A REVISION OF THE FLOWER BUGS (HETEROPTERA ANTHOCORIDAE) OF THE AUSTRALIAN AND ADJACENT PACIFIC REGIONS. PART I

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Fig. 1-4.

INTRODUCTION.

The Anthocoridae of this area now number at least 28 species, belonging to seventeen genera. Seven of the genera and twenty-five of the species are restricted to this region, the remainder are fairly cosmopolitan. A more detailed account of the ecology and Pacific zoogeography of this group appears at the end of the taxonomic account.

The usual differences in coloration, of apparent structure, and estimated dimensions that most past workers have employed to describe species in this family are, I am convinced, quite inadequate to separate very closely allied species or even to adequately characterize new species in some of the genera. I have, therefore, introduced as many measurements as practical into the descriptions and these when all else fails, or is strongly in doubt, will at least provide a concrete yardstick which can be relied upon, within the limits of observational error and normal variability, to be constant in the one species.

To do this it has been necessary to make permanent mounts in polyvinyl alcohol lactic acid medium. On the micrometer scale under the magnification used, each division was equivalent to approximately $17 \cdot 24\mu$. Where measurements range from 200μ upwards, this gives relatively low deviations from 5 p.c. of the co-efficients of variation *per se*, but where the measurements range from 100μ downwards these large steps in relation to the value being measured usually induce larger deviations from this desired level.

Several measurements used are also subject to another kind of observational error irrespective of the relationship between the value of the measurement and the value of one division on the micrometer scale. This, in some cases, is due to difficulty in defining the edges or position from which certain measurements must be taken. An example would be across the anterior width of the scutellum,

which can depend on whether the animal is flexed, causing the pronotum to move forward (or backwards) over the scutellum, exposing more or less (depending on the flexure). In other cases this type of observational error is induced by obliqueness of the object measured (inevitable with such thick mounts), and this affects especially the legs, antennal and rostral segments. This error tends to lower the lower limit of the observed range and increase the standard deviation and co-efficient of variation.

All measurements are made with the aim to get the maximum length involved, and the usual ways in which this is effected is shown in fig. 4 E-I. Only where there are more than five specimens has there been any attempt to treat the sample statistically, and then only in those measurements exceeding 100μ, in the other cases only the observed range is quoted.

The presence or absence of a well-developed ovipositor in the female, first systematically investigated by Myers and China, proves to be very useful on the generic level, and the shape of the male genitalia likewise is useful on both the generic and specific levels, these are both characters that have largely been neglected by past workers.

The family may be characterized as follows:

FAMILY ANTHOCORIDAE.

Head prolonged anteriorly, rostrum apparently three segmented, held away from the lower surface of head as in Reduviidae and Nabidae, antennae four segmented; a pair of ocelli present or absent; hemielytra with both cuneus and embolium separated by a distinct fracture. Tarsi three segment, no ariolia. Male genitalia strongly asymmetrical and ovipositor present, often reduced, or absent.

The three subfamilies are each represented here and may be distinguished by the following key.

KEY TO SUBFAMILY OF ANTHOCORIDAE.

Cell of hindwings with a hamus (spur into the cell), this is sometimes almost rudimentary 2

Cell of hindwings completely without a hamus .... *Dufouriellinae.*

2. Last two antennal segments slender, filiform, with long hairs, hamus given off from the "vena connectens" or posterior transverse vein of cell .... *Lyctocorinae.*

Last two antennal segments fusiform, short, without long hairs, hamus given off from the "vena subtensa" (interior longitudinal vein of cell) or rarely from the "vena connectens" .... *Anthocorinae.*

Subfamily ANTHOCORINAE.

The most distinguishing feature is the short fusiform nature of the two terminal segments of the antennal and their short pilosity. This, however, does not apply to *Blaptostethus* Fieb. In addition, the hamus is usually given off from the "vena subtensa," but this is not so in *Maoricoris* China.

KEY TO AUSTRALIAN AND PACIFIC GENERA OF ANTHOCORINAE.

1. All femora unarmed 2
   Fore femora with denticles 4
2. Hamus arising from "vena connectens" as in Lyctocorinae, but with Anthocorine-like third and fourth antennal segments ..... *Maoricoris* China.
   Hamus arising from the "vena subtensa" 3
3. Apical annulation of the pronotum distinct ..... *Anthocoris* Fall.
   Apical annulation obscure or completely absent *Orius* Wolff (= *Triphleps* Fieb).
4. Last antennal segments fairly thick, spindle shaped. Whole body shining and smooth with very short hairs ..... *Lampronanella* Popp.
   Last antennal segments thin, filiform. Body longer, sparsely haired *Blaptostethus* Fieb.

Genus MAORICORIS China, 1933.

Maoricoris China, 1933, AMNH (10) 11, 514, fig.

Narrow, elongate, head exserted, with a distinct collum, antennae short, last two segments fusiform, rostrum just surpasses anterior coxae. Apical annulation of pronotum completely absent, lateral margins of pronotum straight, basal margin deeply excavate. Scutellum convex. Cuneus large, rounded at apex, membrane with four veins, middle two joining the interior to form two basal cells. Basal cell of wing with vein arising from the vena connectens, metapleural orifice produced anteriorly. Anterior femora incrassate, unarmed. Ovipositor absent or obsolete. Genotype *M. benefactor* China.

MAORICORIS BENEFACTOR China, 1933.

Maoricoris benefactor China *loc. cit.*, 516, fig.

Deep shining ferrugineous red, rostrum yellow, extreme base infuscate, antennae black. Hemielytra rather dull fuscous brown. An elongate spot down claval commissure, one half on the apex of each clavus and an indefinate round spot at apex of embolium extending onto corium, but not onto cuneus, pale

yellow. Coxae, bases and apices of femora sordid yellow, tibiae and tarsi pallid yellow.

Sparsely pilose, posterior margin of vertex behind ocelli with a characteristic fringe of backwardly-directed moderated short bristles. Relative lengths antennal segments 9: 21: 16: 16. Length, 2·8 mm. Maximum width of pronotum across humeral angles, 0·7 mm.

Loc. New Zealand.

Genus LAMPRONANNELLA Popp., 1909.

