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New Genera of the Family Cixiidae (Homoptera, Fulgoroidea) from Australia and Neighboring Territories

A. F. Emeljanov

Zoological Institute, Russian Academy of Sciences, St. Petersburg, 199034 Russia

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Abstract—Seven new genera and eight new species of Cixiidae from Australia and neighboring territories are described. A new tribe, Gelastocephalini, is erected for the genera *Gelastocephalus* Kirk., *Carolus* Kirk., *Tarberus* Jacobi, *Dysoliarus* Fenn., *Metaplacha* gen. n., *Ronaldia* gen. n., *Orphninus* gen. n., and *Rhigedanus* gen. n. A new subtribe, *Rhigedanina*, is erected for the genera *Orphninus* gen. n., *Rhigedanus* gen. n., and *Dysoliarus* Fenn.

The Australian fauna of the family Cixiidae is widely diversified and voluminous, but rather poorly studied. The first representatives of Cixiidae reported from this area were placed in the genera *Cixius* Latr. and *Oliarus* Stål. The first Australian genus, *Cajeta* Stål., was described in 1866 (Stål, 1866). The most valuable contribution to the Australian Cixiidae was made by Kirkaldy (1906, 1907) and Jacobi (1928), who described 5 and 3 new genera, respectively, and also by Buckton (1893), Muir (1922, 1931), Fennah (1949), and Hoch and Howard (1989).

The genus *Cixius* (in its current concept) is not represented in Australia, as, apparently, also the genus *Oliarus*. Modern revision of the latter did not concern the fauna of Australia. Muir (1931) described several Australian species in the genus *Iolania* Kirk., indicating differences between these species and the genuine Hawaiian species of the genus. Undoubtedly, the genus *Iolania* is also absent from Australia.

By courtesy of Drs. M. Day (CSIRO Division of Entomology, Australian National Insect Collection, Canberra), M. Fletcher (NSW Agriculture Biological and Chemical Research Institute, Orange, New South Wales), and M. Moulds (Australian Museum, Sydney), I have got very interesting material for examination, including several new genera. Material collected by entomologists of the Zoological Institute, Russian Academy of Sciences, Drs. V.I. Tobias (in 1978), V.F. Zaitzev and G.S. Medvedev (in 1979), and A.G. Kirejtshuk (in 1990) was also studied.

For the depositaries of the holotypes of the species described below and other material examined, the following abbreviations are used: ANIC [Australian National Insect Collection (Canberra)]; AMSA [Australian Museum (Sydney)]; NSWA [Agricultural Scientific Collection Trust, NSW Agriculture (Orange)]; and ZIN [Zoological Institute, Russian Academy of Sciences (St. Petersburg)].

TRIBE CIXIINI

Genus *CERMADA* Emeljanov, gen. n.

Type species *Cixius kermadecensis* Myers, 1924.

The genus belongs to the genus *Cixius* Latr. in a broad sense. It differs from the genus *Cixius* in the narrow macrocoryphe without longitudinal carinae in both parts and with obtuse-angled, projecting anterior margin; absence of the median ocellus; rather strongly convex postclypeus, protruding into the metope (the latter, as a result, with narrow epiclypeal lobes); absence of anastomosis between *RA* and *RP* in the stigmal cell area; and rather short fore tibia, equal in length to femur.

Description. Macrocoryphe longer than wide; coryphe and acrometope deeply depressed; lateral and transverse carinae high; posterior margin not raised, obtuse-angled, emarginate. Anterior carina of coryphe strongly arcuate, projecting forward; anterior carina of acrometope obtuse-angularly or rectilinearly projecting forward; median carina on both acrometope and coryphe missing. Eumetope nearly along entire length with rather straight carinae diverging toward clypeus and bending medially toward clypeus only below the level of antenna; carinae of eumetope sharp, high.

Postclypeus arcuate, protruding into metope as far as the level of antennae, convex, with 3 sharp carinae; median ocellus absent. Anteclypeus steeply tectiform,

lateral carinae of postclypeus extending over sides of anteclypeus as indistinct, smoothed prominences, meeting at its middle. In lateral view, postclypeus also convex, anteclypeus running parallel to mesonotum. Rostrum long, noticeably projecting beyond apex of hind coxae; ultimate segment somewhat shorter than penultimate one.

Pronotum similar to that in the genus *Cixius* Latr., but disc of pronotum narrow anteriorly, much narrower than coryphe.

Fore-wing venation similar to that in the genus *Cixius*. Extravenal pterostigma at base as wide as apex of costal area. Stigmal cell, however, not projecting backwards; i.e., vein RA_2 forming one straight line along margin of pterostigma and before it. *RP* bifurcate apically. Stigmal cell area not granulate. Legs of typical structure.

Male pygopher of simple shape, with weakly projecting, rounded lateral margins and simple, wide, acute-angular medioventral prominence. Subgenital sternite entire, fused with pygopher. Anal tube wide, with lobiform hanging sides. Anal stylus elongate, projecting beyond posterior margin of anal tube. Styli with flat, rounded apical dilation, bent dorsolaterally. Theca of penis with recurrent apical processes, without longitudinal ridge ventrally. Female pygopher with small rudimentary wax area, occupying only central part of the corresponding depression; margins of the depression rounded (not sharp), lying outside wax area.

In addition to the type species, this genus includes species from New Zealand (*Cixius aspilus* Walker, *C. interior* Walker, and *C. punctimargo* Walker) and, maybe, species from New Caledonia, described by Distant (Distant, 1929; Fennah, 1969) in the genus *Cixius*.

Genus ***CHIDAEA*** Emeljanov, gen. n.

Type species *Chidaea dayi* sp. n.

Description. General appearance cixioid; fore wings in repose held shallowly tectiform. Head (Figs. 1–3) rather wide, pronotum noticeably wider than head. On head, strong anterior carinae of acrometope and coryphe outlining transverse, groove-shaped acrometope and coryphe; median carina of acrometope absent; indistinct median carina of coryphe present in posterior part. Both carinae and keel-shaped posterior margin of coryphe smoothly arcuate or rounded-obtuse-angularly projecting forward. Coryphe directed upwards, acrometope forward and upwards, forming obtuse angle with coryphe in lateral view. Eumetope rather wide, its median length 1.5 times its width in dorsal view; sides of metope slightly diverging downwards as far as the level of lower margin of antennae, farther below convexely bending inwards toward clypeus. Upper margin of clypeus arcuate, deeply protruding into metope as semicircle or parabola. Border between clypeus and metope depressed. Median carina of metope sharp, lateral margins keel-shaped, distinctly bent forwards. Median ocellus absent. Postclypeus nearly 0.5 times as wide as metope, convex, with sharp median and lateral carinae. Anteclypeus highly tectiform, separated from labrum by shallow incision, without ledge. Antennae small. Lateral ocelli distinct. Rostrum long, extending as far as apex of hind coxae.

Pronotum short, with obtuse-angularly concave posterior margin medially. Anterolateral carinae of disc forming common smooth arc with postocular carinae; this arc continuing around eyes as far as their lower margin; in this region, carinae strongly bending forwards, inwards, and upwards, disappearing; lateral carinae indistinct. Anterior margin of paranotal lobes arising from head at acute angle, merging with lower margin to form rounded obtuse-angular prominence.

Mesonotum diamond-shaped, nearly square, with 3 distinct carinae; lateral carinae slightly diverging backwards. Contours and venation of fore wing similar to those in the genus *Cixius*. *R* and *CuA* forks situated at about the same level, near middle of corium, but *R* fork situated somewhat basad of *CuA* fork. Veins *rm* and *mcu* running at the same level, immediately after *M* fork. Extravenal pterostigma and adjacent anterior half of stigmal cell thickened; anterior half of stigmal cell smooth, hyaline, with sparse setigerous granules. Posterior branch of *RA* with two apices, branch *RP* with three apices, *M* five-pointed, with 3 *MA* branches. Vein *icua* reaching wing margin somewhat behind apex of clavus. Fore-wing veins, except marginal ones, granulate. Apex of vein $CuP + A_1$ approaching apex of clavus, as in *Andes* Stål and *Pintalia* Stål. Legs rather short. Hind tibia without lateral teeth. Denticulation on tibia apex of cixioid type, lateralmost tooth [of the outer group—Ed.] distinctly opposing two others, but with more distinct gap between inner and outer groups (type intermediate between cixioid and myndoid ones). First tarsal segment bearing 8 teeth without subapical setae; second segment with 10 teeth, 8 of which bearing subapical setae.

Pygopher simple, lower wall long, upper one short, lateral margins smoothly arcuate, medioventral process short, wide, almost rectangularly pointed. Anal tube medium-sized, with basally truncate lateral lobes in apical third. Stylus with asymmetrically bilobed apex; larger lobe (genuine apex of stylus) bent laterodorsally; smaller lobe ("heel") bent posteromedially. Penis of cixioid type, with pair of recurved movable teeth at apex; left tooth shorter than right one, apices of both teeth bent ventrally and slightly to the left. Ventral margin of theca with carina basally terminating in small dilation with tooth directed forwards. Distal segment weakly sclerotized, arcuate, without special formations.

In the shape of head, the new genus is similar to the genus *Macrocixius* Mats., but in the latter, median ocellus is present, posterior *RA* branch is not forked, and clypeus shallowly protrudes into metope. *Chidaea* differs from the genus *Achaemenes* Stål (possessing toothless hind legs) in the subequal length of acrometope and coryphe (in *Achaemenes*, coryphe is twice as long as metope), and also in the simpler metope, clypeus protruding into the metope as a regular parabola, and wings held tectiform in repose.

Chidaea dayi Emeljanov, sp. n. (Figs. 1–7)

Description. Body reddish fuscous, with mostly diffuse infuscations to yellowish fuscous and lighter areas to pale fuscous. Coryphe and metope dark fuscous, with paler reddish fuscous carinae; lightening of carinae smoothly passing into infuscate intervals between them. Clypeus nearly black. Gena dark fuscous to black, lorum dark fuscous. Pronotum dorsally pale fuscous, but in places where carinae widely diverge (on disc and lateral parts of paradiscal areas), with infuscations between them. Paranotes of pronotum fuscous, ventrally yellowish fuscous. Scutellum reddish fuscous, carinae of the same color. Fore wing semi-hyaline, with fuscous veins. Anterior (outer) part of stigmal cell infuscate. Cross-veins on membrane widely and diffusely infuscate. Thorax ventrally fuscous to dark fuscous, sides of mesothorax intensely dark fuscous. Fore coxa fuscous, middle coxa dark fuscous, other parts of fore and middle legs fuscous. Hind femur fuscous, tibia and tarsus pale fuscous. Abdomen dark fuscous, with pale margins of sclerites. Male pygopher almost entirely pale fuscous, female pygopher pale fuscous, ovipositor dark fuscous.

Male length 6.1–6.5 mm, female length 7.6–7.7 mm.

Material. Holotype: ♂, Australia, A. C. T., Canberra, Black Mt., 25.IX.1979 (V. Zaitzev) (ANIC). Paratypes: 2 ♂, 3 ♀, as holotype (ZIN).

Genus ***MONOMALPHA*** Emeljanov, gen. n.

