

XXXVI.—*Rhynchotal Notes*.—XXX. By W. L. DISTANT.

Subfam. *Cicadixæ* (continued from p. 70).

Division LAHUGADARIA.

This division is primarily divergent from *Dandubiaria* by the non-dentate lateral margins of the pronotum; the tympana are completely covered, the tympanal flaps broader than long; the opercula short, somewhat globose, wider than abdominal margin, and distinctly visible from above.

LAHUGADA, gen. nov.

Head (including eyes) considerably narrower than base of mesonotum, its length about equal to space between eyes, its lateral margins discontinuous, the lateral margins of front being almost at right angles to those of vertex; pronotum almost as long as mesonotum, narrowed anteriorly, the posterior angles prominent and rounded; abdomen considerably longer than space between apex of front and base of cruciform elevation; tympana completely covered, tympanal coverings broader than long; opercula short, somewhat globose, wider than abdominal margin, and distinctly visible from above; rostrum about reaching the posterior coxæ; tegmina and wings hyaline, the first with eight apical areas and the basal cell longer than broad.

Type, *L. Dohertyi*, Dist. (*Pomponia*).

Subfam. *GEANIXÆ*.

I propose this subfamily for the reception of a considerable number of genera in which the tympanal coverings are present but imperfect and the tympanal orifices are more or less exposed.

Three subfamilies may be thus differentiated:—

- A. Tympanal coverings present.
 - a. Tympanal coverings entirely concealing tympanal orifices *Cicadinae*.
 - aa. Tympanal coverings imperfect, more or less exposing tympanal orifices *Gaaninae*.
- B. Tympanal coverings absent *Tibiciniæ*.

Division CICADATRAIA.

In this division the tympanal coverings are rounded anteriorly, not angulate—either completely covering the orifices

anteriorly and exposing them interiorly or the reverse, or smaller, exposing them both anteriorly and interiorly; the lateral margins of the pronotum are not convexly ampilate nor medially angulate; the tegmina and wings are hyaline, sometimes maculate.

The genera composing this division are confined to the Palearctic, Oriental, and Malayan regions and represented in Japan.

Synopsis of Genera.

- 1. Abdomen not tuberculate beneath.
 - A. Tympanal coverings narrower, but scarcely shorter than tympanal cavities.
 - a. Lateral margins of pronotum moderately ampilate.
 - b. Head shorter than pronotum.
 - c. Abdomen longer than space between apex of head and base of cruciform elevation *Tettigia*.
 - aa. Lateral margins of pronotum straight, not ampilate.
 - bb. Head as long as pronotum.
 - cc. Abdomen short, about as long as space between apex of head and base of cruciform elevation *Emathia*.
- B. Tympanal coverings both narrower and shorter than tympanal cavities.
 - d. Opercula in ♂ short and transverse, not or scarcely extending beyond base of abdomen.
 - e. Head deflected anteriorly, front not prominent.
 - f. Pronotum distinctly shorter than mesonotum.
 - g. Length of head about equal to breadth between eyes; abdomen in ♂ longer than space between apex of head and base of cruciform elevation.
 - h. Greatest width of tegmina only one third of length, broader than wings *Ternostia*.
 - hh. Greatest width of tegmina considerably more than one third of length, but scarcely broader than wings *Senia*.
 - gg. Length of head less than width between eyes; abdomen in ♂ about as long as space between apex of head and base of cruciform elevation *Cicadatra*.
 - dd. Opercula in ♂ short but well developed, at least reaching the apex of the second abdominal segment *Khimbya*.
 - ddd. Opercula in ♂ extending beyond the middle of abdomen.
 - ee. Head not deflected anteriorly, the front very prominent.
 - ff. Pronotum as long as mesonotum *Lithama*.
- C. Tympanal coverings shorter, but not narrower than tympanal cavities.
 - ecc. Head with the front prominent, its lateral margins at right angles with anterior margins of vertex.

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- h. Lateral margins of pronotum amplified, narrowed anteriorly.
 i. Abdomen beneath strongly channelled near lateral margins *Kamalata*.
 hh. Lateral margins of pronotum convex anteriorly, medially concavely sinuate.
 ii. Abdomen beneath obliquely recurved near lateral margins *Basa*.
 2. Abdomen in ♂ tuberculate beneath on the second and third abdominal segments *Calcagninus*.

