

Australian Leaf-Hoppers (Jassoidea, Homoptera)
Part 4*
(Ledridae, Ulopidae, and Euscelidae, Paradorydiini)

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PLATES XIV-XVI

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This paper is concerned with three groups of leaf-hoppers. These are not closely related to each other, but are considered together because of the striking similarity in appearance between certain representatives of each group. This resemblance may be due to the effect of identical environmental factors, to the possession, at least by two of the groups, of a similar inherent orthogenetic trend, or to chance resemblance furthered by parallel evolution.

Family LEDRIDAE

The Ledridae have representatives in Europe, Africa, Asia, and Australia. Although Walker (1851, 1858) described sixteen leaf-hoppers from Australia which he placed in the genus *Ledra* F., it has since been shown that this genus does not occur in the Australian region. The majority of Walker's species belong to another family, the Stenocotidae.

The Ledridae are characterized by the dorsal position of the ocelli, and the structure of the hind tibiae. These are invariably flattened and may be spineless or bear a few short spines on the outer edges. The Australian representatives can be divided into two sub-families, the Ledrinae and the Cephalinae. Six genera belonging to the Ledrinae have previously been described from Australia. Three new ones are defined below.

* Previous parts in this series of papers were not numbered, but were published in the following order:

Part 1: A Revision of the Eurymelini. Trans. Roy. Soc. S. Aust. 57, 1933.

Part 2: A Revision of the Ipoinae. Proc. Roy. Soc. S. Aust. 58, 1934.

Part 3: The Bythoscopidae of Australia. Papers & Proc. Roy. Soc. Tas. 1935.

As an aid to the identification of the genera, figures are given of a representative of every genus. These render the provision of a key to the genera unnecessary. The Ledrinae differ from the Cephalinae in their larger size, and in never having the lateral margins of the pronotum parallel to each other.

Sub-family LEDRINAE

The following genera and species of the Ledrinae have previously been described from Australia:

Genus **Ledropsis** White

Ann. & Mag. Nat. Hist. 1 (XIV); 425, 1844

In this genus there are four described species, *coccinea* Butler (1874), and *acuminata*, *crocina*, and *froggatti* Distant (1907). Plate XIV, fig. 1, represents the head and thorax of *Ledropsis crocina*. This species is pale-brown in colour, and the head and anterior half of the pronotum are at a lower level than the scutellum and the hind margin of the pronotum. The venation of the tegmina is reticulate.

Genus **Jukaruka** Distant

Ann. Soc. Ent. Belg. 51; 199, 1907

The single species in this genus, *typica* Dist. (1907) (Plate XIV, fig. 2), is closely related to *Ledropsis*, differing principally in the shorter and more truncate head.

Genus **Porcorhinus** Goding

Proc. Linn. Soc. N.S.W. 28; 38, 1903

The single species in this genus, *mastersi*, Goding (Plate XIV, fig. 6), was originally described as a membracid, due to the development of lateral margins of the pronotum posteriorly. It is more closely related to *Ledropsis* spp. and *Jukaruka typica* than to species in other genera. *Gudwana* Distant (1907) is a synonym of *Porcorhinus*.

Genus **Ledromorpha** Stål

Ann. Soc. Ent. Fr. 4 (IV); 68, 1864

The following species belonging to this genus have been described: *vaginata* Stål (1864), *planirostris* Donovan (1805), *Ledra caudata* Walk. and *Ledra valida* Walker. Both Walker's species are synonymous with *planirostris* Don. *L. planirostris* (Plate XIV, fig. 4) is the largest member of the family occurring in Australia. The female measures 30 mm. from the apex of the head to the tip of the ovipositor.

Genus **Petalocephala** Stål

Öfv. Vet.-Ak. Förh. 22; 158, 1865

The Australian species, *Ledra brevifrons* Walker (1851), considered by Distant (1907) as belonging to this genus, is unknown to me. Among the generic characters given by Stål are: small eyes; ocelli situated at the foot of the vertex nearer to each other than the eyes; thorax hexagonal, very slightly or not at all narrowed anteriorly. Tegmina sub-coriaceous, transparent, densely punctate, veins branching irregularly against the apex, not quite distinct. (Mr. China informs me that the type specimen of *Ledra brevifrons* is not a true *Petalocephala*, but probably represents a new genus related to *Rubria*, but differing from it in that the head is much shorter than wide across the eyes, and the thorax is shorter and more declivous.)

Genus **Rubria** Stål

Öfv. Vet.-Ak. Förh. 22, 1865

This genus differs from *Petalocephala*, in that the ocelli are situated behind the middle of the disk of the vertex, the distance between them being equal to or less than their distance from the eyes. Tegmina with five apical cells. Two species are known from Australia, *sanguinea* Stål and *carcosa* Stål (Plate XIV, figs. 3a, 3b, 10). These are probably the commonest members of the family.

Kirkaldy (1906) described seven species of leaf-hoppers, which he placed in the genus *Rhotidus* Walk. (Euscelidae). An examination of the figures accompanying the descriptions suggests that they may all belong to *Rubria* Stål.

