

AUSTRALIAN PSYLLIDÆ. PART III.

BY WALTER W. FROGGATT, F.L.S

(Plates iv.-v.).

Since my last contribution to the study of this Family of the Homoptera (these Proceedings, 1901, p. 242) I have collected, and received from my numerous correspondents, some new forms quite as interesting as those previously described; and from the material now in hand (as there still remain in my collection a number of lerp-scales and galls, the makers of which have yet to be discovered) the fauna bids fair to be the richest in the world in respect of these tiny "leaf-fleas." Though the range of many species is limited as far as we yet know, others have a very wide distribution and are readily transported with their food-plants to other countries. *Rhinocola eucalypti*, described by Maskell from New Zealand, where he found it on the young foliage of the Blue Gum, is to be found in every plant nursery or garden about Sydney where seedlings of this Eucalypt are growing. As the tree is also common in Tasmania it is probably a native of that Island. In the last Report of the Government Entomologist at Cape Town it was recorded as plentiful in South Africa on its food plant (*Eucalyptus globulus*). The tiny little aphid-like *Psylla acaciæ-baileyana*, which swarms over the ornamental "Cootamundra Wattles" in this State, without apparently doing any damage, was reported last season as having destroyed all the flower buds of many shrubs of the same species growing about the suburbs of Melbourne.

The free psyllids infesting the Acacias and other scrub trees seem to confine themselves to particular species, and are constant in their habits; but those forming lerp-scales upon the Eucalypts have a much wider choice of host, and adapt their structures to

the shape of the leaf. Thus *Rhinocola corniculata*, which forms its slender horn-coloured lerp on several different Eucalypts, has been collected recently at Dubbo on *Eucalyptus tereticornis*, var. *dealbata*, and *E. sideroxylon*, at Young on *E. tereticornis*, and at Condobolin on *E. melliodora* and *E. rostrata*.

On further examination I find that *Eriopsylla gracilis* cannot be correctly referred to that genus, but must be placed in *Aphalara*, as the stalk of the subcosta is not as long as the stalk of the cubitus. The figure of the wing given in Pl. xiv., fig. 11, is correct, but the description of the wing in the particular mentioned is wrong.

RHINOCOLA NIGRIPENNIS, n.sp. (Plate iv., fig. 1).

Early stages and life-history unknown; imago caught in sweeping low scrub.

Imago.—Length 0·075 inch, antennæ (?). General colour bright reddish-brown, with dark brown marks in centre of pronotum and on abdominal segments, legs ochreous, wings hyaline, with the whole of central portion clouded with black; nervures light brown. Head with eyes not quite as broad as thorax, deeply angulated behind, flattened, with a deeply impressed fovea on either side of the deep median suture, parallel behind eyes, arcuate on either side, behind basal joint of antennæ forming a blunt tooth beside front of the eyes, rounded and lobed in front. Face lobes broad, rounded, fringed with fine hairs. Antennæ with 1st and 2nd joints very stout, short; rest wanting. Eyes very large, flattened; central ocelli very small, lateral ocelli close to upper angle of eyes. Thorax: pronotum angulated on front margin, sloping to rounded tips, bearing a row of five foveæ and truncate behind; dorsulum small, rounded in front, produced into a blunt tooth on sides, sloping to a truncate apex; mesonotum large, arcuate in front, broadly rounded on sides and hindmargin; scutellum small, angular and truncate in front. Legs stout, long, tibiæ of hind pair dilated at apex and armed with a row of short black spines, with a pair of similar ones in the apex of 1st tarsal joint. Wings long, slender, rounded at tips, more than thrice as

long as broad, primary stalk short, stout; stalk of subcosta short, as long as that of cubitus; subcosta running so close to the costal nervure that it almost touches; radius long, curving downwards at tip; upper branch of cubitus long, straight, upper and lower forks short, of nearly equal length; lower branch of cubitus long, upper fork short, rounded, lower fork very short, slightly curved; clavus slender, clavical suture long, slender. Abdomen long. Genitalia : (♀) upper and lower valves short, pointed.

Hab.—Dandenong, Victoria (C. French, Junr.; one specimen).

RHINOCOLA MULTICOLOR, n.sp. (Plates iv., fig. 2; v., fig. 14).

Early stages and life-history unknown; imago caught in sweeping.

Imago.—Length 0·0725, antennæ 0·01375 inch. General colour bright reddish-brown; centre of prothorax, head, legs and antennæ yellow, apical joints of latter fuscous; face lobes red; abdominal segments black, the segmental divisions barred with a fine line of red; wings slightly opaque, clouded in a regular pattern along hind half and tip of forewings with dark brown, inner nervures pink. Head with eyes nearly as broad as thorax, almost truncate in front, with a slight median suture and small fovea on either side, deeply arcuate on hind margin. Face lobes turned down, large, broad, rounded at tips, with an angular cleft between, clothed with long hairs. Antennæ short, 3rd joint longest, 9th-10th short, slightly thickened and rounded at tip. Eyes large, hemispherical, standing out on sides of head; central ocelli in contact with face lobes, lateral ocelli well on hind margin of eyes. Thorax : pronotum angulated in front, sloping down on either side, forming a rounded lobe at the extremities, in line with the eyes; dorsulum broad in centre, running to a point on sides, truncate in centre of hindmargin; mesonotum large, convex, broad, swelling out, and rounded on sides; scutellum broad, somewhat quadrate. Legs stout, hind pair long; tibial spines not conspicuous. Wings long, slender, more than thrice as long as broad, curved at base in front, broadly rounded at tip, and slightly concave on hind margin, primary stalk stout, stalk of subcosta shorter than stalk of cubitus, costal cell elongate, sub-

costal forming a long slender stigma-like cell running into costal nervure before reaching tip of wing; radius long, curving down just below top of wing; upper cubital branch long, upper fork longer than lower, both turning downward below tip; lower cubital branch short, upper fork long, curving round, lower fork very short and transverse. Abdomen long, slender, sharply arcuate on dorsal surface at the extremity, with an oval valve or process in the curve. Genitalia: (♀) upper and lower valves short, rounded at tips, with a stout spine-like ovipositor produced beyond thorax.

