYS SANGUINEA, De Géer.

J. A. S. B. liii, (2), p. 218, no. 23.

Head, thorax, pectus and feet, black, shining: frons, rounded, red: entire abdomen red: thorax with two large patches in the shape of elevated plates, red, of the colour of sealing-wax: eyes and oviduct in the ♀, brown: tegmina, elongate, somewhat broad, of a very obscure brown approaching black; longitudinal veins black, distinct: wings transparent of a brownish tint, veins black: ocelli three, pale red: antennæ short, setiform, situate on a much stouter cylindrical part: tegmina longer than the abdomen, wings a little shorter (*De Géer*).

Head black: frons rufous, a longitudinal line and the rostrum, black: thorax glabrous, black; a rounded spot on both sides, red: abdomen red: tegmina and wings obscurely fuscous immaculate: feet black (*H. sanguinolenta*, *Fabr.*). Black, frons sanguineous, anteriorly black: two spots on the mesonotum and the abdomen: tegmina and wings, white; veins black (*H. incarnata*, *Germar*). This species is reported from India and *Germar* remarks that it may be a variety of *C. sanguinolenta*, *Fabr.* from which, however, it differs in the white, black veined, tegmina, having the apical veins narrowly cinctured fuscous, and the white, black-veined wings broadly margined fuscous. *H. Germari*, *Gúerin*, is probably also only a variety of this (*Mag. Zool.* p. 78; t. 237, f. 2, 1839):—Black, frons sanguineous, anteriorly black: two spots in the mesonotum and the abdomen, red: tegmina white, veined black, apical veins narrowly cinctured fuscous: wings black-fuscous, posterior lobe subhyaline (*Guérin*). Reported from Java.

## 22. HUECHYS STELLATA, Walker.

*Huechys stellata*, Walker, *Ins. Saund. Hom.* p. 27 (1858).

Black: head with two testaceous spots between the eyes: mesonotum with six testaceous spots, four in the middle and two behind: tegmina with two broad, irregular, fawn-coloured bands which are connected on the costa, a middle interrupted white band consisting of three large spots which are partly enclosed by the second broad band; ten exterior white dots on as many areolets: wings with five white dots (*Walker*). Body long, 31-2: teg. 92 millims.

Reported from India.



23. *HUECHYS PICTA*, Walker.

*Huechys picta*, Walker, Ins. Saund. Hom. p. 28 (1858).

♂, ♀ Black: head with two testaceous bands: pronotum with a testaceous band on the hind border which is broad in the ♀ and extends in the middle to the fore border: mesonotum with a testaceous border and with two testaceous stripes which are broader in the ♀: abdomen red with a black dorsal stripe: tegmina blackish, with a testaceous discal spot near the base, an interrupted testaceous band and two exterior subcostal dots: in the ♀ the discal spot is almost obsolete and there is only one dot: wings crimson, with black borders (*Walker*). Body long, 19—21; teg. 50—52 millims.

Reported from Assam, Java.

Genus *SCIROPTERA*, Stål.

J. A. S. B. liii, (2), p. 220.

Head scarcely narrower than the base of the thorax; frons slightly tumid occupying a little more than one-third of the breadth of the face, without a longitudinal furrow; vertex more than twice broader than the eyes: the ocelli as far from the eyes as from each other or a little farther: rostrum not extended behind the intermediate coxæ: first femora stout, spinose beneath; first tibiæ somewhat equal in length to the femora: six apical areas, ulnar veins contiguous at the base or united for a short space (*Stål*).

24. *SCIROPTERA CROCEA*, Guérin.

J. A. S. B. liii, (2), p. 220, no. 29.

Yellow: head obscure brunneous; spots red: thorax yellow; pro- and meso-notum each with two very large reddish-brown spots: abdomen croceous, more obsolete beneath; feet yellow; tibiæ and tarsi, black: tegmina and wings hyaline, veins yellow, anterior veins with the membrane close to the veins, pale yellow (*Guérin*).

25. *SCIROPTERA SPLENDIDULA*, Fabricius.

J. A. S. B. liii, (2), p. 220, no. 30.

Small: head black; eyes pale: thorax pale, with two large rounded black spots: scutellum black, margin pale: abdomen red: tegmina fuscous with a very vivid golden reflection: first femora black, tibiæ very stout, dentated, red: last pair of feet black, femora red (*Fabr.*).



## Genus GRAPTOTETTIX, Stål.

J. A. S. B. liii, (2), p. 221.

Vertex twice as broad as the eyes; frons tumid, prominulous, somewhat compressed; ocelli as far from each other as from the eyes: thorax narrowed forwards, at the apex a little broader than the head: rostrum extended scarcely beyond the intermediate coxæ: first femora spinose beneath; first tibiæ longer than the femora: tegmina with ten apical cells, ulnar veins distant at the base (*Stål*).

## Genus GÆANA, Amyot &amp; Serville.

J. A. S. B. liii, (2), p. 221.

Body elongate: head triangular, narrower than the base of the thorax; frons tumid, prominulous, rounded, not compressed at the sides, nor grooved: pronotum not dilated: tegmina and wings entirely opaque, the former furnished with eight apical areas, the ulnar veins distant at the base (*A. & S., Stål*).

## 26. GÆANA SIBYLLA, Stål.

*Gæana sibylla*, Stål, Trans. Ent. Soc. (3 ser.) i. p. 576 (1863).

♂ Black: tegmina somewhat olivaceous yellow from the base scarcely to the middle: wings beyond the middle, lutescent. Stature of *G. maculata*, Fabr.: frons very tumid: thorax anteriorly somewhat narrower than the head, sides parallel from the apex to the middle, thence abruptly amplified: the costa of the tegmina and the subcostal vein rather distant from each other throughout their entire length, ulnar veins rather distant at the base; apical areas very long, the first, fourth and sixth of equal length: opercula somewhat triangular, rounded at the apex (*Stål*). Long 42; exp. teg., 112 millims.

Reported from Tringany.

## 27. GÆANA OCTONOTATA, Westwood.

J. A. S. B. liii, (2), p. 221, No. 33.

Black: frontal and posterior band on the head and a posterior band on the pronotum and the mesonotum yellowish, the last with two irregular yellowish lines: abdomen sanguineous, basal segments spotted above with black in the middle: tegmina fuscous-blackish, each with four whitish spots and very fine red veins: wings sanguineous with black lines (*Westw.*).



28. *GÆANA FESTIVA*, Fabricius.

J. A. S. B. liii, (2), p. 222, no. 36.

Antennæ testaceous: head dull black, a spot on both sides in the ocular area, ferruginous: thorax dull black, anterior margin and broader posterior margin of the anterior lobe yellow and the posterior lobe striated yellow: abdomen dull black, immaculate: tegmina fulvous, veins whitish, a median band and the apex on both sides emitting a tooth like mark, dull black: wings white, dull black at the apex, with a large white spot: feet dull black (*Fabr.*).

29. *GÆANA SULPHUREA*, Hope.

J. A. S. B. liii, (2), p. 223, no. 38.

Black: head and thorax spotted sulphureous: basal half of wings sulphureous (tegmina divided by an oblique blackish band), apices yellowish-fuscous, veins in the obscure parts black (*Hope*). The tegmina are broadly wrinkled and the drum covers in the ♂ are small, leaving the striated internal membrane broadly exposed.

The following scheme attempts to provide a rough differentiation of some of the genera of clear-winged *Cicadæ* found in India based on Stål's analysis:—

A. Anterior margin of posterior part of the first dorsal segment of the abdomen in ♂ emitting a foliaceous lobe which covers the whole or part of the tympana or is dilated forwards more or less towards the sides. Body oblong or somewhat elongate: first femora spinose or acutely dentate beneath: frons usually more or less convex.

B. (1) Thorax narrowed forwards, lateral margins very often armed with a small tooth before the middle: (2) basal cell of tegmina more than twice longer than broad: (3) interior ulnar area not or but very slightly amplified towards the apex: (4) the ulnar veins very close at the base or contiguous.

I. *DUNDUBIA* group. A and B above.

1. *Leptopsaltria*: genæ internally near the apex at the base of the lores furnished with a tubercle or tumescence: rostrum reaching a little behind the last pair of coxæ: interior ulnar area of the tegmina not or only very slightly narrowed towards the apex: first pair of tibiæ longer than the femora: tympana above covered by a very large lobe: opercula short: second and third ventral segments in ♂ with a lateral tubercle. The head is narrower than the thorax and the frons is moderately convex.

2. *Dundubia*: genæ without a tubercle: rostrum not or scarcely reaching the base of the last pair of coxæ: the opercula are long and



extended beyond the middle of the venter. The frons is large, very convex and near the base is almost twice as broad as the anterior margin of the lobes of the vertex.

3. *Cosmopsaltria*: genæ without a tubercle: rostrum extending beyond the base at least and very often beyond the apex of the last pair of coxæ: the opercula are long and extended behind the middle of the venter. The frons near the base is not or only somewhat broader than the apical margin of the lobes of the vertex.

4. *Pomponia*: genæ without a tubercle: rostrum and frons as in *Cosmopsaltria*: opercula short, somewhat transverse.

II. CICADA group. A as above.

B. (1) The lateral margins of the thorax always without a distinct tooth: (2) basal cell of tegmina rarely (*Cicadatra*) twice longer than broad, very often broad: (3) the interior ulnar area gradually distinctly amplified towards the apex, seldom (*Emathia*) equally broad towards apex and base: (4) the ulnar veins distinctly (often very) distant at the base.

1. *Cryptotympana*: first apical area extended more forwards than the second: the transverse vein closing the base of the second apical area, very oblique: the space lying between the postcostal marginal vein and the postcostal ulnar ramus linear and not broader towards the apex: the basal cell of the tegmina somewhat (but rarely twice) longer than broad: tympana entirely hidden: metasternum elevated in the middle and furnished with a posterior process turning backwards.

2. *Cicada*: as in *Cryptotympana*, but the metasternum is not or is only a little elevated in the middle and there is no posterior process. The clypeus is truncated at the apex or somewhat sinuately truncated.

3. *Cicadatra*: as in *Cicada*, but the basal cell of the tegmina is twice longer than broad and the tympana are partly visible. The clypeus too is somewhat acuminate or a little rounded at the apex.

4. *Emathia*: the first and second apical areas are extended to an equal distance forwards, the second is, however, longer than the first, the interior basal angle of the first area and the exterior basal angle of the second area are both obtuse: the interior ulnar area is not amplified towards the apex of the tegmina and is equally broad at base and apex: the thorax anteriorly is scarcely narrower than the head and is amplified at the base: the tympana are for a great part visible: opercula short: rostrum scarcely reaching the last pair of coxæ: first pair of femora spinose.

III. TIBICEN group.

Tympana entirely visible; the anterior margin of the sides of the posterior part of the first dorsal segment of the abdomen is not produced and does not send out forwards a lobe.



1. *Tibicen*: ulnar veins distant towards the base, diverging from the base: first apical area of the tegmina produced further forwards than the second: costa and radial vein contiguous towards the apex; veinless limbus of tegmina and wings moderate.

2. *Melampsalta*: ulnar veins contiguous at the base itself or united towards the base: eight apical areas: first and second apical areas of the tegmina equally long and equally extended forwards: space between the postcostal marginal vein and postcostal ulnar ramus, linear.

### 30. DUNDUBIA MANNIFERA, Linn.

J. A. S. B. liii, (2), p. 223, no. 39: liv, (2), p. 116. *D. nigrimacula*, Walker (List Hom. B. M. i, p. 63) reported from Java and *D. sobria*, Walker (l. c. p. 63) reported from Hongkong are local forms of this species.

Pale subolivaceous-virescent or flavescent: frons very tumid: the dorsum of the abdomen marked by fuscous lateral spots: opercula in ♂ elongate, contracted near the base, very broad behind the middle, rounded at the apex (*Stål*). Body large, testaceous, immaculate: tegmina obscurely whitish, immaculate, costa black: opercula elongate, almost as long as the body, arched, testaceous, armed at the base with a robust, acute, incumbent spine (*Fabr.*). Head, eyes, and part of thorax, also the abdomen, of a light brown above; the rest of the body greenish: tegmina and wings transparent, greenish, spotless: opercula very large, almost as long as the abdomen (*Olivier*).

### 31. DUNDUBIA MICRODON, Walker.

J. A. S. B. liii, (2), p. 224, no. 40.

♂ Body black: head with a tawny and green stripe in front and with an irregular green circlet on each side of the ocelli: face above with a short yellow stripe and with yellow bands in front: rostrum tawny, tip black, reaching the hind coxæ: antennæ black: pronotum green, with four slightly waved black stripes, outer pair very short, furrows black; posterior lobe green widened and slightly angular on each side in front of which is a very small tooth: mesonotum with four green stripes, the outer pair much longer than the inner pair, a green dot near each side which like the hind border is green: pectus tawny: abdomen black, brown beneath, posterior margins of the segments green: [drums black; opercula dull green, blackish towards the tips, tapering, very long, not far apart, more than half the length of the abdomen?]: legs tawny; femora striated black: fore-tibiæ, feet, and the tips of the other tibiæ, black; fore-femora with three black teeth of which two are long and one very small; a tawny band on the intermediate feet: wings



colourless, green at the base; the first and second transverse veins clouded brown; a row of pale brown spots on the tips of the longitudinal veins of the apical areas; veins black; flaps with an opaline lustre.

### 32. DUNDUBIA VIBRANS, Walker.

J. A. S. B. liii, (2), p. 224: liv, (2), p. 116.

♂ Body pale tawny, rather long: head a little narrower than the pronotum, with an irregular and interrupted black band; face with black bands on each side; rostrum tawny, tip black reaching the hind coxæ: eyes prominulous: antennæ black: pronotum broadest near the base of the tegmen, with four crooked black streaks, the outer pair short, the sutures also blackish, posterior lobe widened with two large black spots above the base of each tegmen, slightly notched and with a moderate sized tooth on each side: mesonotum with five black stripes, a slight black streak in front between the two side pairs which are slightly oblique, the inner pair much shorter than the outer pair which are almost interrupted: abdomen nearly linear, rather long, with a short black stripe at the base and on each side of the tip, disc of the segments, piceous: drums tawny, close; opercula, bright tawny, bordered with black, about half the length of the abdomen, narrow towards the base, widened towards the tips: legs pale tawny, clothed with paler hairs: tips of the tibiæ and of the feet, piceous; tips of the claws, black; fore femora with three teeth, two large and one small; posterior tibiæ with black spines: tegmina and wings colourless, pale tawny at the base; the tegmina slightly clouded with brown at the tips, the first and second transverse veins clouded with brown, an almost imperceptible brown streak on each apical area; veins partly black, partly tawny, the latter colour prevailing most towards the base; flaps pale tawny at the base.

### 33. DUNDUBIA NICOMACHE, Walker.

J. A. S. B. liii, (2), p. 224, no. 44.

♂ Body black, nearly linear, tawny beneath: head with two zigzag marks behind the ocelli, a long angular stripe on each side between the eyes, a short stripe on the face, and on each side bands along the whole length, rostrum (tip excepted), lateral stripe, and four large oblique spots on anterior lobe of pronotum, the posterior lobe, and 3-4 irregular streaks on the mesonotum which vary in length and breadth, tawny: tip of rostrum which reaches beyond the hind coxæ, antennæ, sickle-shaped spots on the tawny spots of the anterior lobe of the pronotum, and three large spots near the base of each tegmen, and the abdomen, piceous: drums tawny, close; opercula tawny obconical, very large, a little apart,



more than two-thirds the length of the abdomen: posterior margins of the abdominal segments and the underside, tawny, tip piceous: legs tawny; feet ferruginous, claws black, ferruginous towards the base first femora with three tawny teeth, one very small: tegmina colourless, long, narrow, costal margin tawny; veins tawny with two black bands across the disc beneath the stigma, black towards the tips, marked with black at the base; fore-flaps and hind flaps at the base and for a space along the hind border, pale tawny with a brownish tinge.