Platyledra, gen. nov.

The head is spatulate, narrowing apically to a point; dorsally it is convex, ventrally concave. The lateral sutures of the frons are deep, the lorae depressed, and the clypeus small and pear-shaped. The maxillary plates are narrow. The ocelli are on the dorsal surface, well in front of the eyes, and are closer to the eyes on each side than to each other. There is a well-defined dorsal median longitudinal keel that extends on to the pronotum, and the head, which has in addition irregular small ridges on its dorsal surface, is wider medianly than across the eyes. The pronotum is collar-like and more or less rectangular, the tegmina are coriaceous, the veins raised in relief, and the venation reticulate. The hind tibiae are flattened and spineless, each of the outer edges bearing a fringe of short hairs only. The ovipositor, which extends well beyond the apex of the folded tegmina, is concave ventrally and tectiform dorsally.

Platyledra hirsuta, sp. nov. (Genotype)

(Plate XIV, figs. 5a, 5b)

Length, 17 mm. (from the apex of the head to the tip of the folded tegmina). *Head*, ventral surface, dull yellow, clypeus red, lateral frontal sutures brown. Frons, antennal pits, and clypeus sparsely covered with short white hairs. Dorsal surface of head, pronotum, and scutellum pale brown with dark brown markings. *Tegmen*, grey, veins dark grey. *Thorax* and *abdomen*, ventral surface, and *legs*, pale brown with dark brown markings.

Type ♀, from Ooldea, South Australia (coll. A. M. Lea), in the collection of the South Australian Museum.

Ledrella, gen. nov.

The frons is swollen posteriorly, the antennal ledges distinct and parallel to the hind margin of the ventral surface of the head, the antennal pits shallow, and the maxillary plates narrow. The ventral surface of the head is separated from the dorsal surface by a sharp ridge. Dorsally the head is slightly rounded anteriorly, though not produced, and the ocelli occur just in front of the eyes. The anterior margin of the pronotum is parallel with the dorsal anterior margin of the head, and is narrow laterally and somewhat declivous. The tegmina are evenly rounded apically, and the venation is not reticulate. The hind tibiae are flattened, the outer edges bearing two rows of mobile spines mounted on slightly protuberant bases.

Ledrella brunnea, sp. nov. (Genotype)

(Plate XIV, figs. 9a-9c)

Length, 5 mm. *Head*, *pronotum*, and *scutellum*, pale brown. Head with the ocelli closer to the eyes on each side than to each other. *Tegmen*, transparent; veins brown with white bars. *Thorax* and *abdomen*, ventral surface pale brown with dark brown markings. *Male genitalia*, as in Plate XIV, fig. 9c. The long narrow process, parallel to the aedeagus, is attached to the pygophore, and is not part of the aedeagus, as might appear from the figure.

Type ♂, from Kiata, Victoria (coll. F. E. Wilson), in the collection of the Australian Museum, Sydney.

Ledraprora, gen. nov.

The head is convex ventrally, and the frons is produced anteriorly into a long narrow process. The maxillary plates are wide and the frons narrow. The ocelli are on the dorsal surface of the head, well in front of the eyes, and face outwards. The pronotum narrows laterally, but the propleurae are sufficiently wide to separate

the head from the bases of the tegmina. The tegmina are evenly rounded apically, and the venation is distinct and not reticulate. The hind tibiae, which are convex on their internal surfaces, are flattened exteriorly, and bear a row of short mobile spines, mounted on slightly protuberant bases, along both the outer edges. In the female the sheath of the ovipositor extends well beyond the apices of the tegmina.

Ledraprora insularis, sp. nov. (Genotype)

(Plate XIV, figs. 7a-7d)

Length, 9.5 mm. *Head*, length of dorsal surface 3.3 mm., width across the eyes 2 mm., brown. The anterior prolongation of the frons has two lateral swellings, is rounded apically, and is keel-shaped both dorsally and ventrally. The ocelli are nearer to each other than to the eyes on each side. *Pronotum* and *scutellum*, pale brown. *Tegmen*, pale hyaline-brown, veins marked with irregular brown and white markings. *Thorax* and *abdomen*, ventral surface, and *legs*, pale brown.

Type ♀, from Kangaroo Island (coll. A. M. Lea), in the collection of the South Australian Museum.

Ledraprora victoriensis, sp. nov.

(Plate XIV, fig. 8)

Length, 10 mm. *Head*, dark brown, the anterior prolongation of the frons more or less circular in section, without lateral swellings. Ocelli closer to the eyes on each side than to each other. *Pronotum* wider laterally than with the genotype, pale brown with dark brown markings. *Scutellum*, pale brown. *Thorax* and *abdomen*, ventral surface pale brown with dark brown markings.

Type ♀, from Kiata, Victoria (coll. F. E. Wilson), in the collection of the Australian Museum, Sydney.