Hab.—Dandenong, Vic. (in sweeping low scrub; C. French, Junr.); Rylestone, N.S.W. (W. W. Froggatt).

Five specimens were sent from Victoria, captured on the 28th of October, when sweeping with a net. I collected four specimens in the same manner about the same time of year. This species in general form of wings and coloration comes near *R. marmorata* from the Blue Mountains, but, among other differences, has very short antennæ, whereas *R. marmorata* has extra long ones.

APHALARA FLAVILABRIS, n.sp. (Plate iv., fig. 3).

Early stages and life-history unknown; imago caught in sweeping low Eucalypt scrub.

Imago.—Length 0·07, antennæ 0·0225 inch. General colour reddish-brown mottled with yellow, face lobes pale yellow; antennæ, legs, upper surface of dorsulum, mesonotum and scutellum pale ochreous-yellow; upper surface of head rich reddish-brown; wings hyaline, with a transverse band of black crossing them, enveloping stalk of subcosta, base of cubital branches, bounded on the inner margin of cubital stalk and both bifurcations of lower branch of cubitus; rest of nervures light ochreous. Head with eyes twice as broad across as long, flattened, with distinct median suture, no fovea, and broad angular cleft in front, sloping down on either side to eyes which are slightly arcuate behind. Face lobes large, broad, rounded and close to tips. Antennæ long, 1st and 2nd joints very short, 3rd very long, rest

of nearly uniform length, decreasing in length to apex. Eyes very large, rounded on the outer margins, somewhat reniform in shape; central ocellus very small, at extreme base of median suture; lateral ocelli large, in line with hind angle of eyes. Thorax: pronotum of uniform width, broadest and rugose at extremities, arcuate behind; dorsulum short and broad in proportion, rounded in front, sloping on sides to hindmargin; mesonotum large, arcuate in front, swelling out on either side of dorsulum, angulated at extremities, and rounded behind to junction with small oval scutellum. Legs rather short and stout. Wings nearly thrice as long as broad, coming to almost an acute point at tip; primary stalk moderately long; stalk of subcosta short, but longer than stalk of cubitus, forming a slender well-defined stigma or subcostal cell; radius long, running close to costa and coming out exactly at tip of wing; stalk of cubitus very short, upper branch of cubitus long, upper and lower forks long, forming a large cell, upper one longest; lower branch of cubitus short, upper fork long, curving round, lower fork rounded and curving inward at tip; clavus stout, clavical suture long and distinct. Abdomen broad, coming to a point at tip.

Hab.—Rylstone, N.S.W. (W. W. Froggatt).

APHALARA OBSCURA, n.sp. (Plate iv., fig. 4).

Larva dull yellow, eyes red. Head large, broadly lobed in front on either side, antennæ standing out from eyes, pointed at apex; thorax forming three regular segments, abdomen not as long as thorax, rounded at apex and fringed with short spines round the extremity.

Pupa with dorsal surface ochreous, but so thickly blotched with brown that it shows only as a dorsal stripe down centre of head and thorax, lines behind head and wing-covers forming a square between the latter, and several transverse lines on basal half of abdomen separating these brown bands; ventral surface lighter brown, with abdominal segments marked with transverse bands of blackish spots. Head large, rounded in front, arcuate behind base of antennæ, rounded behind; eyes large; antennæ

short, pointed at apex. Thorax short, broad, wing-covers large, broad, rounded at tip; abdomen elongate-oval; legs short, stout.

Imago.—Length 0·0425, antennæ 0·01 inch. General colour ochreous, with darker chestnut markings on head and thorax, antennæ fuscous, lighter on segmental divisions, eyes bright red, ocelli yellow, four broad transverse bands across mesonotum. Wings semiopaque, finely coriaceous, nervures yellow. Head broad, turned down and lobed in front, with a dark median suture and fovea on either side; deeply arcuate behind. Face lobes hidden from above, large, stout, conical, hairy. Antennæ rather short, 1st joint very broad, 2nd short, oval, 3rd longest, 4th-7th short, 8th longer, 9th-10th short, pointed at apex. Eyes very large, reniform; lateral ocelli very small, on lower angle of eye; central ocellus small, hidden from above. Thorax: pronotum curved, ribbon-shaped, impressed with three dark spots; dorsulum spindle-shaped, rounded in front, tapering to extremities; mesonotum large, truncate on both sides, rounded on outer margins; scutellum arcuate in front, with spine on either side of front margin. Legs short, stout, tibiæ long, slender, with apex slightly dilated, and armed with six short black spines. Wings broad, rounded at tips, coriaceous, a little more than twice as long as broad; primary stalk short; stalk of subcosta not as long as stalk of cubitus; subcosta long, indistinct, forming no true stigma; radius long, straight, curving slightly at extremity, coming out just above tip of wing; stalk of cubitus long, upper branch of cubitus very long, upper and lower forks forming a slender cell just below tip of wing; lower branch of cubitus long, upper fork long, bow-shaped, lower fork very short. Abdomen short, pointed to tip. Genitalia: (♀) large, broad, sabre-shaped, upper and lower valves finely pointed.

Hab.—National Park, Sydney, N.S.W. (on *Eucalyptus* sp.; W. W. Froggatt).

APHALARA LEPTOSPERMI, n.sp.

Larva semitransparent, thickly enveloped in a mass of white wool-like filaments; eyes yellow; tip of antennæ, tarsi and rostrum

fuscous; centre of abdomen bright yellow. Head lobed in front, large, antennæ standing out in front; abdomen short, broad, rounded at tip.

