

external wall of dentine is now seen to thicken at the expense of the pulp-cavity, which has lost its five-rayed form and become more L-shaped. The inner wall of the canal E appears to be broken, but the inner walls of the other canals have thickened, especially on the external side of the tooth (fig. 2).

The distal fracture of the tooth is much more recent and shows the pulp-cavity reduced to a curved hamate form situate towards the inner side of the tooth and only two tenths of an inch wide in the middle. The inlet E is imperfectly separated from the pulp-cavity, probably from the effect of strain, though the partition of dentine between them remains as thin as in the basal section (fig. 1). The inlet D retains its comma- or flask-shaped form without decrease in size. The inlets C and B are almost entirely closed by the approximation of the lateral external walls (fig. 3). The tooth-substance in which they are contained is fully half an inch thick, but on the inner side of the tooth the walls of dentine are only from one to two tenths of an inch thick.

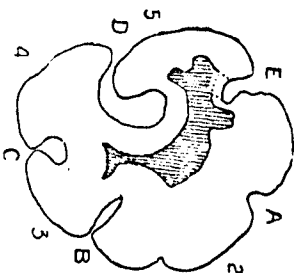


Fig. 3.

Distal fracture of the tooth.

These inlets have been regarded by Dr. Kannemeyer as comparable to the poison-duct in the tooth of a venomous serpent. The inlet D is essentially of this character, and although the entire tooth is to be desired before the inference can be regarded as established, it is not improbable that all the canals may be outlets for poison-glands.

Externally the five bars of the tooth are vertically ribbed with six to ten slightly elevated, blunt, parallel, linear stripes, which are stronger on the outer than on the inner side. There is a very slightly elevated grinding ridge, situate below

the transverse section, which may possibly indicate the dividing limit between the crown and the root, which I suppose to have been imbedded in the jaw. There are very faint transverse lines of growth beyond this ridge.

If the crown of the tooth were short, each lobe or bar of the tooth might be expected to terminate in a cusp, so that a complex five-cusped reptilian tooth might originate from folding extending through the root and crown, as in *Mammalia* like *Edentates* and *Rodents*. If the tooth is rightly interpreted as a canine, then it might be followed by molar teeth of similar complexity, and tend to show that the cuspidate character of certain mammalian and reptilian teeth may not always be due to the mechanical influences of opposing surfaces and varied movements of the jaws.

There is no distinct layer of enamel beyond a surface-skin. The calcigerous tubes of the dentine are always at right angles to the external surface, remarkably dense, straight, and parallel, always bending at the folds of the dentine as they extend inward, so that the tubes tend to be approximately parallel. There is no appreciable difference from the tube-structure in *Diegnodon*, though the tubes may be slightly larger. The species may be known as *P. pentangulatus*.

XLIV.—*Rhynchotal* Notes.—XXVI. By W. L. DISTANT.

HOMOPTERA.

Fam. Cicadidæ.

IN revising the genera of this family, in preparation for a projected complete synonymic Catalogue of the Cicadidæ, I propose to publish in advance descriptions of such new genera and species as become necessary, and to give preliminary synopses of the classification suggested. The synonymy is somewhat extensive, and will be better deferred to the pages of the Catalogue itself.

Subfam. *Cicadidæ*.

Cicadine, Dist. Mon. Orient. Cicad. p. 3 (1889).

Division POLYNEURARIA.

Lateral margins of the pronotum amplified and more or
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less angularly produced. Head (including eyes) about as wide or wider than base of mesonotum, or sometimes little more than two thirds of its width; costal membrane of tegmina sometimes much arched and dilated, the apical cells usually eight in number, but sometimes smaller in size and much more numerous; tegmina varying in hue from pale hyaline to dark opaque.

Synopsis of Genera.

I. Tegmina with eight apical areas.

1. Head (including eyes) about as wide or wider than base of mesonotum.

A. Costal membrane of tegmina not prominently dilated nor arched at base.

a. Head frontally produced, not truncate, above about as long as pronotum (excluding its posterior margin).

b. Pronotum with its posterior margin only a little less in length than that of its vertex; its lateral margins medially angulately expanded, the angular apices reaching to or nearly to the apex of basal cell of tegmina.

c. Pronotum with its posterior margin little more than half the length of its vertex; its lateral margins medially angulately expanded, the angular apices only reaching to about middle of basal cell of tegmina.

d. Pronotum with its posterior margin not more than half the length of its vertex.

e. Lateral pronotal margins medially angulately expanded, the angular apices reaching base of basal cell of tegmina.

ee. Lateral pronotal margins a little prominent, but not medially angulately expanded and not reaching basal cell of tegmina.

aaa. Head not frontally produced, more or less truncate and deflected in front of eyes.

f. Outer and posterior membranous margin to wings very broad, about one third their length.

ff. Membranous margin to wings normal, narrow. B. Costal membrane of tegmina prominently arched at base and dilated, about as wide or wider than costal area.

g. Head frontally produced, not truncate, about as long as pronotum (excluding its posterior margin).

gg. Head not produced, deflected in front of eyes.