Lampronannella Poppius, 1909, Ac. Soc. Sci. Fenn., 37 (9), 39.

Elongate, shining, with very short prostrate hairs. Head hardly longer than wide. Rostrum surpasses the fore coxae. Antennae almost as long as the head and pronotum together, second segment as long as width of frons between eyes, and as long as the third and fourth together. Basal margin of the pronotum shallowly sinuate, apical annulation narrow but distinct. Disc posterior to the middle deeply transversely impressed. Orifice of the scent gland bent anteriorly. Middle coxae widely spaced, hind coxae approximated. Legs fairly short, fore femora incrassated apically and with two small teeth. Tibiae with very short teeth. Genotype: *L. reuteri* Popp.

This genus is very near *Orius* Wolff, but distinguished from it by the armed fore femora and tibiae. It is possible my *P. armatus* should be placed in this genus, but as this species differs only in the toothed fore tibiae from the remaining species of *Orius,* I prefer to describe it under that genus at this stage.

LAMPRONANNELLA REUTERI Popp., 1909.

Lampronannella reuteri Poppius, 1909, *loc. cit.*

Dark brown, the head lighter (reddish brown), hind femora and antennae brown, second antennal segment, rostrum, and legs yellow.

Antennae with short hairs. Basal width of pronotum about twice the medial length and much wider than fore margin, the disc is wholly flat, anterior lobe somewhat convex. Scutellum deeply impressed medially. Tibiae with very short thorns. Length, 1·8 mm.

Loc. New Guinea.

Genus BLAPTOSTETHUS Fieber, 1860.

Blaptostethus Fieber 1860, Wien ent. Monats., 4, 270; Reuter, 1885, Act. Soc. Sci. Fenn., 14, 611 and 666; Distant, 1910, Fauna British India (Rhynchota), 5, 309 (London).

Body elongate, shining, moderately pubescent. Head with a distinct collum. Rostrum long. Apical annulation of pronotum obsolete or very tenuous. Anterior femora somewhat incrassated, beneath in the middle with two obsolete tubercles and behind middle nearest the apex with two acute teeth, the first the larger. Terminal pair of antennal segments thin, filiform. Cell of the hindwings with a hamus arising from the "vena subtensa." Genotype: *B. piceus* Fieb.

BLAPTOSTETHUS PICEUS Fieber, 1860.

Blaptostethus piceus Fieber, 1860, *loc. cit.* 270, taf. 7, fig. 4; Reuter *loc. cit.* 667.

Body shining black, with a greyish pubescence. Hemielytra with a pallid punctuation on the interior apical angle of the embolium, the membrane also narrowly pale at its external basal angle. Head in front of the collum as wide (including eyes) as long. Pronotum anteriorly strongly transversely triate. Length, 3 mm.

Loc. Celebes, Sumatra, New Guinea and Lombok (*fide* Poppius, 1909).

Genus ANTHOCORIS Fallen, 1814.

Anthocoris Fallen, 1814, Spec. Nova Hemipt. Disp. Meth., 9; Van Duzee, 1917, Cat. Hem. Nth. Mexico, 292 (Berkeley, California), syn.

Body oblong, shortly pubescent above, sometimes almost glabrous. Eyes usually not touching pronotum but closely approximated to its anterior margin. Pronotum basally broadly emarginate with a distinct anterior collar. Rostrum reaching the anterior coxae. Orifice of the scent gland almost straight, or bent, but very slightly forward anteriorly. Posterior coxae almost contiguous, metasternum often produced between them in a simple lobe. Apex of the abdomen with long exserted setae. Female with a well developed ovipositor. Genotype: *A. nemorum* (Linn) = *sylvestris* (Linn).

There are two known species in these regions which can be separated by the following key. *Anthocoris arctatus* Walker, 1872, Cat. Heteroptera, 5, 153, is definitely not an *Anthocoris* for the long rostrum and third and fourth segments of the antennae distinguish it from this genus. It may be a *Cardiastethus*, but I have seem no examples of this genus which could fit Walker's description.

KEY TO AUSTRALIAN AND ADJACENT REGIONS SPECIES OF ANTHOCORIS.

Tegmina piceous, concolorous with body ..... *Anthocoris austropiceus* nov.
Tegmina cinereo-testaceous basally, apically and cuneus infuscated
Anthocoris pacificus Kirkaldy.

ANTHOCORIS PACIFICUS Kirkaldy, 1908.

Anthocoris pacificus Kirkaldy, 1908, Proc. Linn. Soc. N.S.W., 33, 374.

Piceous shining, almost glabrous. Second antennal segment and last segment of rostrum testaceous. Tegmina cinereotestaceous basally, apex and cuneus infuscate. Apex of anterior and middle femora, fore and middle tibiae and tarsi, and hind tarsi testaceous. Head almost as long as wide between eyes which are not nearly contiguous with pronotum. Second segment of antennae $2\frac{1}{2}$ times as long as first and $1\frac{1}{2}$ times as long as third, third segment slightly shorter than fourth. Lateral margins of pronotum subsinuate. Hemielytra shortly pilose. Fore femora with four or more bristles. Length, 2·76 to 3 mm.

Loc. Viti Levu, Fiji Island Group.

ANTHOCORIS AUSTROPICEUS sp. nov.

Fig. 1 A, B.

Body above wholly piceous, tibiae and tarsi only somewhat lighter.

Elongate, nearly glabrous, shining, with five or six prominent hairs on each side near the apex of the abdomen. Head with a distinct collum and the eyes consequently well removed from the anterior margin of the pronotum.

Pronotum with sides distinctly marginate into a narrow but explanate ledge, which continues almost straight right up to the anterior angles. Collar distinct, placed in front of the anterior angles.

Scutellum broadly and deeply transversely impressed near the middle. Hamus very distinct, arising from the vena subtensa.

The systematic measurements (which have been made on all the material available to me of this family) are for this species (in microns from one specimen):

Head. Total length, 362; length in front of eyes, 121; length behind eyes, 103; length of eyes, 155 : 172; width across eyes, 413; width of eyes, 86 : 86; interocular, 207; width of collum, 362.

Antennae. I, 121 × 52, 121 × 52; II, 293 × 52, 310 × 52; III, 207 × 34, 207 × 34; IV, missing, 207 × 34.