Pupa pale yellow tinged with green; antennæ, legs, blotches on either side of head, wing-covers, six blotches between them, and five transverse lines and apical portion of abdomen dark brown. Head slightly arcuate in front, sharply curved down on sides to projecting eyes. Thorax short, as broad as head; wing-covers short, oval. Abdomen short, broadly rounded, and somewhat arcuate at tip; apical portion covered with fine close net-like corrugations.

Imago.—Length 0·0575, antennæ 0·1375 inch. General colour pale yellow, centre of abdomen red when viewed from above, tip of antennæ and fine markings on head, thorax and abdomen light brown. Head broad, deeply lobed in front, median suture deep, arcuate on sides and base. Antennæ short, standing out in front, 3rd joint very long, 4th short, apical ones slightly swollen. Face lobes short, broad, rounded at apex, turned down and deeply cleft. Eyes large; central ocellus well down on front of median suture, lateral ocelli near hind margin of eyes. Thorax: pronotum ribbon-shaped, coming to a point at centre, arcuate on sides and base; dorsulum prominent, broad, angulated on sides; mesonotum large, rounded on sides. Wings more than twice as long as broad, not as long as usual, rounded at extremities; primary stalk short, stalk of subcosta shorter than in other species, subcostal nervure indistinct, forming an irregular cell, thickened at tip; stalk of cubitus twice as long as subcostal stalk; radius long, curving down; upper branch of cubitus long, upper and lower forks forming an angulated cell smaller than lower cell formed by furcation of lower branch; clavical suture very stout and distinct. Abdomen wedge-shaped, rather long. Genitalia indistinct in ♂, forming two fine points in ♀.

Hab.—Frankston, Vic. (on *Leptospermum laevigatum*; C. French, Junr.).

The larvæ and pupæ of this species swarm over the tips of the foliage of the tea-tree bushes, covering them with the white wool

like filaments under which they hide. Mr. French says :—" My clothes were quite white, and hundreds of the little creatures were crawling over my coat after pushing my way through the scrub."

CARDIASPIS RUBRA, n.sp. (Plate v., figs. 1 and 3).

Early stages and life-history unknown; imago collected on scrub.

Imago.—Length 0·08, antennæ 0·0175 inch. General colour bright red, mottled with dull reddish-orange and ochreous on head and thorax; centre of vertex, legs, antennæ, edges of pronotum, two blotches in centre of dorsulum and five on mesonotum blackish; abdomen red, deeply banded with black, wings slightly opaque, nervures rose-red. Head small, arcuate behind, rounded and slightly lobed in front, with distinct median suture and deep fovea. Face lobes large, spatulate at apex, open at base but in contact at tips. Antennæ short, 4th-9th joints short, apex slightly thickened. Eyes large, truncate on inner margin; central ocelli small, lateral ocelli small. Thorax: pronotum ribbon-shaped, curved in front, an impressed fovea near each extremity, slightly raised on hind margin; dorsulum convex, very short, broad, rounded to a blunt point at extremities; mesonotum large, arcuate in front, somewhat truncate on sides, rounded from hind angle; scutellum large, rounded behind. Legs stout, tibiæ long, terminal joint of tarsi large. Wings elongate-oval, more than twice as long as broad; costal nervure thickened at base to stigma; primary stalk short, stalk of subcosta a little shorter than stalk of cubitus; subcosta running in costa with well-defined stigma; radius emerging above tip of wing; upper branch of cubitus long, straight, upper fork shorter, emerging just below tip of wing, lower fork shorter, turned down; lower branch of cubitus not as long as upper fork; lower fork short, turning down, clavus stout, clavical suture slender. Abdomen very short, broad, terminating in rounded tip. Genitalia in ♀ forming two short valves.

Hab.—Mt. Wellington, Hobart, Tasmania (on *Eucatyptus coccifera*; A. M. Lea; two specimens ♀).

SPONDYLASPIS HIRSUTUS, n.sp. (Plates iv., fig. 6; v., figs. 4 and 5).

Lerp convex, rounded, broadest across centre, light chocolate brown, of a laminated structure, closely attached all round the edges to a leaf, with a flange at base, the whole of the central portion of the lerp clothed with curled filaments, hooked or turned down at tips; $1\frac{3}{4}$ lines in length.

Pupa.—General colour bright red, thorax dull yellow; blotches behind eyes, spots on dorsal surface of thorax, wing-covers, tarsi, bases and tips of antennæ, and apex of abdomen black. Head small, rounded in front; antennæ moderately long, slender, standing out in front of head; eyes large. Thorax long, not wider than base of head; legs short; abdomen swelling out from tip of wing-covers, rounded to apex.

Imago.—Length 0·085, antennæ 0·025 inch. General colour reddish-brown; head, pronotum, outer margins of dorsulum and scutellum light yellow; abdomen barred with black down the centre of each segment; antennæ and legs ochreous, except the tips of the former, which are fuscous; wings slightly opaque, nervures light brown. Head arcuate in front, sloping down behind base of antennæ, rounded behind eyes; flattened on summit, with a dark median suture, and a very slight fovea on either side. Face lobes very long, slender, rounded on the tips, and separated to near base. Antennæ short, thickened, thickened also at tip; 1st joint very short, broad, 2nd small, the following ones longer. Eyes large, flattened, deeply arcuate on inner margins; central ocellus small, at base of dorsal suture; lateral ocelli small, on upper edge of margin of eyes. Thorax: prothorax ribbon-shaped, curved, with a slight fovea on either side in line with lateral ocelli, broadest and rounded at the extremities; dorsulum short, broad, rounded in front; mesonotum large, slightly arcuate in front, rounded on sides and behind; scutellum arcuate in front, with a slight spur on either edge, but rounded behind, overlapping the mesonotum. Legs moderately long; hind tibiæ swollen at apex and armed with stout spines. Wings rounded on front margins, pointed at apex, more than twice as long as broad

primary stalk short, curved; stalk of subcosta long, subcosta forming a long slender cell or stigma running about two-thirds of length of costal nervure; radius long, running close to costa and terminating at tip of wing; cubital stalk short, upper branch of cubitus long; upper and lower forks long, forming a large cell; lower branch long, upper branch long, curving upward and then down; lower fork long, curving outward; clavus stout, clavical suture long, well defined. Abdomen large. Genitalia indistinct.