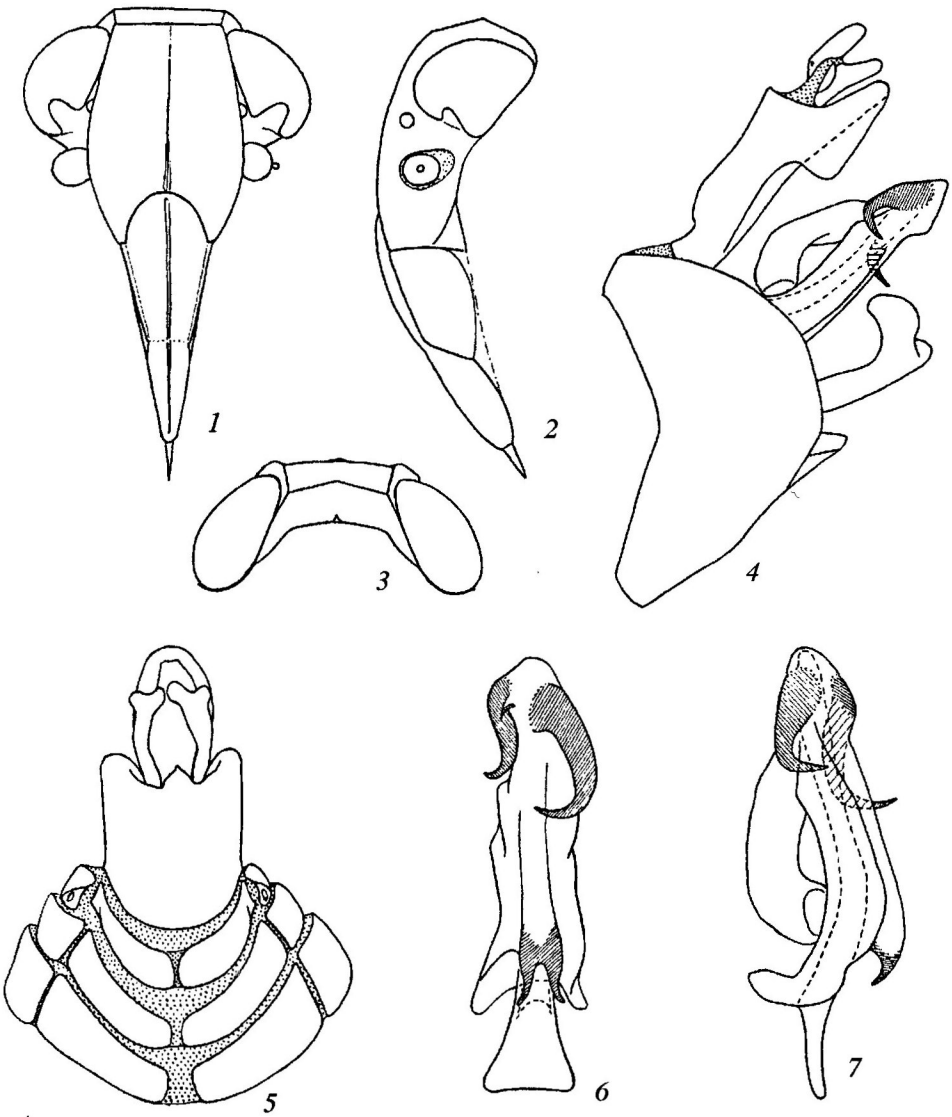
Type species *Monomalpha gratiosa* sp. n.

The new genus is closely related to the genera *Malpha* Myers and *Aka* B. White, differing in the absence of their characteristic feature, namely, forked carina of the eumetope.

Description. Macrocoryphe elongate, rather narrow. Anterior carina of coryphe (of "posterior compartment of vertex") acute-angular, narrowly rounded apically; anterior carina of macrocoryphe (anterior carina of "anterior compartment of vertex") in the form of parabola, looking like ledge sloping toward acrometope (into "anterior compartment"), because of thickened apical part of metope; posterior margin of coryphe parabolically concave, coryphe and metope deeply depressed. Eumetope nearly flat, except for the above-mentioned upper callosity, with sharp median and lateral carinae; median carina simple along entire length. Eumetope rather wide, with straight diverging margins from apex of head to antenna; below antennae the margins arcuately bending and turning medially toward the narrower clypeus. Postclypeus also rather flat and short, strongly narrowing toward anteclypeus; border with metope smoothly arcuate or obtuse-angularly rounded; median ocellus absent. Rostrum somewhat produced backwards beyond hind coxae and trochanters; penultimate segment 1.5 times as long as ultimate one.

Pronotum short, typical of macropterous Cixiidae; disc narrow, post-ocular carina running concentrically around eye as far as anterior margin of pronotum below eye; lateral carinae indistinct. Posterior incision at apex acute-angular. Scutellum of mesonotum with 3 sharp carinae, lateral carinae smoothly arcuate, slightly diverging posteriorly.

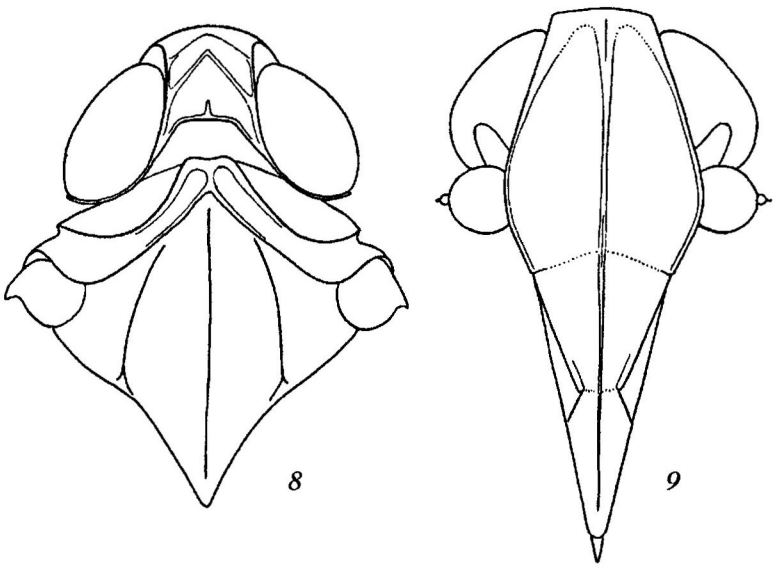
Wings normally developed; fore wing subparallel-sided, more than 3 times as long as wide, asymmetrically rounded at apex; sutural margin elongate, arc running from costal margin wide and gently sloping; arc running from posterior margin significantly steeper and correspondingly narrow. Wing apex situated at the end of branch M_5. Longitudinal veins bearing granules with rather coarse setae. Short stalk *ScRM* present, *R* branching somewhat before middle of costal area. Extravenal pterostigma wide and large, with setigerous



Figs. 1–7. *Chidaea dayi* gen. et sp. n.: (*1*) head, anteroventral view (face); (*2*) head, lateral view; (*3*) head, dorsal view; (*4*) male genital complex, lateral (left) view; (*5*) apex of male abdomen, ventral view; (*6*) penis, ventral view; (*7*) penis, lateral (left) view.

granules. RA_2 one-pointed, *RP* one- or two-pointed, *M* five-pointed, with 3 *MA* branches or only two-pointed (in the type species), branching at subapical level. CuA_2 with oblique vein *icu* running slightly behind apex of clavus; this vein running along common straight line with vein CuA_2, as if forming its prolongation; apical part of genuine CuA_2 looking like arcuate anterolateral branch. Legs of medium proportions; hind leg rather long, of characteristic cixioid type, with several lateral and 6 apical teeth, forming 3 distinct groups: long outer tooth, two short middle teeth, and 3 inner teeth shifted apically; all teeth arising from common base. First segment of hind tarsus long, bearing 7 apical teeth, of which the distinctly shorter second and fourth teeth (counting from the outer side) belong to the second row; subapical setae on all teeth absent. Second segment of hind tarsus with 6 teeth, of which 4 inner teeth bearing thin subapical setae. Female pygopher with distinct wax area.

Male pygopher with strongly shortened upper wall before base of anal tube; lower wall long, caudally terminating in wide emargination bearing single wide and short medioventral process. Lateral lobes of pygopher moderately projecting, rounded. Sternite VII entire, fused with margin of pygopher. Anal tube simple, parallel-sided, with rounded posterior margin. Stylus with strongly developed heel prominence and rather narrow apex proper, arising laterally from longitudinal axis of stylus. Structure of penis similar to that in *Aka*



Figs. 8, 9. *Monomalpha gratiosa* gen. et sp. n.: (*8*) anterior part of body, dorsal view; (*9*) head, anteroventral view (face).

White and *Malpha* Myers. Theca with single large right process, slightly sinuate and directed basilaterally (basidextrally), with two recumbent left processes directed forward; distal segment of penis with subbasal, rather short process.

Monomalpha gratiosa Emeljanov, sp. n. (Figs. 8–10)