Rostrum. I, 155 × 69; II, 258 × 69; III, 207 × 69.

Pronotum. Anterior width, 396; posterior width, 809; median length, 258; lateral length, 465, 413.

Scutellum. Anterior width, 534; median length, 413; lateral length, 430, 430.

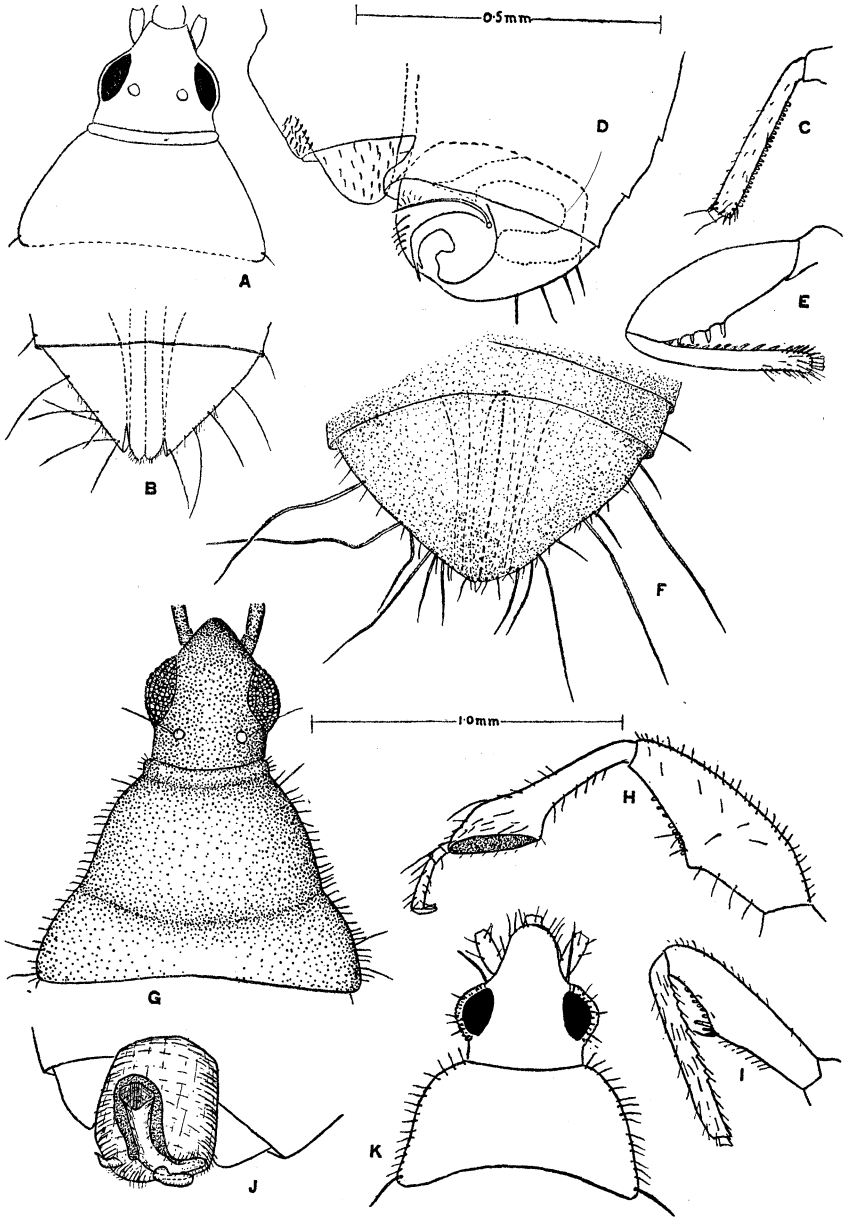

Fig. 1. A-B, *Anthrocoris austropiceus* sp. nov. Female. A, head and pronotum; B, apex of abdomen from above. C-D, *Orius armatus* sp. nov. Male. C, fore tibia; D, apex of abdomen from above. E-F, *Oplobates femoralis* Reut. Female. E, left front femur and tibia; F, apex of abdomen from above. G-I, *Falda queenslandica* sp. nov. Female. G, head and pronotum; H, left front leg; I, left middle leg. J, *Lyctocoris campestris* (Fab.). Male. J, apex of abdomen from above. K, *Lasiochilus derricki* sp. nov. Male. K, head and pronotum. (C-D, enlarged 80 diameters; A-B, E-K, enlarged 40 diameters.)

Legs	coxa	femur	tibia	tarsi I	II	III	Cl.
I	288	396	396	34	34	86	17
	275	430	396	not visible			
II	not clear	396	379	34	34	103	17
	not clear	396	396	34	52	86	
III	285	568	585	52	34	86	34
	not clear	637	585	52	34	?	?

Total length, 2,400; width, 880; length abdomen, 1,295; ovipositor, 637.

Loc. New South Wales: Bogan River (J. Armstrong, Holotype ♀ in Australian Museum).

Very closely allied to *A. pacificus* Kirkaldy in having the eyes remote from the anterior margin of the pronotum, but can be easily distinguished from that species by the concolorous hemielytra and the absence of spines on the fore femora.

Genus ORIUS Wolff, 1811.

Orius Wolff, 1811, Icon. Cim., 5, 4; Zimmerman, 1948, Insects of Hawaii 3, 176.

Triphleps Fieber, 1860, Wien Ent. Monat., 4, 266; references largely summarized by Van Duzee, 1917, Cat. Hem. Nth. Mexico, 293.

Body ovate or oblong ovate. Pronotal collar absent or very obsolete. Rostrum not surpassing fore coxae. Second segment of antennae as long or shorter than interocular. Ovipositor present. Genotype: *O. nigra* (Wolff).

There are two species in Australia, and they may be distinguished by the front tibiae being armed with small denticles in the case of *Orius armatus* sp. nov. and unarmed in *Orius australis* (China).

ORIUS AUSTRALIS (China), 1926.

Triphleps australis China, 1926, Bull. Ent. Res.. 17 (1), 361.

Elongate oval, almost glabrous. Black, hemielytra pale yellowish brown, with the clavus, embolium and cuneus more or less ferrugineous brown. Legs yellow.