2. Head (including eyes) only about or little more than two thirds the width of base of mesonotum.

C. Pronotal lateral margins amplified or angulately produced, angular apices not or only reaching base of basal cell of tegmina.

h. Costal membrane of tegmina prominently arched at base and dilated.

i. Costal membrane of tegmina always as broad as costal area.

ii. Costal membrane of tegmina always as broad or broader than costal area.

D. Pronotal lateral margins strongly angulately amplified, the angular apices reaching the middle or near apex of basal cell of tegmina.

hh. Costal membrane not prominently arched at base and only moderately dilated.

II. Tegmina with numerous, always more than eight, apical areas.

a. Tegmina semihyaline, only more or less reticulately veined on apical area; opercula not quite reaching middle of abdomen.

aaa. Tegmina opaque, venation on apical half dense and furcate; opercula not extending beyond basal segment.

Tringula.

Pycna.

Ugola.

Angaminia.

Polynura.

IOBA, Gen. nov.

Head (including eyes) wider than the base of the mesonotum, not truncate anteriorly, but with the lateral margins of the vertex a little oblique on each side and the front prominently produced; pronotum transverse, its posterior margin only a little less in length than the vertex, the lateral margins strongly and angulately produced on each side, the angulations medial, their apices when the tegmina are expanded reaching near or to about the end of the basal cell; mesonotum about as long as the pronotum; anterior femora with one or more distinct spines, posterior and sometimes intermediate tibiae spined on apical areas; metasternum elevated and centrally sulcated; tympana covered; opercula short, broad, their apices more or less convexly rounded; rostrum reaching the posterior coxae; tegmina with the basal cell broad, irregular, with four, or sometimes five, angles; ulnar veins widely separated at their bases; interior ulnar area somewhat broadened at apex.

Type, *I. leopardina*, Dist. (*Pacilopsallria*).

MUANSA, Gen. nov.

Head (including eyes) slightly wider than base of mesonotum, not truncate anteriorly, but frontally produced, about as long as pronotum (excluding its posterior margin); pronotum transverse, its posterior margin little more than half the length of vertex, the lateral margins strongly and angulately produced, angular apices reaching to about middle of basal cell of tegmina; mesonotum a little longer than pronotum;

anterior femora with one or more distinct spines, posterior tibiae with a few slender spines on apical areas; metasternum elevated and centrally sulcated; tympana practically covered; opercula short, broad, their apices more or less convexly rounded; rostrum reaching the posterior coxae; tegmina with the basal cell broad, ulnar veins well separated at their bases. Type, *M. clypealis*, Karsch (*Platypleura*).

SADAKA, gen. nov.

Head (including eyes) about as wide as base of mesonotum, not truncate anteriorly, but frontally produced, about as long as pronotum (excluding its posterior margin); pronotum moderately transverse, its posterior margin half the length of vertex, the lateral margins medially angularly produced, angular apices reaching base of basal cell of tegmina; mesonotum about as long as pronotum; anterior femora with one or more distinct spines on under surface; posterior tibiae with a few slender spines on apical areas; metasternum elevated and centrally sulcated; tympana covered; opercula short, broad, their apices more or less convexly rounded; rostrum reaching the posterior coxae; tegmina with the basal cell short and broad; ulnar veins well separated at their bases. Type, *S. virecens*, Karsch (*Platypleura*).

By the hyaline and non-opaque tegmina and wings this genus resembles the subgen. *Oxypleura* (*Platypleura*), from which it is at once separable by the frontally produced head.

KOMA, gen. nov.

Head (including eyes) wider than base of mesonotum, not truncate anteriorly, but frontally produced, about as long as pronotum (excluding its posterior margin); pronotum slightly shorter than mesonotum, its posterior margin about half the length of vertex, the lateral margins moderately dilated, slightly angulated, but not reaching basal cell of tegmina; anterior femora with one or more distinct spines on under surface; posterior tibiae with a few slender spines on apical area; metasternum elevated and centrally sulcated; tympana large; opercula short, broad, in type the margins oblique; rostrum reaching the posterior coxae; tegmina with the basal cell short and broad; ulnar veins well separated at their bases. Type, *K. bombifrons*, Karsch (*Platypleura*).