#### 34. DUNDUBIA TIGRINA, Walker.

J. A. S. B. liii, (2), p. 224, no. 45.

♂ Body tawny, nearly linear, pale sericeous: head with a slight ferruginous tinge above: vertex with four black stripes, the middle pair contiguous, partly united between the ocelli, side pair nearly round on proceeding from the base of the antennæ, thence narrower and slightly curved: a black band on each side of the face; rostrum tawny, tip black, extending a little behind the hind coxæ: antennæ black: four black stripes on the anterior lobe of the pronotum of which the median pair slightly converge from the fore to the hind border, the outer pair are more oblique, posterior lobe very narrow in the middle with a black spot: mesonotum with five slender black stripes, the median entire, inner pair much and outer pair slightly interrupted: abdomen ferruginous above; posterior margins of the segments, piceous; beneath tawny, piceous at the base and tip: drums tawny, close; opercula black, small, far apart, outer margin tawny: legs tawny; femora striped black; tips of the tibiæ, piceous; claws black, ferruginous at the base; fore and middle feet black, last pair ferruginous, first femora with three black teeth, one small: tegmina colourless, long, narrow; costal margin bright ferruginous as far as the stigma, thence to the tip, piceous; veins black, ferruginous towards the base, the first and second transverse veins clouded brown, a row of brown spots along the tips of the veins of the apical areas, all indistinct except first and second; fore flaps grey, hind flaps grey at the base and for a distance along the hind border.

#### 35. DUNDUBIA (?) MACULIPES, Walker,

J. A. S. B. liii, (2), p. 224, no. 46.

♂ Body tawny, whitish pubescent: two interrupted black bands across the vertex; furrows on face, black: rostrum pale tawny, tip black, reaching far beyond the hind coxæ: two black stripes on the anterior lobe of the pronotum, its sides and the furrows also blackish: mesonotum



with two U-shaped marks and behind each a dot and on each side an oblique stripe, all black : abdomen with four rows of black spots, two in the middle and one on each side ; posterior margins of the segments and the tip, partly black : drums small, blackish, tymbals white ; opercula large, pale tawny, slightly overlapping, rather less than half the length of the abdomen : legs pale tawny, with a piceous band near the tip of each femur and tibia, the latter has a similar band near the base : feet tawny, piceous at the base, black towards the tips ; femora streaked with black and with one black and one tawny tooth : tegmina colourless, pale tawny and marked black at the base, costal margin green ; veins green, black towards the tip ; transverse veins black, strongly marked and 1-4 clouded brown ; a row of small brown spots near the tips of the longitudinal veins of the apical areas : hind flaps pale brownish, tawny towards the base and for a distance along the hind border.

36. *DUNDUBIA* (?) *SAMIA*, Walker.

J. A. S. B. liii, (2), p. 225, no. 47.

♂ Body green, tinged here and there with tawny : ocellar area piceous and a piceous streak on each side along the eye : rostrum tawny, tip black, reaching beyond the hind coxæ : antennæ tawny : a pale streak slightly widened in front and behind on the anterior lobe of the pronotum and a piceous spot on each side : mesonotum ferruginous with some green marks, of which there is a large angular spot in the middle, on each side a forked mark, behind which there is a curved mark, and nearer each side, a slight streak : abdomen tawny, darker at the tip, paler beneath : drums tawny, small ; opercula pale-green, small, far apart : legs tawny ; tips of the claws, black ; femora with three teeth, one very small : tegmina colourless, costal margin green, tawny beyond the stigma ; veins green, with a few black bands, tawny towards the tips ; transverse veins clouded pale brown ; a row of pale brown spots near the tips of the longitudinal veins of the apical areas : fore-flaps and the hind flaps between the middle-veins and the fore-border, brown.

37. *DUNDUBIA* (?) *SINGULARIS*, Walker.

J. A. S. B. liii, (2), p. 225, no. 48.

♂ Testaceous, slender, partly green, very pale beneath : interocellar space and a dot on each side of the head in front and two dots near the border of the pronotum, black : mesonotum with an oblique green stripe on each side : abdomen with four rows of triangular, brown, spots : opercula small : tegmina and wings vitreous, with testaceous streaks between the apical anastomoses and the border, veins green or testaceous : teg-



mina narrow with the transverse veins and the forks of the longitudinal veins, clouded testaceous; a testaceous spot at the tip of each marginal vein communicating with a slight testaceous streak on each apical area a testaceous dot on the hind side of the third ulnar area with distinct indications of two transverse veins one joining the fifth anastomosis and the other ending on the front areola near the base of the second ulnar area; a few minute testaceous dots on some of the marginal and discoidal veins.

### 38. DUNDUBIA OCHRACEA, Walker.

*Fidicina ochracea*, Walker, List Hom. B. M. i, p. 99 (1850).

*Cicada ferrifera*, Walker, l. c. p. 115 (1850).

*Dundubia fasciceps*, Stål, Ofvers. K. V.-A. Förh. p. 242 (1854); p. 481 (1862).

♂ Sordid yellow; intraocular apical band on the head, blackish: tegmina more than half longer than the abdomen, whitish-hyaline, veins flavescent: below with feet yellowish-white: opercula one-half shorter than the abdomen, subparallel, rounded at the apex (*Stål*). Body long, 26 millims.

Reported from China: the Indian Museum possesses a specimen.

### 39. DUNDUBIA RADHA, Distant.

J. A. S. B. liii, (2), p. 225, no. 49.

♂ Body above pale castaneous: head with the area of the ocelli black; pronotum with the lateral and posterior margins and a very narrow anterior margin, ochraceous, the last is inwardly margined by two small, transverse, linear, black spots and the posterior margin has also a very narrow discal inner border of the same colour: mesonotum with a large median, obconical spot on the anterior margin, with a very indistinct median line and with the lateral margins black, outwardly marked with ochraceous; five indistinct basal spots, three within the anterior angle of the cruciform elevation and one on each side of the same: abdomen rather darker in colour with the segmental sutures piceous. Underside of the body concolorous, opercula dull ochraceous: tegmina with the costal membrane and claval area dull ochraceous: wings with the base narrowly of the same colour. The body is much elongated, the head including the eyes, a little narrower than the base of the pronotum; the face is prominently convex, faintly longitudinally furrowed and transversely striated: the rostrum reaches the middle of the posterior coxæ: the opercula are very long, reaching the penultimate abdominal segment, they are abruptly narrowed on the first abdominal segment, then gradually amplified and rounded on each side, maximum width being at the junction of the second and third abdomi-



nal segments from whence they are gradually narrowed to the apex which is obtusely rounded (*Distant*).

40. DUNDUBIA TRIPURASURA, *Distant*.

J. A. S. B. liii, (2), p. 225, no. 50.

♂ Head, pronotum, and mesonotum ochraceous: frons with a triangular black spot near the base, and transverse black striæ which do not meet in the middle, vertex with two large oblique and irregular black fasciæ on the disc, and a large irregular black spot on the inner margin of the eyes: pronotum with two median longitudinal black fasciæ, and three oblique black striæ on each side, the outer one submarginal and somewhat rounded: mesonotum with a large median clavate spot, of which the apex terminates on the anterior margin, bordered on each side by a subconical spot, followed by a small triangular one, and a wide submarginal fascia, black: abdomen dull sanguineous, with a series of discal segmental black fasciæ (these are much larger in some specimens and subconfluent) and a lateral segmental row of irregular black spots. Body beneath with the sternum ochraceous, covered with greyish pubescence: abdomen dull sanguineous; opercula pale sanguineous; legs ochraceous: tegmina and wings pale hyaline. Frons very prominent and convex; head, including eyes, narrower than the base of the pronotum, subequal to the mesonotum in width: opercula subtriangular, well separated at the base, gradually becoming more divergent, and narrowing to the apex, which is obtuse, and almost reaches the apex of the fourth abdominal segment: anterior femora armed with three spines; two moderately large and ochraceous; apical one small and black; posterior tibiæ with three black spines on the inner side near the apex, and two smaller and wider apart on the margin (*Distant*).

41. DUNDUBIA NAGARASINGNA, *Distant*.

J. A. S. B. liii, (2), p. 225, no. 51.

♂ Body above castaneous: head with the middle of the frons and an oblique fascia on each side of the ocelli, ochraceous: pronotum with a median band and lateral and posterior margins, ochraceous: mesonotum with two anterior median obconical spots denoted by black margins; margins of basal cruciform elevation, ochraceous: abdomen with the basal half sparingly clothed with greyish pile, the apical half much more densely so, and with a broad lateral fascia of greyish pile on each side: body beneath, with the sternum, legs, and opercula, pale ochraceous; abdomen pale castaneous. Tegmina and wings pale hyaline; costal membrane of tegmina ochraceous: head broad, including the



eyes subequal in width to the base of the pronotum, and wider than the mesonotum; the face is very tumid, the middle longitudinally sulcated for half the length, and the sides transversely striated; rostrum reaching the apex of the posterior coxæ; opercula long, reaching the base of the last abdominal segment, narrowest and with the edges concave from base to the commencement of the second abdominal segment, from which they are somewhat abruptly widened with the edges convex and the apex somewhat narrower and rounded: anterior femora with two long ochraceous spines; posterior tibiæ with two long black spines, somewhat close together on the inner margin near the apex and two much wider apart on the outer margin (*Distant*).

42. DUNDUBIA TERPSICHORE, Walker.

J. A. S. B. liii, (2), p. 233, no. 94: liv, (2), p. 117.

♀ Body pale green, slightly tinged with tawny, slightly clothed with white shining down: a black dot on each side of the ocelli: rostrum pale tawny, tip piceous, reaching a little beyond the intermediate coxæ: antennæ tawny: mesonotum with a piceous dot on each side above the cross-ridge: two last segments of the abdomen above and the oviduct, piceous: legs pale tawny tinged with green; claws black towards the tips; first femora with two tawny teeth of which one is small: tegmina and wings colourless, tinged with brown towards the tips, costal margin of tegmina green, slightly spinose, middle part black; veins black, green towards the base, black along the hind border of the tegmina,; flaps buff and tinged with red at the base and for some distance along the hind border.

43. DUNDUBIA (?) EVANESCENS, Walker.

*Dundubia evanescens*, Walker, Ins. Saund. Hom. p. 6 (1858).

♂ Pale testaceous, slender: head with a black band, and with the usual black marks in front: pronotum with two approximate black stripes and with two black spots on each side: mesonotum with nine black stripes which are more or less abbreviated hindward where there are two black dots: abdomen with six stripes of black spots; the second pair of stripes incomplete: opercula nearly half the length of the abdomen: tegmina and wings vitreous, veins pale testaceous; tegmina with the marginal veins clouded by brown stripes which successively decrease in length, first and second transverse veins clouded with brown, very oblique, third and fourth oppositely oblique, slightly curved or undulating: wings very slightly clouded with brown along the transverse marginal veinlets (*Walker*). Body long, 21—23; teg., 51—55 millims.

Reported from India.



## 44. DUNDUBIA (?) GUTTIGERA, Walker.

*Dundubia guttigera*, Walker, J. Linn. S. Zool. i, p. 83 (1856).

Testaceous: head with three angular stripes and an elliptical ringlet in front and on each side of it transverse lines, two dorsal nearly parallel stripes on pronotum, five stripes on the mesonotum of which the inner pair are abbreviated and the outer pair are interrupted, black: opercula small, rounded: abdomen ferruginous: tegmina and wings vitreous, the former with a brown spot on each transverse veinlet and on the tip of each marginal vein (*Walker*). Body along, 23; exp. teg. 71 millims.

Reported from Malacca, Singapore.

## Genus MELAMPSALTA, Kolenati, Stål.

J. A. S. B. liii, (2), p. 225.

Head somewhat as broad as the anterior breadth of the thorax; vertex about twice as broad as the eyes: frons slightly or moderately convex, furnished with a more or less distinct, median, longitudinal groove: thorax broader posteriorly than anteriorly, the lateral margins obtuse, rarely a little dilated: ulnar veins of the tegmina contiguous at the base or united towards the base: eight apical areas, basal cell quadrangular: last ventral segment in ♀ very deeply and broadly emarginate at the apex: tympana entirely visible above: opercula small or moderate: first pair of femora beneath 3—4 spinose (*Stål*).

## Genus COSMOPSALTRIA, Stål.

J. A. S. B. liii, (2), p. 226.

The subgenera founded by Stål (l. c.) are thus distinguished:—

*a.* Frons very tumid, seen from above distinctly produced before the juga: clypeus rounded at the apex or narrowly roundly subtruncated.

*b.* Thorax broad anteriorly, entire lateral margins distinctly amplified, ramus of the interior ulnar vein distinctly curved towards the base:—*Platylomia*, Stål (*C. flavida*, Guérin).

*b b.* Thorax much narrowed anteriorly, lateral margins not or only very slightly amplified: ramus of the interior ulnar vein straight or slightly curved: *Cosmopsaltria*, Stål (*C. spinosa*, Fabr.)

*a a.* Frons slightly convex, not or but very slightly prominulous before the juga: last dorsal segment in ♂ acutely dentated on both sides at the apex: clypeus narrowly truncated or sinuately truncated at the apex:—*Diceropyga*, Stål (*C. obtecta*, Fabr.).



## 45. COSMOPSALTRIA OBTECTA, Fabricius.

J. A. S. B. liii, (2), p. 226, no. 54.

Head virescent with a black vertical cross and on this the usual ocelli: the thorax green, the anterior lobe with small impressed lines, the posterior lobe with five more distinct abbreviated lines: abdomen virescent, furnished beneath with opercula which are arched, elongated, cinereous and armed at the base with a robust, acute spine: feet virescent with black lines (*Fabr.*).

♂ Weak olivaceous-virescent: an interior marginal spot beneath the middle of the lores; the extreme interior margin of the genæ at the frons; four transverse, lateral, subbasal lines on the frons terminated inwards by a longitudinal line and united, interior apical angle and median subapical spot on the juga; a narrow median band slightly verging forwards on both sides and spots on the vertex including the ocelli, two narrow median streaks very slightly diverging before the middle posteriorly slightly arcuated not extended behind the posterior transverse impression, a small median, lateral discoidal streak on both sides, a small oblong obliquely longitudinal spot behind the lateral oblique median impression, also a streak near the lateral margins of the thorax, three median longitudinal lines (the middle one near the apex of the scutellum the lateral ones abbreviated in the middle of the scutellum), all reaching the base, the lateral ones slightly converging backwards, four small basal spots situate towards the sides, an obliquely longitudinal line abbreviated on both sides, situate behind the exterior basal spot and two small spots placed behind the middle of the scutellum, an irregular spot on the first dorsal segment of the abdomen, two lines (one interior, the other exterior) also two spines on the first pair of femora, an abbreviated upper anterior line on the posterior femora and an indistinct band near the apex of the posterior tibiæ, blackish. A median band and lateral spot (sometimes very obsolete) on the dorsal segments of the abdomen, fuscous-testaceous: tegmina and wings somewhat sordidly vitreous: veins fuscous, olivaceous-virescent towards the base; the apex of the exterior ulnar vein flavescent at the costa; the two exterior anastomoses with a fuscous limbus.