Genus TETTIGIA.

Tettigia, Kolenat. Mel. Ent. vii. p. 6 (1857).

Type, *T. ornii*, Linn. (*Cicada*).

Genus EMATHIA.

Emathia, Stål, Hem. Afr. iv. p. 8 (1866).

Type, *E. agrotæ*, Stål.

Genus TERMINOSIA.

Terminosia, Dist. Ann. & Mag. Nat. Hist. (6) ix. p. 325 (1892).

Type, *T. psocæ*, Walk. (*Dundubia*).

Terminosia confusa, sp. n.

Body above castaneous brown, finely greyish pilose; pronotum with the centre of the posterior margin (excluding a medial spot), the apices of the lateral margins, and two central curved fasciæ pale greenish; mesonotum with the anterior lateral margin pale greenish, the margins of two obscure anterior oblong spots and the anterior angles of the cruciform elevation ochraceous; posterior margins of the abdominal segments narrowly fuscous; body beneath considerably paler in hue than above; opercula broad, transverse, convexly rounded posteriorly, not quite reaching basal segment of abdomen; rostrum just reaching basal abdominal segment. Tegmina and wings hyaline, the veins brown or brownish ochraceous; tegmina with a slight greenish suffusion, a curved series of about four small fuscous spots extending from base of second ulnar area to inner margin, the bases of the two upper apical areas a little infuscated, and a narrow elongate fuscous spot at apices of the longitudinal veins to apical areas. Tympanal covering very small, the greater part of the tympana being exposed.

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Long, excl. tegm., ♂ 35 mm.; exp. tegm. 87 mm.
Hab. "India" (Brit. Mus.); Sikhim (Coll. Dist.).
 This is the species figured in my Mon. Orient. Cicad. (tab. vii. fig. 21) as *T. psocæ*, Walk.

Genus SENA.

Head about as long as space between eyes, lateral margins of front somewhat at right angles to lateral margins of vertex, eyes scarcely projecting beyond the anterior angles of the pronotum; pronotum shorter than the mesonotum, its lateral margins more or less oblique, the posterior angles being obliquely dilated; abdomen longer than the space between apex of head and base of cruciform elevation; tympana largely exposed, the flaps being a little shorter and very much narrower than the tympanal orifices; rostrum just passing the intermediate coxæ; opercula in male small, transverse, not extending beyond base of abdomen; anal appendages large.
 Type, *S. quærulea*, Fall. (*Cicada*).

Genus CICADATRA.

Cicadatra, Amyot, Ann. Soc. Ent. Fr. v. p. 153 or 349 (1847).

Type, *C. atra*, Oliv. (*Cicada*).

KHIMBYA, gen. nov.

Head deflected before eyes, the front scarcely visible above, its length much shorter than space between eyes, margins of front and vertex subobliquely continuous; pronotum distinctly shorter than mesonotum, its lateral margins sinuate, but not dentate; abdomen much longer than space between apex of head and base of cruciform elevation; tympana imperfectly covered, flaps shorter and narrower than tympanal cavity; rostrum not quite reaching posterior coxæ; opercula in male inwardly obliquely divergent, extending to a little more than a third of the abdomen; anterior femora with at least two spines on their under surface; tegmina broad, their greatest breadth considerably more than a third of their length, apical areas eight, basal cell much longer than broad.
 Type, *K. evanescens*, Walk. (*Dundubia*).

LETHAMA, gen. nov.

Head horizontal, as long as space between eyes, not anteriorly deflected, front very prominent, margins of front and

vertex obliquely subcontinous; pronotum as long as mesonotum, its lateral margin oblique, sinuate, obscurely dentate; abdomen considerably longer than space between apex of head and base of cruciform elevation; tympana imperfectly covered, the flaps shorter and narrower than the tympanal cavities; rostrum about reaching the posterior coxæ; anterior femora armed beneath with two or three strong spines; opercula extending to more than half the length of the abdomen, situate wide apart and on the lateral abdominal areas; tegmina broad, their greatest breadth more than one third of their length, apical areas eight, basal cell much longer than broad.