The standard measurements in microns of the female specimen in the South Australian Museum are as follows (China's measurements, where given, follow in brackets):

Head. Total length, 360; length in front of eyes, 130; length behind eyes, 65; length of eyes, 160; width of eyes, 90-100; interocular, 170; width of collum, 400.

Antennae. I, 90-100 × 30 (93); II, 210 × 50 (203); III, 150-160 × 17 (156); IV, 160-180 × 40 (179).

Rostrum. I, 90; II, 250; III, 160.

Pronotum. Anterior width, 420; posterior width, 790 (690); median length, 273; lateral length, 400.

Scutellum. Anterior width, 530; median length, 390; lateral length, 420-440.

Legs	coxa	femur	tibia	tarsi I	II	III	Cl.
I	270	390	350	40	70	70–80	40–50
II	220–230	390	340–350	30–40	70	80	40
III	260	460–480	530	50	90	80–90	40

Total length, 2,000; total length width hemielytra, 2,100 (1,750); total width, 790 (690); length abdomen, 1,020; length ovipositor, 570.

Loc. Queensland (no other data); 1 ♀ in S. Aust. Museum.

ORIUS ARMATUS sp. nov.

Fig. 1 C, D.

Fairly elongate. Head brownish black, pronotum and scutellum darker. Hemielytra yellowish. Legs ocelli and first two segments of antennae yellow, remaining two segments of antennae darker. Eyes reddish black.

Head with but a very short collum. Lateral margins of pronotum straight, marginate, anterior margin almost straight, hind margin almost concave. A punctate crescent in the hind fifth of the pronotum not reaching the edges, anterior portion of disc slightly raised. Scutellum almost planate, slightly raised anteriorly.

Fore tibiae with about 21-23 short denticles (approximately 6μ long). Male genitalia asymmetrical (fig. 1 D).

The standard measurements in microns of the type and paratype are:

Head. Total length, 310-350; length in front of eyes, 120-130; length behind eyes, 50-80; length of eyes (oblique), 140-170; width across eyes, 360; width of eyes, 80-90; interocular, 130-140; width of collum, 300-320.

Antennae. I, 90-100 × 30-40; II, 200-210 × 50; III, 170 × 40; IV, 200-210 × 40.

Rostrum. I, 70 × 30; II, 180 × 50; III, 170 × 30.

Pronotum. Anterior width, 330-350; posterior width, 640-720; median length, 270; lateral length, 360-390.

Scutellum. Anterior width, 520-530; median length, 340-400; lateral length, 360-460.

Legs	coxa	femur	tibia	tarsi I	II	III	Cl.
I	120	330–380	310–360	40	50	70	30
II	170–180	330–360	320–360	40	50	70	30
III	200	420–440	480–510	40	50–70	90	30

Total length, 1,970·2,030; total width, 770-780.

Loc. Queensland: Stanthorpe (E. Sutton, August 7, 1928, Holotype ♂), Mt. Cootha (A. A. Girault, June, 1929, Paratype of unknown sex, apex of abdomen missing, both in Queensland Museum).

Subfamily LYCTOCORINAE.

Terminal pair of antennal segments long and thin, usually with long hairs. Cell in the hind wings with hamus (inwardly directed spur vein) always arising from the "vena connectens." (Also called "vena decurrens," the transverse vein making up the hind margin of the cell.)

Five genera are represented in these regions, one of them new, and they may be distinguished by the following key.

KEY TO AUSTRALIAN AND ADJACENT PACIFIC LYCTOCORINAE.

1. Pronotum with a very marked transverse constriction about 2/3 of the way back ..... *Falda* gen. nov.
   Pronotum not as above 2
2. Orifice of the scent gland on the metapleura bent backwards apically. Margins of pronotum and hemielytra ciliate ..... *Lasiochilus* Reut.
   Apex of orifice bent forwards 3
3. Sides of pronotum and hemielytra ciliate, anterior femora armed ..... *Oplobates* Reut.
   Sides of pronotum and hemielytra not unduly ciliate 4
4. Our species large, black, suboval ..... *Lyctocoris* Hahn.
   Our species smaller, more elongate, bicoloured, anterior femora incrassated ..... *Xylocoris* Dufour.

Genus OPLOBATES Reuter, 1895.

Oplobates Reuter, 1895, Ent. Mo. Mag. 31, 170.

Body oblong, shining with a long pubescence. Head with a short collar behind the eyes. Rostrum hardly surpassing the base of the head. Pronotum

with a very tenuous anterior collar, sides not marginate or sinuate. Membrane with four distinct veins. Anterior femora armed, underneath with thin spines their whole length. Female with a well developed ovipositor. Genotype: *O. femoralis* Reut.

OPLOBATES FEMORALIS Reuter, 1895.

Fig. I E, F.

O. femoralis Reuter, 1895, *loc. cit.*, 171.

Fuscous above with a long yellowish pubescence, head ferrugineous, antennae and legs testaceous, the first and third antennal segments and the apical part of the second fuscous. Anterior femora infuscated on the upper surface. Hemielytra with a pallid mark within the interior angle of the embolium. Head in front of the collar as long as broad. Pronotum longer than the head, sides straight but curved apically, disc obscurely transversely impressed near the middle. Posterior tibiae shortly spinose.

Length, $3\frac{3}{4}$ mm.

Loc. Victoria (*fide* Reuter). Northern Territory, Melville Island (W. D. Dodd, one female in S. Aust. Museum).

Genus FALDA gen. nov.

Elongate, linear. Head fairly short, broad, little produced and strongly declivous in front of the eyes with a distinct but not very long glabrous collum. Antennae about as long as head and pronotum together, terminal pair of segments filiform long, last segment curved. Rostrum very short, surpassing base of head but not attaining fore coxae. Pronotum with a tenuous anterior collar, strongly transversely impressed about 2/3 way back, this impression continuing right to the lateral margins and giving the pronotum the aspect of such Lygaeids as *Pamera*. Anterior angles of pronotum placed behind the collar, lateral margins diverge gradually, going from the anterior angles to the constriction then thereafter diverge considerably more to the posterior angles. This latter section of the lateral margins gradually curved. Hind margin of the pronotum very shallowly excavate, almost straight, anterior margin slightly concave.