Hab.—Thirroul, N.S.W. (on leaves of *Eucalyptus robusta*; W. W. Froggatt).

SPONDYLASPIS NIGRO-CINCTA, n.sp. (Plate v., figs. 2 and 6).

Early stages and life-history unknown; imago taken in sweeping Eucalypt scrub.

Imago.—Length 0.08, antennæ 0.025 inch. General colour rich yellow variegated with black; head yellow with lines round the edges, median suture, fovea, and centre of eyes black; antennæ and inner portion of face lobes fuscous; black blotches on either side of dorsal surface of thorax forming two irregular parallel bands, with two lighter blotches on front margin of pronotum; legs marked with black on thighs, tarsi fuscous; abdomen more black than yellow on dorsal surface; wings semitransparent, nervures horn-colour. Head narrow across, arcuate behind, turned down and flattened in front, with a deep fovea and median suture, deeply cut out in centre, and coming to a sharp angle on either side between antennæ. Face lobes very long, slender, almost cylindrical, rounded at tips, lightly clothed with fine hairs. Antennæ short, 1st joint short, stout, 2nd short, 3rd longest, 4th-8th slender, nearly of equal length, 9th shorter, 10th short, rounded at tip. Eyes very large, standing out on sides of head; central ocelli small; lateral ocelli large, bright wax-red. Thorax: pronotum not reaching to outer margins of eyes, curved in front, narrow, rounded at extremities, a fovea in blackish blotches on either side; dorsulum very small, irregularly oval, coming to a blunt point at sides; mesonotum large, swelling out, arcuate in front, coming to a rounded point on sides; scutellum light yellow,

rounded behind. Legs long, thighs stout. Wings long, slender, rounded at tips, more than thrice as long as broad. Primary stalk long, costal nervure at base thickened; stalk of subcosta long, subcosta turning up and then forming a long slender stigma; radius long, slender, turning downward to tip of wing; stalk of cubitus short, upper branch of cubitus as long as upper fork, upper and lower forks forming a long narrow cell, turning downward; lower branch of cubitus short, upper fork long, curving round, lower fork long, curving down. Clavus stout, clavical suture very fine. Abdomen long, slender, blunt and round to tip. [Genitalia damaged].

Hab.—Mt. Wellington, Hobart, Tasmania (on *Eucalyptus coccifera*; A. M. Lea; two specimens ♂).

THEA WELLINGTONIÆ, n.sp. (Plate v., figs. 6-7).

Imago.—Length 0.14, antennæ [? broken]. General colour reddish-brown to chestnut with yellowish markings, abdomen and genitalia red marked with black on dorsal surface; wings semi-opaque, pale horn-colour, with a darker smoky shade on apical portion, nervures reddish-brown. Head nearly truncate behind, turned down in front, a distinct median suture, and several small black marks in fovea on either side; arcuate in front, and produced into a broad angular point on sides. Face lobes broad, very short, hidden from above. Antennæ [broken at tip], 1st and 2nd joints short, broad, the rest slender. Eyes large; central ocellus hidden when viewed from above, lateral ocelli small, close to upper margin of eyes. Thorax: pronotum ribbon-shaped, narrowest at extremities, hind margin slightly curled up; dorsulum hexagonal; mesonotum large, arcuate in front, rounded behind, centre black with chestnut on either side; scutellum elongate-oval. Legs short, femora stout, tibiæ short; tibial spines small. Wings nearly thrice as long as broad, not quite so acute at apex as in other species; primary stalk short; stalk of subcosta long; stigma rather long; radius long, curving up slightly at tip; stalk of cubitus long, upper branch curved, upper and lower forks forming a slender cell below tip of wing; lower branch of cubitus

short; upper fork long, lower fork curved in at tip; clavus stout, long; clavical suture slender. Abdomen short. Genitalia in ♀ long, slender, sabre-shaped.

Hab.—Summit of Mt. Wellington, Tasmania (on *Eucalyptus coccifera*; A. M. Lea; three specimens, ♀).

PSYLLA ACACIÆ-DEALBATÆ, n.sp.

Larva semitransparent; eyes reddish-brown; centre of abdomen tinged with yellow. Head large, irregularly rounded in front; antennæ stout, standing out in front. Thorax long, quite as broad as head. Legs short, stout. Abdomen swelling out behind thorax, rounded, broad, and flattened at tip.

Pupa pale green, shaded with yellow; antennæ fuscous; eyes reddish-brown; two large fuscous patches on head, and ten spots and four stripes of the same colour on thorax; legs ochreous, shaded with fuscous; wing-covers dark brown, large, projecting; basal portion of abdomen marked with three interrupted slender brown lines and apical portion uniform brown. Thorax large, swelling out behind head, broadly rounded on sides. Abdomen irregularly rounded to tip, fringed with stout hairs.