Type, *L. locusta*, Walk. (*Cephalorhys*).

Genus KAMALATA.

Kamalata, Dist. Ann. & Mag. Nat. Hist. (6) iii. p. 52 (1830); Mon. Orient. Cicad. p. 124 (1892).

Head moderately deflected in front of eyes, its length about equal to space between eyes, its lateral margins discontinuous, the lateral margins of vertex being more or less at right angles to those of front, its width between eyes being distinctly narrower than base of mesonotum; face glabrous; pronotum a little shorter than mesonotum, its lateral margins somewhat angulately sinuate, broad and laminate on posterior half; abdomen broad, robust, and moderately inflated above, somewhat laterally oblique on each side, beneath strongly channelled near each lateral margin; tympanal cavities about as broad but shorter than the tympanal cavities; their length variable, either very short as in *K. javanensis* or about half the length of cavities as in *K. javanensis*; opercula in male short, transverse, not extending beyond base of abdomen; rostrum considerably passing the posterior coxæ; anterior femora strongly spined beneath; tegmina and wings hyaline, the first maculate, variable in length, about as long as body, as in *K. pantherina*, or longer than body, as in *K. javanensis*, basal cell longer than broad; apical areas eight.

Type, *K. pantherina*, Dist.

Kamalata javanensis, sp. n.

♂. Body castaneous, finely greyishly pilose; head with transverse striations and a basal spot to front, and two spots both above and beneath the area of the ocelli, pale

ochraceous; pronotum with the posterior margin picceous, the lateral margins brownish ochraceous, a faint central longitudinal ochraceous line, and an ill-defined subverted angular spot at anterior margin, and the incisures, picceous; mesonotum with two anterior obconical spots only denoted by their picceous margins; cruciform elevation flavescent; posterior margins of the abdominal segments narrowly picceous, and the extreme lateral margins of the same colour; head beneath, sternum, legs, and opercula ochraceous, space between face and eyes and apex of rostrum picceous; transverse striations to face more or less castaneous; tegmina and wings hyaline, the veins ochraceous or brownish ochraceous; tegmina with a curved series of about four fuscous spots between radial area (near apex) and inner margin, the veins separating the ulnar and apical areas broadly infuscated, and a fuscous spot at the apices of the longitudinal veins to apical areas.

Long, excl. tegm., ♂ 32 mm.; exp. tegm. 85 mm.

Hab. Java (Paris Mus.).

Differs from *K. pantherina* by the longer tympanal coverings, which are about half the length of the cavities, and by the longer tegmina, which are considerably longer than the body; spots and markings also different.

BASA, gen. nov.

Head with front prominent and produced, its lateral margins at right angles with anterior margins of vertex, its breadth between eyes much narrower than base of mesonotum, its length about equal to that of pronotum; pronotum a little shorter than mesonotum, its lateral margins convex anteriorly and concavely sinuate before posterior angles, which are amplified; abdomen much longer than space between apex of head and base of cruciform elevation, its lateral areas obliquely depressed above; beneath with the disk somewhat flat and the marginal areas obliquely directed upward; tympanal flaps shorter, but not narrower than tympanal cavities; opercula transverse and just passing base of abdomen; anterior femora strongly spined beneath near apex; anterior tibiae longer than femora, anterior tarsi more than half the length of tibiae; tegmina and wings long and narrow, greatest width of the first only equal to a third of length, its basal cell much longer than broad, fourth ulnar area much compressed at base of third, apical areas eight.

Type, *B. singularis*, Walk. (*Dandubia*).

Genus CALCAGNINUS.

Calcagninus, Dist. Mon. Orient. Cicad. pp. 31 & 133 (1859).
Type, *C. picturatus*, Dist. (*Leptosaltria*).

Division FIDICINARIA.

This division is represented by a series of Neotropical genera, in all of which the tympanal orifices are more or less exposed; the tympanal flaps are always well developed and are usually somewhat angulate at their apices; the tegmina and wings are hyaline, sometimes maculate, but never opaque, they always possess eight apical areas; the lateral margins of the pronotum have sometimes their posterior angles lobately produced, but they are never convexly ampliate nor medially angulate.

