

ORIENTAL CICADIDÆ.

Class INSECTA.

Order RHYNCHOTA.

Suborder HOMOPTERA.

♂ Fam. CICADIDÆ.

- ♂ *Stridulantes*, Latreille, Fam. Nat. du Règne Anim. p. 426 (1825); Amyot & Serville, Hist. des Hém. p. 458 (1843).
♂ *Stridulantia*, Burmeister, Handb. ii. 1, pp. 102, 170 (1835); Stål, Hem. Afr. iv. p. 1 (1866).
✓ *Cicadida*, Westwood, Intr. Mod. Class. Ins. ii. p. 420 (1840); Arcan. Entomol. i. p. 91 (1848); Distant, Biol. Centr. Am. Rhynch. Hom. p. 1 (1881).
♂ *Cicadaria*, Packard (nec Latreille), Guide Study Ins. 5th edit. p. 533 (1876).

The principal characters of this family of Homoptera are as follows:—Ocelli three in number and placed on the disk of the vertex of head; antennæ short, inserted close to the eyes and composed of seven joints. The head is short, broad, and transverse, terminating beneath in an elongated rostrum composed of three joints. The thorax is large; the pronotum short and transverse, with two oblique longitudinal discal furrows on each side; the mesonotum* is very large and terminates behind in a small basal cruciform elevation.† The abdomen consists of six segments and an anal segmental appendage. The anterior femora are incrassated and more or less spinose beneath. The tegmina are generally hyaline, sometimes opaque; the venation usually distinct and furcate in ramification, but sometimes reticulate.‡

The sound-producing or stridulating organs of the male§ have been studied and described by Réaumur,|| Goureau and Solier,¶ Dugès,** Landois,†† Mayer,‡‡ and Carlet.§§ Mr. Jno. C. Galton has also given an excellent resumé of the same,||| especially as regards the work of Carlet. Prof. C. Lloyd Morgan has recently contributed a short but very succinct description of “the sound-producing apparatus of the Cicadas,”¶¶ which Mr. Middlemiss, writing from the North-West Himalaya, has supplemented by further particulars.***

This sound-producing apparatus is covered beneath by two flaps, which, as pointed out by Westwood, are “in fact, the dilated sides of the metasternum”†††; these are often incorrectly

* This has been considered as a scutellum by Stål and some other writers, but I am supported in my view by Burmeister and Westwood.

† The metathoracic cross of Mr. Uhler (see fig. 1, 5, p. 4).

‡ As in *Polyneura ducalis*, Westw.

§ Dr. Bennett found that the natives of New South Wales were acquainted with the fact that the males alone produced the sound. They said, in their peculiar English, “Old woman Galang galang no got; no make a noise,” implying that the females do not possess these musical instruments.—‘Wanderings in New South Wales,’ vol. i. p. 237.

|| ‘Mémoires,’ tom. v. pl. xvii. (1740).

¶ Ann. Soc. Ent. de France, tom. vi. (1837).

** ‘Traité de Physiologie comparée,’ tom. ii. (1838).

†† Zeitschr. für wissensch. Zool. bd. xvii. s. 105 (1867).

‡‡ ‘Zeitschr. für wissensch. Zool. bd. xxviii. s. 79 (1877).

§§ ‘Ann. des Sciences Naturelles,’ sér. 6, Zool. tom. v. & ‘Comptes Rendus de l’Acad. des Sciences’ (1876).

||| ‘Popular Science Review,’ new ser. vol. i. p. 353, pl. x.

¶¶ ‘Nature,’ vol. xxxiii. p. 368 (1886).

*** Ibid. p. 583 (1886).

††† ‘Modern Classification of Insects,’ vol. ii. p. 422.

described as "drums," but are really covering-flaps, or as they are generally called "opercula," in agreement with Stål and other writers. These opercula, in many genera, are by their length and structure most important factors in specific differentiation. The real drums or "tympana" are either seen above on each side near the base of the abdomen as in the *Tibiceninae*, or covered by the dilated or expanded lateral areas of the basal abdominal segment,* as in the *Cicadinae*.