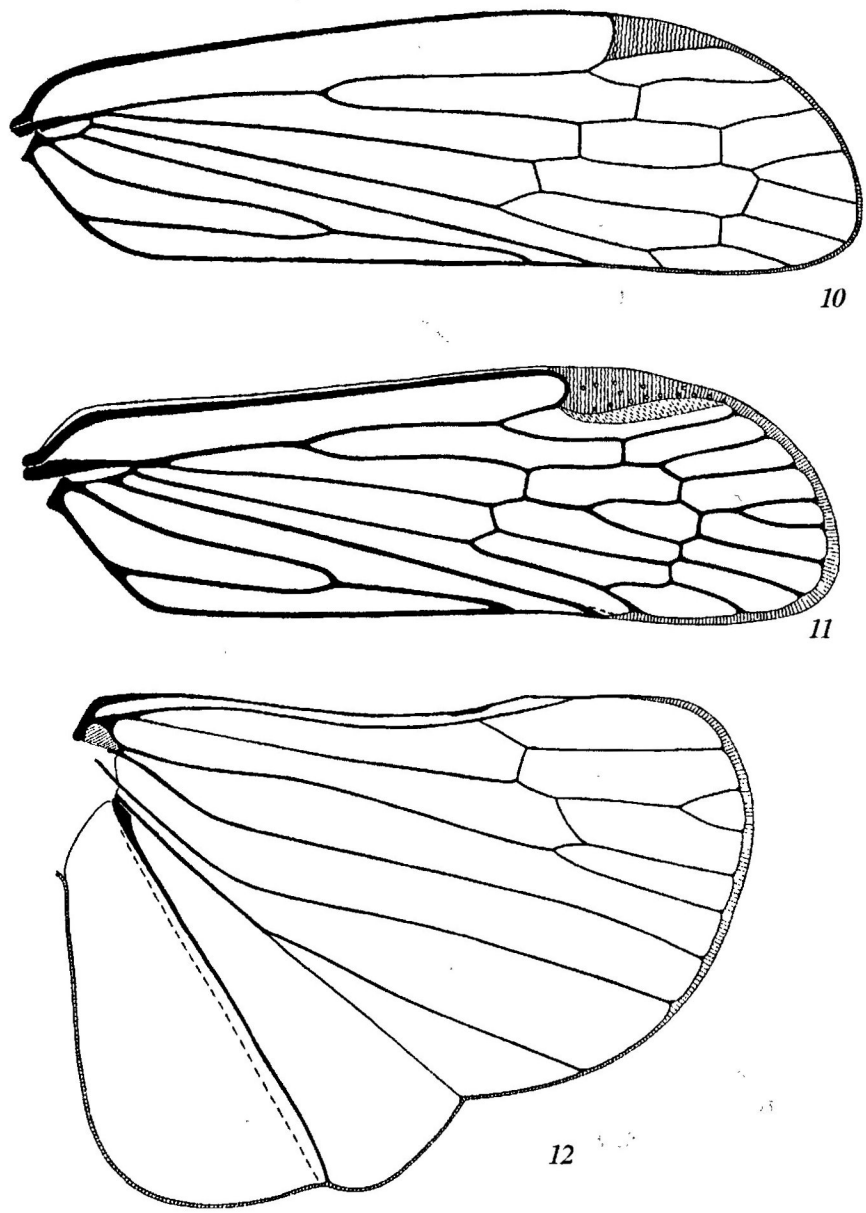
Description. Coryphe narrower than in *M. fletcheri* sp. n. (see below), face also narrower, with sharper carinae. Fuscous and dark fuscous, with rufous tint. Posterior and lateral parts of coryphe whitish, middle part with infuscation in the form of drop-shaped spot, dissected longitudinally by thin pale line. Acrometope blackened, 3 dark prominences arising from it onto callose part of eumetope. Middle part of anterior carina of coryphe blackened. Eumetope dark fuscous, with pale fuscous carinae and apical callosity. Clypeus pale fuscous. Posterior part of supraocular area pale fuscous, anterior part dark fuscous, preocular area, gena, and lorum also dark fuscous. Carinae of pronotum and its margins pale, interspaces infuscate, but lightened areas on postocular carinae and posterior margin of pronotum merging dorsally, leaving only 2 dark spots on disc. Scutellum of mesonotum dark fuscous, including carinae; anterior halves of posterior margins of scutellum beginning from tegulae slightly paler. Tegulae fuscous, with whitish upper margins. Lateral parts of thorax dark fuscous, legs fuscous. Fore and middle femora slightly infuscate before apex, tibiae slightly darker than femora. Hind femur with lightened carinae, tibia with lightened apical part; ends of teeth blackened. Fore wing with distinct dark fuscous cross-band, somewhat arcuately projecting forward in folded wings, running from middle of costal margin to middle of clavus; in costal area, cross-band excised in the middle by pale spot. Wing base with dark, irregular, eroded spot, extending over clavus in parallel to scutellar margin, and on corium, stretching over mediocubital area distally to basal cell along entire length of the latter. Basal part of extravenal pterostigma entire, opaque, white; dark spot situated behind it, occupying part of extravenal pterostigma and part of stigmal cell. Veins outside dark spots pale fuscous, with dark granules; on membrane, transverse ladder of veins running from pterostigma (vein *ir*) to *mcu* and basal adjacent part of CuA_1. Cross-veins in the middle of membrane also infuscate, as well as isolated sections of longitudinal veins at margin of membrane and between rows of cross-veins *M* and CuA_1; posterior cell of membrane slightly infuscate. On clavus, portions of posterior claval area outside infuscations whitish infumated. Abdomen dark fuscous, with pale posterior margins of sclerites.

Female length 5.9 mm.

Material. Holotype: ♀, Australia, N.S.W., New England Nat. Park, 16–18.XI.1990 (A. Kirejtshuk) (ANIC).

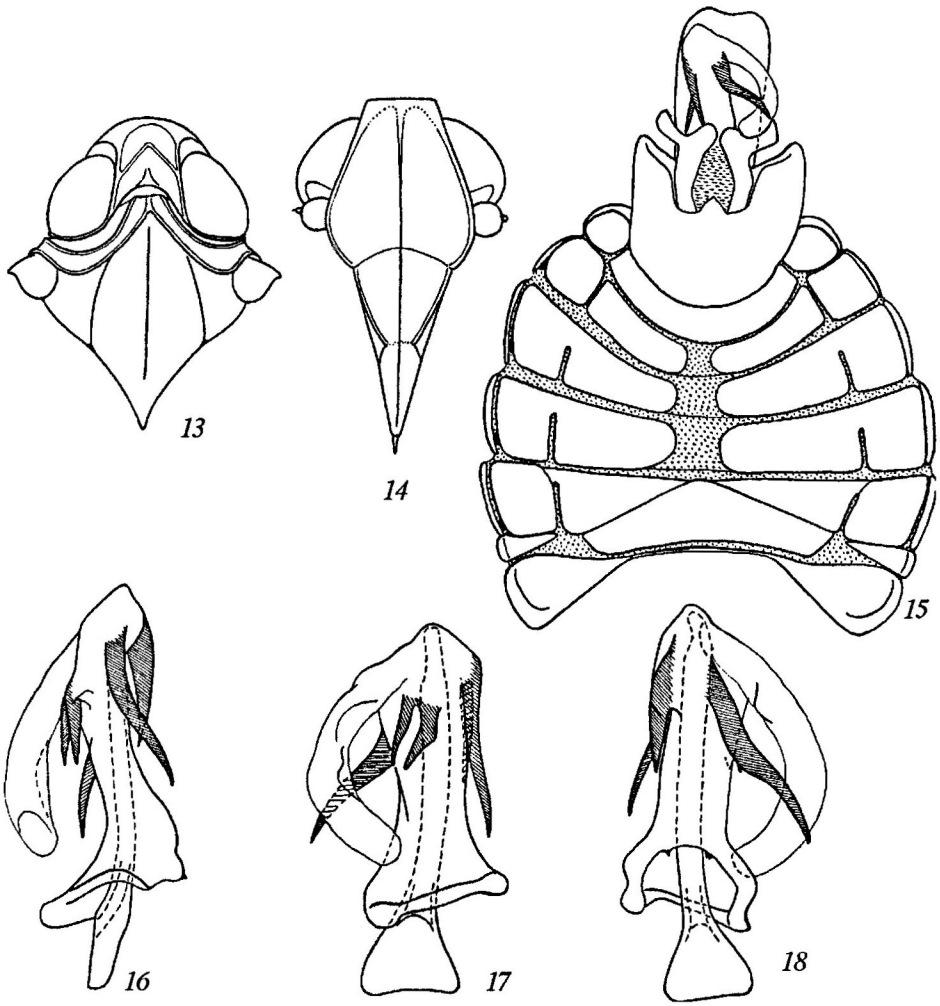
Monomalpha fletcheri Emeljanov, sp. n. (Figs. 11–18)

Description. Somewhat more stumpy leafhoppers with larger head and shorter and wider eumetope in



Figs. 10–12. *Monomalpha gratiosa* gen. et sp. n. (*10*) and *M. fletcheri* gen. et sp. n. (*11*, *12*): (*10*, *11*) fore wing; (*12*) hind wing.

comparison with *M. gratiosa* sp. n. On fore wing, *M* usually three-pointed (*MA* two-pointed), first bifurcation situated somewhat more distally to nodal line. Body pale fuscous, with greenish tint (maybe, more vivid in alive insects?). Male without pattern, female with eroded spotty-eye-shaped pattern on fore wing. Pronotum dorsally lightened, scutellum infuscate, carinae pale. Fore wing semi-hyaline, with veins slightly more infuscate in some places; cross-veins on membrane more strongly infuscate; pale and dark sections of veins together with abundant fuscous bent spots forming speckled pattern in specimens with moderately developed pattern; incomplete transverse cross-bands forming in most intensely colored females, with arcuate sections of the cross-bands constituting more or less distinct "eyes" (incomplete small rings of spots and bracket-shaped spots). The first rather indistinct cross-band lying in anterior quarter of corium. The most distinct cross-band stretching across middle of corium and clavus; its corial section lying distal to claval section at a distance equal to cross-band width. Bracket-shaped spot, lying on clavus anteriorly to claval section, nearly adjoining claval section of cross-band to form an incomplete ring. A less distinct ring formed by adjacent section of cross-band, also arcuate, running across corium and the anterior spot. Posterior



Figs. 13–18. *Monomalpha fletcheri* gen. et sp. n.: (*13*) anterior part of body, dorsal view; (*14*) head, anteroventral view (face); (*15*) male abdomen, ventral view; (*16–18*) penis, (*16*) lateral (left), (*17*) dorsal, and (*18*) ventral view.

quarter of corium with the third cross-band connected with the preceding cross-band by a protuberance along intercubital area. One more bracket-shaped spot, broken anteriorly, stretching between veins *M* and CuA_1 at the level of anterior margin of pterostigma.

Body length 4.5–47 mm in males and 4.8–5.0 mm in females.

Material. Holotype: ♂, Lord Howe Is., 4.VII.1991 (L. Wilson), UV light (NSWA). Paratypes: 3 ♂, 2 ♀, Lord Howe Isl., 25.VI, 4.VII, 9.VII, 17.VII (L. Wilson), UV light; 2 ♂, 1 ♀, Lord Howe Is., 24–29.II.1992, 28–31.V.1991, 23.X.1991 (G.R. Brown) (NSWA).

TRIBE GELASTOCEPHALINI EMELJANOV, TRIB. N.

The Australian fauna includes a clearly distinct group of genera constituting a tribe (Gelastocephalini trib. n.); its similarity with the tribe Oecleini in several characters is apparently convergent.

The tribe is characterized by the swollen clypeus; absence of the median ocellus; lack of wax plate in ovipositor (Figs. 62, 63), diastema in a row of apical teeth on hind tibia (Fig. 53); *ScMR* stalk on the fore wing (Fig. 56); vein *icu* running at some distance from the apex of clavus; and originally divided male abdominal sternite VIII (in some advanced representatives of the tribe, e.g., *Ronaldia fennahi* sp. n. and *Rhigedanus fomibundus* sp. n., sternite VIII is secondarily entire).

The permanent absence of the median ocellus even in the representatives of the genera (genus) having clypeus nearly not protruding into the metope, and the entire abdominal sternite VIII in male show that Gelastocephalini are not a sister group of Oecleini, in spite of the presence of many similar characters. In the

new tribe, two groups of genera can be distinguished in the rank of subtribes. The less modified group *Gelastocephalina* subtrib. n. includes the genera *Carolus* Kirk., *Tarberus* Jac., *Gelastocephalus* Kirk., *Ronaldia* gen. n., and *Metaplacha* gen. n. This group is characterized by a structure of hind tibia similar to that in Oecleini, without lateral teeth and with a diastema in the arrangement of teeth at apex of this tibia. The genus *Carolus* is modified to a lesser extent; in *Tarberus* and *Gelastocephalus*, the postclypeus is strongly enlarged and its lateral carinae are absent or indistinct, the metope does not lie on the same straight line as postclypeus in lateral view, but forms with it an obtuse angle.