Synopsis of Genera.

1. Metasternum with a moderately elevated transverse central plate, which is not anteriorly angularly produced.
 - A. Head (including eyes) about equal in width to base of mesonotum; eyes scarcely projecting beyond anterior angles of pronotum.
 - a. Vertex of head at area of ocelli distinctly longer than front.
 - b. Posterior angles of pronotum a little prominent, but not lobately produced.
 - c. Tegmina with transverse vein at base of second apical area more or less vertical.
 - ca. Vertex of head at area of ocelli often only very slightly longer than front.
 - cc. Tegmina with transverse vein at base of second apical area strongly oblique.
 - B. Head (including eyes) considerably broader than base of mesonotum; eyes projecting beyond anterior angles of pronotum.
 - bb. Posterior angles of pronotum more or less lobately produced.
 - d. Tympanal coverings large and only moderately internally deficient.
 - e. Tegmina with transverse vein at base of second apical area more or less vertical.
 - f. Vertex of head at area of ocelli about as long as front.
 - ff. Vertex of head at area of ocelli much longer than front.
- dd. Tympanal coverings only developed on lateral areas.
- ee. Tegmina with transverse vein at base of second apical area strongly oblique

Proarna.*Tympanacterypes*.*Oilanta*.*Pacarina*.*Ariasa*.

2. Metasternum transversely elevated and anteriorly angularly or subangularly produced.

C. Head (including eyes) about as wide as base of mesonotum; eyes not porrect
D. Head (including eyes) considerably broader than base of mesonotum; eyes porrect, more or less stylate.

Fidicina.

- g. Pronotum about as long as mesonotum; tympanal coverings in ♂ with their inner margins strongly concave
- gg. Pronotum shorter than mesonotum; tympanal coverings in ♂ not concave interiorly

Hemicitera.*Majocorona*.

Genus PROARNA.

Proarna, Stål, Stett. ent. Zeit. xxv. p. 61 (1864); Hem. Afr. iv. p. 7 (1866).

Type, *P. hilaris*, Germ. (*Cicada*).

Some confusion may arise in separating this genus from *Tympanocterypes*, Stål (Ann. Soc. Ent. Fr. (4) i. p. 614, 1861), in which the founder had previously placed several of the species which he afterwards included in *Proarna*, and which again subsequently, in "Conspectus generum" (Hem. Afr. iv. p. 7, 1866), he separates primarily by the moderately erect or curved and non-oblique transverse vein at the base of the second apical vein to the tegmina.

Proarna Heidemannii, sp. n.

Body above and beneath with legs pale virescent; vertex of head crossed by a prominent black transverse fascia between the eyes; incisures to pronotum, two small anterior obconical spots to mesonotum, and the tarsi pale fulvous; tegmina and wings hyaline, extreme bases of both pale fulvous, the venation of both and costal membrane and area to tegmina pale virescent. Head (including eyes) about equal in width to base of mesonotum, eyes slightly projecting beyond the anterior angles of pronotum; vertex of head at area of ocelli longer than front; posterior angles of pronotum obtusely angulately prominent, but not lobately produced; rostrum just passing the intermediate coxæ, its apex piceous; opercula not extending beyond base of abdomen; tegmina with the transverse vein at base of second apical area almost vertical, not oblique.

Long, excl. tegm., ♂ 16-18 mm.; exp. tegm. 43-47 mm.
Hab. Argentina (*Wagner*, Brit. Mus.); Paraguay, Sapucey (Heidemann Coll.).

I have named this species after Mr. O. Heidemann, of

Washington, who has sent me a specimen of this species and has also assisted my revision by procuring me examples of many North-American species for comparison.

Proarna bufo, sp. n.