The females are provided with a remarkably developed ovipositor, by which they are enabled to pierce the branches of trees and there deposit their eggs. According to Westwood, the female deposits from five to seven hundred eggs,† but we have the statement of Dr. Hildreth that in North America the stock of eggs possessed by the female of *Tibicen septemdecem* "amounted to about one thousand."‡

It may be here stated that it is proposed in this work to fully describe and figure all the species known or recorded from Continental India and Ceylon, the islands in the Bay of Bengal, Burma, Tenasserim, the Malay Peninsula, the length and breadth of the Malayan Archipelago, including, but not extending eastward of, New Guinea; and Eastern Asia including China and Japan. It will be thus evident that this area, in a zoo-geographical sense, is a very arbitrary one, including the whole of the Oriental Region of Wallace, or the Indian Region of Selater,§ entering the Australian Region at New Guinea, and embracing the Japanese Subregion of the Palearctic realm. The Monograph thus embraces—literally—*Oriental Cicadidæ*, and many genera can thus be more exhaustively treated than if a smaller, though more accurate, zoo-geographical region had limited our descriptive work.

As regards the habits and life peculiarities of the *Cicadidæ*, we lack much precise information. References to these sound-producing insects are naturally found in most books of travel written by authors to whom Nature has, at least, some kind of interest, but even in these the recorded facts can only be applied to the members, or rather some individuals, of the group|| belonging to a special locality, as specific, or even generic, distinctions can scarcely be expected to be recognised. Some attempt will be made to collate a number of these observations, and opportunity will be sought to diffuse them throughout the work in a more or less geographical manner as opportunities arise.

The general impressions of Cicadan music are naturally varied. Darwin, when at

* I follow Stål in considering this as the basal segment of the abdomen, though Mr. Woodworth, in a recent "Synopsis of North American Cicadidæ," describes the "second abdominal segment of the male" as being expanded.—'Psyche,' vol. v. p. 67 (1888).

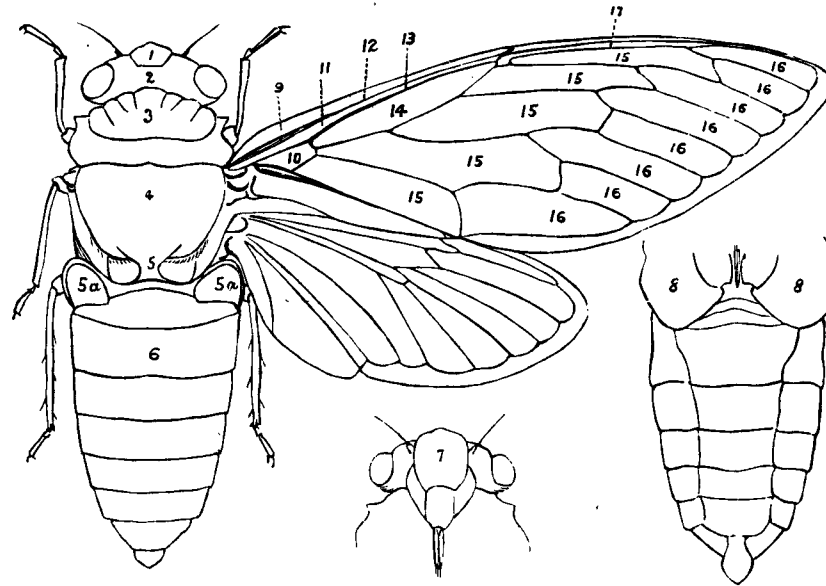
† 'Modern Classification of Insects,' vol. ii. p. 425.

‡ Sillim. Amer. Journ. 1830, p. 49.—As Darwin has admirably put it, "the real importance of a large number of eggs or seeds is to make up for much destruction at some period of life; and this period in the great majority of cases is an early one."—'Origin of Species.'