Imago.—Length 0.0375, antennæ 0.0075 inch. General colour of head, thorax, legs and base of antennæ dull yellow; abdomen bright green; wings semiopaque, horn-coloured, nervures pale yellow. Head not quite as broad as thorax, somewhat flattened, arcuate behind antennæ, slightly lobed in front, a distinct median suture and a small impressed fovea on either side. Face lobes short, broad, angular, deeply cleft in front, somewhat hidden from above. Antennæ moderately long, slender; 1st joint stout, 2nd short, 3rd long, the rest uniform, ending at tip in a distinct club. Eyes large, projecting; central ocellus small, lateral ocelli in line with middle of eyes. Thorax: pronotum ribbon-shaped, curved in front, showing two dark foveæ on either side; dorsulum rounded in front, coming to a point at extremities, truncate at hind margin; mesonotum very large, convex, broad in centre, narrower on either side; scutellum small, arcuate in front. Legs slender. Wings semitransparent, broadly rounded at tips, more than twice

as long as broad; primary stalk curving up; stalk of subcosta long, subcosta forming a long slender stigma; radius short; stalk of cubitus short, upper arm curved upward, short; upper and lower forks turned down, forming a long cell a little shorter than the arm; stalk of lower arm of cubitus rather long, upper fork long, curving round, lower fork curving inward; clavus slender; claviculal suture very distinct. Abdomen long, slender. Genitalia: (♂) lower genital plate rounded beneath; forceps short, straight and thick; penis small; upper genital plate finger-shaped, bent forwards at tip.

Hab.—Hobart, Tasmania (on foliage of *Acacia dealbata*; A. M. Lea).

PSYLLA GRACILIS, n.sp. (Plate iv., fig. 7).

Imago.—Length 0·065, antennæ 0·0325 inch. General colour light green, slightly tinged with yellow on head and thorax, eyes light brown; antennæ, except tip which is fuscous, pale ochreous; legs of the same colour, with tarsi fuscous; wings transparent, nervures light-coloured. Head broad, swelling out, and rounded in front, deeply arcuate behind, with a slight median suture and shallow fovea on either side. Face lobes closed from base, large, broad, projecting, rounded at apex. Antennæ long, slender; 1st joint stout, swollen; 2nd short, cylindrical; 3rd very long; 4th-8th slender, decreasing to apex; 9th-10th short, slightly clubbed. Eyes reniform; central ocellus very small, almost hidden from above, lateral ocelli rather small. Thorax: pronotum narrow, curved, deeply arcuate behind, rounded on sides, reaching to hind margin of eyes; dorsulum short, broadly rounded in front, truncated, and narrow at extremities, nearly transverse behind; mesonotum large, broad, nearly truncate in front, and produced into rounded lobes on the sides, sloping down and rounded to apex, scutellum small. Legs rather long, tibiæ slender, tarsi small. Wings long, slender, rounded to tips, nearly thrice as long as broad; primary stalk stout, turning upward; stalk of subcosta long, no distinct cross vein, but costa forming a long slender cell; radius long, curving upward and emerging above tip of

wing; cubital stalk short, upper branch of cubitus long, curving upward, upper and lower forks forming a long slender cell below tip of wing, lower branch of cubitus long, upper fork long, curving upward and round, lower fork short, turning inward; clavus short. Abdomen rather short and stout. Genitalia: (♀) upper and lower valves forming short blunt processes.

Hab.—Condobolin, N.S.W. (on *Acacia pendula*; specimens obtained by shaking; W. W. Froggatt).

This is one of the free psyllids which run about on the branchlets singly and never cluster together in communities. Though I have never bred them from the larvæ, I have noticed a stout green pupal and larval psyllid thickly coated with white filaments on the tip of the abdomen, which hides among the leaf-stalks; this is probably the immature form of the insect.

PSYLLA ACACIÆ-JUNIPERINÆ, n.sp. (Plates iv., fig. 8; v., fig. 10).

Pupa.—General colour yellow, tips of antennæ and tarsi fuscous, eyes bright red. Head rather small, rounded in front, arcuate behind; antennæ rather long, standing out on side of head. Thorax large, swelling out behind, wing-covers projecting on sides of abdomen. Legs short. Abdomen large, constricted at base, swelling out, oval, rounded to tip, which is clothed with a few stout hairs along hind margin.

Imago.—Length 0·025, antennæ 0·009 inch. General colour black on dorsal surface, with legs and antennæ mottled with dull yellow; eyes bright red; abdomen ochreous, mottled with dark brown, forming short irregular bands across centre; wings pale ochreous, with a large angular white patch in centre of front margin, the rest black or mottled with black. Ventral surface fuscous, central portion of abdomen pale straw-yellow. Head narrow, almost truncate behind, depressed and rugose, an indistinct median suture, broadly lobed in front. Face lobes very small, short, rounded, surmounted with a stout bristle. Antennæ rather short; 1st joint fuscous, short; 2nd ochreous; 3rd longest, tipped with fuscous; 4th-9th of uniform length, clouded at apex;

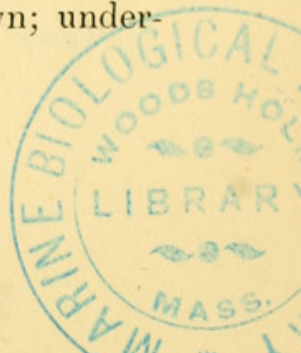
10th small, surmounted with two short white bristles. Eyes large, hemispherical, standing out on sides of head; central ocellus in line with base of antennæ; lateral ocelli in centre of hind margin of eyes. Thorax: pronotum narrow, not reaching to outer edge of eyes; dorsulum broad, rounded in front, nearly arcuate behind; mesonotum large, projecting, but slightly depressed at summit; scutellum rounded. Legs moderately long, thighs thickened in centre, tibiæ slender, swollen at apex and armed with short black spines round the extremity, an additional short spine on the apex of first tarsal joint. Wings short and broad, twice as long as broad, rounded from tip to hind margin, costal nervure very stout; primary stalk stout, long; stalk of subcosta long, subcosta running close to costa and forming a long slender stigma, radius long, running close to costal and coming out above tip of wing; stalk of cubitus very short; upper branch of cubitus turning upward, upper and lower forks forming a narrow angular cell above tip of wing; lower branch of cubitus long, curving upward, upper fork long, curving round, lower fork rather long, curving outward at tip; clavus short, stout, clavical suture distinct. Abdomen of ♀ long, slender, coming to a point; of ♂ short, wedge-shaped, clothed at tip with fine hairs. Genitalia: (♀) composed of two, short, pointed, black valves.