Body pale castaneous, finely and obscurely griseously pilose; area of the ocelli and mesonotum more or less picaceous, the last with the lateral margins and the margins of two central anterior obconical spots pale castaneous; a spot at apex of front, lateral margins of vertex of head, lateral margins of pronotum, and cruciform elevation ochraceous; tegmina and wings pale hyaline, the first with about basal half of venation and the costal membrane and area ochraceous, remaining venation brownish ochraceous, a strongly broken curved linear fascia consisting of a little more than the basal vein of the second ulnar area, a spot on the posterior vein of third ulnar area, and a little more than the transverse vein at the base of lower ulnar area infuscate; small spots at transverse veins to apical areas, and a series of rather larger outer marginal spots, fuscous. Abdomen in male short and broad, about as long as space between apex of head and base of cruciform elevation; head (including eyes) slightly narrower than base of mesonotum, eyes not projecting beyond anterior angles of pronotum; vertex of head at area of ocelli longer than front; posterior angles of pronotum only moderately subangulately produced, its lateral angles a little convexly rounded; rostrum reaching the posterior coxae; tegmina with the transverse vein at base of second apical area somewhat vertical, not oblique.

Long, excl. tegm., ♂ 20, ♀ 28 mm.; exp. tegm., ♂ ♀ 55-57 mm.

Hab. Argentina (*S. W. Thomas*, Brit. Mus.); Bolivia (*Steinbach*, Brit. Mus.).

Allied to *P. Bergi*, Dist., but smaller; tegmina much less maculated and shaded; apical area 1=3 in length, not longer than 3 as in *P. Bergi*; breadth of apical area 8=length of 7, not broader as in *P. Bergi*.

Genus TYMPANOTERPES.

Tympanoterpes, Stål (part.), Ann. Soc. Ent. Fr. (4) i. p. 614 (1861); Hem. Afr. iv. p. 7 (1866).

Type, *T. serricosta*, Germ. (*Cicada*).

Of the species Stål originally stated were representative of his genus *Tympanoterpes*, he subsequently (in 1864) removed a no small proportion to his genus *Proarna*. The *Cicada serricosta*, Germ., must be taken as the type.

Tympanoterpes alboapicata, sp. n.

Head, pronotum, and mesonotum olivaceous green; head with front (excluding central fascia), area of the ocelli, and inner margins of eyes black; pronotum with two central longitudinal black lines, which are much obliquely reflected both anteriorly and posteriorly, and with two small black spots near their base, the incisures fuscous; mesonotum with four large black obconical spots, the two central smallest, and all narrowly margined with ochraceous, a large black spot in front of cruciform elevation which is ochraceous; abdomen brownish olivaceous, bases of segments black, greyishly pilose on each lateral area near base, and with a cretaceous spot on each side of apical segment; body beneath and legs brownish olivaceous; sternum thickly greyishly pilose; a black fascia between face and eyes; ventral lateral margins more or less cretaceously tomentose; tegmina and wings pale hyaline; tegmina with the costal membrane and area and basal half of venation olivaceous, apical half of venation, upper half of basal cell, and claval area fuscous; wings fuscous at base, venation either olivaceous or fuscous. Head (including eyes) about equal in width to base of mesonotum, eyes not protruberant; vertex of head at area of ocelli very little longer than front; posterior pronotal angles angularly lobate; abdomen short, broad, about as long as space between apex of head and base of cruciform elevation.

Long, excl. tegm., ♂ ♀ 23-24 mm.; exp. tegm. 77 mm.

Hab. Argentina (*Wagner*, Brit. Mus.).

OLLANTA, GEN. NOV.

Head (including eyes) broader than base of mesonotum, eyes projecting beyond anterior angles of pronotum, vertex at area of ocelli about or almost as long as front; pronotum shorter than mesonotum, its posterior angles lobately produced, its lateral margins obliquely narrowed anteriorly, very slightly sinuate; mesonotum moderately convex; abdomen short, about as long as space between apex of head and base of cruciform elevation, tympanal coverings large, their apices subacute, anteriorly but not interiorly covering cavity; rostrum reaching posterior coxae; operetia small, transverse, only about reaching base of abdomen; face moderately globose; tegmina and wings hyaline, the first with eight apical areas.

A genus intermediate between *Proarna* and *Selymbria*.

Type, *O. mexicana*, Dist.

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PACARINA, gen. nov.