♂ Apical angles of the last dorsal anal segment produced in a long lobe, gradually acuminate, the lobes below and towards the apex fuscous, inferior anal segment obtusely emarginate at the apex: opercula about one-third shorter than the abdomen, beyond the middle towards the apex gradually, thence more abruptly narrowed, inwardly behind the middle rounded, outwardly straight, rounded at the apex, olivaceous-flavescent: second ventral segment armed at the apex in the middle of the sides with a much elevated tubercle. Head equal in breadth to the



posterior part of the thorax, anteriorly very obtusely rounded: frons seen from above truncated, scarcely prominulous before the juga, slightly convex, sides distinctly furrowed: thorax somewhat narrowed forwards beyond the middle, thence forming an angle prominulous in a minute tooth, anteriorly more narrowed: tegmina extending beyond the abdomen by half their length; the first anastomosis rather oblique, interior ulnar area gradually very slightly narrowed towards the apex, much obliquely truncated at the apex, interior apical angle obtuse, somewhat rounded: first pair of femora bi-spinose beneath (*Stål*).

46. *COSMOPSALTRIA SITA*, Distant.

J. A. S. B. liii, (2), p. 226, no. 55.

♂ Head, frons with a central fascia furcate anteriorly and an oblique spot on each side at the base; vertex with a large triangular spot inclosing the ocelli and an irregular longitudinal fascia near the inner margin of the eyes, black: pronotum with two central longitudinal fasciæ joined and rounded near posterior margin, widened and angulated near anterior margin, on each side of these is a small discal waved line and two oblique fasciæ near the lateral margins (the outer one submarginal and rounded) black: mesonotum with a central longitudinal fascia, on each side of which is a clavate, smaller and suboblique fascia, followed by two linear spots on the anterior margin and a discal waved irregular fascia on each side. Abdomen with the segments (excluding first) more or less piceous at the base and with a lateral segmental row of piceous spots: body beneath ochraceous and unicolorous. Tegmina and wings pale hyaline, the former with the venation of the basal half, ochraceous, and of the apical half, fuscous; transverse veins at the base of the 2-3 apical areas, fuscous-ochraceous at the junction. The head, including the eyes, is considerably narrower than the base of the pronotum, the face is only moderately convex, furrowed from beyond the middle, the sides distinctly striated (the face has also an oblong spot bordered with black at the base and the upper striæ are also of that colour). Opercula reach the third abdominal segment, they are moderately truncate outwardly, widened and angulated inwardly (but not meeting) on the first abdominal segment and then diverging and narrowing to the apex which is obtuse and rounded; the inner margin is slightly convex: rostrum reaching a little beyond the last coxæ: anterior femora with two strong spines (*Distant*).

47. *COSMOPSALTRIA DURGA*, Distant.

J. A. S. B. liii, (2), p. 226, no. 56.

♂ Head, pronotum, and mesonotum dull ochraceous: head with the following black markings; an irregular spot on the frons, a large central



fascia on the vertex, reaching from the anterior to the posterior margins, produced on each side in front, enclosing the ocelli; a curved fascia a little before the inner margin of the eyes, and a subtriangular spot on the apex of the lateral margin: pronotum with the anterior margin (narrow), a central longitudinal fascia, bordered with black on each side, and a triangular fascia on each lateral margin, pale ochraceous; two narrow oblique fasciæ on each side, a narrow longitudinal fascia on each side of the disc, inner posterior, and inner and outer lateral margins, black: mesonotum with a clavate central longitudinal fascia, bounded on each side by a shorter, broader, and much angulated one, followed by an elongated spot and by a sublateral broad fascia, broken near the anterior margin, two rounded spots near the base, and two smaller ones on the anterior branches of the cruciform elevation at the base: abdomen pale castaneous, disc piceous, gradually widening from the base to the apex, where it is wholly black. Underside of the body ochraceous and unspotted; a black spot on the inner margin of the eyes, anterior tibiæ and tarsi, apices of intermediate tibiæ and tarsi, and apex of the rostrum, piceous. Opercula pale greenish: tegmina and wings pale hyaline, transverse veins at the bases of the second and third apical areas, infuscated. Face broadly sulcated in the centre, and transversely striated (many of the striæ black); rostrum passing the posterior coxæ, and reaching the inner angles of the opercula. Opercula reaching the second abdominal segment, the outer margins subparallel with the lateral abdominal margins, hipped and widest (but not meeting) near the bases of the femora, from thence diverging and gradually narrowing to the apex, which is obtusely angulated: anterior femora with two long and prominent teeth, and a shorter one near the apex. Posterior tibiæ with three inner and two outer long marginal spines (*Distant*).

48. *COSMOPSALTRIA OOPAGA*, *Distant*.

J. A. S. B. liii, (2), p. 227, no. 58.

Head dull ochraceous: posterior lateral margins of the frons black; the two basal ocelli surrounded with black, which extends to the posterior margin: pro- and mesonotum pale olivaceous; pronotum with a central longitudinal ochraceous fascia, bordered with black, which is widest anteriorly, and rounded, with the black lines continuous posteriorly; mesonotum with two obconical spots, bordered with black on the anterior margin, followed by a small black spot, and an anterior lateral fascia; a curved basal fascia and a small spot on each frontal side of the cruciform elevation, of the same colour: abdomen dull ochraceous, inclining to olivaceous, with the lateral side sparingly covered with greyish pubescence, and with an indistinct lateral segmental row of fus-



cous spots. Underside of the body, pale ochraceous or olivaceous: tegmina and wings pale hyaline: the body is broad and somewhat depressed, the abdomen narrowing at the apex: the head, including the eyes, is narrower than the base of the pronotum, and but little wider than the mesonotum: the rostrum about reaches the apex of the first abdominal segment: the opercula, which almost reach the apex of the fourth abdominal segment, are situate on the lateral side of the abdomen, much wider apart at the base than at the apex; they are concavely narrowed on each side near the base, and are there widened and convex on each side to the apex, which is broad and rounded; the extreme apex beng on the outer margin. The face is tumid with a curved black fascia at the base, and a central longitudinal furrow; it is profoundly transversely striated, the interstices being very broad (*Distant*).

49. *COSMOPSALTRIA FLAVIDA*, Guérin.

J. A. S. B. liii, (2), p. 227, no. 60.

Yellow-virescent: head yellowish-green with a brown spot on each side of the labrum and in front and another blackish spot in the middle between the eyes which are red: the pronotum is broader behind, of the same colour as the head, with a transverse groove rounded at the ends and two oblique grooves in front; the posterior margin after the groove is flat, wrinkled transversely, bordered brown, also two triangular spots placed in its midst and two lines on the anterior margin but not reaching the middle: mesonotum tumid, smooth, with two deep hollows on the posterior and lateral margins, emarginate behind; above and at its junction with the pronotum are four angular brown spots, a longitudinal line and two arcuate spots on the dorsum and four rounded spots behind, brown: abdomen yellowish-green, the middle slightly red and the posterior margin of the segments finely edged with black, covered with a silvery white pubescence. Tegmina and wings transparent, veins yellow and in some places, brown; a row of seven small round brown spots on the external margin of the tegmina (and four on the anastomoses) larger and deeper posteriorly: body beneath more yellowish than above with portions greenish: tip of rostrum black, reaching the posterior coxæ: opercula small, bordered outside with black: femora yellow (anterior pair excepted which have beneath two small spines and the tips, black); tibiæ yellow with base and tip blackish; tarsi brown: oviduct ♀ orange yellow (*Guérin*).

50. *LEPTOPSALTRIA GUTTULARIS*, Walker.

J. A. S. B. liii, (2), p. 227, no. 61.

♀ Testaceous varied with green, beneath mostly pale green: head with a 4-forked mark about the ocelli, two transverse streaks on each



side, sutures on the face and three streaks on each side, black : a band in front on the pronotum also two stripes which approximate in the middle and three streaks on each side where there is an acute angle in front, a median stripe and five streaks on each side on the mesonotum, four spots on the pectus, and abdomen partly beneath towards the tip, black : tegmina and wings vitreous, veins testaceous, black towards the tips ; tegmina with a whitish stigma, tips and transverse veins and tips of the marginal veins clouded with brown.

51. LEPTOPSALTRIA ALBIGUTTA, Walker.

*Dundubia albigutta*, Walker, J. Linn. S. Zool. i, p. 83 (1856).

Green, partly testaceous : two lines forming an angle, in front of the ocelli, borders of ocelli, a line on each side of the fore margin of the head, transverse lines along most of the ridges on each side of the frons, and two tubercles on each side of the abdomen beneath, black : opercula small rounded : tegmina and wings vitreous ; the former slightly clouded brown at the tips ; a whitish spot on the costa at the tip of the first apical area ; first and second transverse veins with brown spots (*Walker*). Body long, 18—19 ; exp. teg. 67 millims.

Reported from Malacca, Singapore,

52. COSMOPSALTRIA ANDERSONI, Distant.

*Cosmopsaltria andersoni*, A. M. N. H. (5 ser.) p. 170 (1883).

♂. Head olivaceous ; lateral margins of the frons, area of the ocelli and a small spot on each side of the same, black : pro- and mesonotum olivaceous, the former with a central, longitudinal, ochraceous band, bordered with black, widest anteriorly and compressed about the centre and with a small curved black line behind the eyes : mesonotum with two obconical spots bordered with black on the anterior margin, on each side of which is a small discal black streak and a curved black spot on each side of the base near the anterior angles of the cruciform elevation, which are also black : abdomen dull, dark ochraceous : underside of body pale ochraceous ; annulation on the anterior femora near their apices, upper surfaces and apices of anterior tibiæ, bases and apices of intermediate and posterior tibiæ and tarsi, apex of rostrum, and apical portion of last abdominal segment, black : tegmina and wings pale hyaline, the first with the costal membrane and the basal portion of the venation, ochraceous ; the remaining portion of the venation more or less shaded and marked with the veins black or olivaceous, and with a black claval streak : wings with the veins black or olivaceous, outer claval margin and an inner claval streak fuscous. The body is broad and



somewhat depressed, the abdomen above moderately pilose: the head, including the outer margins of the eyes, is subequal in width or a very little narrower than the base of the pronotum: the rostrum about reaches the middle of the first abdominal segment: the opercula are long, strongly compressed and sinuate near the base, and then widened and convex on each side, but narrowing at their apices which reach the base of the last abdominal segment: face swollen and tumid with a narrow median longitudinal groove and strong transverse striations, the interstices of which are very broad. Allied to *C. oopaga*, Distant, from which its smaller size and the greater length of the opercula at once distinguish it (*Distant*). Long, 32; exp. teg. 88 millims.

Reported from Mergui.

#### Genus POMPONIA, Stål.

J. A. S. B. liii, (2), p. 228.

Stål distinguishes the subgenera *Pomponia* and *Oncotympana* thus:—

*Pomponia*—Abdomen in ♂ longer than the head, thorax and scutellum taken together, the first segment occupying the fifth or sixth part of the abdomen, posterior margin straight or somewhat rounded, the anterior lateral lobes moderate, not or very slightly convex, covering only a part of the tympana, space between these lobes broad or somewhat so: last ventral segment acutely dentate on both sides at the apex. (*P. fusca*, Olivier).

*Oncotympana* Abdomen in ♂ short, shorter or only as long as the head, thorax and scutellum taken together; first dorsal segment occupying about one-third of the abdomen, posterior margin more or less distinctly sinuated; anterior lateral lobes very large, covering the entire tympana, convex, broader than the space lying between them: last dorsal segment in ♂ obtusely rounded on both sides at the apex (*P. pallidiventris*, Stål).

#### 53. POMPONIA URANIA, Walker.

J. A. S. B. liii, (2), 228, no. 62.

♂ Body somewhat fusiform, ferruginous, partly whitish pubescent: head and pronotum tinged with green: rostrum tawny, tip black, reaching beyond the posterior margins of the opercula: antennæ tawny: posterior lobe of the pronotum bright green, partly ferruginous along the fore border no tooth: mesonotum green on each side and at the tip, cross-ridge pale tawny: abdomen green, powdered white beneath, and at the base a short snow white band which forms two triangles: drums pale tawny, close; opercula of moderate size slightly overlapping, full one-



fourth of the length of the abdomen: legs tawny, tinged green; first femora with three tawny teeth, two large, one very small, claws black, tawny at the base: tegmina colourless, slightly tinged with tawny towards the tips, a row of pale brown spots along the tips of the longitudinal veins of the apical areas; first and second transverse veins clouded brown with traces of it on the others; costal margin green to the stigma, dark tawny thence to the tip; veins green, with black bands across the breadth beneath the brand, wholly black towards the tips: basal cellule, flaps at the base and for a space along the hind border, tawny.

#### 54. POMPONIA BINDUSARA, Distant.

J. A. S. B. liii, (2), p. 228, no. 63.

♂ Body above pale ochraceous; head with the lateral margins of the front bordered with black striæ, and with two contiguous black spots on the disc; two oblique striæ on the lateral margins of the vertex and the area of the ocelli black: pronotum with two central longitudinal fasciæ, narrowed, joined and rounded on the posterior margin, widely divergent and terminating on the anterior margin, a small curved fascia on each side of the disc and oblique striæ also, black: mesonotum with a central fascia, a shorter and more oblique one on each side, followed by an elongate spot on the anterior margin, and a long, somewhat broken, submarginal fascia, black; two rounded spots in front of the cruciform elevation, and two smaller ones on the anterior branches of the same, also black: abdomen somewhat thickly covered with pale pubescence, with a series of discal segmental markings, two large spots near the lateral margins of the third and fourth segments, and a lateral segmental row of small spots, black. Underside of the body pale ochraceous: apical disc of the abdomen, black: tegmina and wings pale hyaline; transverse veins, at the bases of the second and third apical areas, slightly infusate: face convex: apical two-thirds with a narrow central furrow transversely striated, the striæ black near the middle. Rostrum slightly passing the posterior coxæ, its apex black: opercula small, posterior margins obtusely angulated, and reaching the base of the first abdominal segment, widened and obtusely angulated, but not meeting inwardly: posterior tibiæ with three inner and two outer marginal spines: anterior femora with two long and prominent spines (*Distant*).

#### 55. POMPONIA KAMA, Distant.

J. A. S. B. liii, (2), p. 228, No. 65.

♀ Head, pronotum and mesonotum greenish: head with the lateral sides of the frons, black: vertex with two transverse lines on the lateral



margins, somewhat connected inwardly by a short oblique fascia and the area of the ocelli, from which proceed two narrow fasciæ to the posterior margin, black: pronotum with a median, black, clavate fascia, of which the middle is ochraceous, widest and much angulated at the anterior margin, narrowest and somewhat acutely pointed on the posterior margin; an arcuated narrow fascia on each side of the disc; oblique striæ pale fuscous; lateral submarginal striæ black, and an oblique fuscous spot on the lateral margins; posterior margin narrowly edged with black: mesonotum with two large obconical spots margined with black, and a large  $\surd$  fascia in front of the anterior angles of the basal cruciform elevation: tympana pale greenish, fuscous anteriorly, and bright cretaceous-white near the lateral margins: abdomen castaneous, lateral margins of the basal segment bright cretaceous-white. Body beneath with the head, sternum, and opercula greenish; abdomen castaneous: legs greenish; apices of tibiæ and tarsi and tarsal claws, black: tegmina pale fuscous hyaline; anatomoses and apices of the lateral veins at the margin broadly infusate, and a blackish spot near the termination of the radial, vein: wings pale hyaline: face broad, convex, the middle blackish, and with a central longitudinal impression, and transverse striations: rostrum with the apex black, and just passing the posterior coxæ: opercula very short, not reaching the base of the first abdominal segment: abdomen beneath deeply furrowed at the lateral margins, the disc somewhat gibbous: head, including the eyes, narrower than the base of the pronotum, about equal to the base of the mesonotum (*Distant*).