MURZA, gen. nov.

Head (including eyes) a little wider than base of mesonotum, subtruncate and deflected in front of eyes; pronotum transverse, about as long as mesonotum, its posterior margin a little more than half the length of its vertex, its lateral margins dilated and a little angulated, but not reaching the basal cell of tegmina; anterior femora not spined; posterior tibiae longly spined on their apical halves; metasternum a little elevated and centrally sulcated; tympanal coverings somewhat small; opercula short, broad, their lateral and posterior margins a little oblique and sinuate; rostrum reaching the posterior coxae; tegmina with the basal cell broadened apically; wings with the outer and posterior membrane very broad, about one third their length. Type, *M. latelavaria*, Sålå (*Platypleura*).

Genus PLATYPLEURA.

Platypleura, Amy. & Serv. Hist. Héan. p. 465 (1843).
Subgen. *Oxypleura*, Amy. & Serv. Hist. Héan. p. 469 (1843).
Subgen. *Pacilopsaltria*, Sålå, Hem. Afr. iv. p. 2 (1866).

- Type genus, *Platypleura*—*P. stridula*, Linn. (*Cicada*).
- " subgen. *Oxypleura*—*O. clara*, Amy. & Serv.
- " " *Pacilopsaltria*—*P. octoguttata*, Fabr. (*Zettigonia*).

YANGA, gen. nov.

Head (including eyes) as wide or a little wider than base of mesonotum, not truncate anteriorly, but with the lateral margins of the vertex a little oblique on each side, the front produced, about as long as the pronotum (excluding its posterior margin); pronotum transverse, its posterior margin about half the length of vertex, the lateral margins strongly and angularly produced on each side, their apices extending to a little more than the base of basal cell of tegmina; mesonotum a little longer than pronotum; anterior femora with a basal and subapical spinous tubercle; posterior tibiae with a few spines on apical area; metasternum elevated and centrally sulcated; tympanal coverings moderate in size; opercula short and broad, their apices more or less convexly rounded; rostrum reaching the posterior coxae; tegmina with the costal membrane much arched at base and dilated, about as broad or broader than the costal area, basal cell short and broad, ulnar veins widely separated at their bases. Type, *Y. koræ*, Dist. (*Pacilopsaltria*).

KONGOTA, gen. nov.

Head (including eyes) about as wide as base of mesonotum, anteriorly subtruncate, deflected in front of eyes; pronotum transverse, its posterior margin about half the length of its vertex, the lateral margins ampliated and subangulately produced, their apices extending to about the base of basal cell of tegmina; mesonotum about as long as pronotum; anterior femora basally and subapically tuberculously spinous; posterior tibiae with a few spines on apical area; metasternum elevated and centrally sulcate; tympanal coverings moderate in size; opercula short and broad, their apices more or less convexly rounded; rostrum reaching the posterior coxæ; tegmina with the costal membrane much arched at base and dilated, broader than the costal area, basal cell very broad; ulnar veins widely separated at their bases.

Type, *K. punctigera*, Walk. (*Platyleura*).

UMJABA, gen. nov.

Head (including eyes) only about two thirds the width of base of mesonotum, not truncate anteriorly, but obliquely deflected in front of eyes; pronotum transverse, its posterior margin about half the length of its vertex, the lateral margins ampliated, a little angulated anteriorly and posteriorly, but not medially, and not reaching base of basal cell of tegmina; mesonotum slightly longer than pronotum; anterior femora tuberculously angulated near base and apex; posterior tibiae with a few spines on their apical area; metasternum elevated and centrally sulcate; tympanal coverings broad; opercula short, broad, their apices more or less convexly rounded; rostrum just passing the posterior coxæ; tegmina with the costal membrane much arched at base, but very much narrower than the costal area, which is broadly dilated, basal cell very broad, ulnar veins widely separated at their bases.

Type, *U. evanescens*, Butler (*Platyleura*).

Genus ПУСНА.

Пусна, Amy. & Serv. Hist. Hem. p. 463 (1833).

Head (including eyes) only about two thirds the width of base of mesonotum, not truncate anteriorly, but obliquely deflected in front of eyes; pronotum transverse, the posterior margin about half the length of its vertex, the lateral margins ampliated, but not angulated, and scarcely extending over the base of tegmina; mesonotum about as long as pronotum;

anterior femora tuberculously angulated near base and apex, posterior tibiae spinous on apical area; metasternum a little elevated and centrally sulcate; tympana well covered; abdomen short and robust; opercula short, very broad, their apices more or less convexly rounded; rostrum reaching the posterior coxæ; tegmina with the costal membrane much arched at base, dilated, and always as broad or very much broader than the costal area; basal cell very broad; ulnar veins widely separated at their bases.