Hab.—Botanic Gardens, Sydney, N.S.W (on *Acacia juniperina*; J. Jones).

The larvæ and pupæ infest the tips of the foliage of the small prickly wattle, causing the leaflets to become turned down into little rosettes, just as if they had been attacked by aphids.

TRIOZA TASMANIENSIS, n.sp. (Plate v., fig. 13).

Larva black, eyes ochreous, central dorsal line and segmental marks between head, thorax and abdomen well defined, pale yellow; very concave, thickly covered with a white floury secretion, outer margin fringed with white woolly flocculent filaments. General form oval, but when crawling about the abdomen is turned up behind. Tips of antennæ and legs dark brown; under-



surface of head and thorax dull white; abdomen light green with a yellowish tint, wrinkled and convex. Legs short, stout.

Imago.—Length 0·085, antennæ 0·025 inch. General colour of head, antennæ, upper surface of thorax and abdomen black; legs dark brown, with lighter markings on the joints. Ventral surface of head, thorax, and tip of abdomen ochreous, the rest pale yellowish-green. Wings dull opaline, nervures dark brown, tinged with yellow at base. Head small, lobed and deeply cleft in front, rounded to eyes, arcuate behind. Face lobes very short, broad, rounded, clothed with fine hairs. Antennæ long, slender, filiform; 1st joint short, broad; 2nd short, cup-shaped; 3rd-8th irregular, slender; 9th swollen at tip; 10th very short and swollen. Eyes very large, rounded on sides, angular on inner margins; lateral ocelli in line with hind margin of eyes; central ocellus at apex of median suture. Thorax: prothorax very narrow behind, curving round, forming a lobe on either side behind eyes; dorsulum large, rounded in front, sloping on sides to a point on outer margins, with a small rounded lobe behind in line with base of wings; mesothorax broad, arcuate in front, sloping on sides and rounded behind; scutellum large, rounded. Legs: femora short, stout, rounded; tibiæ of fore and middle legs short, hairy; those of hind pair longer, with the apical edge fringed with fine black spines; tarsi very short and broad, claws large. Wings nearly thrice as long as broad, finely coriaceous, broadly rounded at apex, nervures thick, primary stalk long, costal cell nearly transverse at apex; stalk of subcosta very short, radius long, upper branch of cubitus long, curving downward, upper and lower forks nearly of equal length, forming an angular cell, upper fork emerging at tip of wing, lower branch of cubitus not quite as long as lower fork; upper fork long, curving round, clavus short and stout. Abdomen short, tapering to apex. Genitalia: (♂) long, tubular, lower genital plate short, broad, rounded; forceps short, cylindrical, curved inwards; upper genital plate long, cylindrical, standing straight out above point of abdomen.

Hab.—Hobart, Tasmania (galls on *Eucalyptus amygdalina*; A. M. Lea).

This appears to be one of the commonest gall-producing species in Tasmania. I have had a number of specimens all on the same species of slender-leaved "Mallee Gum." The galls are produced by the larvæ attacking the upper surface of the leaves, which become thickened, little circular rosettes forming round each larva; these swelling out, side by side, often coalesce and cause the infested leaf to curl right round into an aborted mass, carrying from two to thirteen which when crowded together are much smaller than isolated specimens which measure up to 2 lines in diameter at the base and 2 lines in height. The basal attachment to the leaf is circular, flattened on the under surface of the leaf, the apical portion bearing a circular boss in the centre surrounded with a number of irregular, truncate, fleshy tubercles or fine finger-like projections, forming a rosette-like structure. The enclosed chamber is of an irregular rounded form, smooth, shining, with a conical point at the apex below the button. The galls split on the upper surface when the enclosed pupa is ready to make its final pupation and come forth as a perfect insect.

TRIOZA DOBSONI, n.sp. (Plates iv., fig. 11; v., fig. 15).

Pupa black on dorsal surface, with lines on head, thorax and segmental divisions of abdomen reddish-brown; antennæ and legs fuscous, eyes dark brown, ventral surface light reddish-brown. The short, broad, cephalic portion enfolded on the sides by the thoracic shield, with a dorsal stripe down the centre of both; wing-covers only swelling out towards base of abdomen, the latter rounded to apex. The whole forms a broad, convex shield, fringed with short semitransparent spines, and lightly clothed with white floury dust.

Imago.—Length 0·075 inch, antennæ [?]. General colour dark chestnut-brown, with stripes and bars of light brown on dorsal surface, wings semitransparent, nervures brown. Head longer than usual in proportion to width, flattened on either side of median suture, deeply arcuate behind, arcuate in front. Face lobes large, broad, rounded at tips. [Antennæ wanting]. Eyes large, projecting, rounded on outer edges; central ocellus at apex

of median suture, lateral ocelli well up on hind margin of eyes. Thorax : pronotum almost angular in front, tapering off on sides; dorsulum broad in centre, rounded on sides, tapering to extremities; mesonotum large, arcuate in front, rounded behind; scutellum large. Legs stout, femora thickened, tibiæ long, tarsal joints and claws large. Wings long, slender, rounded at tips, nearly four times as long as broad; primary stalk very long; stalk of subcosta short; radius short, upper branch of cubitus curving downward, the upper and lower forks of equal length, forming a small angular cell, upper one emerging just above tip of wing, lower branch of cubitus rather long, upper fork long, curving round, lower fork short, curving in at apex; clavus stout, clavical suture slight; granulated striæ indistinct. Abdomen slender, rounded at apex. Genitalia : (♂) short and broad; lower genital plate broad, rounded, and fringed with fine hairs; forceps short, broad; upper genital plate long, slender, finger-shaped.