The second group of genera, *Rhigedanina* subtrib. n., derivative of the first group, is formed by the genera *Orphninus* gen. n., *Rhigedanus* gen. n., and *Dysoliarus* Fenn. These genera are characterized by the appearance (instauration) of lateral teeth on hind tibia, and also by shortened fore tibia. *Orphninus* gen. n. is the least advanced genus in the subtribe; it retains a fore-wing venation similar to that in *Gelastocephalus* and a rather simple structure of the pronotum, although the anterodiscal carinae in this genus are already lobiform, and the metope shows a longitudinal convex bending. In *Orphninus* gen. n., no polymerization of platelliferous teeth on 2nd segment of hind tarsus (about 10 teeth present) has occurred yet; in the genera *Rhigedanus* and *Dysoliarus*, the number of teeth increases to about 30 (Fig. 54), with the lateral carinae of metope becoming sinuate (Figs. 52, 65); on the pronotum, carinae are either weakening or enlarging to form characteristic lobes on pronotum (Figs. 49–51). In the genus *Dysoliarus*, in addition, a tooth appears on the metope.

In the tribe Gelastocephalini, the anterior border of the so-called vertex corresponds to the intermetopal border, and the "vertex" corresponds to the macrocoryphe; the border between the coryphe and the acrometope is yet distinct in the genus *Carolus* (Fig. 19), but completely disappears in more advanced genera.

DIFFERENCES BETWEEN TRIBES OECLEINI AND GELASTOCEPHALINI TRIB. N.

1(2). Subapical setae on second segment of hind tarsus thin, pointed; lateral teeth without setae, equal in size to setigerous inner teeth. Border between clypeus and metope straight or only very shallowly arcuate. Median ocellus nearly always developed. Male anal style long, projecting far backwards from under segment XI ..... Oecleini

2(1). Subapical setae on second segment of hind tarsus platella-shaped: unpigmented, thickened, blunted; lateral setae less teeth large, platelliferous teeth small or indistinct. Border between clypeus and metope more deeply arcuate, usually parabolic; clypeus deeply protruding into metope (at least to the level of lower margins of antennae). Median ocellus always absent. Male anal style short, entirely concealed by edge of segment IX . ..... Gelastocephalini trib. n.

Key to Genera of the Tribe Gelastocephalini trib. n.

1(6). Median carina of eumetope sharp, as distinct as lateral carinae.

2(3). Postclypeus somewhat protruding into metope, its metopial margin shallowly arcuately bent .... *Carolus* Kirk.

3(2). Postclypeus deeply protruding into metope, noticeably swollen.

4(5). Postclypeus longer than metope along median line. Median carina on anteclypeus less developed than carinae on postclypeus and metope .... *Metaplacha* gen. n.

5(4). Postclypeus not longer than eumetope along median line. Median carina on anteclypeus projecting as low lobe ..... *Ronaldia* gen. n.

6(1). Median carina of eumetope usually absent; significantly weaker than lateral carinae, if present.

7(10). Sides of eumetope in lateral view straight, surface of eumetope longitudinally straight. Anterodiscal carinae of pronotum not raised, lobiform.

8(9). Lateral carinae of postclypeus distinct .... *Tarberus* Jac.

9(8). Lateral carinae of postclypeus absent .... *Gelastocephalus* Kirk.

10(7). Sides of eumetope and its surface along longitudinal line bent, forming angle, with apex looking truncate. Anterodiscal carinae of pronotum lobiform raised.

11(12). Lateral parts of postocular carinae of pronotum and lateral parts of its posterior margin not raised ..... *Orphninus* gen. n.

12(11). Lateral parts of postocular carinae of pronotum and lateral parts of its posterior margin lobiform raised.

13(14). Median carina of eumetope absent, upper part of eumetope without prominences or outgrowths ..... *Rhigedanus* gen. n.

14(13). Median carina of eumetope distinct, upper part of eumetope bearing large tooth (horn) .... *Dysoliarus* Fenn.

Genus ***METAPLACHA*** Emeljanov, gen. n.

Type species *Metaplacha tobiasi* sp. n.

Description. Rather stumpy leafhoppers with somewhat shortened fore wing. Coryphe (macrocoryphe) longitudinally trapeziform, 1.5 times as long as wide; at anterior margin, half as wide as at posterior margin. Posterior margin of head with deep trapeziform emargination; posterior margin of coryphe situated opposite to middle of longitudinal eye axis; half of macrocoryphe producing in front of eyes.

Anterior and lateral carinae of macrocoryphe high, surface of macrocoryphe rather deeply concave. Median carina low, distinct only in posterior half; abruptly terminating anteriorly, presumable delimiting the anterior margin of coryphe. Metope from top of head (anterior margin of macrocoryphe) to the level of antennae with straight lateral margins, at the level of antennae at least 4 times as broad as at top of head, then bending, convex, somewhat approaching margins of clypeus; clypeus protruding into metope to the level of lower eye margin. Lateral carinae of eumetope and its median carina sharp, similarly developed; eumetope straight as far as clypeus in lateral view, epiclypeal lobes convexely arcuate because of the shape of postclypeus.

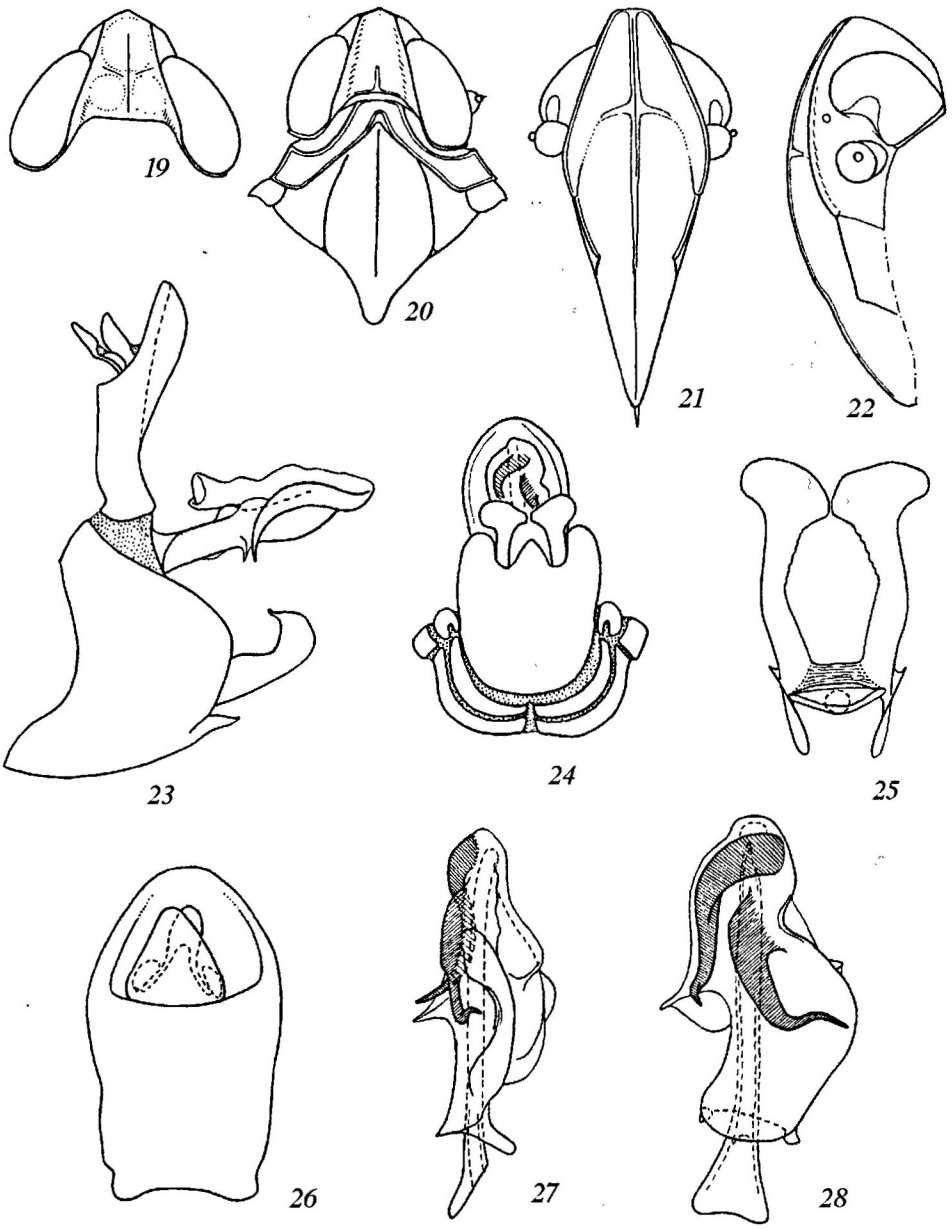
Postclypeus wide and strongly convex, arcuate in lateral view, bent backwards to assume horizontal position. Median carina of metope similarly sharp, continuing onto post- and anteclypeus; lateral carinae of postclypeus sharp, but not as distinct as median carinae. Border between clypeus and metope strongly obliterated, but short smoothed transverse carinae run from median carina of metope to its sides, forming cruciform structures (apparently, designating area of the frons proper). Median ocellus absent, lateral ocelli distinct. Antennae small, of simple structure. Eyes reniform, with ventral concavity above antennae. Rostrum long, noticeably projecting beyond hind coxae, penultimate segment noticeably longer than ultimate one.

Pronotum short, slightly wider than head, its posterior margin rectangularly incised; disc trapeziform anteriorly, deeply protruding into incision of posterior margin of head; anterolateral and postocular carinae forming one shallow arc, running to lower eye margin; lateral carinae of pronotum sharp. Posteroventral angles of paranotes somewhat attenuate and rounded, posterior margin slightly concave, lower margin more strongly so. Scutellum moderately transverse, with 3 sharp carinae; lateral carinae noticeably diverging posteriorly, convexly bent anteriorly. Fore wing rather short and wide, with convex basal half of costal margin. Veins with setiferous granules, short *ScRM* stalk present. Extravenal pterostigma short, triangular, indistinctly separated from stigmal cell; stigmal cell truncate at apex, its posteroapical angle connected with *RP* by oblique recurrent cross-vein. *RP* two-pointed; *M* four-pointed, branching symmetrically. Cross-vein *icu* touching apex of clavus.

Legs rather short, hind tibia without lateral teeth. Apex of hind tibia bearing 6 teeth, with small diastema medially; lateral tooth much longer than two neighboring teeth; the arrangement differing from cixioid type only in the presence of distinct diastema. First segment of hind tarsus bearing 8–9 teeth without subapical setae, second segment bearing 10 teeth with subapical setae, except for lateral teeth.

Female pygopher rather elongate, rather convex transversely, with longitudinal depression for ovipositor, without wax area.

Male pygopher simple, slightly compressed, its ventral wall long, upper wall short, lateral lobes of posterior margin projecting. Medioventral process acute-angular, short, and wide. Subgenital sternite divided along median line. Anal tube simple, short and wide, with rounded apex. Apical parts of stylus obtuse-angular, bent toward stem; caudomedian angle (heel) projecting in the form of small lobe. Theca of penis with two apical teeth, one arising to the left from apex, crossing ventrally median line and bending forwards on another side; the other inserted subapically, ventrally near median line of theca (presumably, originally also the left one), directed obliquely forward with apex bending to the right. Right side of theca, basally to the described subapical tooth, projecting laterally as wide lobe, entirely concealing dorsally subapical tooth. Distal segment of penis toothless, with small transverse ridge-shaped prominence on right side in middle part.