Type, *P. stris*, Burllé (*Cicada*).

UGADA, gen. nov.

Head (including eyes) only about two thirds the width of base of mesonotum, not truncate anteriorly, but obliquely deflected in front of eyes; pronotum transverse, the posterior margin a little more than half the length of its vertex, the lateral margins strongly ampliated and medially angulated, their apices reaching to middle or near end of basal cell of tegmina; mesonotum about as long as pronotum; anterior femora tuberculously angulate near apex, posterior tibiae spined on apical area; metasternum elevated and centrally sulcate; tympana well covered; opercula short and broad, their apices more or less convexly rounded; rostrum reaching or passing the posterior coxæ; tegmina with the costal membrane not prominently arched at base, only moderately dilated, basal cell moderately short and broad; ulnar veins widely separated at their apices.

Type, *U. umbata*, Fabr. (*Tettigonia*).

Genus АНГАМИАНА.

Ангамияна, Dist. Ann. & Mag. Nat. Hist. (6) v. p. 235 (1830).

Type, *A. alberta*, Dist.

Ангамияна floridula, sp. n.

♂. Body and legs black; posterior and posterior lateral margins of pronotum and four discal spots to mesonotum, of which the two longest are central and the two smaller between the angles of the cruciform elevation, ochraceous.

Tegmina ochraceous brown, the venation ochraceous, about basal third and a transverse fascia near middle creamy white, basal cell black, costal membrane ochraceous; wings ochraceous, with a number of elongate castaneous spots on the posterior and apical areas. Opercula obliquely divergent and reaching the apex of the

third abdominal segment; rostrum reaching the posterior coxæ; face globose, obsolete longitudinally sulcate and more broadly transversely striate; head (including eyes) much narrower than either anterior margin of pronotum or base of mesonotum; tegmina with the transverse veins at the bases of the numerous apical areas margined with pale ochraceous.

Long, excl. tegm., 41 mm.; exp. tegm. 128 mm.
Hab. "Frontière Chine—Tonkin—Region Lao-Kay"
 (Dupont, Paris Mus.).

Genus POLYNEURA.

Polyneura, Westw. Arcan. Entom. i. p. 92 (1842).
 Type, *P. ducaalis*, Westw.

Division TACUARIA.

Lateral margins of the pronotum convex, but not angularly produced, sometimes simply moderately convex or anteriorly subampliated and somewhat toothed; tegmina and wings more or less opaquely coloured.

Synopsis of Genera.

- A. Lateral margins of the pronotum somewhat convex, but even.
 a. Head (including eyes) equal in width to that between anterior lateral angles of pronotum....
 b. Head (including eyes) narrower than width between anterior lateral angles of pronotum.....
 B. Lateral margins of the pronotum anteriorly subampliated and somewhat toothed

Genus TACUA.

Tacua, Amy. & Serv. Hist. Hém. p. 461 (1843).
 Type, *T. speciosa*, Illig. (*Tetigonia*).

Genus GRAPTOSALTRIA.

Graptosaltria, Stål, Hem. Af. ir. p. 3 (1869).
 Type, *G. colorata*, Stål.

Genus TOSENA.

Tosena, Amy. & Serv. Hist. Hém. p. 462 (1843).
 Type, *T. fasciata*, Fabr. (*Tetigonia*).

Tosena Seebohmi, sp. n.

♀. Body and legs black, somewhat opaque; head with the basal lateral margins of face, the space between face and eyes and the anterior angles of vertex above, pronotum with the lateral and posterior margins (the last attenuated and almost broken at centre) and two dentate spots on anterior margin, mesonotum with the basal lateral margins, the posterior disk (which has two black spots), and the cruciform elevation and the lateral margins of the prosternum pale green.

Tegmina piceous, opaque, the costal membrane and costal area pale green, the venation castaneous; a broad creamy-white transverse fascia commencing at end of radial area, where it is broadest, and terminating on lower apical area, where it is attenuated, and with some pale brownish longitudinal streaks in ulnar and apical areas; wings black, somewhat shining, with some pale brownish streaks near apices of apical areas, the largest on abdominal area.

Rostrum passing the posterior coxæ.
 Allied to *T. montivaga*, Dist.; apart from some colour-differences, it differs principally from the corresponding sex of that species by the much greater width of the tegmina in wings. In *T. montivaga* ♀ the greatest width of the tegmina is only equal to one third of their length; in *T. Seebohmi* ♀ it is considerably more than one third of their length; the apices of both tegmina and wings are also much broader and less oblique.