§ Address delivered to Biol. Sect. Brit. Association, Bristol (1875).

|| Even this is not always the case. Thus we frequently find, in books of travel, references to grasshoppers, when cicadas are evidently the insects intended. But perhaps the "reductio ad absurdum," in this respect, is reached by an anecdote given in that still charming narrative of Capt. Cook:—"One of the seamen who had been rambling in the woods told us at his return that he verily believed he had seen the devil; we naturally enquired in what form he had appeared, and his answer was in so singular a style that I shall set down his own words:—'He was,' says John, 'as large as a one-gallon keg, and very like it; he had horns and wings, yet he crept so slowly through the grass, that if I had not been afraid, I might have touched him.' This formidable apparition we afterwards discovered to have been a bat."—'The Voyages of Capt. Jas. Cook,' vol. i. p. 234. Our modern poets are now even changing the English name; thus, in Mr. Allingham's 'Flower Pieces and other Poems,' just published, and in which some earlier-published poems have received a new editing, "Cicada drunk with drops of dew," has become a tettix, and we read "O Tettix," and "O my Tettix," where formerly appeared, "Cicada," and "dear Cicada." But, oh, *mirabile dictu!* a reviewer of these poems defends the name "Cicada" against "Tettix," as though less onomatopœic, being more pleasant, and long since "the English way of naming this grasshopper."

of the subject which was well separated by Burmeister under the name of "Partial Orismology."



1. Front of head.
2. Vertex of head.
3. Pronotum.
4. Mesonotum.
5. Cruciform elevation.
- 5a. Abdominal coverings to tympana.
6. Abdomen.
7. Face, on underside of head.
8. Opercula.
9. Costal membrane.
10. Basal cell.
11. Costal area.
12. Costal vein.
13. Radial vein.
14. Radial area.
15. Ulnar areas.
16. Apical areas.
17. Postcostal area.

Fig. 1. General structure of *Pomponia imperatoria*.

SYNOPSIS OF GENERA.

1. Lateral margins of the pronotum amplified and more or less angularly produced.
 - a. Tegmina with eight apical areas.
 - b. Expanse of head, including eyes, broader than mesonotum. - - - PÆCILOPSALTRIA.
 - bb. Expanse of head, including eyes, not broader than mesonotum. - - - PLATYPLEURA.
 - aa. Tegmina with the venation dense and furcate, the apical areas numerous, but small and irregularly formed. - - - POLYNEURA.
2. Lateral margins of the pronotum convex, but not angularly produced.
 - A. Tegmina and wings more or less opaquely coloured.
 - c. Lateral margins of the pronotum somewhat convex but even.
 - d. Head, including eyes, equal in width to anterior lateral margins of pronotum. TACUA.
 - dd. Head, including eyes, narrower than anterior lateral margins of pronotum. GRAPTOSALTRIA.
 - cc. Lateral margins of the pronotum anteriorly subampliated and somewhat toothed. TOSENA.
 - AA. Tegmina and wings either totally or partially hyaline.
 - B. Lateral margins of the pronotum more or less distinctly toothed.
 - e. Second and third ventral segments in male with distinct lateral tubercles. LEPTOPSALTRIA.
 - ee. Ventral segments without tubercles.
 - f. Opercula long, generally reaching beyond middle of abdomen.
 - g. Head with the front large and convex, about twice as broad at base as anterior margins of the lobes of vertex.
 - h. Rostrum scarcely reaching the posterior coxæ. - - - DUNDUBIA. 238
 - gg. Head with the front not twice as broad at base as anterior margins of the lobes of vertex.
 - hh. Rostrum reaching, sometimes slightly passing, the posterior coxæ.
 - ff. Opercula long, at least reaching centre and, sometimes apex, of abdomen. COSMOPSALTRIA. 15
 - fff. Opercula short and transverse.
 - i. Interior ulnar area normal. - - - POMPONIA.
 - ii. Interior ulnar area broad and beyond base distinctly amplified. PSITHYRISTRIA.
 - BB. Lateral margins of the pronotum not toothed.
 - k. Metasternum elevated at middle and furnished with a posterior process turning backwards. - - - CRYPTOTYMPANA. 1
 - kk. Metasternum not, or very slightly, elevated, but not provided with posterior process. - - - CICADA. 0