Figs. 19–28. *Carolus* sp. (*19*) and *Metaplacha tobiasi* gen. et sp. n. (*20–28*): (*19*) head, dorsal view; (*20*) anterior part of body, dorsal view; (*21*) head, anterodorsal view (face); (*22*) head, lateral view; (*23*) male genital complex, lateral (left) view; (*24*) apex of male abdomen, ventral view; (*25*) styli, ventral view; (*26*) anal tube, dorsal view; (*27, 28*) penis, lateral (right) and (*28*) ventral view.

Metaplacha tobiasi Emeljanov, sp. n (Figs. 20–28)

Description. Ground color of body dark fuscous to black, carinae of anterior part of body and some parts of abdomen pale, reddish fuscous. Posterior part of lateral carinae of coryphe widely, over entire height, lightened to whitish color, without admixture of reddish color. In female, border between clypeus and metope with short, pale, transverse strip, cruciform crossing pale median carina. Lateral carinae of postclypeus not lightened, antennae fuscous. Disc of pronotum pale fuscous, carinae along it whitish. Tegulae fuscous, with pale margins. Scutellum of mesonotum at apex entirely reddish fuscous. Fore wing, except for hyaline costal area, whitish or fuscous, gloomy, frequently with distinct fuscous pattern in apical half. Veins slightly infuscate, with fuscous to dark fuscous granules. Extending from anterior margin of stigma and terminating at last section of *RP*, whitish semilunar spot, dissected by dark veins, lying along wing margin; margin of spot with fuscous periphery, gradually vanishing basally and forming distally wedge-shaped spot on membrane, caudally limited by poste-

rior branch of media. Legs dark fuscous, frequently with paler carinae; tibia getting paler (to fuscous) toward apex, hind tarsus pale fuscous. Abdomen dark fuscous, with lightened margins of sclerites. Male pygopher reddish fuscous, ovipositor dark fuscous.

Body length 2.5–2.8 mm in males and 3.5–4.0 mm in females.

Material. Holotype: ♂, Australia, N.S.W., Conargo, 17.IV.1978 (V. Tobias) (ANIC). Paratypes: 3 ♂, 3 ♀, same locality (ZIN).

Genus ***RONALDIA*** Emeljanov, gen. n.

Type species *Ronaldia fennahi* sp. n.

Description. Small, slender leafhoppers with steeply tectiform appressed wings. Head somewhat narrower than pronotum. Coryphe approximately trapeziform, somewhat protruding in front of eyes; at anterior margin, half as wide as at posterior margin, the latter broad-angularly concave; anterior and lateral carinae sharp; median carina also sharp, but developed only in posterior half of coryphe. Metope moderately elongate, its lateral margins straight along most of their length, but rather sharply incurved toward postclypeus below antennae. Median carina sharp, extending on post- and anteclypeus. Lateral carinae keel-shaped, somewhat bent anteriorly, delimiting shallowly grooved lateral areas of metope.

Postclypeus broadly arcuately protruding into metope to the level of antennae; boundary between clypeus and metope structurally not expressed, but distinguishable by coloration. Lateral carinae on postclypeus less developed than those on metope, not extending on anteclypeus. Postclypeus broad, convex; arcuate in lateral view, metope straight. Anteclypeus steeply tectiform; in lateral view, rounded obtuse-angular. Median ocellus absent, lateral ocelli rather large. Antennae small; antennal fossae broad. Rostrum short, somewhat protruding beyond middle coxae. Legs rather short; hind femur as long as hind tibia.

Pronotum short, with broad-angularly concave posterior margin; anterodiscal and postocular carinae merged and arranged in a straight line. Lateral carinae of pronotum obtuse. Paranotal areas with rather strongly projecting posteroventral angles, concave ventral and posterior margins, and rounded apices. Scutellum of mesonotum with obtuse-angular anterior and sharp-angular posterior margins, rather steeply declivitous at sides. Carinae of scutellum sharp, lateral ones nearly straight, somewhat diverging posteriorly.

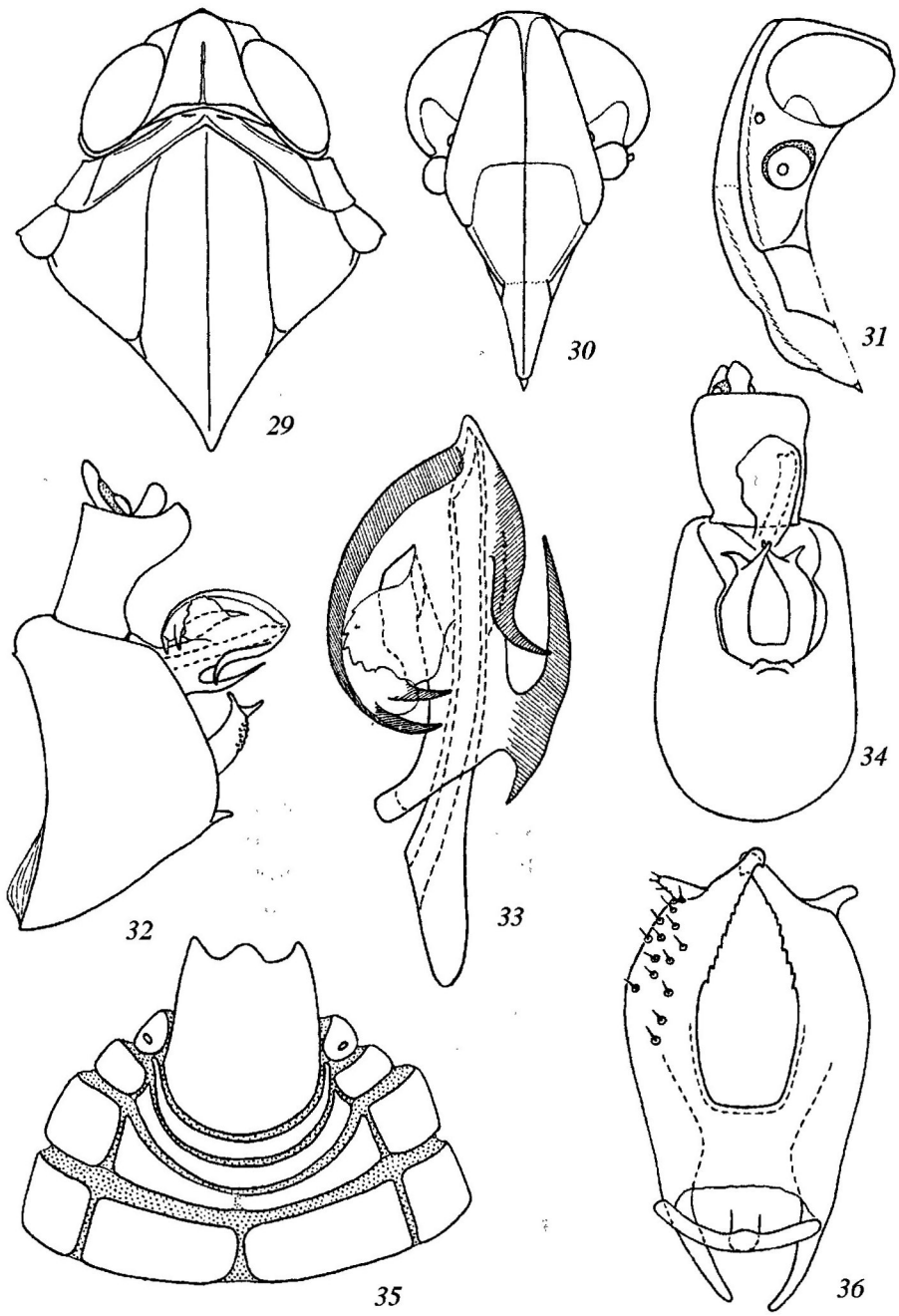
Fore wing elongate, granulate along veins, including costal one; granules not infuscate. Stalk of *ScRM* present, its length half that of basal cell; *R* bifurcates halfway from basal to discal cell. Vein $ScRA_1$ oblique, extravenal pterostigma narrow. Stigmal cell granulate. *RP* three-pointed, *M* five-pointed, *MA* three-pointed. Cross-veins weak, *ir* missing, nodal veins *rm* and *mcu* present. Cross-veins present in the middle of membrane; vein *icua* situated opposite to apex of clavus, vein *icu* nearly running into apex of clavus.

Legs short, fore tibia about as long as fore femur. Hind leg also short, tibiae lacking lateral teeth. Apex of tibia bearing 6–8 teeth (3 + 3, 2 + 4, 3 + 5), with well-pronounced diastema; inner group noticeably longer than outer one. First segment of hind tarsus bearing 7 teeth without subapical setae; second segment, 7—10 teeth with subapical platellae (marginal teeth lacking platellae).

Female pygopher without wax area. Male pygopher simple, broad dorsally, long ventrally. Posterolateral lobes rounded obtuse-angular, weakly projecting. Medioventral prominence short, triangular. Anal tube short, rather thick; emargination bearing segment IX and appendages looking almost backwards. Styli of a very characteristic shape, apically bifurcate, with 2 bent, subconical prominences, one corresponding to the lateroventral lobe, and the other, to the "heel." Ligament between styli, composed of a part of the wall of genital chamber, sclerotized as a rigid crosspiece. Connective with a simple cross-beam. Penis comparatively simple, theca ventrally with a longitudinal ridge near base extending posteriorly as a large process; apex of theca with one (left) process in lower part almost in sagittal plane. Dorsal wall of theca with hyaline lobe, margins of the latter serrate. Distal segment of penis with two processes apically. Characteristic features including ventrobasal process of theca, fused styli with not flattened, bifurcate apex, and abdominal sternites VII and VIII not split along midline.

Ronaldia fennahi Emeljanov, sp. n. (Figs. 29–36)

Description. Females poorly and rather uniformly colored, males frequently with intense black pattern. Head pale, yellowish or orange, coryphe frequently slightly fuscous. Pronotum pale, dorsally and in caudal part of paranotes whitish; in heavily pigmented males dorsal part of pronotum dark fuscous to black. Scutel-



Figs. 29–36. *Ronaldia fennahi* gen. et sp. n.: (*29*) anterior part of body, dorsal view; (*30*) head, anteroventral view (face); (*31*) head, lateral view; (*32*) male genital complex, lateral (left) view; (*33*) penis, lateral (left) view; (*34*) male genital complex, posteroventral view; (*35*) apex of male abdomen, ventral view; (*36*) styli, ventral view.

lum of mesonotum always black, except for lateral margins caudally to tegulae; in this case, tegulae also light. In heavily pigmented males, tegulae and sides of scutellum behind tegulae blackened. Fore wing semihyaline, pale fuscous, fuscous; in heavily pigmented males, fore wing nearly black, but costal and frequently interradial areas on corium pale, contrasting; stigmal cell also pale, but not hyaline. Underside of body pale fuscous, sometimes middle parts of thoracic sterna; coxae, and other parts of legs fuscous; middle part of mesonotum always blackened, abdomen dark fuscous, with pale margins of sclerites.

Body length 3.7–4.7 mm in males and 4.3–5.4 mm in females.