#### 56. POMPONIA MADHAVA, *Distant*.

J. A. S. B. liii, (2), p. 229, no. 66.

♂ Body pale greenish: abdomen with a lateral row of three large, oblong, spots, only denoted by their darker green margins, occupying the lateral sides of the first three segments; segmental incisures narrowly dark greenish: ocelli red; eyes fuscous: mesonotum with two very faint obconical spots. Body beneath pale greenish: legs and rostrum pale ochraceous: tegmina and wings pale hyaline; the first with the costal membrane and the veins pale greenish: the head, including the eyes, is narrower than the base of the pronotum; the face is broad and convex, with a broad central longitudinal impression and strong transverse striations; the opercula are small, not reaching the apex of the metasternum; the second and third abdominal segments beneath are rounded, produced, and pointed anteriorly; the rostrum reaches the posterior coxæ (*Distant*).



## 57. POMPONIA LINEARIS, Walker.

J. A. S. B. liii, (2), p. 228, no. 64.

♂. Body tawny beneath: head and pronotum piceous, with indistinct tawny marks, chiefly along the sutures; face piceous towards the rostrum, which is tawny with a black tip that extends to the posterior margins of the opercula: antennæ black: pronotum with six pale tawny stripes which proceed from the fore border to the disc: pectus green: abdomen ferruginous, segmental incisures black: the tympana dark ferruginous; opercula green, rather large, hardly apart: legs tawny; fore femora with two sharp tawny teeth; tips of feet and of the claws black: tegmina with an indistinct tawny tinge, slightly coloured with green, pale brown and marked with black at the base, costal margin greenish, transverse veins clouded brown; a row of small brown spots on the tips of the longitudinal veins of the apical areas; veins with alternate black and pale yellow bands; veins of the wings tawny, transverse veins darker; flaps pale brown at the base.

## 58. POMPONIA IMPERATORIA, Westwood.

J. A. S. B. liii, (2) 229, no. 67.

Luteous-fulvous: head and dorsum of thorax with very many black spots varying in size and form; mesonotum with a trifid mark: sides of pronotum emarginate and angulate in the middle: abdomen brunneous, sides paler, a spot on both sides on each segment, black: wings yellowish hyaline, veins fulvous: subapical transverse veins on the tegmina, clouded fuscous, and seven spots towards the margin, fuscous (*Westw.*)

## 59. POMPONIA TIGROIDES, Walker.

*Dundubia tigroides*, Walker, *Ins. Saund.* p. 5 (1858).

*Pomponia tigroides*, Distant, J. A. S. B. xlviii, (2), p. 38 (1879); liii, (2), p. 229 (1884), no. 69.

♀. Green, partly testaceous: head with minute black marks in front and on each side and with a large black spot on the vertex: pronotum with six black stripes; the inner pair dilated at each end, the middle pair oblique, the third pair marginal; a curved brown discal streak on each side between the first and second pairs: mesonotum with five black stripes which are slightly dilated posteriorly, outer pair curved posteriorly, two black dots on the posterior margin: abdomen with a black lanceolate mark on each of the first and second segments, with black dots along each side and with a black subapical band: costa of tegmina green, luteous beyond the middle, stigma black with a pale band, veins



green, partly black, first and second transverse veins very slightly clouded with brown (*Walker*). Body long, 23 ; teg. 54 millims.

Differs from *D. tigrina*, Walker, by the outward curve of the exterior stripes on the mesonotum, by the spots and band of the abdomen and by the first transverse vein of the tegmina, which is slightly oblique outwards, whereas that of *D. tigrina* is very oblique inwards.

Reported from India, Tenasserim.

#### 60. POMPONIA EXPANSA, Walker.

*Carineta expansa*, Walker, Ins. Saund. Hom. p. 26 (1858) ; Signoret, B. S. E. F. (6 sér.) i, p. xli (1881).

*Pomponia expansa*, Stål, Berlin Ent. Zeitschr. x, p. 171 (1866).

♂. Black, short, pilose, very broad : head with two green spots on the vertex ; frons with a green stripe and with lateral transverse testaceous streaks : pronotum with two angular green stripes in the middle and with a curved stripe on each side ; borders testaceous-green with two black spots on each side : mesonotum with various dorsal testaceous marks ; borders green : abdomen blackish-brown ; dorsal and ventral operculas testaceous, with dusky borders, the latter very broad, about half the length of the abdomen : legs testaceous, striped with black : wings vitreous, veins tawny here and there green, partly bright pale green at the base : tegmina with a pale green stigma, a brown spot near the tip of each marginal vein ; transverse veins clouded with brown, first and second slightly oblique and curved, first parted from the second by a little more than twice its length, the third and fourth nearly straight (*Walker*). Body long, 27 ; teg., 96 millims.

Reported from India, China.

#### 61. EMATHIA ÆGROTA, Stål.

J. A. S. B. liii, (2), p. 229, no. 69.

♂. Very pale olivaceous, sparingly greyish-sericeous : a median streak amplified forwards and posterior limb of thorax, four triangular spots reaching the base of the scutellum (the median small, the lateral spots large), also the dorsum of the abdomen, subtestaceous : tegmina and wings, vitreous ; veins pale olivaceous-virescent, fuscous towards the apex ; a spot on the two exterior anastomoses and a subapical spot at the exterior margin of the tegmina, fuscous ; the first anastomosis of the wings margined with fuscous, the veinless margin inwards at the anal area and the anal area at the base, fuscous : streaks on the femora and apex of tibiæ fuscous. In the ♂, the opercula are small, oblique, oblong and the first ventral segment is triangularly elevated between the



opercula. The head is scarcely broader than the apex of the thorax; the vertex scarcely more than twice as broad as the eyes; frons prominulous. Ocelli somewhat more distant from each other than from the eyes. Thorax either somewhat amplified forwards or with the sides parallel, abruptly amplified at the base. First pair of femora trispinose (*Stål*).

#### Genus RUSTIA, Stål.

Hem. Afric. iv, p. 8 (1866).

Head as broad as the anterior lobe of the thorax, anterior margin deeply incised between the frons and the freely prominulous lobes of the vertex, lateral part which bears the semiglobose eyes turning somewhat upwards: rostrum short: ocelli twice as distant from each other as from the eyes; eyes remote from the base of the head: the part of the thorax lying before the transverse impression more than twice as long as the posterior part: tympana entirely visible; anterior margin of the sides of the first dorsal segment of the abdomen neither produced nor sending forwards a lobe; ulnar veins of the tegmina distant at the base; wings with five apical areas: first pair of tibiæ not produced in a spine beyond the insertion of the tarsi (*Stål*).

#### 62. RUSTIA PEDUNCULATA, Stål.

*Rustia pedunculata*, Stål, Berlin Ent. Zeitschr. x, p. 383 (1866).

♀. Testaceous-flavescent: clypeus, lores, genæ (except the ocular part), ocellar area, six streaks on the thorax (median pair and the intra-marginal lateral pair narrow), five streaks on the scutellum (the median streak and lateral pair elongate), black-fuscous: the dorsum of the abdomen with obsolete fuscous streaks: tegmina and wings vitreous, veins fuscous, costa and the radial vein yellow-olivaceous, interrupted sub-apical band (which is dentated posteriorly) on the tegmina, fuscous: last dorsal segment of the abdomen, fuscous; an obsolete median streak and the sides, testaceous-flavescent, the sides with a fuscous spot: last ventral segment very slightly and very broadly sinuated at the apex. Vertex thrice as broad as the eyes: ocelli twice as distant from the eyes as from each other: lateral margins of the thorax parallel, abruptly amplified at the base: interior ulnar area of the tegmina slightly narrowed towards the apex, first apical area longer than the second, seventh and eighth apical areas of equal length, somewhat small: first femora 3-spinose, the subapical spine minute (*Stål*). Long, 13; exp. teg. 31 mil-lims.

Reported from Cambodia.



Genus *CICADA*, Linnæus, Stål.

J. A. S. B. liii, (2), p. 229.

This is one of the oldest names in the order and has suffered so many changes by the creation of new genera that it would be unprofitable to trace back its history. Taking the changes of the last quarter of a century, we find that in 1866 Stål added *Leptopsaltria*, *Cosmopsaltria*, and *Pomponia* to the *Dundubia* group. The *Cicada* group including *Fidicina* was increased in 1861 (A. S. E. F. (4 sér.) i, p. 613) by *Psaltoda*, *Cryptotympana*, *Tympanoterpes*, and *Selymbria*, and, in 1864, by *Proarna*. In 1862, Stål (Rio. Jan. Hem. p. 19) distributed the species of *Cicada* proper amongst the subgenera *Cicada*, *Taphura*, *Parnisa*, *Calyria*, and *Prunasis*. All of these were raised to the rank of genera in 1866 (Hem. Afric. iv, p. 8) and, excepting *Cicada*, were thrown into the *Tibicen* group. To the *Cicada* group were added *Henicopsaltria*, *Nosola*, and *Emathia*, in 1866; and to the *Tibicen* group, *Henicotettix* in 1858; *Pydna*, *Stagira*, *Callopsaltria*, and *Tympanistria*, in 1861; and *Rustia* and *Bæturia*, in 1866. In 1870, Stål still further divided the species of his restricted *Cicada* in establishing the subgenera *Chremistica*, *Macrotristia*, *Cicada*, and *Diceroprocta*. I doubt much whether any of those Indian species which still bear the generic name *Cicada* really belong to that genus: if they do, they belong to the subgenus *Cicada*, which has the sides of the thorax anteriorly without a lobe; the sides of the last dorsal segment in ♂ posteriorly unarmed, very often produced in an acute tooth in the middle; the sixth ventral segment in ♀ broadly, angularly sinuated at the apex; and the interior ulnar vein straight or but slightly curved. This question can only be settled by an examination of the types.

63. *CICADA* (?) *FERRUGINEA*, Olivier.

J. A. S. B. liii, (2), p. 230, No. 74.

Entirely ferruginous, clouded brown: tegmina and wings of a deep colour, the posterior margins light and transparent (*Olivier*).

64. *TIBICEN* (?) *AURATUS*, Walker.

J. A. S. B. liii, (2), p. 230, no. 72.

♂. Body black, densely tawny pubescent, pale tawny beneath: a band in front of the head, three spots in the ocellar area, face and rostrum, tawny: disc of face, tip of rostrum which reaches the intermediate coxæ and the antennæ, black: anterior lobe of pronotum with the borders and a short stripe, behind which are two triangular spots resting on the hind border; posterior lobe and two stripes on the mesonotum amplified in the middle and its posterior margin,



tawny: abdomen velvety black with patches of golden hairs: [tympana uncovered, tawny, rather large; opercula pale tawny, small, wide apart?]: tip of abdomen tawny, with a horn of the same colour: legs yellow; femora striated black; tips of the tibiæ and of the feet, black; claws black, tawny at the base; fore-femora with three robust black teeth; fore-tibiæ mostly black: tegmina colourless, pale buff and marked with buff at the base; costal margin bright rosy red, darker towards the tips, black on the stigma; veins tawny, black towards the tips; first and second transverse veins and the longitudinal vein between them, clouded black: veins of the wings pale tawny with black tips and the tips of the flaps clouded brown. In the ♀ the abdomen is a little longer and more pointed than in the ♂.

*Species of doubtful position.*

*Cicada rugipennis*, Walker, Ins. Saund., p. 17 (1858).

♂. Luteous-testaceous, stout: pronotum much broader behind than in front, sides straight, sutures strongly marked: abdomen with a blackish band on the fore border of each segment: wings white, rather broad, very stout and rugulose: tegmina slightly rounded in front, costa and veins reddish, the latter black at the tips; 1-3 transverse veins and most part of the intermediate veins, clouded black: wings with a short angular band in front at two-thirds of the length. Body long, 29½; teg. 84 millims.

Reported from India.

*Cicada delineata*, Walker, Ins. Saund., p. 17 (1858).

♀. Black, testaceous beneath: ocellar space and two irregular stripes on the head, the frons, margin of pronotum, six irregular stripes on the mesonotum and a spot and dot on each side in front between the intermediate and exterior pair of stripes, a band on the posterior margin of each abdominal segment and the abdomen for the most part beneath, legs, and veins on the tegmina towards the base, testaceous: transverse streaks on the frons, six various stripes on the pronotum and the sutures in part, also three spots on each side, stripes on the femora and tibiæ and veins of the tegmina above the base, black: tegmina and wings vitreous. Body long, 21; teg., 63 millims.

Reported from India.

*Cicada subvenosa*, Walker, Ins. Saund., p. 18 (1858).

♂. Pale testaceous: greatest part of the vertex, 2-4 stripes on the pronotum, also a dilated spot by the border, four stripes on the mesonotum of which the middle pair are short and two dots behind these



and a spot at the base of the abdomen, black: pronotum a little broader than the head with a brown spot on each side hindward; the outer pair of black spots on the mesonotum contain between them some forked testaceous lines: tegmina and wings vitreous, veins pale testaceous, the first and second veins of the tegmina slightly clouded brown. Body long,  $14\frac{1}{2}$ ; teg. 38 millims.

Reported from India.

*Cicada strigosa*, Walker, Ins. Saund., p. 19 (1858).

♂, ♀. Black: transverse lines on each side of the face, a stripe on the pronotum, the abdomen beneath more or less, greatest part of the femora, a band near the base on the tibiæ, testaceous: tegmina and wings vitreous, with a very oblique interrupted brown band which extends along the transverse veins; veins testaceous, black towards the tips: the basal area and the base of the sixth ulnar area, clouded brown and with a short brown band which extends across the tip of the front area; a brown mark at the tip of the first apical area: abdomen in ♂ with three stout spines at the tip. Body long,  $14\frac{1}{2}$ ; teg., 38 millims.

Reported from India.

*Cicada virguncula*, Walker, J. Linn. S. Zool. i, p. 84 (1856).

Green: head small: drums very small: abdomen luteous above at the base, hind borders of the segments, luteous: wings vitreous; costa and veins green. Body long,  $13\frac{1}{2}$ ; teg. 35—36 millims.

Reported from Singapore, Malacca.

#### Genus CICADATRA, Amyot.

A. S. E. F. (2 sér.) v, p. 152 (1847): Fieber, Rev. Mag. Zool. (3 sér.) ii, p. 338, t. 3, (1875).

In A. S. E. F. (4 sér.) i, p. 617 (1861), Stål unites *Tettigia* and *Cicadatra* and makes them subgenera of the united genus. Fieber (l. c.) keeps them separate and describes *Cicadatra* as having the anterior femora trispinose: pronotum trapezoidal: covering of the drums semioval or broadly triangular, concealing more or less the drums, and moreover a subulate projection or point: the genital sheath (*porte-pénis*) in the ♂ is corneous, elongate or linear and has at the tip a bundle of ribbon-shaped white or brownish appendages with numerous points: the two sectors spring each from one of the angles of the short basal cellule of the tegmina, the angles separated by a short, oblique, vein: rostrum reaching only the middle or the usually convex end of the mesosternum. In *Tettigia*, the anterior femora are bispinose: pronotum trapezoidally broadened backwards: the drums almost covered by a broad semioval plate: the genital sheath in ♂ is corneous and ends in two horns, in-



curved towards the base : the two sectors spring from the elongated basal cellule at a right angle, the exterior sector rising at the internal inferior angle, the other a little higher at the tip of the short, oblique, intermediate vein : the rostrum long, reaching the first ventral segment, basal joint prominulous, third joint about  $3\frac{1}{2}$  times longer than the second, clypeus long, triangular, acute, four-fifths of the length of the frons : space between the scrobe and the eye almost twice as large as the scrobe : mesosternum broadly triangular, convex with a short and weak apical groove : metasternum in the ♂, obtuse, quadrangular, free.