Head (including eyes) broader than base of mesonotum; eyes projecting beyond anterior angles of pronotum; vertex at area of ocelli much longer than front; pronotum with the posterior angles moderately lobately produced, its lateral margins oblique, slightly sinuate, its length shorter than that of mesonotum; abdomen about as long as space between apex of head and base of cruciform elevation; tympanal coverings distinct but inwardly concavely narrowed and exposing the tympanal cavities; face convex, a little broader than the space between it and eyes; opercula about reaching base of abdomen, their lateral margins oblique, their posterior margins a little rounded; anterior femora armed with two strong spines beneath; rostrum about reaching the posterior coxæ; tegmina and wings hyaline; apical areas eight.

Type, *P. signifera*, Walk. (*Cicada*).

ARIASA, gen. nov.

Head (including eyes) wider than base of mesonotum, the eyes projecting beyond anterior pronotal angles, vertex at area of ocelli as long as or a little shorter than front; posterior angles of pronotum more or less sublobately produced; abdomen about as long as space between apex of head and base of cruciform elevation; tympana largely exposed, the flaps only upwardly developed on the lateral areas; face large and globose; rostrum reaching the posterior coxæ; opercula short, not passing base of abdomen; abdomen beneath prominently channelled at each lateral margin; tegmina and wings hyaline, the first with eight apical areas, basal cell a little longer than broad.

Type, *A. colombica*, Dist. (*Tympanoterpes*).

Ariasa nigrovittata, sp. n.

♀. Body above black; head with basal margin and a longitudinal fascia to front, lateral and apical margins of vertex, and an oblique fascia extending from posterior margins of eyes to near ocelli, ochraceous; pronotum with the anterior margin narrowly, the lateral and posterior margins broadly, ochraceous, each lateral area somewhat castaneous, the posterior angles black; mesonotum with two obconical spots, the margins of which are pale castaneous, a lateral fascia and the cruciform elevation of the same colour, the anterior prolongations of the last more or less shaded with

black; posterior abdominal segmental margins pale castaneous; body beneath and legs brownish ochraceous; base of face, a transverse fascia between face and eyes, apex of rostrum, and bases of ventral segmental margins, black; tegmina and wings pale hyaline; tegmina with the venation, basal cell, and claval area black; costal membrane and area about inner half of basal cell, longitudinal veins to lower ulnar area, and oblique vein at apex of radial area pale ochraceous; wings with the venation black, basal area piceous, some of the longitudinal veins on basal area pale ochraceous, and the apical half of the abdominal area pale lacteous. The body beneath and legs are thickly and finely ochraceously pilose; head (including eyes) considerably broader than base of mesonotum; eyes projecting beyond anterior angles of pronotum; posterior pronotal angles lobately produced.

In a second female specimen from Bolivia the colour of the body above is paler, inclining more to ochraceous or pale castaneous than black.

Long., excl. tegm., ♀ 25 mm.; exp. tegm. 83 mm.

Hab. Central Brazil: Chapada (*Robert*, Brit. Mus.); Bolivia (*Steinbach*, Brit. Mus.). Allied to *A. albiplica*, Walk.

Genus FIDICINA.

Fidicina, Amy. & Serv. Hist. des Héan. p. 472 (1843).

Type, *F. mannifera*, Fabr. (*Tettigonia*).

Fidicina Ioberti, sp. n.

♂. Head, pronotum, mesonotum, cruciform elevation, and body beneath brownish ochraceous; abdomen above black; legs pale castaneous; body ochraceously pilose; head with the area of the ocelli indefinitely extending on each side towards eyes, and margins of front, black; pronotum with the anterior margin, the mesonotum and a narrow central transverse spot in front of posterior margin, black; mesonotum with four obconical spots, the two central shortest, and one on each lateral area longest, a large triangular spot in front of cruciform elevation, with a small rounded spot on each side and two similar spots in front of it, black; posterior margins of abdominal segments above obscurely castaneous, those of the first and sixth segments more prominently so; face (excluding base), fascia between face and eyes, spots to coxæ and trochanters, and apex of rostrum, black; tegmina

and wings pale hyaline; tegmina with the venation fuscous, costal membrane and area, basal cell, and inner longitudinal vein to basal ulnar area pale green, claval area bright ochraceous, preceded by piceous shadings; wings with the venation apically fuscous brown, green towards base; extreme apical area bright ochraceous, streaked with piceous.