Scutellum with a deep puncture about 2/3 way back on either side and a third centrally near the tip. Hemielytra with on the clavus 3 longitudinal rows of punctures, the two outer straight and extending the whole length, the inner curved and restricted to the apical half, and on the corium near the inner edge one row running from the base to as far as the apex of clavus. Inner margin of clavus markedly sinuate. Cell of hindwing apparently with a hamus.

Orifice of the scent gland T shaped, the upper transverse portion crossing the whole pleurite at a level lower than halfway up, the vertical section running forwards as well as downwards from this right to the base of the pleurite and forming a 45° angle with the head of the T.

Fore and middle femora incrassated, subtriangular, armed with short teeth from the middle to the apex on their inner margin, fore tibiae markedly expanded to at least twice the width of the rest in their basal third. Middle tibiae and hind femora and tibiae normal. Female with a short ovipositor, apex of abdomen with a few long hairs. Genotype *Falda queenslandica* sp. nov.

This is at once an extremely distinctive genus and one which is hard to place systematically. The unusual shaped pronotum for an Anthocorid is approached only remotely by *Septicius* Dist. and *Arnulphus* Dist., and more particularly *Eulasiocolpus* Champ. *Arnulphus,* however, belongs to an entirely different subfamily. The incrassation of the first and second pairs of femora as well as that of the fore tarsi is extremely distinctive, *Scoloposcelis* being the only other genus in this region with two pairs of femora expanded, but in its case it is the fore and posterior femora, and *Scoloposcelis* lacks a hamus.

FALDA QUEENSLANDICA sp. nov.

Fig. 1 G, H, I.

Head, pronotum and scutellum dark brown, head and pronotum shining, collum darker. Head in front of eyes, rostrum, antennae, legs (except the spines which are black) and a median and lateral stripe on abdomen beneath yellowish brown. Remainder of underside very dark brown including a broad stripe on either side of the abdomen, reaching back to the seventh visible segment and between the pale areas described. Hemielytra darkish brown, but with some yellowish lightenings. Membrane brown. Head, pronotum and scutellum sparsely pilose, hemielytra a little more densely so. Collum glabrous. Last two filiform segments of antennae with very short hairs.

The standard measurements in microns from two specimens are:

Head. Total length, 570-590; length in front of eyes, 120; length behind eyes, 190-260; length of eyes, 240; width of head across eyes, 460; width of eyes, 160; interocular, 120; width of collum, 380.

Antennae. I, 210-220 × 70; II, 400-480 × 50; III, 450-520 × 30; IV, 500-570 × 30.

Rostrum. I, 280-310; II, 260; III, 120-140.

Pronotum. Anterior width, 380-430; posterior width, 1,030-1,090; median length, 570-790; lateral length, 790-880.

Scutellum. Anterior width, 690-760; median length, 520-600; lateral length, 550-640.

Legs	coxa	femur	tibia	tarsi I	II	III	Cl.
I	550	770–860	640–690	70–90	90	160	90
II	530	670–860	670–800	50–70	90–140	150–190	90
III	290–330	1050–1170	1100–1190	50–70	120–210	170–240	70–103

Total length, 3,900; length abdomen, 2,700; length ovipositor, 760.

Loc. Queensland: Cairns District (A. M. Lea, Holotype ♀, Reg. No. I 20082); Mt. Tambourine (A. M. Lea, "rotting leaves," one Paratype, sex unknown—apex of abdomen missing, Reg. No. I 20083; both in S. Aust. Museum).

Genus LYCTOCORIS Hahn, 1835.

Lyctocoris Hahn, 1835, Wanz, I., No. 3, 19. In addition to the references quoted by Van Duzee (1917, Cat. Hem. Nth. Mexico 288, Berkeley, California), there is Zimmerman, 1948, Insects of Hawaii, 3, 174 (Honolulu).

Nesidiocheilus Kirkaldy, 1902, in David Sharp's Fauna Hawaiiensis, 127.

Body oblong or oblong ovate, with a very slight low pubescence, pronotum and scutellum shining, hemielytra densely punctate. Anterior collar of pronotum tenuous or very indistinct, anterior coxae almost contiguous. Female with an ovipositor. Genotype (Logotype): *L. domesticus* Hahn = *campestris* (Fab.).

There is only one species so far known from these regions, the very widely spread *L. campestris* (Fab.).

LYCTOCORIS CAMPESTRIS (Fab.), 1794.

Fig. 1 J.

Acanthia campestris Fabricius 1794, Ent. Syst., 4, 14; *Lyctocoris campestris,* Lethierry et. Severin, 1896, Cat. Gen. Hem., 3, 327, and Van Duzee, 1917, Cat. Hem. Nth. Mexico, 288 (syn.).

Dark ferrugineous, second segment of the antennae (except the apex), legs and hemielytra testaceous. Rostrum reaching middle coxae. The standard measurements in microns of two British specimens, kindly loaned for this purpose by the British Museum, and three Australian specimens (male and 2 females), are as follows:

Head. Total length, 640-750; length in front of eyes, 240-340; length behind eyes, 170-190; length of eyes, 220-260; width across eyes, 540-620; width of eyes, 120-190; interocular, 250-290; width of collum, 430-540.

Antennae. I, 140-190 × 50-70; II, 520-590 × 50-70; III, 340-380 × 17-34; IV, 330-380 × 17-34.

Rostrum. I, 280-370; II, 580-680; III, 380-390.

Pronotum. Anterior width, 570-650 (?-740); posterior width, 1190-1400; median length, 520-590; lateral length, 410-720.

Scutellum. Anterior width, 720-1000; median length, 490-690; lateral length, 590-780.

Legs	coxa	femur	tibia	tarsi I	II	III	Cl.
I	430–530	690–740	700–790	50–70	90–100	140–190	90
II	380–400	800–890	740–830	50–70	90–120	170–200	90
III	470–520	1000–1120	1200–1310	70–90	120–190	190–240	100–120

Total length, 3,800-4,600; width across abdomen, 1,620-1,800; length abdomen, 1,820-2,540; length ovipositor, 850-900; length male genital capsule, 480-530.