Long, excl. tegm., ♀ 45 mm.; exp. tegm., ♀ 148 mm.
Hab. Formosa: Lak-kuli (*Holt*, Brit. Mus.).
 The specimen on which this species is founded formed part of the bequest made to the British Museum by the late well-known ornithologist Henry Seeböhm, to whom I have dedicated its specific name.

Division THOPHARIA.

Tympana very strongly developed and semi-free, projecting beyond the lateral margins of the abdomen and extending to about half its length; opercula very small, not reaching base of metasternum; lateral margins of pronotum almost truncate; tegmina and wings talc-like, semiopaque.

Synopsis of Genera.

- A. Pronotum very broad, its breadth equaling length of both pro- and mesonotum (including the cruciform basal elevation).
 a. Head between eyes as broad as base of mesonotum *Thopha*.

- B. Pronotum moderately broad, its breadth considerably less than length of both pro- and mesonotum (including the cruciform basal elevation).
 b. Head between eyes much narrower than base of mesonotum..... *Aruntla*.

Genus THOPHA.

Thopha, Amy. & Serv. Hist. Hém. p. 471 (1843).

Type, *T. saccata*, Fabr. (*Tetigonia*).

ARUNTLA, gen. nov.

Head transverse, moderately truncate in front of eyes, between eyes much narrower than base of mesonotum; rostrum reaching the posterior coxæ; pronotum moderately broad, its breadth considerably less than length of both pro- and mesonotum (including the basal cruciform elevation); tympana very largely developed and sac-like, their apices obliquely extending beyond the lateral margins of the abdomen and to about half its length; opercula very small, not extending to base of metasternum, placed wide apart, and with their apical margins convex; anterior femora increased and spined; posterior tibiae with a few lateral fine spines; tegmina and wings talc-like, tegmina with eight apical areas.

Type, *A. perulata*, Guér. (*Cicada*).

Division CYCLOCHILLARIA.

Abdomen broad, unsymmetrical, medially widened and distinctly abbreviated posteriorly, in the male sex (principally) obliquely depressed on each side, its greatest width almost double that of head between eyes; opercula not extending beyond base of metasternum.

Synopsis of Genera.

- A. Lateral margins of pronotum moderately concavely amplified; head (including eyes) almost as wide as anterior margin of pronotum; abdomen beneath moderately convex..... *Cyclochilla*.
 B. Lateral margins of pronotum not concavely amplified, but considerably narrowed anteriorly; head (including eyes) wider than anterior margin of pronotum; abdomen beneath more or less obliquely depressed from base to apex.
 a. Head (including eyes) broader than base of mesonotum; abdomen considerably longer than broad. *Pachoda*.
 b. Head (including eyes) only about as broad as base of mesonotum; abdomen about as broad as long..... *Henicoptaltria*.

Genus CYCLOCHILLA.

Cyclochilla, Amy. & Serv. Hist. Hém. p. 470 (1843).

Type, *C. australasiae*, Donov. (*Tetigonia*).

Genus PSALTODA.

Psaltoda, Stål, Ann. Soc. Ent. Fr. (4) i. p. 613 (1861).

Type, *P. nærens*, Germ. (*Cicada*).

Genus HENICOPSALTRIA.

Henicoptaltria, Stål, Hem. Afr. iv. p. 7 (1865).

Type, *H. Eydouxii*, Guér. (*Cicada*).

Henicoptaltria pygmaea, sp. n.

♂. Body ochraceous brown, abdomen castaneous; pronotum with a central ochraceous line, on each side of which is a narrow black fascia, extending from anterior margin to near middle; mesonotum with two obscure, central, obconical spots on anterior margin, the cruciform elevation ochraceous; abdomen above with the following greyish-white markings, viz.: a small spot at inner angle of each tympanal covering, a broad anterior fascia (broken centrally) to second segment, and the anterior margin of anal segment. Tegmina with the wings talc-like, the venation ochraceous; tegmina with the following fuscous spots:—one on each longitudinal vein to third ulnar area, each side of the transverse veins at apices of ulnar areas, and one at the apex of each longitudinal vein to apical areas.

Head, pronotum, and mesonotum granulose; rostrum reaching the posterior coxæ; tympanal coverings prominent and finely transversely striate; abdomen finely pilose; opercula rounded, not extending beyond the anterior margin of the first abdominal segment; tegmina only a little longer than the body.

Long., excl. tegm., 14 mm.; exp. tegm. 39 mm.

Hab. S.W. Australia (*Higgins*).
 Allied to *H. fullo*, Walk.