#### 65. *CICADATRA STRIATA*, Walker.

J. A. S. B. liii, (2), 229 no. 71 : liv, (2), 116.

♀. Body tawny : head with a broad, slightly interrupted black band ; face convex, with a row of black bands on each side : rostrum tawny, piceous towards the tip, reaching the hind coxæ : pronotum partly black above, with a short, broad, yellow stripe in the middle : mesonotum mostly occupied by four very broad black stripes, the lateral much longer than the median pair and with two tawny streaks : abdomen mostly piceous above : legs tawny : first femora with three rather long teeth : tegmina and wings colourless, veins tawny, black towards the tips ; the first and second transverse veins clouded with brown : fore-flaps tawny, tips of hind-flaps, brown. Body long,  $16\frac{3}{4}$  : exp. teg. 44 millims.

#### 66. *CICADATRA XANTES*, Walker.

J. A. S. B. liii, (2), p. 230, no. 75 ; liv, (2), p. 117.

♂. Body tawny : vertex with two very large black spots ; face red above with a piceous stripe in front : rostrum tawny, tip black, reaching the intermediate coxæ : antennæ tawny, piceous at the bases and tips : pronotum with a yellow stripe on each side of which there is a short, slightly curved stripe and a small spot on the hind border, piceous : mesonotum with four black obconical stripes, the middle pair rather less than half the length of the outer pair and so close together that they almost appear united ; behind them are two piceous spots which join the cross-ridge which is ferruginous and small : abdomen ferruginous with a piceous stripe which tapers from the base to a little beyond the middle and then disappears : drum-covers pale tawny, very small, not half covering the tympana which are ferruginous ; the opercula bright tawny, rather narrow, of moderate size, about one-third the length of the abdomen : legs tawny ; femora striated ferruginous ; tips of claws black fore tibiæ and feet ferruginous ; fore femora with two rather long ferrugi-



nous teeth : tegmina colourless, veins yellow, on the costal margin a black vein is enclosed between two yellow veins and extends to the pale yellow stigma : flaps with a tawny tinge at the base and along part of the middle vein.

67. *CICADATRA QUADRIMACULA*, Walker.

J. A. S. B. liii, (2), p. 233, no. 93 ; liv, (2), p. 117.

♂. Body bright tawny, scarcely pubescent : head, rostrum (base excepted), antennæ, black : pronotum with a slightly curved stripe on each side, two triangular spots on fore border, three small spots on hind border, and some indistinct marks on the disc, black : mesonotum with four very large black spots of which the outer pair are obconical, slightly oblique, widened to each other at the base, on the inner side slightly emarginate by a very slender short oblique tawny stripe, the third spot much shorter and apparently divided into two U-shaped spots, the fourth behind the third, quadrate, with a slender cone on its fore border : a large spot on each side at the base of the antennæ, a small one in front of the head and three along the hind border, and the base of the rostrum, tawny : abdomen black above, posterior dorsal margins of the segments with an interrupted reddish band, a broad pale tawny band near the tip, horn pale tawny ; beneath piceous, posterior margins of the ventral segments, ferruginous, tip pale tawny : drum-covers very small, pale tawny, with blackish discs partly covering the tympana, which are greyish ; opercula bright tawny, small, far apart : legs tawny : coxæ, posterior femora and last tibiæ striped black ; claws ferruginous ; first femora black with a tawny spot near the tip and with three robust black teeth ; first tibiæ black with a slender tawny band near the base, middle pair black ; first and middle feet, piceous ferruginous at the base, last pair tawny with piceous tips : tegmina whitish, pale tawny and marked with black at the base, costal margin bright tawny, stigma pale brown, veins pale tawny, black towards the tips first and second transverse veins and the space between them and the costal margin clouded very dark brown ; fore-flaps pale tawny : wings with the first and second transverse veins and the space between them clouded very dark brown, flaps white at the base and along some part of the hind border.

Genus *CRYPTOTYMPANA*, Stål.

J. A. S. B. liii, (2), p. 230.

Head very broad, about as broad as the thorax ; frons occupying about a third part of the breadth of the face : thorax very slightly am-



plified backwards from the apex; the lateral margins dilated, straight, or slightly sinuated; anterior angles distinct; posterior limbus broad: scutellum posteriorly depressed, slightly sinuate at the apex: tegmina with eight apical areas, basal cell sending out two veins which are rather broadly distant: wings with six apical areas; abdomen obconical, tympana entirely hidden above by the very large lobe of the dorsal segment which is produced forwards: opercula large, flattish, contiguous inwards or slightly valvate: metasternum furnished with a stout process which is curvedly produced from the base backwards: first pair of femora beneath with two large spines and near the apex with an obsolete, obtuse, small tooth (*Stål.*)

68. CRYPTOTYMPANA RECTA, Walker.

J. A. S. B. liii, (2), p. 230, no. 77.

♀. Body black, short, broad, tawny pubescent in parts: rostrum black, tawny at the base, reaching the last coxæ: antennæ black: posterior lobe of the pronotum with two large tawny spots; the mesonotum with two small tawny spots near the middle of its posterior margin: opercula tawny, very small, wide apart: legs dark tawny; femora, especially the first and intermediate pairs, striped black; tips of the tibiæ, feet, and fore-tibiæ, black; first femora with three black teeth of which two are long and one is very small: tegmina colourless, green along the costal margin for half its length, dark brown thence to the tips, black towards the base, to this colour succeeds a small space having an opaline lustre; veins tawny, black towards the tips; the first and second transverse veins and the adjoining longitudinal veins are clouded dark brown; flaps black towards the base.

69. CRYPTOTYMPANA VICINA, Signoret.

J. A. S. B. liii (2), p. 230, no. 78: includes *Fidicina bicolor*, Walker, List Hom. B. M. iv, p. 1121 (1858), from Java.

Much smaller than *C. acuta*, Signoret, from which it differs only in the absence of patches on the pronotum and in the complete transparency of the wings in the external portion: the opercula are proportionately less elongate, but of the same form (♂).

70. CRYPTOTYMPANA IMMACULATA, Olivier.

J. A. S. B. liii, (2), p. 231, no. 79.

Black: wings, hyaline, spotless: abdomen black: opercula reddish: two spines on the first pair of femora, acute, larger than usual (*Olivier*). Head and thorax blackish brown, abdomen black; three red ocelli on



the head : opercula orange red : first pair of femora with two robust spines : tegmina and wings hyaline, immaculate, margin of the brown colour of the body beneath. Differs from *C. intermedia*, Signoret, in having the tegmina and wings entirely transparent, the opercula smaller though of the same colour, and the femoral spines apparently more robust. Body long, 50 : exp. teg. 112 millims.

#### 71. CRYPTOTYMPANA INTERMEDIA, Signoret.

J. A. S. B. liii (2), p. 231, no. 80.

Differs from *C. atrata*, Fabr., in the absence of patches on the pronotum and scutellum, whilst those on the head are larger : the brown basal patch on the tegmina is not so large and does not extend beyond the basal cell : opercula are altogether yellow and are larger, elongate, flattened, and with a rim : abdomen reddish yellow with a blackish band on each segment ; sides brown. From Tenasserim (*Walker*) ; China (*Signoret*, B. S. E. F. (6 sér.) i, p. xli, 1881) ; Java (*Sign.*).

#### 72. CRYPTOTYMPANA ATRATA, Fabricius.

*Tettigonia atrata*, Fabr., Syst. Ent. p. 681 (1775) ; Spec. Ins. ii, p. 321 (1781) ; Mant. Ins. ii, p. 267 (1787) ; Ent. Syst. iv, p. 24 (1794) ; Syst. Rhyng. p. 42 (1803).

*Tettigonia pustulata*, Fabr., Ent. Syst. iv, p. 20 (1794) ; Syst. Rhyng., p. 37 (1803).

*Cicada nigra*, Olivier, Enc. Méth. v, p. 750, t. iii, f. 5 (1790) : Stoll, Cig., p. 84 ; t. 22, f., 118 (1788), La Cigale Chinoise noire.

*Cicada atrata*, Germar, Thon's Archiv. ii (2), p. 55 (1830) ; Silb., Rev. Ent. ii, p. 68 (1834).

*Cicada atra*, Signoret, Rev. Mag. Zool., p. 406, t. 10, f. 1.

*Fidicina atrata*, Walker, pt., List Hom. B. M. p. 89 (1850).

*Cryptotympana nigra*, Stål, Hem. Fabr. ii, p. 6 (1868) ; Ofvers. K. V.-A. Förh., p. 714 (1870).

*Cryptotympana atrata*, Stål, A. S. E. F. (4 sér.) i, p. 613 (1861).

Entirely dull black ; the margin of the abdomen, especially of the last segment, testaceous : tegmina and wings whitish, black at the base, veins testaceous (*Fabr.*). This description is copied through all Fabricius' works and the reason for Stål giving in his later writings precedence to Olivier's name is not understood.

Black, varied with reddish yellow ; tegmina and wings hyaline varied with brown : head with a reddish longitudinal patch in the middle of the frons, ending below near the eyes and another transverse patch ; pronotum with a patch on each side on the posterior margin, 2-4 on the scutellum, one at each angle : tegmina and wings with a broad opaque, basal, brownish patch occupying the basal cell of the tegmina, which are in the opaque portion veined yellowish, and also in a part of the transparent



portion, but becoming obscure and black towards the apical anastomoses : abdomen black, margined yellow : opercula moderate, tumid, rounded, blackish-brown bordered with yellow : feet black, varied with yellow. Long. 47 : exp. teg. 134 millims.

Reported from China, Java, but likely to be found in India.

### 73. CRYPTOTYMPANA ACUTA, Signoret.

*Cicada acuta*, Sign., Rev. Mag. Zool. p. 409, t. 10, f. 3, 3 A (1849).

*Fidicina acuta*, Walker, List Hom. B. M. ii, p. 81 (1850).

*Fidicina nivifera*, Walker, l. c. p. 80 (1850).

*Cryptotympana acuta*, Stål, A. S. E. F. (4 sér.) i, p. 613 (1861) ; Ofvers. K. V.-A. Förh. p. 483 (1862) ; p. 714 (1870).

Black : two reddish brown patches on the pronotum and a yellow band on the posterior margin : mesonotum with six stripes, of which the two median are small : scutellum reddish : metanotum reddish on each side with two median patches : tegmina and wings brownish at the base, the external cellules and the two first anastomoses only being slightly smoky : abdomen with a large farinose patch on each side of the first three segments, which is only feebly indicated on the fourth, beneath black varied with red : opercula large, elongate, ending in a point and sinuate on the margins, entirely yellow : feet black, varied with yellow. Body long, 42 : exp. teg. 130 millims.

Reported from Java, Philippines, likely to be found in India.

### 74. CRYPTOTYMPANA CORVUS, Walker.

J. A. S. B. liii, (2) p. 231, no. 82 : liv (2), p. 117.

♀. Body black, short, broad, adorned here and there with patches of bright tawny down : a tawny spot on the face : rostrum and antennæ, black, the former reaching the hind coxæ : abdomen with a tawny spot on each side of the tip beneath : legs black ; femora striped tawny, hind tibiæ tawny, black at the base and at the tips : first femora with two long, black teeth : wings nearly colourless, with a slight pale brown tinge at the tips, very dark brown towards the base, costal margin dark brown, striped with green, veins black, greenish towards the base. Body, long, 36 : exp. teg. 113 millims.

### 75. CRYPTOTYMPANA BUBO, Walker.

J. A. S. B. liii, (2), p. 231, no. 81 : liv (2), p. 117.

♂. Body black, short, broad, shining, partly clothed with tawny down which forms patches on the thorax : head with five tawny spots in front, the largest on the vertex ; rostrum and antennæ, black : eyes



prominulous : the pronotum with two dark tawny spots near the hind border, posterior margin of posterior lobe dark tawny, and the mesonotum on each side with two tawny spots : abdomen obconical, a little longer than the thorax, with a dark tawny stripe along each side beneath : drums black, rather large ; opercula large, black, nearly half the length of the abdomen, irregularly triangular, tawny on the outer sides and at the tips, which are narrow and pointed : legs black ; femora tawny beneath except at the base and tips ; a slender tawny band near the base of each middle tibia ; hind tibiæ tawny, black at the base and at the tips ; a broad tawny band on each hind foot : first femora strongly bidentate : tegmina dark brown for half the length from the base, slightly tinged with brown thence to the tips, adorned at the base of each tegmen with a tawny spot, beyond which is a tawny stripe extending nearly half the length of the fore border ; veins tawny for half the length from the base, black from thence to the tips. ♀ has the abdomen much longer than the thorax. Body long 36—40 ; exp. teg. 117—118 millims.

#### 76. CRYPTOTYMPANA (?) INVARIANS, Walker.

*Fidicina invarians*, Walker, Ins. Saund. Hom. p. 11 (1858).

♀. Black : wings vitreous, black at the base ; veins reddish, partly black along the costa : tegmina with the first and second transverse veins black, very oblique, first very slightly clouded, the third and fourth undulating (*Walker*). Body long  $37\frac{1}{2}$  ; teg., 109 millims.

Reported from India.

#### 77. CRYPTOTYMPANA FACIALIS, Walker.

*Cicada facialis*, Walker, List Hom. B. M. Suppt. p. 30 (1858).

♂. Black, slightly clothed with pale golden pubescence on the borders of the segments : head with a luteous spot on each side in front between the eyes ; face with a luteous stripe, its lateral margins testaceous : abdomen with 2-3 slight tawny bands in the middle beneath : legs partly tawny, tegmina and wings vitreous, black at the base ; veins tawny, black at the tips, first and second transverse veins slightly clouded with black (*Walker*). Body long 37—38 ; exp. teg. 100—101 millims.

Reported from Siam.

#### 78. CRYPTOTYMPANA FUMIPENNIS, Walker.

*Fidicina fumipennis*, Walker, List Hom. B. M. Suppt. p. 17 (1858).

♂. Black : a streak on the head on each side before and behind, and an undulating streak on each side of the pronotum, ferruginous :



head here and there tawny pubescent: pronotum with a median stripe and hind border, tawny, the latter edged black: mesonotum with four tawny stripes, inner pair short, outer pair partly ferruginous: abdomen with a broad tawny stripe on each side at the tip: opercula acute, slightly falcate, extending to half the length of the abdomen, broadly tawny along the exterior side: legs partly tawny: tegmina and wings nearly vitreous in the middle, green towards the base, brown about the tips and along the external margin; veins green, black towards the tips; first and second transverse veins on the tegmina clouded dark brown (*Walker*). Body long, 22: exp. teg. 121—122 millims.

Reported from Siam.

#### Genus TIBICEN, Latreille, Stål.

J. A. S. B. liii, (2), p. 231.

Body oblong: head varying in breadth, rarely broader than the anterior margin of the thorax; frons slightly or moderately convex, occupying not more than half of the breadth of the face, furnished with a longitudinal groove: clypeus subacuminated at the apex or slightly truncated: rostrum short or moderate: ocelli remote from the base of the head: sides of thorax rarely a little dilated, very often convex, amplified posteriorly: costal margin of the tegmina not or towards the base only a little dilated, ulnar veins very often entirely distant, never contiguous; eight apical areas, first apical area extended farther forwards than the second: tympana entirely visible: anterior margin of the posterior part of the first dorsal segment of the abdomen not amplified in a lobe, straight: last ventral segment in ♀ deeply and broadly emarginated: opercula small or moderate, not valvate, rarely contiguous: first pair of femora spinose beneath (*Stål*). In *Hem. Afric.* iv, p. 26 (1866), *Stål* distributes the African species of this genus amongst the subgenera, *Abricta*, *Abroma*, *Quintilia*, and *Epora*, to which, in 1870, he added *Nelcynda*. The Indian species *T. brunneus*, *Fabr.*, belongs to the subgenus *Abricta* and *T. apicalis*, *Germar*, to *Abroma*.