Material. Holotype: ♂, Australia, A.C.T., Canberra, Black Mt., 3–10.XII.1990 (A. Kirejtshuk) (ANIC). Paratypes: 4 ♂, 10 ♀, same locality (ZIN).

The genus and the species are named for a famous specialist in the taxonomy of the Fulgoroidea, Ronald Gordon Fennah.

Genus ***ORPHNINUS*** Emeljanov, gen. n.

Type species *Orphninus mouldsi* sp. n.

Description. Closely related to the genus *Tarberus* Jacobi. Body somewhat compressed, fore wings in repose held steeply tectiform. Head rather narrow. Coryphe with half its length protruding in front of eyes, narrow, longitudinally elongate, highly trapeziform, twice as wide at obtuse-angularly concave posterior margin as at anterior margin. Anterior margin of coryphe straight, transverse. Coryphe more than twice its posterior width, surface of coryphe grooved, lateral carinae high, anterior carina sharp, median carina weak, distinct only in posterior half.

Metope in lateral view twice roundly bent: stretching down from coryphe at right angle (length of its upper straight part equal to eye height), then smoothly turning nearly by 90° and, shallowly concavely bending from the level of anterior eye margin, reaching lora. Metope narrow, grooved, narrowing apically; clypeus deeply (to the level of antennae) protruding into metope. Lateral carinae of metope high, median carina absent; above eyes, in the area of convex bending, metope nearly slit-shaped.

Postclypeus elongate, narrow, tectiform, with sharp median carina and distinct lateral carinae. Clypeometopal suture absent, border marked by changing of the curvature. Anteclypeus steeply tectiform, continuation of lateral carinae of postclypeus strongly obliterated, nearly indistinct. Postclypeus in lateral view shallowly convex, aligned with lower part of metope. Median ocellus absent, lateral ocelli large. Antennae simple, small. Rostrum long, produced backwards beyond hind coxae by half of ultimate segment; ultimate and penultimate segments of equal length.

Pronotum short, with deep, subrectangular incision posteriorly, much longer at sides than along midline. Discal part small, narrow, with obtuse-angled, concave transverse profile. Anterior discal and postocular carinae arcuately produced from each side upwards, as single lobe, distance between their outer margins equal to width of coryphe; behind eyes, continuation of these carinae indistinct. Lateral carinae of pronotum distinct, bifurcate anteriorly, bordering small lanceolate cell. Lateral margins of pronotum along lateral carina as long as eyes. Posteroventral angles of paranotes somewhat protruding. Scutellum of mesonotum square-rhombic, with 3 sharp, somewhat diverging caudally carinae.

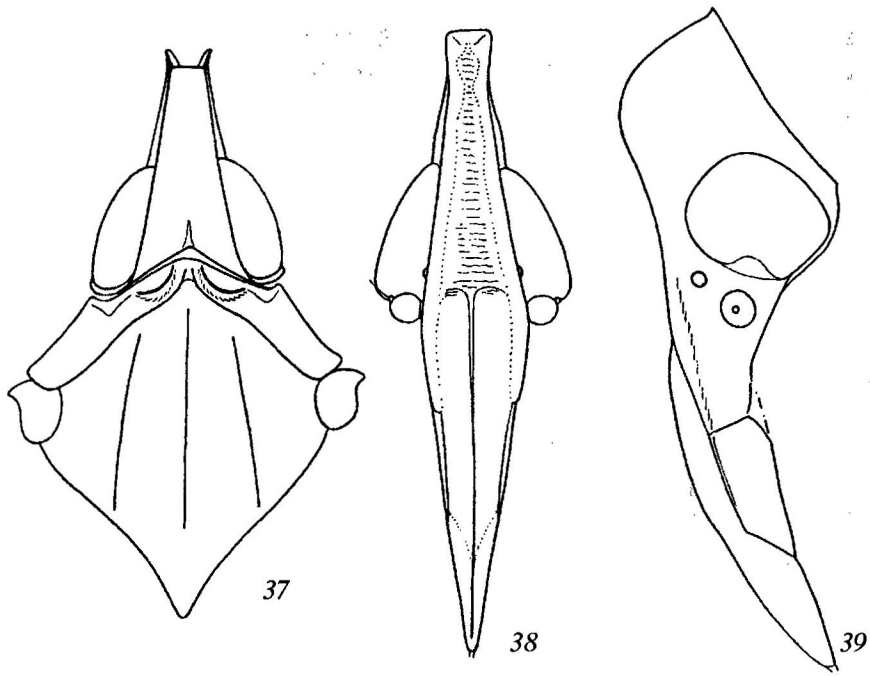
Fore-wing venation similar to that in *Gelastocephalus*. *ScRM* arising from basal cell as common stalk. Stigmal cell apically truncate and connected with *RP* by cross-vein (*ir*) leveling apical part of stigmal cell margin. Behind them, 3 apical branches of *RP* also run transversely, in parallel to each other. Veins *icu* running into apex of clavus.

Fore and middle legs rather slender, fore tibia and femur of equal length. Middle tibia somewhat longer than femur. Hind legs rather short, strong; tibia bearing 3 lateral teeth in basal half; apex of tibia rather strongly dilated, wedge-shaped, bearing large apical teeth forming 2 groups of 3 teeth each, divided by diastema; medial group of teeth longer than lateral one. Tarsus strong, basal segment in ventral view nearly 3 times as long as middle segment; basal segment bearing 8 apical teeth without platellae; middle segment having 11–12 teeth with platellae (except for 2 marginal teeth).

Female pygopher without wax plate; ovipositor in shallow indistinct longitudinal groove of pygopher.

Male. Pygopher simple, dorsally short due to oblique anteriorly upper part of posterior margin; ventrally long, with short triangular medioventral process; lateral lobes weakly produced, rounded obtuse-angular. Anal tube moderately elongate, with parabolically rounded apex, lower fringe with apical incision. Styli with apices bent at nearly right angle, laterodorsally broadening toward truncate dorsal margin and having heel-shaped prominence, bent medially at the angle terminating axis of stylus. Connective with flattened transverse beam connecting styli. Penis rather simple. Theca with single recurrent left process, base with accessory saddle-shaped apodema over rod of aedeagus. Ventrally, basal part of theca with oblique transverse carina; basal to it, surface of theca covered with short conical teeth. Dorsal wall of theca bearing hyaline lobe. Dorsal segment of penis simple, without teeth. Characteristic features of theca including basal apodema, indented area, and flattened transverse beam of connective.

Differential diagnosis. The new genus differs from the genus *Gelastocephalus* in the presence of teeth on the lateral side of tibia, equal in length ultimate and



Figs. 37–39. *Orphninus mouldsi* gen. et sp. n.: (*37*) anterior part of body, dorsal view; (*38*) head, anteroventral view (face); (*39*) head, lateral view.

penultimate segments of rostrum, metope bent in lateral view, distinct lateral discal lobes of pronotum and developed lateral carinae on it.

Orphninus mouldsi Emeljanov, sp. n. (Figs. 37–48).

Description. Dull fuscous orange color prevailing, some parts of body blackened or paler to white. Ridges of carinae on coryphe and metope linearly blackened, lateral walls whitish, largest part of coryphe and metope blackened, lateral parts of head anterior to ocelli fuscous orange. Genae and clypeus entirely blackened, labrum pale, rostrum fuscous orange. Pronotum, fore coxa, and other parts of legs fuscous orange; scutellum, sides of mesonotum, and larger part of middle coxa blackened; metathorax and abdomen also blackened, but not strongly. Hind coxa and free parts of hind leg pale fuscous to fuscous, apices of tibia and tarsal segments dark fuscous to black. Tegulae and fore wing fuscous orange, with dark pattern. Distal half of costal area with 3 oblique recurrent dark stripes. Stigma and adjacent sector of radial area fuscous. Cross-veins distally to stigma, running into anterior wing margin, paralleled by dark stripes. Prenodal part of wing with 2 transverse dark spots, one (anterior) stretching via fork of vein *CuA* from median line of posterior radial area to suture of clavus, other from the same line via apex of clavus to wing margin. Middle part of membrane from vein *RP* to CuA_1 infuscate, apically to dark fuscous and nearly black; at apex of CuA_2, eroded pale spot present. Dark fuscous strip running along distal half of median vein to nodal line; suture of clavus darkened from base to first median spot. Setigerous granules on corium and clavus outside dark spots pale, infuscate on membrane.

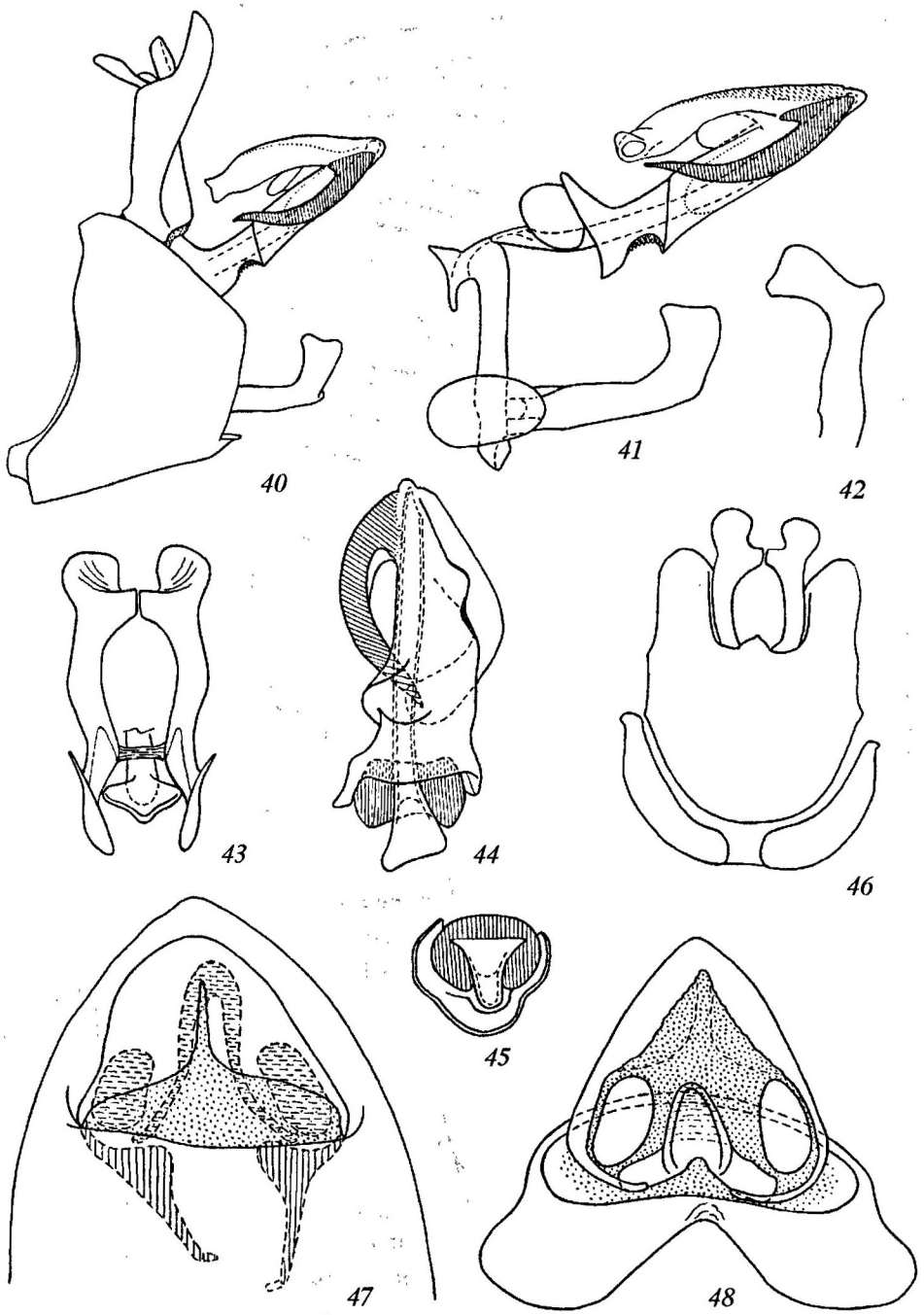
Body length 6.1–6.2 mm in males and 6.7–8.3 mm in females.