Loc. South Australia: Urrbrae (H. M. Cane, June, 1946, 7 specimens in C.S.I.R.O. Division of Entomology, Canberra). Tasmania: Hobart (A. M. Lea, 3 specimens, 2 reared from wood, in S. Aust. Museum). A.C.T.: Duntroon (Willis, March, 1951, 1 specimen in C.S.I.R.O. Division of Entomolgy, Canberra). New Zealand; Auckland (May, 1950, "biting man at night," in Woodward Collection).

Genus LASIOCHILUS Reuter, 1871.

Lasiochilus Reuter, 1871, Oefv. Vet. Akad. Forh., 562; in Van Duzee, 1917, Cat. Hem. Nth. Mexico, 289-90, and the useful account by Zimmerman, 1948, Insects of Hawaii, 3, 172, syn.

Body oblong with a longish pubescence. Head with a short collar behind the eyes, frons between the eyes usually with one or two distinct arcuate lines. Rostrum reaching middle coxae. Pronotum with a very tenuous collar. Orifice of the scent gland produced backward. Apex of the abdomen with long exerted hairs. Female with an ovipositor. Genotype: *L. pallidulus* Reut.

The six species now known from this region may be distinguished by the following key.

KEY TO AUSTRALIAN AND ADJACENT REGIONS SPECIES OF LASIOCHILUS.

1. Hemielytra punctate **2**
   Hemielytra not punctate **3**
2. (1) Tibiae with thornlike spines .... *fruhstorferi* Popp.
   Pronotum longer than head
   Tibia with five long spines, head longer than pronotum ..... *derricki* nov.

3. (1) Fore femora armed .... *solemonensis* nov.
   Fore femora unarmed 4
4. (3) Abdomen very elongate in relation to width (1350 : 620) ..... *misimae* nov.
   Abdomen not unduly elongate in relation to width (1300-1500 : 900-1000) 5
5. (4) Apex of abdomen with about 4 long hairs, fore and hind femora incrassated .... *femoralis* nov.
   Apex of abdomen with but short hairs, fore and hind femora less incrassated .... *vitiensis* nov.

LASIOCHILUS FRUHSTORFERI Popp., 1909.

Lasiochilus (Dilasia) fruhstorferi Poppius, 1909, Ac. Soc. Sci. Fenn., 37 (9), 9.

Elongate, shining. Above with a golden pilosity. Blackish brown tibiae and tarsi yellowish. Membrane brownish-black with a small light stripe at the apex of the cuneus.

Head as long as wide across the eyes, in front of eyes as long as an eye. Rostrum not surpassing middle coxae, second segment about 2½ times as long as the first. Pronotum longer than head, posterior width hardly twice the median length.. Hemielytra longer than the body, obscurely punctate on the cuneus. Legs with fine hairs, tibiae with thorns.

Length, 2·8 mm.

Loc. Lambok Is.

LASIOCHILUS DERRICKI sp. nov.

Fig. 1 K, 2 A.

Elongate oval, pilose. Dark brown, legs (except apical halves of femora), rostrum and terminal pair of antennal segments brownish yellow. Hemielytra yellowish with a very broad diffuse transverse band about the middle and one apically on the coriaceous parts.

Rostrum almost attains hind coxae. Eyes ciliate. Sides of pronotum very ciliate, with the characteristic long hair on each corner. Fore femora somewhat incrassate, fore tibiae sinuate.

Clavus, adjacent part of corium and extreme hind portion of pronotum strongly punctate. Hemielytra somewhat abbreviated, not reaching apex of abdomen.

The standard measurements from two specimens in microns are:

Head. Total length, 430; length in front of eyes, 170-210; length behind eyes, 70; length of eyes, 170; width across eyes, 470; width of eyes, 100-120; interocular, 210-241; width of collum, 360-380.