Sub-family *CEPHALELINAE*

The Cephalaelinae comprise a group of small narrow leaf-hoppers that have been recorded from South Africa, Australia, and New Zealand. The following characters will enable their separation from the Parydorydiini, which they superficially resemble:

The head is produced anteriorly; ocelli, if present, are on the dorsal surface of the head, in front of and between the eyes, frequently they are functionless or even absent. The genae, or that part of the head that lies between the eyes and the frons, may be separated from the maxillary plates by an indistinct transverse suture. The pronotum is collar-like and parallel-sided.

The head, thorax, and tegmina, the lastnamed either proximally only or entirely, are punctate. The tegmina narrow apically, and the venation may be distinct or obscure. Hind wings are absent. The femora are strongly incrassate, and the tibiae distinctly flattened or foliate. The hind tibiae are short and not adapted for jumping. They are feebly spinose along the outer edge.

The available species are placed in four genera, of which two are new.

This group of leaf-hoppers is considered as a sub-family of the Ledridae because of the characters supplied by the elongate head, the dorsal position of the ocelli, and the flattened and feebly spinose hind tibiae. Their nomenclature has been in a state of confusion, partly because of the resemblance of certain species to *Paradorydium* spp., and also because of the uncertainty that existed at one time as to the genotype of *Dorydium* Burm. In addition to the species listed below it is possible that *Dorydium foveolatum* Signoret belongs to the Cephalelinae.

Genus *Cephalelus* Percheron

Mag. Zool. II, 1832

Dorydium Burm., *Hand. Ent.* II, 106, 1835

Genotype *C. infumatus* Perch.

Two species have been described from Australia that belong to this genus, *brunneus* Waterhouse and *marginatus* Waterhouse (1839). The entire dorsal surface of the head is punctate, and the head, which is considerably produced anteriorly, is convex dorsally and evenly concave ventrally. The lateral frontal sutures in the adults terminate at the antennal pits, which are deep, and form a notch in the side of the head, and the eyes are small. The anterior margin of the prothorax is almost straight. The tegmina are long and narrow, coriaceous and sharply pointed apically, and the venation is obscure. The fore and middle tibiae are flattened externally and narrow distally. The hind tibiae are slightly longer, flattened and parallel-sided. Plate XV, fig. 14, represents *Cephalelus brunneus*.

Genus *Notocephalius* Jacobi

Faun. S.W. Aust. Michaelsen u. Hartmeyer ii; 329, 1909

This genus is only known to me from the original description. The figure of the genotype, *Notocephalius hartmeyeri* Jac., that accompanies the description makes it clear that this species is not congeneric with *Cephalelus brunneus*.

Procephaleus, gen. nov.

The head is long, slightly bulbous apically, and more or less circular in cross-section. The ocelli are rudimentary, and the eyes are not prominent. The lateral portions of the anterior margin of the pronotum are not straight, due to the backward prolongation of the eyes. The tegmina are coriaceous, and the venation is distinct. The tibiae resemble those of *Cephaletus* spp.

Procephaleus bulbosa, sp. nov. (Genotype)

(Plate XV, fig. 13)

Length, 8.2 mm. *Head*, width .8 mm., length 3 mm., ventrally pale brown, dorsally pale brown with dark brown punctures; eyes chocolate-brown. *Pronotum*, concolorous with the head. *Scutellum*, pale brown with a few scattered punctures. *Thorax* and *abdomen*, ventral surface, and *legs*, pale brown.

Type ♀, from Carlisle, Western Australia (coll. D. C. Swan), in the collection of the Australian Museum, Sydney.

Anacephaleus, gen. nov.

The head is produced anteriorly, but is shorter and wider than in the previous two genera, being more or less triangular in shape, flat or slightly rounded dorsally and convex ventrally. The antennal pits are deep. Ocelli may be present or absent and the eyes slightly or very prominent. The prothorax is emarginate laterally. The tegmina are transparent, hyaline or coriaceous and thickened along the anterior costal margin, and the venation is distinct. In addition to the new species described below, *Dorycephalus subreticulatus* Kirk., *D. ianthe* Kirk., and *D. trilineatus* Kirk. (1906) belong to this genus. The figure given by Jacobi of *Paradorydium michaelsoni* Jac. (1909) suggests that this species also belongs to the present genus.

Anacephaleus minutus, sp. nov. (Genotype)

(Plate XV, figs. 7a, 7b; Plate XVI, fig. 1)

Length, 3.5 mm. *Head*, width .8 mm., length of dorsal surface 1 mm., punctate, brown with dark brown markings; labium long, reaching to beyond the bases of the hind legs; clypeus small, pear-shaped; genae separated from the maxillary plates by a transverse suture. Frons parallel-sided, the lateral borders terminating at the antennal pits, which are deep; vertex with a slight median longitudinal ridge; ocelli present, closer to each other than to the eyes on each side. *Pronotum* and *scutellum*, punctate, brown with dark brown markings. *Tegmen*, transparent, punctate basally and along the veins; venation distinct. *Thorax* and *abdomen*, ventral surface, and *legs*, brown.

Type ♀, from Perth, Western Australia (coll. D. C. Swan), in the collection of the Australian Museum, Sydney.