Hab.—Mount Wellington, Hobart, Tasmania (on foliage of *Eucalyptus amygdalina*; A. M. Lea).

The larvæ attack the slender leaves, causing them to curl round, thicken, and become brown; each larva buried in the tissue forms an irregularly rounded blister, in the centre of which it remains in a cell, sucking up the sap until ready to emerge through the upper surface of the aborted leaf, which cracks and opens. Generally an infested leaf contains so many larvæ that the galls touch one another in regular rows.

TRIOZA OLEARIÆ, n.sp. (Plates iv., fig. 11; v., figs. 11 and 15).

Larva semitransparent, a faint touch of yellow in abdomen, eyes red. Head and thorax perfectly rounded, antennæ standing out like two little points; abdomen broader and flattened.

Pupa pale yellow, sometimes with a greenish tint. Head small, narrow, rounded in front, truncate behind; antennæ very short, stout at base, curving round like a ram's horn; eyes large, dark brown, not projecting. Thorax large, swelling out in front, rounded on sides, slightly keeled down the centre; wing-covers

large, not projecting; legs short and stout, the whole finely fringed with cilia. Abdomen large, swelling out behind.

Imago.—Length 0·06, antennæ 0·01375 inch. General colour pale green, tips of antennæ and tarsi fuscous, eyes silvery; wings hyaline, finely crenulated; nervures semitransparent. Head small, eyes nearly as broad as thorax, arcuate behind, truncate in front, with a slight median suture. Face lobes short, broad at base, angular, clothed with fine hairs. Antennæ moderately long, standing out on front of head, very slender; 1st-2nd short, broad, 3rd very long, 4th-8th shorter, 9th-10th short, slightly thickened. Eyes very large, projecting; lateral ocelli large, situate about the centre of hind margin of eyes, central ocellus very small. Thorax: pronotum very narrow, sharply rounded in front, swelling out behind eyes; dorsulum short, broad, rounded and projecting in front, produced into a slight spine at extremities, and rounded behind; mesonotum somewhat large, flattened at apex, angular at extremities, and rounded behind to the broad scutellum. Legs long, femora stout; tibiæ long, slender, slightly hairy; tarsi long, slender. Wings nearly thrice as long as broad, more broadly rounded at tips than usual; primary stalk long; stalk of subcosta short; radius long, but not reaching tip of wing; upper branch of cubitus long, turning downward, upper fork longer than lower, emerging below tip of wing, with lower fork forming a small angular cell; lower branch of cubitus transverse, upper fork swelling out, rounded, lower short; clavus stout; clavical suture slight; centre of cells on hind margin indistinctly marked with the usual fine striæ. Abdomen long, slender, segments distinct. Genitalia: (♀) upper and lower valves short, coming to a point at apex, finely serrate on edges and clothed with long hairs.

Hab.—Hobart, Tasmania (on Native Musk, *Olearia* sp.: A. M. Lea).

The specimens of infested plants were received on August 12th, 1901, with a number of naked larvæ and pupæ in all stages of development clustered on the leaves of the terminal shoots, causing these to curl up at the tips; otherwise the plants did not seem to be injured.

TRIOZA TRISTANIÆ, n.sp. (Plates iv., fig. 13; v., fig. 12).

Larva light brown, with central portion darkest on dorsal surface, thickly clothed with floury secretion; flat, slightly concave, circular, fringed with very fine semitransparent filaments truncated at tips. Segmental divisions and dorsal stripe from behind; head pale yellow, eyes and antennæ hidden from above, only tips of tibiæ and tarsi showing beyond edge of shield. Ventral surface swollen, yellow. Head very small; antennæ short, stout, turned in, and just projecting beyond edge of shield; rostrum very short, brown at apex. Legs stout, swollen, tips of tarsi yellow, furnished with a circular disc at apex.

Pupa not differing from the last larval stage except in size.

Imago.—Length 0·06, antennæ 0·0175 inch. General colour: head, legs, antennæ and thorax light reddish-brown; apical third of antennæ fuscous, eyes purple, ocelli red, abdomen pale yellow. Wings transparent, nervures light brown. Head very short, but broad across, arcuate in front, lobed, a deep median suture, round at sides and deeply arcuate in centre of hind margin. Face lobes short, conical, hidden from above, clothed with hairs. Antennæ long, slender; 1st, 2nd joints short, stout; 3rd longest: 9th-10th short, thickened, rounded at apex. Eyes very large, hemispherical; lateral ocelli close to hind margin of eyes, central ocellus at base of median cleft, hidden from above. Thorax: pronotum slender and narrow at junction with head, rounded in front, truncate behind; dorsulum very prominent, convex, narrow, truncate in front, produced into a large blunt spine on sides, sloping behind to truncate apex; mesonotum large, deeply arcuate in front but swelling out on either side of dorsulum, rounded behind; scutellum large, angulated. Legs very long, slender, clothed with fine hairs, femora usually thickened, tarsi large, apical margin of tibiæ of hind pair furnished with two stout spines on inner edge. Wings long, slender, more than thrice as long as broad, primary stalk long, stalk of subcosta short; radius short, straight, coming out on upper margin of wing, forming a slender narrow pointed cell, upper branch of cubitus long, curving

upward, upper fork emerging above tip of wing, lower fork below forming an angular cell; lower branch of cubitus long, upper fork large, curving round, with lower fork forming a large cell; clavus stout, clavical suture indistinct, fine striæ very distinct between cubital, and on 2nd cubital cell. Abdomen small, slender, deeply wrinkled on sides. Genitalia: (♂) short, stout, turned up over back; lower genital plate broad, rounded; forceps short, with a curved black conical tip; upper genital plate large, swollen in center, curving inward at tips: (♀) valves short, blunt.