Material. Holotype: ♂, Australia, Queensland, 10 km of St. Lawrence turnoff, Waverley Rg, 21.XII. 1987 (M.S. and B.J. Moulds). Paratypes: 11 ♀, as holotype (NSWA); 1 ♂, 4 ♀, N.S.W., junction of Barradine Rd. and Newell Hwy., 11.XII.1987 (M.S. and B.J. Moulds) (NSWA); 1 ♀, A.C.T. (Canberra), Black Mt., 12.XI.1963 (J.F.B. Common and M.S. Upton) (ANIC).

Genus ***RHIGEDANUS*** Emeljanov, gen. n.

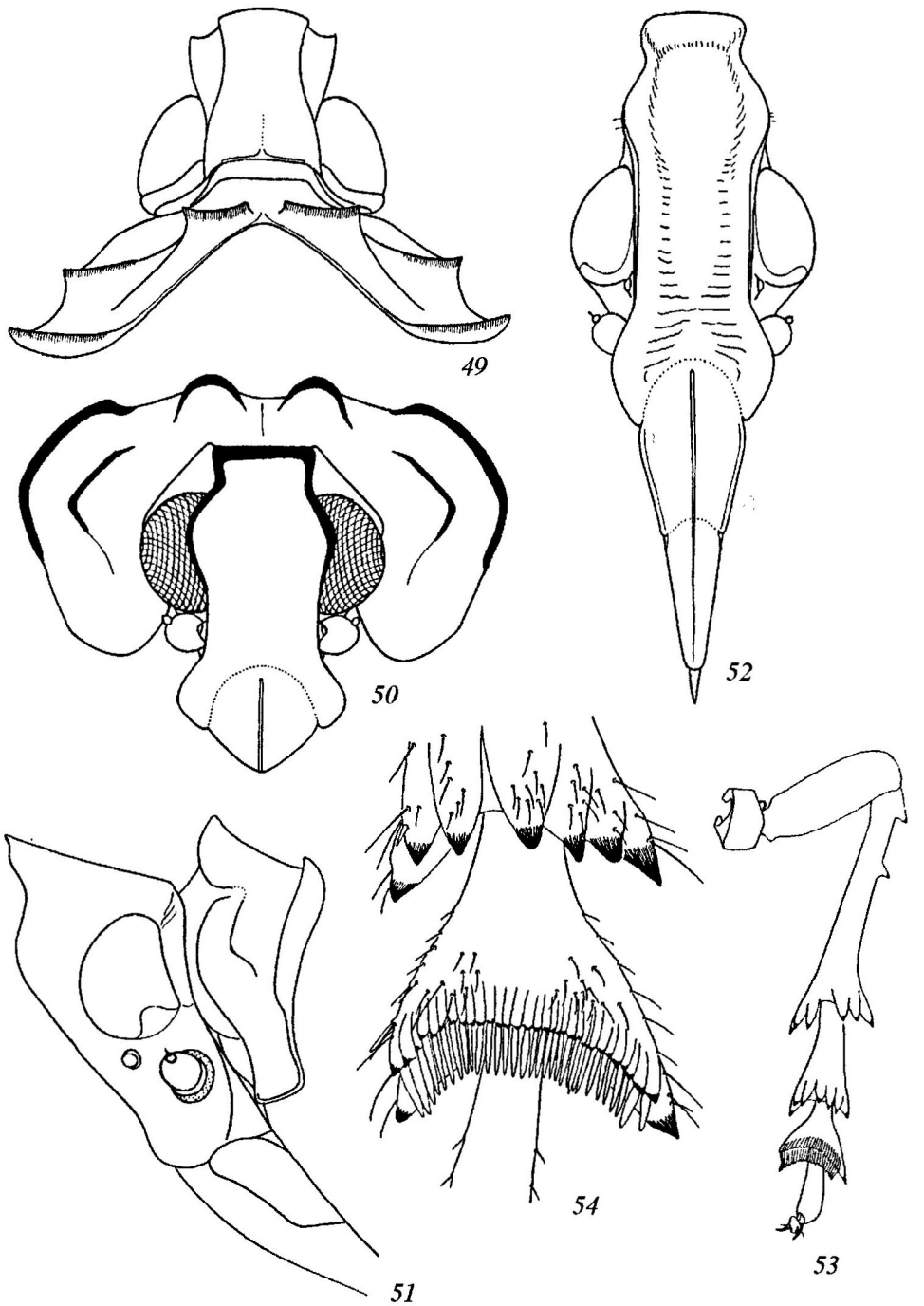
Type species *Rhigedanus fomibundus* sp. n.

Description. Very distinctive genus with peculiarly modified head and pronotum. Anterior part of head protruding anteriorly beyond eyes by longitudinal eye diameter or more. Coryphe longitudinal, elongate, trapeziform, caudally more than twice as wide as anteriorly, twice as long as wide. Median carina absent. Coryphe in middle part with deep longitudinal depres-



Figs. 40–48. *Orphninus mouldsi* gen. et sp. n.: (*40*) male genital complex, lateral (left) view; (*41*) penis, endoconnective, and stylus, lateral view; (*42*) apex of stylus, ventrolateral view; (*43*) styli and apex of endoconnective, ventral view; (*44*) penis, ventral view; (*45*) base of penis, front view; (*46*) male pygopher and sternite VIII, ventral view; (*47*, *48*) apex of anal tube, dorsal (*47*) and posterior (*48*) view.

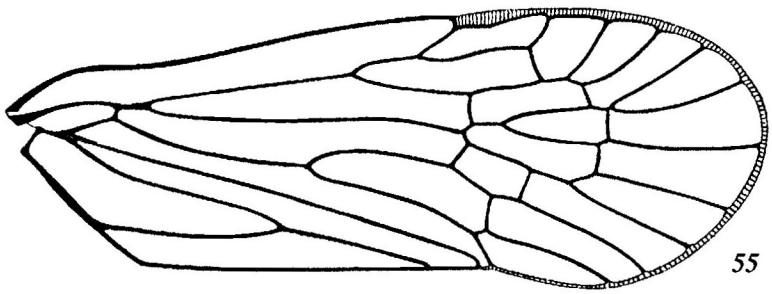
sion. Lateral margins of coryphe slightly concave in middle part, somewhat convex after the middle. Posterolateral angles of coryphe without fringe, passing onto rather wide supraocular margin. Coryphe somewhat concave in lateral view, its anterior margin slightly raised; connection of coryphe and metope acute-angular. Metope obtuse-angular in lateral view, lower half rather straight, upper part convex, anterior part of coryphe and lower part of metope approximately parallel. Metope also without median carina, concave, grooved; lateral carinae protruding forward. Lateral contour of metope in front view sinuous; metope widest below antennae, projecting there outwards as semicircular lobes; above lobes, lower part of me-

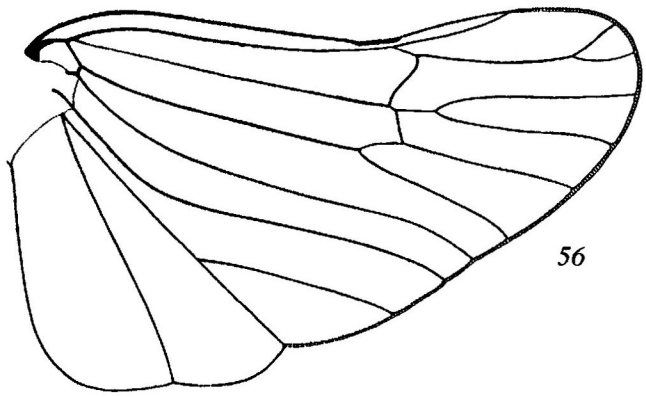


Figs. 49–54. *Rhigedanus fomibundus* gen. et sp. n.: (*49–51*) head and pronotum, dorsal (*49*), front (*50*), and lateral (*51*) view; (*52*) head, anterodorsal view (face); (*53*) left hind leg, ventral view; (*54*) apex of first segment and second segment of hind tarsus, ventral view, high magnification.

tope parallel-sided nearly as far as upper eye margins, higher narrowing toward narrow apex, slightly concave before the latter.

Postclypeus narrow, transversely convex, protruding into metope arcuately to the level of antennae; border between clypeus and metope without suture; median carina of postclypeus sharp, continuing onto anteclypeus, lateral carinae distinct. Antennae small, lateral ocelli large, their diameter only 0.67 times diameter of second antennal segment. Eyes ventrally with small incision. Rostrum only slightly shorter than clypeus, reaching as far as hind coxa .