Note.—This species has also been taken on Mount Wellington, Hobart, Tasmania.

Anacephaleus ulopae, sp. nov.

(Plate XV, fig. 9)

Length, 5 mm. *Head*, width across the eyes 1 mm., length 1.2 mm., pale brownish-yellow with brown and white markings; eyes dark brown, prominent; labium reaching to between the middle pair of legs. Ventral surface of head similar to that of the genotype, dorsal surface with rudimentary ocelli and two crescentic prominences between the ocelli and the eyes on each side, and with a median longitudinal ridge. The apex of the head is slightly tilted upwards. *Tegmen*, with reticulate venation; veins distinct, in relief, and the whole surface of the tegmen punctate. The costal margin of the tegmen is rounded, the anal border straight, and the tegmen is pointed apically.

Type ♀, from Adelaide, South Australia (coll. A. M. Lea), in the collection of the South Australian Museum.

Note.—This species bears a close superficial resemblance to *Austrolopa* spp.

Anacephaleus carribensis, sp. nov.

(Plate XV, figs. 8a-8c)

Length, 4 mm. *Head*, width .7 mm., length 1 mm., pale reddish-brown with dark brown and whitish markings; labium reaching to between the middle pair of legs; clypeus swollen, almost circular, vertex without a median ridge, ocelli rudimentary, closer to each other than to the eyes on each side; eyes prominent. *Pronotum* and *scutellum*, brown, punctate. *Tegmen*, hyaline-brown, punctate basally; veins brown, distinct.

Type ♀, from Carribe, York Peninsula, South Australia (coll. N. B. Tindale), in the collection of the South Australian Museum.

Anacephaleus simplex, sp. nov.

(Plate XV, figs. 10a, 10b)

Length, 7 mm. *Head*, width 1 mm., length 2 mm., pale brown, spatulate, evenly convex ventrally, dorsally with a median longitudinal ridge; ocelli absent; eyes protruding slightly laterally. *Tegmen*, narrow apically, veins brown, distinct, punctate proximally, transparent distally; venation not reticulate.

Type ♀, from Mordialloc, Victoria, in the collection of the National Museum, Melbourne.

Anacephaleus punctatus, sp. nov.

(Plate XV, fig. 12)

Length, 10 mm. *Head*, length 4 mm., slightly concave ventrally; frons ventrally, clypeus, and eyes, chocolate-brown; head dorsally dull brown with dark brown punctures, and with a low but distinct median ridge. Head laterally with a V-shaped indentation adjacent to the antennae; ocelli distinct, white. *Tegmen*, brown, punctate, venation distinct.

Type ♂, from Kiata, Victoria (coll. F. E. Wilson), in the collection of the Australian Museum, Sydney.

Family EUSCELIDAE

Sub-family EUPELICINAE

Tribe *Paradorydiini*

This group of insects is considered here on account of the close resemblance borne by some of its representatives to certain of the Cephalelinae. Among the common characteristics are, in addition to similarities of size, shape, and coloration, the narrow elongate head, absence of hind wings in *Paradorydium* spp., and the punctate head, thorax, and tegmina. They differ in the position of the ocelli, which in the Paradorydiini are situated on the lateral margins of the head, just in front of the eyes, in the venation of the tegmina, and in the structure of the hind tibiae, which have an armature of stout bristle-like spines. In addition the pronotum is never collar-like, and the anterior margin of the pronotum never parallel to the hind margin. The Paradorydiini, which are a tribe of the Euscelidae, are of world-wide distribution. Two genera occur in Australia. These are *Paradorydium* Kirkaldy and *Deltodorydium* Kirkaldy.

Genus **Deltodorydium** Kirkaldy

Bull. Hawaiï Sug. Ass. Ent. 3: 73, 1907

This genus (considered a sub-genus by Kirkaldy) is possibly closely related to *Gcaleka* Naudé (1926). The dorsal surface of the head, which is angularly produced, is more or less triangular in shape and flat. The ventral surface is slightly rounded, with the maxillary plates wide, the lateral margins of the clypeus parallel to each other, and the antennal pits shallow. The ocelli are situated on the lateral margins of the head, just in front of the eyes, which are not prominent. The head, pronotum, and scutellum are dotted with shallow punctures. The tegmina are punctate, except at the apices, and the venation is distinct. Hind-wings are present and the hind tibiae bear an armature of strong spines.

Two species belonging to this genus have previously been described from Australia. These are *D. ovidici* Kirk. and *D. brighami* Kirk. (1907). Figure 4, Plate B, which represents the head and thorax of the genotype, *D. brighami*, was drawn from the paratype.

***Deltodorydium cooki*, sp. nov.**

(Plate XV, figs. 1a, 1b; Plate XVI, fig. 2)

General coloration, pale brown. *Length*, 3 mm. *Head*, width 1 mm., pale brown, punctate. *Pronotum* and *scutellum*, pale brown, punctate. *Tegmen*, punctate, excepting apically, venation obscure. Hind tibiae considerably larger than the tibiae of the front and middle pair of legs.