Hab.—Gympie, Queensland (on foliage of *Tristania conferta*; W. W. Froggatt).

The larvæ produce circular, squat, funnel-shaped galls upon the leaves, sometimes scattered and single, but frequently so clustered together that the infested leaf becomes curled and aborted; many trees have nearly every leaf more or less infested. The base of the gall springs direct from the leaf, the larva being attached by its rostrum to the bottom, with the edges rising up and forming a saucer-like rim above its back, varying from pale green to yellow in colour, and measuring up to $2\frac{1}{2}$ lines in diameter and $1\frac{1}{2}$ in height above the leaf. At first sight, being covered with the white floury exudation, they might easily be taken for the galls of one of the *Brachyscelinæ*. A number of specimens were bred out in October.

Genus GEIJEROLYMA, g.n.

Head wide across, vertex produced into two slender points, closed or open at apex; face lobes wanting; antennæ long, slender.

Thorax: pronotum narrow, dorsulum very broad through centre, mesonotum and scutellum large and raised. Elytra very broad in proportion to length, curved round on front margin like a bow, rounded at apex; stalk of subcosta much longer than stalk of cubitus, subcostal cell and stigma wanting, radius long, emerging at tip of wing; cubitus short; furcations of both branches long.

The absence of face lobes places this genus close to *Tyora*, though the wings are very distinct. Type, *Geijerolyma robusta*.

GEIJEROLYMA ROBUSTA, n.sp. (Plates iv., fig. 10; v, fig. 9). -

Imago.—Length 0.1, antennæ 0.07 inch. General colour bright green, with yellowish tints; antennæ and tarsi fuscous, eyes reddish-brown; wings hyaline, nervures brown. Head with eyes as broad as thorax, arcuate on summit, a distinct median suture dividing apex of vertex which is produced into elongated points taking the place of face lobes, which are wanting; fovea in line with lateral ocelli. Antennæ very long, slender, standing out in front of head; 1st-2nd joints very short, stout; 3rd very long; 4th-8th slender, decreasing in length to apex; 9th-10th slightly swollen, truncate at tip. Eyes large, semiglobular, truncate on inner margin; central ocellus at apex of median suture, lateral ocelli close to hind margin of eyes. Thorax: pronotum narrow, ribbon-shaped, dorsulum very broad in centre, rounded in front, tapering to apex; mesonotum large, slightly arcuate in front, rounded on sides; scutellum broad, produced into a point on either side of front margin, and overlapping apex of mesonotum. Legs stout, hairy: fore tibiæ long, tibiæ of hind legs swollen at apex and furnished with six stout black spines, 1st tarsal joint furnished with two smaller spines. Wings slightly more than twice as long as broad, curved on front margin, rounded at apex, and sloping in from centre of hind margin; primary stalk slender, curved upward; stalk of subcosta twice as long as stalk of cubitus; costal cell short, oval, stigma of subcostal cell wanting; radius long, turning downward, emerging at tip of wing; cubital stalk very short; upper branch of cubitus short, curving upward, upper and lower forks long, curving downward; lower branch of cubitus very short, upper fork long, curving upward and then down, lower fork almost straight, together forming a large cell; clavus small. Abdomen short, broad. Genitalia: (♂) short, broad, lower genital plate broad, rounded at tip; forceps erect, angular, broad at base; penis slender; upper genital plate slender, curving inward: (♀) upper and lower valves forming a blunt tip.

Hab.—Condobolin, N.S.W. (on Wilga, *Geijera parviflora*; W. W. Froggatt).

This species forms no lerp, but in the larval state moves about like the members of the genus *Psylla*. The specimens examined, six in number, were obtained in the middle of October by shaking the bushes in the early morning.

EXPLANATION OF PLATES.

Plate iv.

- Fig. 1.—*Rhinocola nigripennis*, n.sp.; elytron.
 Fig. 2.— „ *multicolor*, n.sp. „
 Fig. 3.—*Aphalaria flavilabris*, n.sp. „
 Fig. 4.— „ *obscura*, n.sp. „
 Fig. 5.—*Thea wellingtoniae*, n.sp. „
 Fig. 6.—*Spondylaspis hirsutus*, n.sp. „
 Fig. 7.—*Psylla gracilis*, n.sp. „
 Fig. 8.— „ *acaciæ-juniperinæ*. „
 Fig. 9.—*Aphalara leptospermi*, n.sp. „
 Fig. 10.—*Geijerolyma robusta*, n.sp. „
 Fig. 11.—*Triozoa dobsoni*, n.sp. „
 Fig. 12.— „ *oleariæ*, n.sp. „
 Fig. 13.— „ *tristaniae*, n.sp. „

Plate v.

- Fig. 1.—*Cardiaspis rubra*, n.sp.; elytron.
 Fig. 2.—*Spondylaspis nigro-cincta*, n.sp.; elytron.
 Fig. 3.—*Cardiaspis rubra*, n.sp.; vertex.
 Fig. 4.—*Spondylaspis nigro-cincta*, n.sp.; vertex.
 Fig. 5.— „ „ „ lerp.
 Fig. 6.— „ *nigro-cincta*; vertex.
 Fig. 7.—*Thea wellingtoniae*, n.sp.; vertex.
 Fig. 8.— „ „ „ genitalia (♀).
 Fig. 9.—*Geijerolyma robusta*; vertex.
 Fig. 10.—*Psylla acaciæ-juniperinæ*; vertex.
 Fig. 11.—*Triozoa dobsoni*, n.sp.; galls of larvæ.
 Fig. 12.— „ *tristaniae*, n.sp.; galls of larvæ.
 Fig. 13.— „ *tasmaniensis*, n.sp.; galls of larvæ.
 Fig. 14.—*Rhinocola multicolor*, n.sp.; vertex.
 Fig. 15.—*Triozoa dobsoni*, n.sp.; vertex.



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