#### 79. TIBICEN AURENGZEBE, Distant.

J. A. S. B. liii, (2), p. 231, no. 83.

♂. Body above dull ochraceous. Head with the front margined anteriorly by two narrow black striæ; ocelli narrowly margined with black; eyes pale ochraceous: pronotum with a central longitudinal sulcation, bordered with a small fuscous spot on each side at the anterior margin, starting from a wide, transverse, and somewhat raised base, on the middle of which is a fuscous spot; oblique striæ narrowly fuscous;



lateral anterior and posterior margins much paler: mesonotum with two short obconical median fuscous spots and a large sublateral and somewhat broken fascia of the same colour on each side: abdomen with the posterior segmental margins narrowly and obscurely paler. Body beneath concolorous; middle of the face, metasternum, disc and apex of the abdomen, fuscous: legs concolorous, femora streaked with fuscous; bases and apices of tibiæ, and apical points of tarsi, also fuscous. Tegmina and wings pale hyaline and talc-like; tegmina with costal and basal half of venation ochraceous, remainder fuscous; transverse veins at the bases of the second and third apical areas infuscated. Width of head, between the outer margins of the eyes, rather less than that of the pronotum at the base; pronotum a little more than twice as broad as long; face with the base much elevated, somewhat narrowing to the apex, distinctly longitudinally sulcated, and strongly transversely striate: rostrum about reaching the posterior coxæ, with the apex pitchy; opercula slender, curved inwardly, but not meeting at the base or apex (*Distant*). Long. 18: exp. tegm. 48 millims.

#### 80. TIBICEN APICALIS, Germar.

J. A. S. B. liii (2), p. 231 no. 84: liv (2), p. 117.

♀. Head somewhat broader than the base of the thorax, black, frons tumid, basal spot ferruginous: thorax anteriorly much narrower than the head, sides obtuse, slightly converging backwards, posteriorly abruptly amplified, posterior limbus narrow; upper apical segment in ♀ with two black stripes. Very near *T. brunneus*, Fabr., but differs in being smaller, head broader, frons much more tumid, sides of thorax slightly converging backwards, and in the markings. In the form and structure of the tegmina, abdomen, and spine of posterior trochanters, it agrees with *T. brunneus* (*Stål*).

#### 81. TIBICEN SUBVITTA, Walker.

J. A. S. B. liii (2), p. 230, nos. 71, 73: liv (2), p. 117.

♂. Body black, scarcely pubescent: a small tawny spot on the vertex between the ocelli and the hind border: rostrum and antennæ black, the former reaching the intermediate coxæ: pronotum with a slender tawny stripe extending from the fore to the hind border: abdomen obconical, piceous, tawny at the tip, beneath ferruginous and tawny towards the tip; [drums large, pale brown and opercula tawny?]: legs black; femora striped red; claws and hind feet tawny; femora with three tawny teeth, of which one is very long and two are of moderate size; hind tibiæ tawny towards the tips: tegmina and wings



colourless, whitish and tinged with red at the base, veins pale tawny, black towards the tips: basal cell and adjoining veins clouded brown: tegmina with two oblique dark brown bands, the first interrupted, the second occupying the transverse veins, but not reaching the hind border; a small dark brown spot on the tips of the fore border; a row of pale brown spots occupies the tips of the veins of the apical areas; fore membranes whitish: wings with a broad, interrupted oblique brown band which communicates here and there with the base along the borders of the veins; flaps colourless, brown along the fore border and towards the base, where they are whitish; veins tawny; black towards the tips.

### 82. TIBICEN PUSILLUS, Fabricius.

*Tettigonia pusilla*, Fabr., Syst. Rhyng. p. 44 (1803).

*Cicada pusilla*, Walker, List Hom. B. M. i, p. 229 (1850).

Small: thorax flavescent; the anterior lobe, a pale dorsal line, and small impressed lines, black, the posterior lobe with four dull black spots at the base, the lateral ones largest: abdomen flavescent, segments black at the base: wings hyaline, costa flavescent: feet flavescent (*Fabr.*).

Reported from Amboina, India.

### 83. TIBICEN (?) NANA, Walker.

*Cicada nana*, Walker, List Hom. B. M. i, p. 202 (1850).

♂. Body tawny: vertex ferruginous, piceous on each side; face with two piceous stripes in front: rostrum dark tawny, tip black, reaching the intermediate coxæ: antennæ tawny: pronotum ferruginous with a very large triangular black mark on each side: opercula of moderate size, rather less than one-third of the length of the abdomen: legs tawny; claws black; femora with three tawny teeth: tegmina and wings colourless; veins tawny, black along the hind borders of the tegmina. Long,  $12\frac{1}{2}$ ; exp. teg. 29—30 millims.

Reported from China.

### Genus MOGANNIA, Amyot & Serville.

J. A. S. B. liii, p. 232.

Body elongate: head small; frons conically produced: eyes small scarcely prominulous: tegmina large and broad, their basal half coriaceous, more or less transparent, up to a transverse elevated line beyond which, and the wings, hyaline; costal margin of the tegmina somewhat straight before the middle, the second apical area extended forwards to



a less distance than the first : abdomen stout, inflated, broader than the thorax, a little compressed on its upper surface on both sides, so as to form a kind of ridge (*A. & S., Stål*).

#### 84. MOGANNIA CONICA, Germar.

J. A. S. B. liii, (2), p. 232, nos. 85 (*M. illustrata*), 86 (*M. recta*) ; liv, (2), p. 117 : includes also *Cephaloxys hemelytra*, Signoret, A. S. E. F. (2 sér.) v, p. 295 ; *Mogannia ignifera*, Walker, List Hom. B. M. i, p. 249 (1850), from Java, and *Mogannia avicula*, Walker, l. c. p. 249 (1850), from Java and the Philippines.

♂. Ferruginous : abdomen with a red band on the posterior margin of each segment : tegmina and wings vitreous, red at the base, veins tawny ; the tegmina tawny for more than one-third of the length from the base and having a brown upright band dividing the tawny from the vitreous part ; the wings brown along the basal part of the hind border (*M. recta*, Walker).

#### 85. MOGANNIA OBLIQUA, Walker.

J. A. S. B. liii, (2), p. 232, no. 87.

♀. Green, mostly reddish beneath : head black along the hind border : pronotum with some testaceous marks and a black stripe dilated backwards : mesonotum with some testaceous marks and a black stripe dilated before and behind : abdomen reddish with a spot on each side near the base and a short band hindward of pale sericeous pile, two green bands near the tip : legs piceous ; posterior tibiæ and tarsi pale green : tegmina and wings vitreous, red at the base, veins green black towards the tips ; the tegmina have a red costa, a brown band extending from the tip of the front areolet obliquely to the hind border, whence it is continued obliquely towards the base of the wing (*Walker*).

#### 86. MOGANNIA VENUSTISSIMA, Stål.

J. A. S. B. liii, (2), p. 232, no. 88.

♂, ♀. Cærulean or brassy black, sordid flavescent-sericeous : tegmina before the middle and the wings sordid hyaline ; the tegmina veined sordid straw-colour, before the middle black, at the base pale sanguineous ; the wings veined fuscous, sanguineous at the base.

Var. *a.* Basal spot on frons and oblong median spot on the thorax, sanguineous.

Var. *b.* Entire frons, median streak on the thorax contracted in the middle, also veins and band on the black part of the tegmina, weak sanguineous-flavescent ; abdomen varying into ferruginous (*Stål*).



87. *MOGANNIA FUNEBRIS*, Stål.

J. A. S. B. liii, (2), p. 232, no. 89.

♀. Aenescent-black, fuscous, pilosulous : tegmina and wings vitreous, the former black before the middle, basal area and a band at the apex of the black part, sordid lutescent (*Stål*).

88. *MOGANNIA INDICANS*, Walker.

J. A. S. B. liii, (2), p. 232, no. 90.

♂. Body bright or very dark red : rostrum black reaching the intermediate coxæ : antennæ yellow, black at the base : a very large dark ferruginous spot on each side of the fore-chest : mesonotum with a broad, obconical, oblique, black stripe on each side, the margins of which are also black : pectus black : abdomen blackish towards the base, tip with a black horn : legs black, pilose : coxæ and posterior femora marked with red : tegmina and wings colourless, tawny at the base ; the tegmina with a broad brown band which includes a very irregular yellow band ; veins yellow, tawny at the base. ♀. Body nearly all black ; a colourless spot on the base of the brown band of the tegmina (*Walker*).

89. *MOGANNIA (?) LOCUSTA*, Walker.

J. A. S. B. liii, (2), p. 233, no. 91.

♀. Body ferruginous, pale tawny beneath : two small black spots between the ocelli : rostrum pale tawny, tip piceous, reaching the intermediate coxæ : antennæ tawny : anterior lobe of the pronotum with two slender black stripes which slightly converge from the fore border and then slightly diverging include a nearly circular space and are united on the hind border, a small black spot on each side in front ; posterior lobe tawny : mesonotum with three slender black stripes, the side pair slightly converging towards the tip of the middle one, sides and hind border tawny, pale yellow sericeous : abdomen pale tawny, with a very broad dorsal ferruginous stripe extending from the base to the narrow part, a row of small piceous spots along each side ; last segment piceous above at the base, horn tawny, rather long ; sheaths pale tawny, piceous and pilose towards the tips, and extending some distance beyond the tip of the abdomen ; oviduct ferruginous, black and serrated at the tip : legs pale tawny ; first femora with three tawny teeth, of which one is very small : tegmina colourless, basal cell, costal margin, and veins pale tawny ; wings colourless, in both fore membranes pale buff, flaps pale buff at the base and for a space along the hind border.



90. *MOGANNIA* (?) *LACTEIPENNIS*, Walker.

*J. A. S. B.* liii, (2), p. 233, no. 92.

♂. Body luteous, palely pilose : head black, a small tawny spot at the base of each antenna ; a large tawny spot on each side of the face : rostrum black, tawny at the base ; antennæ black : a black band along the fore border of the posterior lobe of the pronotum : mesonotum with four black obconical marks, median pair not more than half the length of the lateral pair, between the former there is a black stripe increasing in breadth from the fore border to the middle where it ceases : abdomen black, posterior dorsal margins of segments tawny, a tawny spot on each side near the tip which is tawny : drums tawny, small, open, furrows hoary ; opercula very small : legs luteous, a piceous spot at the tip of each tibia ; tips of claws, black ; first femora with two stout teeth which are partly black at the base : tegmina and wings white, opaque, luteous at the base ; veins black, tawny towards the base and near the stigma.

91. *MOGANNIA* *HEBES*, Walker.

*Cephalowys hebes*, Walker, *List Hom. B. M. Suppt.* p. 38 (1858).

♂. Testaceous : pronotum blackish with a stripe and the border, testaceous ; mesonotum with four blackish obconical stripes, the inner pair very short : two black spots on each of the second and third segments of the abdomen : opercula oblique, elongate-conical : tegmina and wings vitreous, veins pale green, black at the tips. Body long,  $16\frac{3}{4}$  : exp. teg. 42 millims.

Reported from N. China.

92. *MOGANNIA* *NASALIS*, White.

*Mogannia nasalis*, White, *A. M. N. H.* xiv, p. 426 (1844) ; Walker, *List Hom. B. M.* i, p. 248 (1850).

Head, thorax, and body finely yellowish-brown sericeous, especially above : near the base of the tegmina is a broad transverse band (widest interiorly) of a glossy yellowish hue, darker on the borders, veins greenish, base and tip quite clear : wings with the veins obscure, inner edge reddish : pronotum with two large rounded spots, one on each side ; the margin and a line through each spot, deeply impressed : hind tibiæ hairy behind with three longish spines on the apical half (*White*). Long, 22 millims.

Reported from Hong-kong.



93. *MOGANNIA CHINENSIS*, Stål.

*Mogannia chinensis*, Stål, Ofvers. K. V.-A. Förh., p. 155 (1865).

♂. Black, remotely golden-yellow sericeous : a streak and the apical part of the dorsum of the abdomen, densely sericeous : the tegmina and wings vitreous ; veins fuscous ; a broad, oblique, sordid stramineous band on the tegmina before the middle, anteriorly and posteriorly the band often interrupted and with a fuscous end : tibiæ and the posterior tarsi yellow-whitish ; intermediate tibiæ at the base and apex and the last pair at the base, black : venter ferruginous. Very like *M. nasalis*, White, differs in the larger size, the colour of the posterior tibiæ, and in the lateral processes of the upper anal segment in ♂ being longer (*Stål*). Long, 18 ; exp. teg. 40 millims.

Reported from N. China.

94. *COSMOSCARTA SIAMENSIS*, Butler.

*Cosmoscarta siamensis*, Butler, Cist. Ent. i, p. 245, t. viii, f. 1 (1874) ; J. A. S. B. iv (2), p. 23 (1885).

Allied to *C. tricolor*, St. Farg., but in the form of the thorax more like *C. divisa*, Walker. Head and thorax, basi-costal third of corium, and basal part of the clavus reddish-testaceous : wings pale fuscous, the basi-costal veins and the base, reddish : abdomen above and beneath blue-black : pectus and legs, piceous ; hind tibiæ with a strong spine. A variety has the basal third of the tegmina reddish-testaceous (*Butler*). Long, 18 ; exp. teg. 42 millims.

Reported from Cambodia.

95. *COSMOSCARTA RUGULOSA*, Walker.

*Cercopis rugulosa*, Walker, J. Linn. S. Zool. i, p. 95 (1856), p. 105 (1857).

*Cosmoscarta rugulosa*, Butler, Cist. Ent. i, p. 249 (1874).

Black, shining ; ferruginous beneath : abdominal margins and the legs red : a blackish band on each femur : tegmina rugulose (*Walker*). Long,  $10\frac{1}{2}$  ; teg.  $29\frac{1}{2}$  millims.

Reported from Singapore, Borneo.

96. *COSMOSCARTA MALAYA*, Stål.

*Cercopis malaya*, Stål, Ofvers. K. V.-A. Förh., p. 147 (1865).

♂. Black-violaceous, sparingly puberulous, tegmina and feet blackish : two smallish spots on the corium behind the middle, one placed at the costa, the other obliquely behind it, also two very minute obsolete spots of which one is at the apex of the clavus and the other behind the



middle of the costal margin, red. Thorax fairly densely and finely punctured, truncated at the base before the scutellum, margins (anterior excepted) reflexed, lateral angles obtusely rounded: scutellum impressed before the middle: tegmina very densely punctulate, scarcely narrowed towards the apex: mesostethium rather distinctly bituberculate, posterior margin not elevated before the coxæ (*Stål*). Long, 8; exp. teg., 23 millims.

Reported from Malacca.

#### 97. COSMOSCARTA HEROS, Fabricius.

*Cercopis heros*, Fabr., Syst. Rhyng. p. 89 (1803): Stoll, Cig. p. 104, t. 27, f. 149. (1788): Stål, Ofvers. K. V.-A. Förh. p. 492 (1862): Walker, List Hom. B. M. iii, p. 654 (1851).

*Cercopis abdominalis*, Westwood in Donovan's Ins. China, p. 39, t. 16, f. 5 (1843): Walker, l. c. p. 654 (1851): J. Linn. S. Zool. x, p. 286 (1867).

*Cosmoscarta heros*, Stål, Hem. Fabr. ii, p. 11 (1869); Butler, Cist. Ent., i, p. 254 (1874).

♂, ♀. Black, shining: head very obtuse and almost globose: thorax gibbous, dull black, spotless: tegmina dull black, the base and a median band, orange-fulvous: abdomen red (*Fabr.*). Long with teg., 16; breadth of thorax,  $6\frac{2}{3}$  millims.

Reported from Hong-Kong.

#### 98. COSMOSCARTA DISCREPANS, Walker.

*Cercopis discrepans*, Walker, J. Linn. S. Zool. i, p. 95 (1856).

Blackish-purple, black beneath: tegmina black with an elongated red spot which is contracted in the middle and occasionally interrupted (*Walker*). Long, 6— $7\frac{1}{2}$ ; teg. 17—19 millims.