Type ♂, from Adelaide, South Australia (coll. F. Cook), in the collection of the Australian Museum, Sydney.

***Deltodorydium viridis*, sp. nov.**

(Plate XV, figs. 3a, 3b)

Length, 3-3.5 mm., general coloration pale green. *Head*, width 1 mm., punctate; head shorter than with *D. leai*, and without a longitudinal ridge on the vertex ventrally; eyes dark green. *Pronotum*, with the posterior two-thirds a darker green than the anterior third, and wider laterally than in *D. leai*. *Tegmen*, greenish, venation distinct. *Thorax* and *abdomen*, ventral surface, and *legs*, pale green.

Type ♂, from Cannington, Western Australia (coll. M. Solomon on *Melaleuca* sp.), in the collection of the Australian Museum, Sydney.

Note.—Figures are given of two specimens of this species, in order to show the range of variation in the shape of the head.

***Deltodorydium leai*, sp. nov.**

(Plate XV, figs. 2a, 2b)

Length, 3.5 mm., general coloration pale yellowish-brown. *Head*, width 1 mm.; clypeus extending beyond the maxillary plates, lorae not reaching to the anterior margin of the head; vertex with a short, sharp, median, longitudinal ridge extending on to the crown of the head, and from thence on to the pronotum; eyes dark brown. *Tegmen*, punctate, venation distinct.

Type ♂, from Mittagong, New South Wales (coll. A. M. Lea), in the collection of the South Australian Museum.

Genus *Paradorydium* Kirkaldy.

Entomologist 34: 339, 1901

Genotype, *Paradorydium lanceolatum* (Burm.)

The head is punctate and produced, the apex slightly tilted upwards and flattened dorsally. The ventral surface of the head has a median keel, and the dorsal surface, except apically, is rounded, with

or without a median carina. The clypeus is more or less parallel-sided, the maxillary plates wide, and the antennal pits shallow. The ocelli are laterally placed just in front of the eyes. The anterior margin of the pronotum is rounded, the hind border almost straight, and the propleurae wide. The tegmina, which narrow apically, are punctate along the veins, and the venation is distinct. Hind-wings are absent. The hind tibiae have an armature of strong spines similar to those of *Deltodorydium* spp. Two Australian species belonging to this genus have previously been described. These are *Paradorydium menalus* Kirk. and *P. pseudolyricen* Kirk. (1906). The type locality of *menalus* Kirk. is in Northern Queensland. Specimens collected in Victoria (Kiata) and Tasmania (Hobart) so closely resemble this species as not to merit specific differentiation. Plate XV, fig. 6a, represents *P. menalus* Kirk., and fig. 6b the aedeagus of the male. The male genitalia are so similar in general structure to those of *Deltodorydium* spp. as to leave no doubt as to the close relationship existing between the two genera.

Paradorydium casuarinae, sp. nov.

(Plate XV, figs. 5a, 5b)

Length, 6.5 mm. *Head*, width 1 mm., length 2.5 mm., equal in length to the tegmina; pale stramineous with pale brown punctures, laterally carinate for the entire length of the head. The median dorsal carina does not extend to the apex of the head, which is spatulate; a median ventral carina is also present. *Pronotum*, concolorous with the head, laterally carinate. *Scutellum* with two dark brown spots. *Tegmen* opaque, punctate, venation distinct.

Type ♀, from Canberra, F.C.T. (coll. J.W.E. on *Casuarina* sp.), in the collection of the C.S.I.R. Division of Entomology at Canberra.

Family ULOPIDAE

Austrolopa, gen. nov.

The head ventrally is transversely convex, with a median longitudinal ridge on the vertex; on either side of this ridge is a transverse depression. The frons is very large and flat anteriorly; it projects as a ledge above the clypeus, and its hind margin, which is distinct, lies well away from the hind border of the head; the clypeus is small, and narrows anteriorly. The lorae, which are bounded dorsally by the suture that divides the genae from the maxillary plates, lie for their entire length against the frons, and do not reach as far as the clypeus. The labium reaches as far as the middle pair of legs. The vertex is spatulate, and the crown, dorsally between the eyes, very broad. The eyes are prominent, and ocelli are present. The pronotum is shorter than the crown of the head, and the propleurae extend widely laterally. The scutellum is wide and short.

The tegmina, which are thickened along the anterior costal margin, are short and broad, and narrow apically. The venation is distinct. Hind-wings are absent, and the head, thorax, and tegmina are punctate. The tibiae of all three pairs of legs are quadrilateral in section, and are armed with minute spines.

The two species described below are the first representatives of this family to be recorded from Australia.

***Austrolopa brunensis*, sp. nov. (Genotype)**

(Plate XV, figs. 16a-c)

Length, 4 mm. *Head*, width 1 mm., pale brown, the antennal flagellae dark brown, eyes brownish-grey; crown of head, from above, dark brown with whitish markings. Hind margin of frons distinct and entire; head, from above, not on a plane with the pronotum, but tilted dorsally. *Pronotum*, grey with brown markings. *Scutellum*, dark brown with whitish markings. *Tegmen* marked with an irregular pattern of brown and white. *Thorax* and *abdomen*, ventral surface, pale brownish-yellow. *Legs*, pale brownish-yellow with dark brown markings. Male genitalia as in Plate XV, figs. 16a-c.