Head (including eyes) about equal in width to base of mesonotum, much deflected in front of eyes; abdomen in male very short, about as long as space between apex of head and middle of mesonotum; tarsi two-jointed; body beneath and legs much more thickly and longly pilose than above; rostrum reaching the posterior coxæ; lateral margins of pronotum centrally moderately sinuate; opercula transverse, outer angles a little posteriorly prolonged, posterior margins concave, lateral margins convex.

Long., excl. tegm., ♂ 27 mm.; exp. tegm. 107 mm.

Hab. Central Brazil: Chapada (A. Robert, Brit. Mus.).

Fidicina lacteipennis, sp. n.

♂. Body above brownish ochraceous, abdomen a little darker and somewhat densely ochraceously pilose; head with a transverse fascia extending through area of ocelli, a transverse linear spot on each side of front, and inner margins of eyes, black; pronotum with the incisures piceous brown; mesonotum with four ill-defined macular obconical spots, of which the two central are shortest, and with two small indented piceous spots in front of cruciform elevation; basal segmental abdominal margins moderately piceous; body beneath densely griseously pilose; face and legs ochraceous; rostrum ochraceous, its apical half black; tegmina and wings hyaline, with a creamy-white suffusion, extreme bases of both ochraceous with some piceous markings; tegmina with the veins piceous, those at basal area, the basal cell, and costal membrane and area ochraceous; wings with the veins piceous, at the basal area ochraceous. Head (including eyes) slightly wider than base of mesonotum; length of head about half the width between eyes and much shorter than pronotum, which is almost as long as mesonotum; cruciform elevation anteriorly truncate, without produced anterior angles; rostrum extending midway between intermediate and posterior coxæ; anterior femora armed with two strong spines beneath.

Long., excl. tegm., ♂ 29 mm.; exp. tegm. 94 mm.

Hab. Amazonas (Brit. Mus.).

Fidicina flavibasalis, sp. n.

♀. Body above olivaceous; head with the area of the ocelli, a transverse fascia between eyes, inner margins of eyes, and a narrow posterior margin, black; pronotum with the central anterior and two central posterior spots and the central incisures black; mesonotum with four obconical spots, the two central shortest, a lanceolate spot in front of cruciform elevation, and a small rounded spot at each of its anterior angulations, black; abdomen with the basal segmental margins black and with the lateral areas of the second and third segments greyishly pilose; head beneath and sternum piceous, greyishly pilose; face, a fascia between face and eyes, rostrum, coxæ, and legs virescent; abdomen beneath brownish ochraceous; tegmina and wings hyaline, basal areas of both and costal membrane of the first reddish ochraceous; venation fuscous, except at bases, where it is greenish. Head (including eyes) about as wide as base of mesonotum; lateral margins of pronotum moderately oblique and finely hirsute; anterior femora with two strong spines beneath; tarsi two-jointed.

Long., excl. tegm., ♀ 20 mm.; exp. tegm. 65 mm.

Hab. Ecuador: Cachabé (Rosenberg, Brit. Mus.).

Genus HEMISCIERA.

Hemisciera, Amy. & Serv. Hist. des Hémi. p. 466 (1843).

Type, *H. maculipennis*, Lap. (*Cicada*).

Hemisciera Durhami, sp. n.

Body above brownish ochraceous; lateral and posterior marginal areas of pronotum and sixth and anal segments of abdomen stramineous; head with the lateral margin of front and a broken transverse fascia between eyes black; pronotum with a narrow pale ochraceous anterior margin and black incisures; mesonotum with four large obconical black spots, of which the two central are shortest, and a small black spot in front of each anterior angle of the basal cruciform elevation; basal margins of abdominal segments piceous; body beneath and legs paler and thickly greyishly pilose; tegmina with about basal third opaquely virescent ochraceous, remainder pale creamy talc-like, the venation on apical two thirds and costal membrane and area fuscous brown; wings with almost basal half pale ochraceous, the venation on apical half fuscous brown. Head (including eyes) much wider than base of mesonotum, the eyes semistylate; pronotum about as wide

as mesonotum; rostrum passing the intermediate coxæ; anterior femora with a long subapical spine beneath; tarsi two-jointed; opercula in male transverse, posteriorly rounded, not extending beyond base of abdomen.