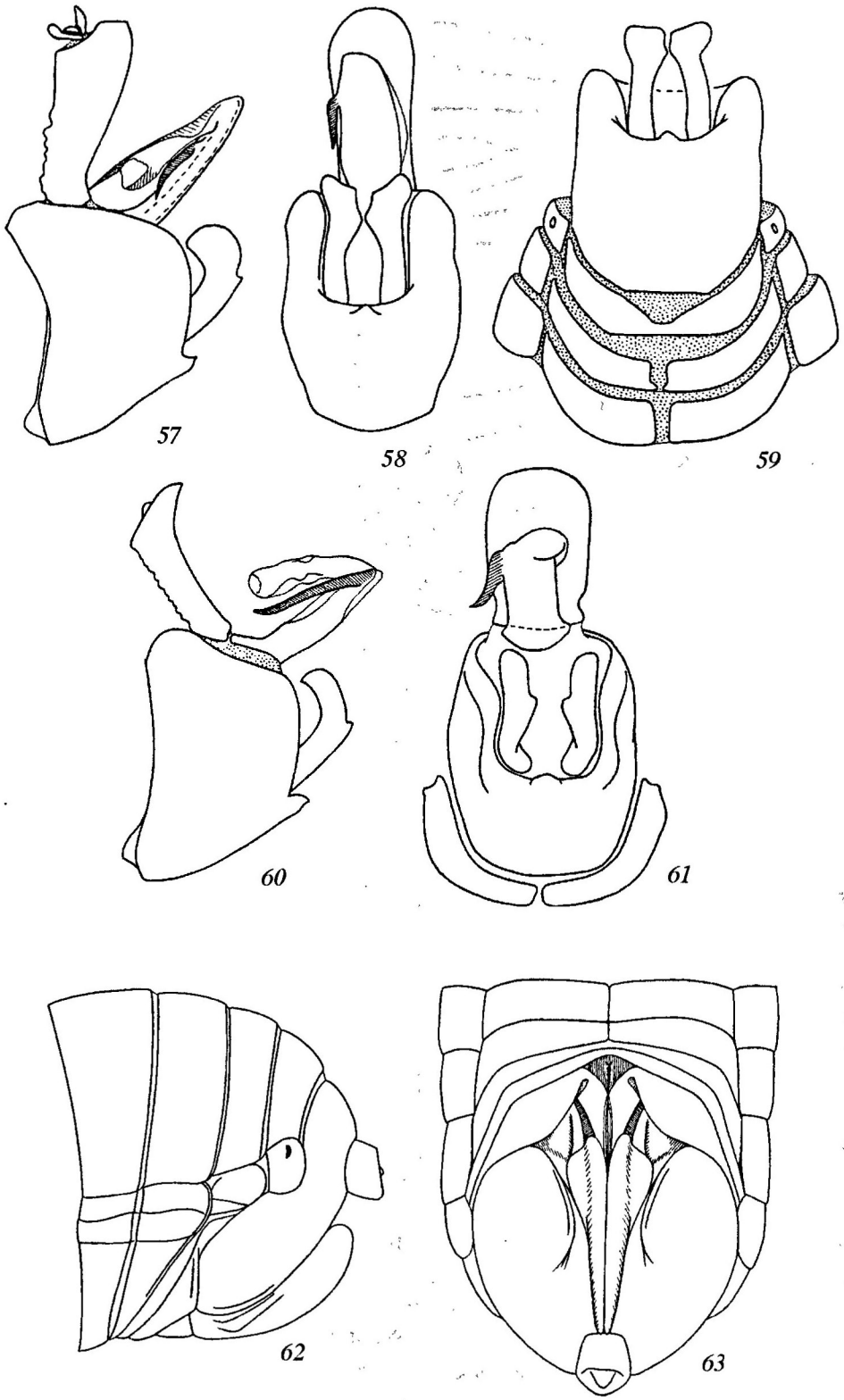
Figs. 55, 56. *Rhigedanus fomibundus* gen. et sp. n.: fore (*55*) and hind (*56*) wings.

Pronotum large, wide, and rather long, arcuate, its posterior margin in middle part concave in parallel to anterior margin. Anterior (anterolateral) carinae of disc modified into ear-shaped rounded lobes, shifted toward posterior margin of pronotum; postocular carinae generally retaining their usual position, merging medially with discal carinae at acute angle pointed anteromedially. Lateral areas of postocular carinae raised as small vestigial lobes. Posterior margin of pronotum laterally to median incision also raised and bent forward. Lateral carinae of pronotum indistinct, connecting lower parts of postocular carinae with lower (outer) margin of lobe-shaped prominences of posterior margin of pronotum. Paranotal lobes without carinae, with posterior and lower margins bent outwards. Mesonotum large, transversely diamond-shaped, bearing 3 longitudinal carinae; lateral carinae slightly convex, somewhat diverging backwards.

Fore wing held tightly, subparallel-sided, 2.5–3 times as long as wide; membrane occupying about third of wing length. Costal margin of wing convex at base, then slightly concave and then straight; membrane nearly symmetrically rounded. Short stalk *ScRM* present, radius branching approximately at middle of its length from basal cell to nodus or more distally, *CuA* branching at the same level, *RP* two-pointed, *M* five-pointed, with 3 branches of *MA*. Intercubital vein obliquely transverse, running into wing margin just behind clavus. In males, *M* three-pointed. Venation of *CuA* area widely variable: CuA_2 frequently forking, its branches anastomosing, and (or) possessing additional cross-veins in nodal area (Fig. 55 shows specimen without deviations). In a single case, a unique disintegration of the recurrent fork $Pcu + A_1$, a synapomorphy of the superfamily, was found.

Hind wing in *Rh. fomibundus* sp. n. with weakly modified venation. Common stalk *ScRA* stretching far beyond coupling lobe; vein *RP* starting under coupling lobe, two- or one-pointed (in males); vein *rm* long; *RP* without obtuse-angular break in point of its junction, as typical of Oecleini. *M* branching directly behind vein *rm*, base of *MP* looking like a cross-vein, $MP + CuA_1$ not branching, *MA* forking near base. Wing margin in remigium area forming no distinct incisions, ano-jugal lobe not protruding backwards sharply.

Legs strong, rather short. Fore tibia 2/3 as long as femur, middle tibia as long as femur. Hind tibia with 2–3 strong lateral teeth, distal tooth more variable in shape. Apex of tibia strongly broadening, bearing 6 strong teeth separated by diastema (3+3). First and



Figs. 57–63. *Rhigedanus* gen. n.: (*57–59*) *Rh. fomibundus* sp. n.: (*57*) male genital complex, lateral (left) view; (*58*) the same, ventral view; (*59*) apex of male abdomen, ventral view; (*60, 61*) *Rh. maculipennis* sp. n.: (*60*) male genital complex, lateral (left) view; (*61*) male genital complex and abdominal sternite VIII, ventral view; (*62, 63*) *Rh. fomibundus* sp. n., apex of female abdomen, lateral (*62*) and ventral (*63*) view.

second segments of hind tarsus also strongly dilating apically, first segment long, second short; first segment with 7 strong teeth, without subapical setae; second segment bearing 2 strong lateral teeth without setae and dense row of numerous (~30) small teeth with subapical setae, this row frequently wider than arrangement of lateral teeth; teeth situated above edges of row.

Male pygopher simple, typical of the tribe. Anal tube rather elongate, with weakly sclerotized ventral wall and rounded apex. Styli with rounded laterodorsal lobe bent at obtuse angle, and with narrow heel prominence. Penis simple. Theca with one apical left process, without any other lobes or prominences. Distal segment of penis simple or with apical process and rudiment of second apical process. Characteristic feature: membranous ventral surface of anal tube. Male abdominal sternite VIII divided along median line; or entire, but narrowing toward median point.

Female pygopher evenly strongly convex, nearly hemispherical, without wax plate; ovipositor short, arcuate, appressed to shallow groove of pygopher, somewhat not reaching small, strongly shortened, and poorly developed anal tube.

Rhigedanus fomibundus Emeljanov, sp. n.
(Figs. 49–59, 62, 63)

Description. Male. On head, carinae blackened along ridges, this blackening eroding toward base of carinae. Rounded depression on coryphe infuscate; lower part of metope infuscate, infuscation gradually eroding toward margins of spot, the latter not confluent with infuscation of carinae. Clypeus infuscate, carinae lightened. Preocular area infuscate from eyes, infuscation eroding toward margins, rest part of lateral surfaces of head above genae pale fuscous. Genae dark fuscous, but divided by eroded pale stripe (line) from infuscation of carina of metope and from margin of lora.

Pronotum almost entirely infuscate, pale: posterior margin, anterior surfaces of ear-shaped latero-discal carinae with infuscate ridges; postocular carinae pale; the more strongly projecting areas of lobe on posterior margin of pronotum opposite upper half of tegulae and somewhat above them, medially limited by posterior incision of pronotum, also infuscate along ridge.

Scutellum of mesonotum nearly black, longitudinal carinae somewhat lightened anteriorly. Fore wing semi-hyaline, with slight fuscous infumation of distal part of membrane. Extravenal pterostigma and stigmal cell infuscate and crossed by oblique whitish spot, stretching from apex of costal vein to middle of stigmal cell. Underside of body infuscate. Lightened parts of legs: apices of femora, distal half of tibiae gradually getting paler toward apex, and tarsi; abdominal segments with pale lines along posterior margin.

Female. Females mostly paler than males, main color pale fuscous, orange, or whitish. On head and pronotum, mostly only ridges of carinate lobes infuscate. Genae around or below antennae always infuscate. On scutellum, carinae entirely and middle part of disc lightened. Fore-wing pigmentation similarly intense. Underside of body and legs fuscous or pale fuscous.

Body length 6.9 mm in males and 8.3–10.4 mm in females.

Material. Holotype: ♂, Australia, N.S.W., "Calumet", 25 m. NE of Binnaway, XI.1921 (A. Musgrave) (AMSA). Paratypes: 1 ♀, Australia, N.S.W., "Calumet", 25 m. NE of Binnaway, XI.1921 (A. Musgrave) (AMSA); 1 ♂, genitalia mutilated, N.S.W. [then illegible handwriting "...W W F ...", right part of label with text cut off] 190 [...] (NSWA); 1 ♂, N.S.W., Condobolin, 10.XI.1972, D.A. Doolan (NSWA); 1 ♀, N.S.W., Greenfell, 1918, W.W.F. (NSWA); 2 ♀, N.S.W., 25 km E of Enngonia, 30.X.1973 / R.C. Lewis (ANIC); 2 ♀, N.S.W., Bourke, 24.X.1949 / S.J. Paramonov (ANIC); 1 ♀, N.S.W., Mt. Boppy, 27.X.1957, E.F. Riek (ANIC); 3 ♀, N.S.W., 65 km NW of Nyngan, 21.X.1949, E.F. Rieck (ANIC); 1 ♀, N.S.W., Nandewar Rge. nr. Narrabyi, 6–7.XI.1932 (K.C. McKeown) (AMSA).

Rhigedanus maculipennis Emeljanov, sp. n.
(Figs. 60, 61)

Description. Very similar to *Rh. fomibundus* sp. n. In females, general color usually more gray, middle part of the disc of scutellum not lightened, fore wing with infuscate veins and spots situated as follows: two spots in costal area, at equal distances from apex of basal cell and stigma; the second spot lying first in the transverse row of 4 small spots: second of these spots situated on vein *M*, third, on vein *CuA*, and fourth somewhat shifted toward wing base, in front of vein *Pcu* before its connection with A_1. In males (only one known), entire integument black, with somewhat paler areas on head and pronotum. Fore wing with infuscate veins and black spots, equal in size to similar spots in females; in caudal part of clavus, cells infuscate; additional spot present on stalk *M* before forking, at the node level.

Body length 8.2 mm in male and 8.9–10.4 mm in females.

Material. Holotype, ♂, with two labels: (1) Western Australia, 70 km E Balladonia, 3.X.1977 (F.H. Uther Baker); (2) "ex J.W. Evans Collection Donated 1896 (NSWA)." Specimen covered with mould, wing damaged. Mould partly removed by me. Paratypes: 2 ♀, 100 W Eucla, WA, 25.X.1958 (E.F. Rieck) (ANIC); 1 ♀, 1 mi. NE of /Mundrabilla Hs./ WA 16.X.1968 / Britton, Upton, Balderson (ANIC); 1 ♀, Jonh Forrest Natn. Park, Darling Ranges/ W.A. / 21.I.1971, mv lamp / (G.A. Holloway and H. Hughes() (AMSA); 1 ♀, 18 mi. E. Pingelly, W.A., 1.I.1971 / mv lamp (G.A. Holloway and H. Hughes) (AMSA).

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