Type ♂, from Bruni Island, Tasmania (coll. A. M. Lea), in the collection of the Australian Museum, Sydney.

Note.—This species has also been taken at Margate, Tasmania, and Brisbane, Queensland.

***Austrolopa kingensis*, sp. nov.**

(Plate XV, figs. 15a-d.; Plate XVI, fig. 3)

Length, 4 mm. *Head*, width 1 mm., ventral surface pale brownish-yellow with irregular dark brown markings; hind margin of frons not complete, the lateral sutures being separated by the median ridge on the vertex, which in this species extends on to the frons. Crown of head on the same plane as the pronotum. *Pronotum* and *scutellum*, pale brownish-yellow, with or without dark brown markings. *Thorax* and *abdomen*, ventral surface, and *legs*, pale brownish-yellow. Male genitalia, aedeagus as in Plate XV, fig. 15d.

Type ♂, from King Island, Tasmania, in the collection of the Australian Museum, Sydney.

Note.—This species has also been taken at Warburton Victoria.

DISCUSSION

Myers (1923), who considered *Cephaletus* and *Paradorydium* to be both genera of the Cephaletinae, was struck, as are all who have seen these insects, by the extraordinary resemblance they bear to

plant spines and seeds. Little is known of their life-history and habits, since they are usually only collected by sweeping. *Paradorydium westwoodi* F. B. White has been collected on rushes in New Zealand; *Cephalelus infumatus* Perch on the rush *Dovea tectorum* in Africa, and *C. hudsoni* Myers and *C. leptocarpi* Myers on the jointed rush *Leptocarpus simplex* in New Zealand. The only host records of Australian species available to me are of *Deltodorydium viridis* on *Melaleuca* sp.; *D. cooki* on the introduced *Echium plantagineum*; *Paradorydium menalus* on grass; *P. casuarinae* on *Casuarina* sp., and *Austrolopa* spp. on grass tussocks. All the species of *Dorydium* described by Naudé (1926) (presumably actually *Paradorydium* spp.) are recorded as being taken by grass-sweeping.

Whilst the short-headed species of the Paradorydiinae are winged, and may occur on shrubs, the fact that all the Cephalelinae and the genera *Austrolopa* and *Paradorydium* have no wings, or wings so ill-developed as to be functionless, suggests that this character is one that is associated with environmental factors. Many other grass-feeding Homoptera (Delphacids and various Jassoid genera belonging to the Euscelidae) lack wings, and may also have reduced tegmina.

The character of a produced head is also one that occurs in many groups of the Homoptera, as, for instance, with the Cercopidae (*Philagra*), Fulgoridae, Dictyophoridae, and Delphacidae, in addition to several Jassoid genera. The dorsal surface of such elongate heads may consist entirely of the vertex, or of both the vertex and part of the frons. The epicranial sutures, which may be indistinct in adult insects, can usually be distinguished in the nymphs.

Several characters common to *Anacephaleus* and *Austrolopa* suggest that these two genera may be fairly closely related to each other. Amongst those appertaining to the head are the presence of sub-genal sutures; the possession of mandibles which narrow at their proximal ends, and appear to consist of three parts; and of maxillae which are set far back in the head, and are attached to the maxillary apodemes by struts, that arise from the middle of the thickened part of the maxilla (not the end, as in *D. cooki*). With both the clypeus narrows apically. Other common characters are dorsal ocelli, wide sub-genital plates, and hind tibiae with only a few small spines. These characters, combined with others of a more secondary nature, such as lack of hind wings, pronota of similar shape, and similar coloration and general appearance, suggest that species in both genera are not far removed from the stem whence have developed the Ledridae and Ulopidae as distinct families.

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EXPLANATION OF PLATES

PLATE XIV

- Fig. 1.—*Ledropsis crocina*, head and thorax, dorsal aspect.
 Fig. 2.—*Jukuruka typica*, head and thorax, dorsal aspect.
 Fig. 3a.—*Rubria sanguinea*, head and thorax, dorsal aspect.
 Fig. 3b.—*Rubria sanguinea*, head of nymph.
 Fig. 4.—*Ledromorpha planicostris*, head, ventral aspect.
 Fig. 5a.—*Platyedra hirsuta*, head, ventral aspect.
 Fig. 5b.—*Platyedra hirsuta*, tegmen.
 Fig. 6.—*Porcorhinus mustersi*, head and thorax in profile.
 Fig. 7a.—*Ledraprora insularis*, head, ventral aspect.
 Fig. 7b.—*Ledraprora insularis*.
 Fig. 7c.—*Ledraprora insularis*, tegmen.
 Fig. 7d.—*Ledraprora insularis*, hind tibia.
 Fig. 8.—*Ledraprora victoricensis*, head and thorax, dorsal aspect.
 Fig. 9a.—*Ledrella brunnea*.
 Fig. 9b.—*Ledrella brunnea*, head and thorax in profile.
 Fig. 9c.—*Ledrella brunnea*, male genitalia.
 Fig. 10.—*Rubria carnosa*, male genitalia.