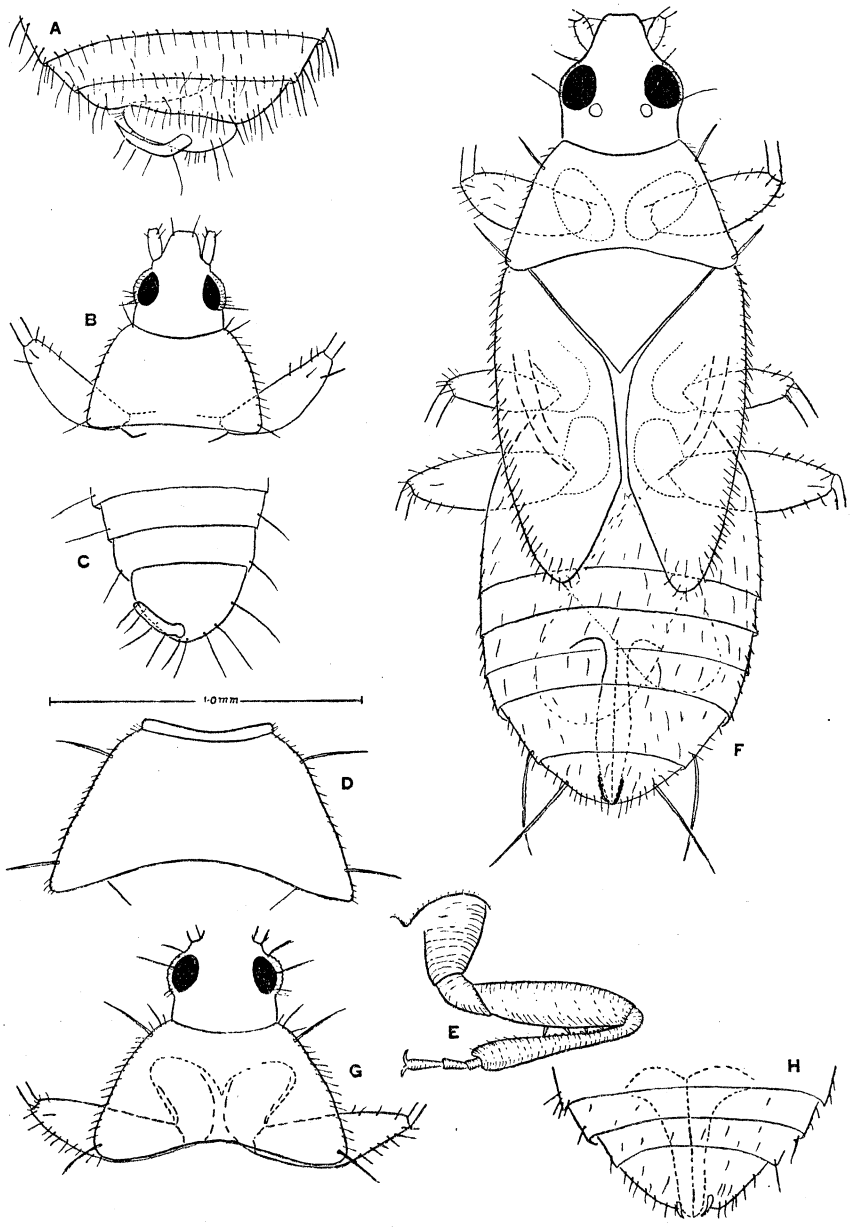

Fig. 2. A, *Lasiochilus derricki* sp. nov. Male. A, apex of abdomen from above. B-C, *Lasiochilus misimae* sp. nov. Male. B, head, pronotum and fore femora; C, apex of abdomen from above. D-E, *Lasiochilus solomonensis* sp. nov. Female. D, pronotum; E, right fore leg. F, *Lasiochilus femoralis* sp. nov. Female. F, dorsal outline. G-H, *Lasiochilus vitiensis* sp. nov. Female. G, head and pronotum; H, apex of abdomen from above. (All enlarged 40 diameters.)

Antennae. I, 120-140 × 50; II, 400 × 50; III, 360-380 × 30; IV, 410-430 × 30.

Rostrum. I, 260; II, 600; III, 400.

Pronotum. Anterior width, 600-640; posterior width, 790-860; median length, 400; lateral length, 480-500.

Scutellum. Anterior width, 520; median length, 430; lateral length, 450-470.

Legs	coxa	femur	tibia	tarsi I	II	III	Cl.
I	not clear	520	570	50	90	140	70
II	240	570	550	50	90–100	140	70
III	260	690	790	70	90	160	70

Total length, 2,860-3,480; width, 1,090-1,240; length abdomen, 1,260-1,690; length male genitalia, 220; length female genitalia, 720.

Loc. Queensland: Brookfield (E. H. Derrick, 2nd Aug., 1949, "Berlesed soil litter," Holotype ♂, Reg. No. I 20071, Allotype ♀, Reg. No. I 20072, in S. Aust. Museum).

Seems to be very near *L. fruhstorferi* Poppius, but can be distinguished from this species by the different colouration, the shorter hemielytra, and the absence of thorns on the fore tibiae.

LASIOCHILUS MISIMAE sp. nov.

Fig. 2 B, C.

Very elongate, flattened. Castaneous, legs lighter almost yellow, femora between shades. Coriaceous parts of hemielytra and body with long sparse hairs. Eyes shortly ciliate, sides of hemielytra with short cilia, the usual long hairs at the four corners. Wings not attaining the tip of the abdomen, male genitalia very large with sparse long hairs. Fore femora very markedly incrassate.

The standard measurements (from one male), in microns, are:

Head. Total length, 360; length in front of eyes, 140; length behind eyes, 90; width across eyes, 310; width of eyes, 90; interocular, 140; width of collum, 290.

Antennae. I, 100 × 50; II, 220 × 30; rest missing.

Rostrum. 637 (individual segments are not clearly defined).

Pronotum. Anterior width, 360; posterior width, 570; median length, 310; lateral length, 360-380.

Scutellum. Anterior width, 400; median length, 260; lateral length, 290-310.

Legs	coxa	femur	tibia	tarsi I	II	III	Cl.
I	240–260	210–230	290–330	34	52	90	34
II	190–210	310–350	310–330	34	52	90	34
III	210	450–470	470–480	34	86	189	34

Total length, 2,270; width, 620; length abdomen, 1,350; length male genitalia, 290.

Loc. New Guinea: Misima Is. (Rev. H. K. Bartlett, Holotype ♂, Reg. No. I 20073 in S. Aust. Museum).

This species does not seem to have any particular close allies in this genus; it can be distinguished from the other species here by the key characters.

LASIOCHILUS SOLOMONENSIS sp. nov.

Fig. 2 D, E.

Chocolate, antennae tibiae and tarsi yellow. Eyes grey, ocelli white. Hemielytra brown, membrane semi-opaque, light brownish. Elongate oval head with setae in front and behind eyes, pronotum with the usual hairs on the four corners, but with very short ciliations along the sides. Apex of the abdomen with a few sparse hairs. Rostrum not attaining fore coxae. Fore femora with four short teeth. Hemielytra surpassing the end of the abdomen.

The standard measurements (one female) are:

Head. Total length, 570; length in front of eyes, 170; length behind eyes, 170; length of eyes (oblique), 240; width across eyes, 470; width of eyes and interocular, not clear; width of collum, 400.

Antennae. I, 160 × 52; II, 360 × 70; III, 260 × 20-30; IV, 290 × 30.

Rostrum. I, 90; II, 550; III, 350.

Pronotum. Anterior width, 430; posterior width, 930; median length, 400; lateral length, 550-590.

Scutellum. Anterior width, 620; median length, 470; lateral length, 520.

Legs	coxa	femur	tibia	tarsi I	II	III	Cl.
I	330	530–550	550–570	70	70	160	70
II	330	530–550	530	50–60	70–90	120	50
III	120–150	720–770	790–810	30	90	120–150	50–70

Total length, 3,100; width, 1,120; length abdomen, 1,590; length female genitalia, 670.

Loc. Solomon Is. (J. H. L. Waterhouse, "on bunches of dried bananas," Holotype ♀, Reg. No. I 20074, in S. Aust. Museum).

LASIOCHILUS FEMORALIS sp. nov.

Fig. 1 F.

Elongate, depressed. Castaneous, legs and antennae yellow. Head with a prominent hair behind and before each eye, and with a faint U-shaped mark between the eyes, the open end facing forwards. Eyes not ciliate, but with a long hair in front and behind. Pronotum with the usual long hair at each corner, but the lateral margins with very short hairs, disc very flat, hind margin almost straight. Sides of hemielytra prominently ciliate, hemielytra not surpassing the apex of the abdomen. Apex of abdomen with about 4 very long hairs, rest of body with but a very short pilosity including the terminal pair of antennal segments. Fore and hind femora markedly incrassated.