Reported from Singapore.

#### 99. COSMOSCARTA UNIFASCIA, Walker.

*Cercopis unifascia*, Walker, J. Linn. S. Zool. i, p. 95 (1856).

Red: thorax dilated on each side: disc of the pectus black: tegmina with a black band across the middle: wings hyaline (*Walker*). Long,  $12\frac{1}{2}$ ; teg. 25 millims.

Reported from Singapore.

#### 100. COSMOSCARTA FULVICEPS, Dallas.

*Cercopis fulviceps*, Dallas, Trans. Ent. Soc. (n. s.) i, p. 10 (1850).

. Head and thorax bright orange, shining: tegmina reddish black, somewhat obscure, outer margins pitchy red: wings brownish;



abdomen beneath black, shining; pectus, legs, and rostrum pitchy. Long, 22 millims.

Reported from Sikkim.

#### 101. COSMOSCARTA DIMIDIATA, Dallas.

*Cercopis dimidiata*, Dallas, Trans. Ent. Soc. (n. s.) i, p. 11 (1850).

♀. Head black; eyes pale brown, ocelli yellowish-white: thorax very thickly and finely punctured, with its posterior half and a transverse quadrangular patch on the anterior margin black; the remainder bright red; scutellum black: tegmina bright red, with three broad irregular black transverse bands, the first of which rises at the apex of the scutellum, the second a little behind the middle, and the third forms a broad black margin around the apex: body beneath black, shining; legs and rostrum pitchy (*Dallas*). Long 15 millims.

Reported from Sikkim.

To the above may be added:—

*C. pulchella*, Butler, Cist. Ent. i, p. 254 (1874). Laos.

*C. exultans*, Walker, List Hom. B. M. Suppt. p. 171 (1858). N. China.

*C. bimacula*, Walker, l. c. iii, p. 656 (1851). China.

*C. rotundata*, Walker, l. c., Suppt. p. 174 (1858). Laos.

*C. pellucida*, Butler, Cist. Ent. i, p. 262 (1874). Laos.

*C. Distanti*, Butler, P. Z. S. p. 672 (1874). Penang.

#### 102. PHYMATOSTETHA PUDICA, Walker.

J. A. S. B. liv (2), p. 15, (1885).

Tawny, black beneath: pronotum with a black mark in front, divided by a testaceous stripe and having on each side of it a testaceous spot; scutellum black with a testaceous stripe abdomen cupreous-black, testaceous at the base and with a row of testaceous spots on each side beneath: legs testaceous, tips of femora, black; tibiæ black with a testaceous band near the tip: tegmina brown with a testaceous undulating basal subcostal streak and with two testaceous bands which have black borders in front; the first band at one-third of the length, composed of three spots, the second band at two-thirds of the length, entire, attenuated before the middle; tips testaceous: wings pale brown, rosy at the base (*Walker*). Body long, 15—16; teg. 35—36 millims.

Reported from Silhat.

To this add the following:—

*P. semele*, Stål, Ofvers. K. V.-A. Förh. p. 151 (1865). Malacca, Laos.

*P. triseriata*, Butler, Cist. Ent. i, p. 267 (1874). Laos.

*P. dislocata*, Walker, J. Linn. S. Zool. i, p. 95 (1856). Malacca.



*P. borneensis*, Butler, l. c. p. 268 (1874). Malacca, Ligor, Borneo.

*P. nympa*, Stål, l. c. p. 150 (1865). Malacca.

*Colsa costæstriga*, Walker, l. c. p. 96, t. iv, f. i (1856). Malacca.

### 103. PTYELUS (?) INTEGRATUS, Walker.

*Ptyelus integratus*, Walker, Ins. Saund. Hom. p. 94 (1858).

Dark testaceous : head with a broad stripe beneath, abdomen in the middle, coxæ, streaks on femora and hind tibiæ, blackish : tegmina testaceous slightly darker towards the base ; wings vitreous (*Walker*). Body long,  $7\frac{1}{4}$  ; teg. 16—17 millims.

Reported from India.

To this add the following :—

? *P. bipars*, Walker, J. Linn. S. Zool. i, p. 96 (1856). Singapore.

? *P. immutatus*, Walker, l. c., p. 96 (1856). Singapore.

Add the following to the genus CLOVIA.

*C. multilineata*, *Ptyelus id.*, Stål, Ofvers. K. V.-A. Förh., p. 154 (1865). N. China.

*C. malaya*, *Ptyelus id.*, Stål, l. c. p. 153 (1865). Ligor, Malacca, China.

*C. punctum*, Walker, J. A. S. B. liv (2), p. 115 includes apparently *Ptyelus orientalis*, Stål, Freg. Eug. Resa, Hem., p. 287 (1859).

Add to the genus MACHÆROTA.

*M. punctato-nervosa*, Signoret, A. S. E. F. (5 sér.) ix, p. xlix (1879). China.

### 104. MEMBRACIS FUSCATA, Fabricius.

J. A. S. B. liv, (2), p. 79, no. 5.

Thorax foliaceous, rounded, fuscous ; with a slender streak before the anterior margin and a broader band before the apex, white : apex acute, black : tegmina fuscous (*Fabr.*).

### 105. LEPTOBELUS SCUTELLARIS, Fabricius.

J. A. S. B. liv, (2), p. 83, no. 12.

Head black : thorax with two, flat, robust, acute horns, produced posteriorly, subulate, entirely black with a broad snow-white, posterior band : wings deflexed, fuscous : costa a little white at the base : body fuscous (*Fabr.*).

### 106. CENTROTYPUS ONERATUS, Walker.

*Centrotus oneratus*, Walker, Ins. Saund. Hom. p. 78 (1858).

Tawny : pronotum pubescent, moderately high, minutely punctured ; lateral horns lanceolate, very broad, rather flat, directly diverging,



obliquely ascending, with a slight ridge, near the hind side of each; posterior horn ridged, straight, very slender, acute at the tip, extending a little beyond the abdomen: abdomen greyish ferruginous with black points, except along the hind borders of the segments: legs tawny: tegmina tinged slightly testaceous, veins testaceous; wings vitreous, veins black (*Walker*). Body long  $4\frac{1}{4}$ ; teg.  $10\frac{1}{2}$  millims.

Reported from India.

To this add:—

*Centrotypus longicornis*, Vuillefroy, A. S. E. F. (4 sér.) iv, p. 142, t. 1, f. 8 (1864). Malacca.

#### 107. CENTROTUS (?) FLEXICORNE, Walker.

*Centrotus flexicorne*, Walker, Ins. Saund. Hom. p. 78 (1858).

Black: pronotum pubescent, moderately high, very slightly ridged: lateral horns long, acute, diverging, obliquely ascending, slightly inclined backward, much curved, with a ridge near the hind border; posterior horn slender, ridged: femora black: tegmina tinged slightly lurid, tawny at the base, costa black towards the tip, veins testaceous; wings vitreous (*Walker*). Body long,  $6\frac{1}{4}$ ; teg.  $12\frac{1}{2}$  millims.

Reported from N. India.

#### 108. CENTROTUS (?) OBLIQUUS, Walker.

*Centrotus obliquus*, Walker, Ins. Saund. Hom. p. 79 (1858).

Ferruginous very pubescent: pronotum rather high, somewhat scabrous, slightly ridged: lateral horns horizontal, moderately long, diverging, very slightly curved backward; posterior horn ridged, very slender, black except towards the base which is much above the abdomen, contiguous to the abdomen and hardly extending beyond it at the tip: legs tawny, femora black: tegmina tawny (*Walker*). Body long,  $2\frac{1}{4}$ ; teg.  $10\frac{1}{2}$  millims.

Reported from India.

#### 109. CENTROTUS (?) CONGESTUS, Walker.

*Centrotus congestus*, Walker, Ins. Saund. Hom. p. 79 (1858).

Black, stout, short: pronotum pubescent, rather high, flat above: lateral horns stout, elongate-conical, directly diverging, obliquely ascending; posterior horn ridged, lanceolate, reaching almost to two-thirds the length of the abdomen: legs tawny; femora black: tegmina tinged slightly grey, a brown mark at the tip of the costa, veins tawny (*Walker*). Body long,  $3\frac{1}{2}$ : teg.,  $7\frac{1}{4}$  millims.



Reported from India. This is entirely different from the species described by Walker under the same name in *J. L. S. Zool.* x, p. 187 (1867) from Sula.

110. *CENTROTUS* (?) *GIBBOSULUS*, Walker.

*Centrotus gibbosulus*, Walker, *Ins. Saund. Hom.* p. 80 (1858).

Ferruginous, stout, short: head and pronotum pubescent, the latter oblique above the head: lateral horns conical, diverging, extremely short, hardly ascending and curved backwards; posterior horn ridged, lanceolate, black towards the tip, reaching to three-fourths of the length of the abdomen which is black: legs tawny, femora black, tegmina hardly tinged, brown at the base, veins tawny (*Walker*). Body, long  $3\frac{1}{4}$ ; teg.,  $6\frac{1}{2}$  millims.

Reported from India. This species is entirely distinct from the species described under the same name by Walker in *J. L. S. Zool.* x, p. 187 (1867) and which should be renamed *C. walkeri*.

To these add:—

? *Centrotus laminifer*, Walker, *J. Linn. S. Zool.* i, p. 93 (1856). Singapore.

? *C. caliginosus*, Walker, *l. c.* p. 93. Malacca.

? *C. semivitreus*, Walker, *l. c.* p. 94. Singapore.

? *C. semifascia*, Walker, *l. c.* p. 94. Malacca.

? *Micreune formidanda*, Walker, *l. c.* p. 94. Singapore.

*Sipylus crassulus*, *Centrotus id.*, Stål, *Freg. Eug. Resa*, p. 285 (1859). Malacca.

*Tricentrus fairmairei*, *Centrotus id.*, Stål, *l. c.*, p. 284 (1859). Malacca.

*Gargara malaya*, *Centrotus id.*, Stål, *l. c.*, p. 285 (1859). Malacca.

To Genus *LEDRA*, and following add:—

*Ledra auditura*, Walker, *List Hom. B. M. Suppt.* p. 249 (1858). Hong-kong.

*L. quadricarina*, Walker, *l. c.*, p. 249 (1858). Hong-kong.

*Tituria nigromarginata*, *Petalocephala id.*, Stål, *Ofvers. K. V.-A., Förh.*, p. 158 (1865). Malacca.

? *Ledra cultellifera*, Walker, *J. Linn. S. Zool.* i, p. 98 (1856). Singapore.

? *Ledra conifera*, Walker, *l. c.*, p. 98 (1856). Singapore.

? *Ledra nigrilinea*, Walker, *l. c.*, p. 98 (1856). Singapore.

? *Acocephalus olivaceus*, Walker, *List Hom. B. M.* iii, p. 846 (1851). Malacca, Philippines.

? *Cælidia guttivena* and *punctivena*, Walker, *J. Linn. S. Zool.* i, p. 99 (1856). Malacca.

111. *TETTIGONIA ALBIDICANS*, Walker.

*Tettigonia albidicans*, Walker, *Ins. Saund. Hom.* p. 96. (1858).

Whitish testaceous: a dot on the vertex, stripe on frons, triangular spot on face, two spots on posterior margin of the pronotum and one on the anterior margin, a spot on the scutellum, disc of the pectus, abdomen,



tip of femora, tibiæ and tarsi and dots on the veins of the tegmina near the tips, black : posterior margins of the abdominal segments and the tip, testaceous : wings blackish lurid towards the tips and along the interior border (*Walker*). Body long,  $10\frac{1}{2}$  : teg. 21 millims.

Reported from Silhat.

### 112. BYTHOSCOPIUS (?) PUNCTIFER, Walker.

*Bythoscopus punctifer*, Walker, Ins. Saund. Hom. p. 104 (1858).

Dull testaceous, stout, very minutely speckled black : a dot on each side beneath at the base of the antennæ, the abdomen above and tips of hind femora, black : tegmina testaceous, veins pale, punctured black ; wings vitreous dark brownish grey (*Walker*). Body long,  $4\frac{3}{4}$  ; teg.,  $10\frac{1}{2}$  millims.

Reported from India.

To these add :—

*Tettigonia tripars*, Walker, J. Linn. S. Zool. i, p. 97 (1856). Malacca.

*T. suavissima*, Walker, l. c., p. 97 (1856). Singapore, Borneo.

*T. jocosa*, Walker, l. c. p. 97 (1856). Mount Ophir.

*T. suturella*, Stål, l. c., p. 288 (1859). Malacca.

*Jassus (Thamnotettix) sinæ*, Stål, l. c., p. 293 (1859). Hong-kong.

*J. (Thamn.) alacer*, Stål, l. c., p. 293 (1859). Hong-kong.

### 113. FULGORA NIGRIROSTRIS, Walker.

*Hotinus nigrirostris*, Walker, Ins. Saund. Hom. p. 28 (1858).

*Fulgora nigrirostris*, Butler, P. Z. S. p. 98 (1874).

Orange : head black, ascending, as long as the body, green beneath, with orange streaks on each side by the eyes : thorax with a broad stripe, pronotum with a band on each side, mesonotum with a streak and three dots on each side and the anterior tibiæ, black : tegmina black, very closely reticulated orange and with six orange bands, the first and third bands regular, second slightly dislocated hindward where it sometimes joins the third, fourth formed of three small widely separate dots, fifth of 4-5 large spots usually confluent, sixth very irregular of 3-5 spots and dots of various size : wings with the apical third black (*Walker*). Body long, 36—44 ; teg. 63—75 millims.

Reported from India ?, Pachebon (Siam). Distinguished from *F. viridirostris* by its brighter orange colour, by its longer head, and by its tegmina, which are more regular and not bordered white.

### 114. FULGORA DUCALIS, Stål.

*Hotinus ducalis*, Stål, Trans. Ent. Soc. (3 ser.) i, p. 576 (1863).

♂, ♀. Testaceous : feet more obscure ; tibiæ, tarsi, antennæ, and venter blackish : tegmina sordid virescent-whitish, black-fuscous to-



wards the apex, veins virescent; three transverse rows of spots before the middle; a broad band behind the middle; some small spots, girdled white, placed behind the band, the veins green; apical part sparingly sprinkled with small whitish dots: wings whitish-green, apical part, black: cephalic process very long, gradually compressly narrowed to the apex, moderately curved. In stature similar to *F. candelaria*, Linn., cephalic process longer and, seen from the side, broader, frontal ridges more distinct (*Stål*). Long, 42—46; exp. teg. 80—94 millims.

Reported from Cambodia.

#### 115. FULGORA CÆLESTINA, Stål.

*Hotinus caelestinus*, Stål, Trans. Ent. Soc. (3 ser.) i, p. 576 (1863).

♀. Weak green-olivaceous, venter and feet black-fuscous: head obscurely fuscous-testaceous: tegmina pale sordid alliaceous with three virescent-veined, blackish bands, the first broad near the base, hardly visible except on the clavus, the second narrow, placed a little before the middle and very narrow in the middle, the third broad and with three pale virescent olivaceous spots, the apical part behind this band greyish-whitish sprinkled with pale-cinctured olivaceous spots; the disc of the apical areas fuscous: wings of a beautiful azure, apical part black. Allied to *F. ducalis*, Stål, but the cephalic process is longer, fuscous-testaceous, much curved. Head gradually compressly narrowed from the base towards the apex, a little longer than the body, not impressed above before the middle (*Stål*). Long, 41: exp. teg. 90 millims.

Reported from Cambodia. This species is very close to *F. connectens*, mihi, described from Tenasserim at p. 130 (1885).

#### 116. PYROPS NOBILIS, Westwood.

*Fulgora nobilis*, Westwood, Trans. Linn. Soc. xviii, p. 146, t. 12, f. 10 (1841).