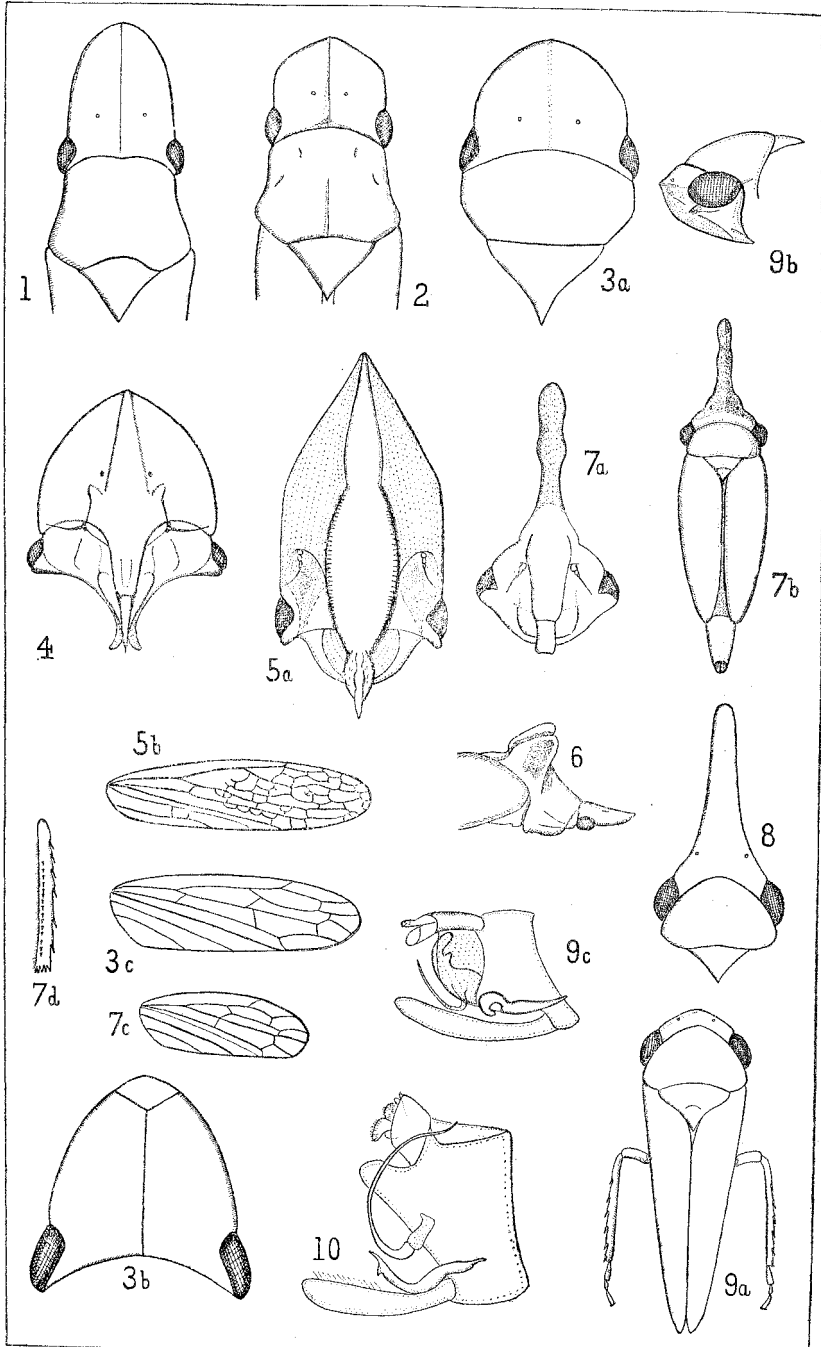


PLATE XV

- Fig. 1a.—*Deltodorydium cooki*, head and thorax, dorsal aspect.
Fig. 1b.—*Deltodorydium cooki*, hind tibia.
Fig. 2a.—*Deltodorydium leai*, head and thorax, dorsal aspect.
Fig. 2b.—*Deltodorydium leai*, male genitalia.
Fig. 3a.—*Deltodorydium viridis*.
Fig. 3b.—*Deltodorydium viridis*.
Fig. 4.—*Deltodorydium brighami*.
Fig. 5a.—*Paradorydium casuarinae*.
Fig. 5b.—*Paradorydium casuarinae*, tegmen.
Fig. 6a.—*Paradorydium menalus*.
Fig. 6b.—*Paradorydium menalus*, aedeagus.
Fig. 7a.—*Anacephaleus minutus*, head and thorax, dorsal aspect.
Fig. 7b.—*Anacephaleus minutus*, male genitalia.
Fig. 8a.—*Anacephaleus carribensis*, head and thorax, dorsal aspect.
Fig. 8b.—*Anacephaleus carribensis*, head, ventral aspect.
Fig. 8c.—*Anacephaleus carribensis*, hind tibia.
Fig. 9.—*Anacephaleus ulopae*, head and thorax, dorsal aspect.
Fig. 10a.—*Anacephaleus simplex*, head and thorax, dorsal aspect.