Long, excl. tegm., ♂ 33 mm.; exp. tegm. 100 mm.

Hab. Brazil: Para (*Dr. H. E. Durham*, Brit. Mus.).

MAJEORONA, gen. nov.

Head (including eyes) considerably broader than base of mesonotum; eyes protuberant, more or less stylate; length of head above about equal to half its breadth between eyes and about or almost as long as pronotum, which is distinctly shorter than mesonotum; abdomen about as long as space between apex of head and base of cruciform elevation; the tympanal orifices exposed interiorly, the flaps almost as long as and covering the lateral areas, not prominently concave interiorly; metasternal plate well developed, centrally longitudinally impressed and anteriorly produced on each side; rostrum reaching the posterior coxæ; anterior femora strongly spined beneath; tarsi three-jointed; opercula in male small, transverse, not extending beyond base of abdomen; tegmina and wings hyaline, the first with eight apical areas and the basal cell longer than broad.

Type, *M. opecr.*, Walk. (*Fidicina*).

Majeorona borilla, sp. n.

♂. Body above black; head with the apical margin of frons, lateral margins of vertex, and inner margins of eyes angularly continued to near area of ocelli, olivaceous brown; pronotum with the anterior margin narrowly and the lateral and posterior margins broadly stramineous (the lateral margins outwardly black), and with a more obscure small discal spot of the same colour; mesonotum with the margins of two central obconical spots and the cruciform elevation pale castaneous; abdomen above with its lateral margins and the posterior margins of the segments pale castaneous; body beneath, and legs ochraceous; central sulcation and lateral margins of face, a fascia between face and eyes, and apices of anterior and intermediate femora, black; tegmina and wings pale hyaline, the bases of both black, mottled with brownish ochraceous, and divided by pale ochraceous veins; tegmina with the costal membrane and area black, basal cell black, with a basal central ochraceous spot, venation black, ochraceous at extreme base, transverse veins at bases of second and third apical areas a little infuscated; wings with the

lower half of venation ochraceous, the upper half black. Head (including eyes) considerably broader than base of mesonotum; eyes protuberant, moderately stylate; length of head about half its width between eyes and almost as long as pronotum, the lateral angles of which are rounded; basal areas of cruciform elevation strongly obliquely striate; opercula transverse, not passing base of abdomen; anterior femora strongly spined beneath.

Long, excl. tegm., ♂ 43 mm.; exp. tegm. 127 mm.

Hab. Central Brazil: Chapada, 2600 feet (*A. Robert*, Brit. Mus.).

XXXVII.—*The Changes and Variations in the Position of the Pectoral Fin during Development.* By H. H. SWINNERTON, D.Sc., University College, Nottingham.

FOR some time I have been investigating the development of the Teleostean pectoral fin skeleton*. This has brought into my hands an extensive series of developmental stages of the three-spined stickleback (*Gasterosteus aculeatus*). Being struck by the difference in the relative positions of the fin in the youngest and oldest stages, I measured numerous specimens of all ages, with a view to ascertaining definitely if this indicated a real shifting during development.

The investigation above referred to brings out the fact that the glenoid border tends to rotate from a horizontal to a vertical position during development. This rotation is around the ventral end of the border. Consequently this point seemed the most suitable one from which to take measurements. Two were taken in each case, viz. from this point to the tip of the snout and to the hinder extremity of the notochord.

In fig. 1 (p. 320) the vertical line represents the distance of the pectoral fin from the tip of the snout, the horizontal that from the extremity of the notochord. The oblique lines give the average position of the fin at various stages. To obtain these the specimens were put together into groups containing individuals differing in length only 1 mm., and the average was found for each group. Gaps are left because the material proved insufficient to give trustworthy results at these points. The shortest line represents the average position of the fin

* My thanks are due to the Government Grant Committee for aid in carrying on this investigation.