*Pyrops nobilis*, Walker (excl. syn.), List Hom. B. M. ii, p. 268 (1851); J. Linn. S. Zool. p. 96 (1856).

Head with a process which is straight, gradually attenuated, obliquely truncated at the apex, furnished with acute black tubercles arranged longitudinally in six rows, of which two are above, two beneath, and two lateral: eyes pale fuscous, a pale acute tubercle behind the eyes: antennæ pale: rostrum scarcely reaching the lateral pair of feet; head pro- and meso-notum and tegmina luteous greyish, slightly tinged virescent, sprinkled with minute black spots: metanotum and abdomen fulvous-fuscous, the latter with transverse black spots: tegmina with numerous larger fulvous dots: wings white, somewhat opaque; veins pale, tintured virescent: feet concolorous, with black bands; last pair of tibiæ inwards immaculate, externally punctured black; tarsi luteous; claws



black (*Westw.*). Body with cephalic process, long, 63; cephalic process, long, 25; exp. teg.  $115\frac{1}{2}$  millims.

Reported from Malacca, Sumatra. *P. javanensis*, Distant, is closely allied to *P. nobilis*, West., from which it differs thus:—the prolongation of the head is not prominently and dentately spined as in *P. nobilis*, but only obtusely spined, thus giving the head a much more slender appearance, the spines in both species being arranged in six longitudinal rows, two above, two beneath, and one on each side: the black spotting is also much more minute and the colour of the dorsal surface of the abdomen is different. *P. mustelinus*, Distant, also from Java, is allied to *P. punctatus*, Olivier, from which it differs by the much more prolonged head, the apex of which is not distinctly curved upwards, and which is also more spotted with black than in Olivier's species: the abdomen above is ochraceous and not black, &c.

#### Genus CYNTHILA, Stål.

Stettin Ent. Zeit. xxiv, p. 230 (1863).

Head narrower than the thorax; protuberance slender, porrect: frons much narrowed towards the base with two obsolete parallel ridges; vertex sinuated at the base, a little broader than the eyes, ridged longitudinally in the middle: second joint of the antennæ subglobose: rostrum extending almost to the apex of the abdomen: thorax in the middle produced anteriorly in an angle, longitudinally ridged in the middle, very broadly sinuated at the base: scutellum tricarinate: tegmina somewhat narrow, scarcely amplified towards the apex, rounded at the apex with longitudinal veins rarely furcated, almost entirely transversely venulose: wings less ample, tegmina much shorter, posterior margin not sinuated, transverse veinlets remote: feet slender, last tibiæ 5-spinose. Allied to *Ulasia* (Stål).

#### 117. CYNTHILA FEROCULA, Stål.

*Cynthila ferocula*, Stål, Stettin Ent. Zeit. xxiv, p. 230 (1863).

♂. Livid: here and there pale ferruginous: almost entire clypeus, the cephalic process, and the basal limbus of the abdominal segments, infusate: very broad streak on the frons, dilated towards the apex, four small spots on the vertex, two longitudinal lines diverging backwards, posteriorly abbreviated, also several small spots sprinkled over the thorax above and two spots on the same between the lateral ridges and a broad patch on the deflexed sides, minute spots scattered over the scutellum, and bands and spots on the feet, black fuscous: last tibiæ uncoloured: tegmina weakly ferruginous from the base to beyond the mid-



dle, opaque, sparingly sprinkled fuscous, apical part somewhat vinaceous, veined ferruginous sprinkled with larger spots arranged in a longitudinal row and some minute spots, black fuscous: wings vitreous, veined fuscous, infusate at the base at the longitudinal veins. Close to *C. apicalis*, Westw., smaller, scarcely differing except in the shorter and more slender cephalic process, which is slender, not or scarcely thickened towards the apex, produced obliquely forwards and upwards, as long as the scutellum (*Stål.*) Long incl. ceph. process, 20; exp. teg. 48 millims.

Reported from Ligor, Malacca.

#### Genus SCAMANDRA, Stål.

Stettin Ent. Zeit., xxiv, p. 232 (1863).

Head not protuberant; frons a little broader beneath than above the middle, with the lateral margins of both halves somewhat parallel, and sinuated in the middle of the lower half, abruptly narrowed at the base and very slightly reflexed, not higher than the vertex, emitting from the base a small (mobile?), cylindrical, furrowed corpuscule, reflexed above the anterior part of the vertex, furnished with two, sometimes obsolete, parallel ridges: thorax not ridged in the middle: first pair of femora not or scarcely amplified above at the apex; last pair of tibiæ, with three spines, furnished above at the base with a tubercle, often much elevated and acute (*Stål.*)

#### 118. SCAMANDRA HECUBA, Stål.

*Scamandra hecuba*, Stål, Stettin Ent. Zeit., xxiv, p. 234 (1863).

♀. Ochraceous, beneath more obscure: tegmina less obscurely sordid subsanguineous, sprinkled with small fuscous spots which are sometimes encircled pale, almost half the apical part fuscescent-ochraceous anteriorly rounded, veined pale and subsanguineous: wings purely and obscurely sanguineous, the base itself black-fuscous, posterior limbus narrowly whitish, apical part fuscescent-ochraceous, anal area at the base with a fairly large flavescent spot: feet blackish: dorsum of the abdomen weakly sordid testaceous-flavescent, anus sanguineous. Close to *S. rosea*, Guérin, lateral margins of thorax more divergent, tegmina less broad near the apex, apex semicircularly not obtusely rounded; the apical ochraceous part of the tegmina is larger, anteriorly less distinctly not ending in a pale arch, remaining part without fuscous bands: wings scarcely whitish veined on the disc (*Stål.*) Body long, 23; exp. teg. 74 millims.

Reported from Ligor, Malacca.



## 119. SCAMANDRA SEMELE, Stål.

*Scamandra semele*, Stål, Stettin Ent. Zeit. xxiv, p. 235 (1863).

♂. Fawn-colour: basal two-thirds of the tegmina minutely, palely and sordidly sprinkled sanguineous, areolas of the apical part fuscous in the middle: wings weak sordid sanguineous, base itself black-fuscous, spotted fuscous in the anterior area, posterior limbus whitish, spotted ochraceous, apical part fuscous, veined ochraceous: abdomen sanguineous, genitalia black: feet, especially the tibiæ and tarsi, infusate. Form of tegmina very distinct, they are amplified at the apex and rather obtusely rounded, costal margin straight, scarcely sinuated near the apex, commissural margin distinctly sinuated near the apex (*Stål*). Body long, 13; exp. teg. 37 millims.

Reported from Ligor, Malacca.

## 120. SCAMANDRA ROSEA, Guérin.

*Aphæna rosea*, Guerin, Voy. Bél. Ind. Orient. p. 454, t. 3, f. 3 (1834); Walker, List Hom. B. M. ii, p. 274 (1851); J. L. S. Zool. i. p. 84 (1858).

*Aphæna saturata*, Walker, J. Linn. S. Zool. i, p. 143 (1857).

*Scamandra rosea*, Stål, Stettin Ent. Zeit. xxiv, p. 233 (1863).

Head without a prolongation, with the thorax yellow turning into ferruginous: pronotum strongly lobed in the middle of its anterior border, emarginate on its posterior border: tegmina yellow-ferruginous for two-thirds of their length, apical part saffron-yellow, a little browner on the margins: the reddish part is traversed by two oblique brown bands, of which the external is arched outwards with numerous small spots of the same colour between them: wings rosy turning into vermillion with yellow patches at the base and the tip; the posterior margin with a white smear in the entire rosy space, where also are irregular striæ more or less white: abdomen above and beneath vermillion-red with more yellowish transverse bands; feet brown (*Guérin*). Body long, 21; exp. teg. 65 millims.

Reported from Java, Sumatra, Malacca, Singapore.

## 121. APHANA FARINOSA, Fabricius.

J. A. S. B. liv, (2), p. 142, no. 26.

Head flat, dilated, obscurely ferruginous, with two farinose white spots: thorax ridged, obscurely ferruginous: tegmina white-farinose, at the base fuscous often varied ferruginous, at the apex fuscous hyaline: wings rufous at the base, punctured hyaline, black at the apex: body fuscous; abdomen flavescent (*Fabr.*).



## 122. APHANA ATOMARIA, Fabricius.

J. A. S. B. liv, (2), p. 143, no. 27.

A little smaller than *A. farinosa*, Fabr., body dull black; head and thorax flavescent, spotless, the latter carinate: tegmina white-farinose at the base, more obscure at the apex; with two marginal spots, one at the narrow margin, the larger posterior: wings sanguineous with several white-hyaline and dull black spots, black at the apex (*Fabr.*).

## 123. EUPHRIA DISCOLOR, Guérin.

*Aphæna discolor*, Guérin, Voy. Bél. Ind. Orient., p. 452, t. 3, f. 2 (1834): Spino-la, A. S. E. F. viii, p. 242 (1839): Walker, List Hom. B. M. ii, p. 273 (1851); J. Linn. Soc. Zool. X, p. 96 (1867).

*Aphæna blattoides*, Walker, l. c. Suppt. p. 46 (1858).

*Euphria discolor*, Stål, Stettin Ent. Zeit. p. 232 (1863).

Head red, oblong, flattened, seen from above little prominent; frons rounded and produced in a small horn curved backwards and scarcely reaching the middle of the pronotum, compressed on the sides and grooved; front of the head oblong, labrum elongate, broad in front, ending in a point and covering the base of the rostrum; the rostrum is longer than the head, four-jointed, tip extending to and passing a little beyond the last pair of coxæ: pronotum black, sinuate in front, finely bordered red, very slightly emarginate behind, about four times broader than long: mesonotum triangular, not so long as broad, almost twice as broad in the middle as the pronotum, ending posteriorly in an acute point; it is black with a broad, transverse, rounded, red patch in the middle: the metanotum is not so broad and has several impressions and a smooth elevation in the middle; it is blackish varied with red and has several white farinose patches: there is a small brown triangular piece at the base of the pronotum which covers the articulation of the tegmina; the tegmina are oblong a little amplified at the apex; two and half time longer than broad; veins numerous, of a bright reddish brown especially at the base; marked with irregular black patches more numerous beyond the middle; tip of saffron-yellow passing gradually into red; between the black patches and the red are large white farinose patches larger at the base and towards the side, which is also marked by large black patches or spots which become smaller towards the tip and form small patches which border the tegmina: wings black with the exterior border brown and the internal margin near the abdomen pale and a little transparent; they are marked with white rounded patches, farinose and thicker at the base: the abdomen above and beneath brown, orange-yellow towards the borders of the segments, covered above almost entire-



ly with a white powder similar to that on the wings: thorax beneath, femora and all the feet, red; anterior tibiæ and tarsi, black; intermediate pairs black outwards, reddish within, last pairs red with the tip and tarsi, black (*Guérin*). Long, body, 23: exp. teg. 75 millims.

Reported from Sumatra, Java, Cochin-China.

#### 124. EUPHRIA CORNUTA, Fabricius.

*Lystra cornuta*, Fabr., Syst. Rhyng. p. 57 (1803); Germar in Thon's Arch. ii, (2) p. 52 (1830); Guérin, Voy. Bél. Ind. Orient. p. 452 (1834).

*E. (Callidepsa) cornuta*, Stål, Hem. Fabr. ii, p. 87 (1868).

♂. Sordid sanguineous-flavescent: tegmina broadly sanguineous, sprinkled with numerous, here and there confluent, black spots, the very large disc behind the middle, black: wings and tibiæ sordid sanguineous; the tips of the tibiæ, tarsi, lateral margins of the thorax, and two lateral spots on the pectus, black: basal horn on the frons, erect, gradually acuminate, slender, somewhat larger than the vertex and thorax together (*Stål*). Body long, 22; exp. teg. 70 millims.

Reported from China.

#### 125. POLYDICTYA APHÆNOIDES, Walker.

*Chalia aphænoides*, Walker, Ins. Saund. Hom. p. 31 (1858).

♂. Ferruginous: abdomen black with red bands: tegmina with the apical third part paler: wings with whitish reticulations along the interior border and about the interior angle (*Walker*). Body long 12½: teg. 37—38 millims.

Reported from Penang.

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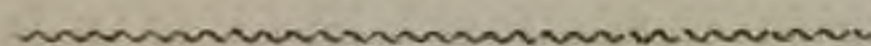
The present paper concludes this contribution to a '*Homoptera Indica*'; for the families *Psyllidæ*, *Coccidæ*, *Aphididæ*, *Aleurodidæ*, &c. have practically been unworked in India, and whoever takes them up will probably have to ignore much that has been written about them. My object has been to provide those who may become interested in this order of insects with some guide to the classification and arrangement, and was at first devoted to the correction of our only English list, but this became so unsatisfactory that it was found better to revise the whole on the basis of Stål's numerous and elaborate essays. I have preferred where possible to give only the original descriptions, but where Stål, Signoret, Butler, or Distant have redescribed a species, their descriptions are recorded. It would have been desirable to give a new description of many species, but knowing the fruitful source of confusion which identi-



fication without comparison with types has proved in the history of this order, I have translated or transcribed, with some omissions and additions, the original descriptions, however unsatisfactory these were. This list of recorded species is, it is believed, tolerably complete, but we have not in our Indian Museum examples of even a moiety of those given, and I would now endeavour to enlist the efforts of observers in India to complete the series. The number of species here described under each family is as follows :—

<i>Cicadidæ,</i>	115
<i>Cercopidæ</i>	67
<i>Membracidæ,</i>	33
<i>Jassidæ,</i>	38
<i>Fulgoridæ,</i>	204—457

These with the species indicated as likely to exist but not described bring up the number to close on 500. These figures could probably be doubled in a few years, for the number of *Jassidæ* alone awaiting examination should add several hundred species to our Indian fauna.





## INDEX.

This index is to the six papers on Indian Homoptera of which one appeared in 1884 (Vol. lii), three in 1885, and the remainder in 1886. The names of genera are given in capitals, and those generic and specific names which have been sunk or have otherwise fallen out of use are in *italics*.

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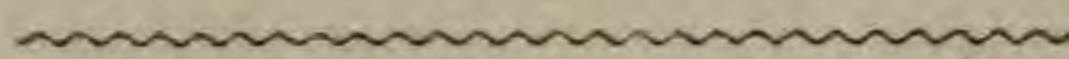
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VIII.—*On a new Species of Uredine parasitic on Cedrus deodara, Loudon.*  
 By SURGEON A. BARCLAY, M. B., *Bengal Medical Service.*

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(With Plates VI. and VII.)

This parasite is by no means conspicuous and is decidedly uncommon. It was observed during May 1884 at two isolated localities between Simla and Wangtu in the Sutlej Valley, and I have searched in vain for it among the numerous deodars about Simla. At one of the two places in which it was found (Turanda), it occurred on several trees, but at the other (between Sungri and Bagi), on two trees only. All the trees on which it occurred were well-grown, and it was observed that when a tree was attacked at all it was so very largely. A few needles only of certain rosettes of needles are attacked, and these when the affection is fully developed curve downwards (fig. 1.) This curling of certain needles gives the branches a curious frayed appearance by which alone attention is generally attracted to the occurrence of the parasite. The affected needles are not discoloured, but retain their normal green colour. The æcidia protrude in great numbers on the upper surfaces of affected needles, a single needle bearing sometimes as many as from 10 to 12 of them. They are generally arranged in a single row on one or other side of the middle line ; but occasionally, towards the distal end of the needle, a second parallel short row exists. To the naked eye no spermagonia are visible, but with a field-lens they may be seen in great numbers as minute points scattered all over the needle.

The affection does not at first sight appear to cause much injury, but, when it is remembered that an innumerable number of needles are affected, and that these fall early, the conclusion cannot be resisted that so large a drain upon the assimilative organs of the tree must be attended with