Fig. 10b.—*Anacephaleus simplex*, tegmen.
Fig. 11.—*Anacephaleus subreticulatus*.
Fig. 12.—*Anacephaleus punctatus*, head and thorax in profile.
Fig. 13.—*Procephaleus bulbosa*, head and thorax, dorsal aspect.
Fig. 14.—*Cephalelus brunneus*.
Fig. 15a.—*Austrolopa kingensis*.
Fig. 15b.—*Austrolopa kingensis*, hind tibia.
Fig. 15c.—*Austrolopa kingensis*, tegmen.
Fig. 15d.—*Austrolopa kingensis*, aedeagus.
Fig. 16a.—*Austrolopa brunensis*, paramere.
Fig. 16b.—*Austrolopa brunensis*, aedeagus.
Fig. 16c.—*Austrolopa brunensis*, sub-genital plate.

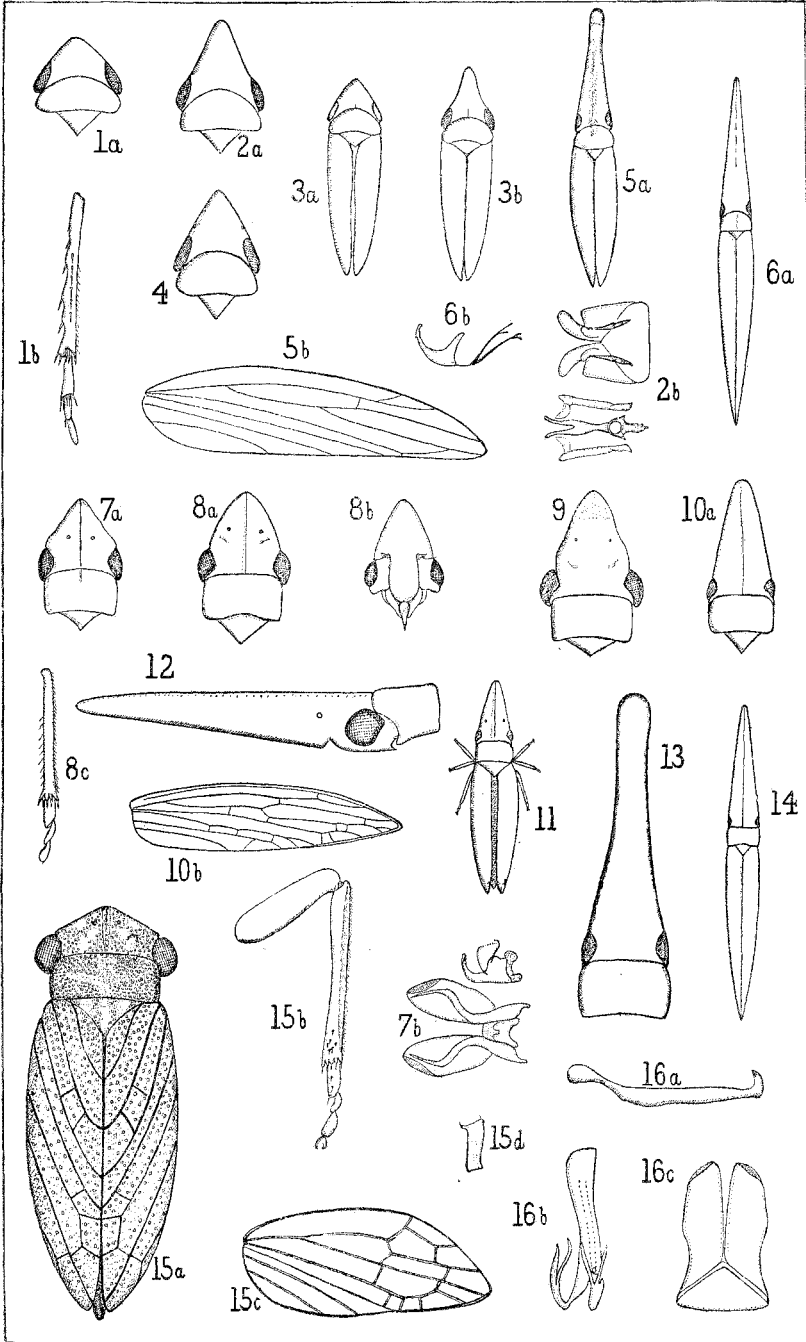


PLATE XVI

Fig. 1.--*Anacephaleus minutus*, head, ventral aspect.

Fig. 2.--*Deltodorydium cooki*, head, ventral aspect.

Fig. 3.--*Austrolopa kingensis*, head, ventral aspect.

c., clypeus

fr., frons

fs., frontal suture

ma., maxilla

md., mandible.

oc., ocellus

sgs., subgenal suture

ma., maxillary apodeme.