The standard measurements (in microns) for two females are:

Head. Total length, 410-460; length in front of eyes, 120-160; length behind eyes, 120-160; length of eyes (oblique), 140-160; width across eyes, 410; width of eyes, 100-120; interocular, 170-190; width of collum, 380.

Antennae. I, 120-150 × 50; II, 360-400 × 50-70; III, 260 × 20; IV, 240-260 × 30.

Rostrum. I, 140; II, 470; III, 260-290.

Pronotum. Anterior width taken as same as collum, fore angles shallowly curved; posterior width, 760; median length, 280-290; lateral length, 430-470.

Scutellum. Anterior width, 550-600; median length, 350-380; lateral length, 400-430.

Legs	coxa	femur	tibia	tibia I	II	III	Cl.
I	260	430–470	410–430	50	not clear in either spec.		
II	not clear	430–470	380	30	50–70	100	30–50
III	210–290	550–600	550–590	50	90	100	78

Total length, 2,550-2,800; width, 910; length abdomen, 1,290; length ovipositor, 570.

Loc. Queensland: Clermont (Dr. K. K. Spence, October, 1929, Holotype ♀ and one Paratype ♀, Reg. No. K62496 in the Australian Museum).

Seems to be fairly closely allied to the following species from which it can be distinguished by the long hairs at the apex of the abdomen, the more incrassate fore and hind femora, the much shorter hairs on the last two antennal segments, and the different colouration.

LASIOCHILUS VITIENSIS sp. nov.

Fig. 2 G, H.

Elongate oval, semi-depressed. Brown, a yellow fleck on the outer basal angles of the hemielytra, first two segments of antennae and femora brown, terminal pair of antennal segments, tibiae and tarsi yellow.

Head with a short hair behind each eye (there may be a short one also before each eye, but this point is not clear. Terminal pair of antennal segments with long hairs. Pronotum with the usual long hair at each of the four corners, sides with long ciliations, likewise the lateral margins of the hemielytra. Disc of pronotum fairly depressed with a low anterior callus behind which is a semi-circular depression. Apex of abdomen and remainder of body with mainly short hairs, fore femora fairly strongly incrassated.

The standard measurements (in microns) of two females are:

Head. Total length, 400-410; length in front of eyes, 160-170; length behind eyes, 90-100; length of eyes (oblique), 140-160; width across eyes, 400; width of eyes, 100-120; interocular, 160; width collum, 330-360.

Antennae. I, 120-140 × 50; II, 310-350 × 50; III, 280 × 20; IV, 200-280 × 20-30.

Rostrum. I, 90; II, 430; III, 220.

Pronotum. Anterior width taken as same as collum for the anterior angles are gradually rounded; posterior width, 790-810; median length, 330-360; lateral length, 450-480.

Scutellum. Anterior width, 620; median length, 410; lateral length, 470.

Legs	coxa	femur	tibia	tarsi I	II	III	Cl.
I	260–310	470–480	360–410	50	70	100–120	40–50
II	240–260	430–470	450–480	50	70	120	50
III	280–310	590–600	690–710	50	100–120	120–140	70

Total length, 2,670-2,690; width, 980-1,000; length abdomen, 1,330-1,520; length ovipositor, 500-530.

Loc. Fiji Island Group: Viti Levu (A. M. Lea, Holotype ♀, Reg. No. I 20075, and one Paratype ♀, Reg. No. I 20076, in S. Aust. Museum).

Genus XYLOCORIS Dufour, 1831.

Xylocoris Dufour, 1831, Ann. Soc. Ent. France, 2, 106; Zimmerman, 1948, Insects of Hawaii, 2, 175; Van Duzee, 1917, Cat. Hem. Nth. Mexico, 290 (syn.).

Oblong ovate, shining. Eyes remote from the anterior margin of the pronotum, rostrum reaching middle coxae. Pronotal collar obsolete or tenuous. Apex of the abdomen (except in *flavipes* and *queenslandicus*) with a long pilosity. Anterior and posterior coxae contiguous, anterior and sometimes posterior femora somewhat incrassated. Anterior tibiae of the male apically strongly dilated. Our two species with prominent hairs on each of four angles of the pronotum; these are, however, very fragile (unlike *Lasiochilus*) and are easily broken off. Male genitalia very asymmetrical (fig. 3, A, C). Ovipositor present in the female. Genotype: *X. rufipennis* Dufour = *cursitans* (Fall.).

There are two species here, the widespread *X. flavipes* (Reuter) in its apparently typical habitat of stored grain, and a new species belonging to the *flavipes* group. This species (*X. queenslandicus*) is larger than *X. flavipes* (2430-2780μ to *X. flavipes* 1500-2260μ), much darker as microscopic mounts, the female ovipositor is much longer in relation to the body than in *X. flavipes*. $\left(\frac{590\mu}{1{,}258\mu} \text{ to } \frac{260\mu}{1{,}070\text{-}1{,}090\mu}\right)$ and the male external genitalia are somewhat different (figs. 3 A, C).

XYLOCORIS FLAVIPES (Reuter).

Fig. 3 A, B.

Piezostethus flavipes Reuter, 1875, Bihang till S. V. A. K. Handl., 3 (1), 65; 1885, Acta. Soc. Sci., Fenn., 14; Puton, 1886, Cat. Hem. Pal., 43.

Elongate oval, piceous with a pale pubescence. Rostrum, antennae, legs and hemielytra yellow. Cuneus infuscated membrane fuliginous hyaline. Head pronotum and scutellum shining, almost glabrous. Dorsal surface of abdomen castaneous, ventral surface dark brownish to piceous. Eyes brown, ocelli red.

Pronotum somewhat convex, sides immarginate, anterior angles very slightly rounded. Scutellum anteriorly raised. Hind legs with some mediumly prominent spines. The standard measurements (in microns) of two females and one male are:

Head. Total length, 350-400; length in front of eyes, 140; length behind eyes, 90-100; length of eyes (oblique), 100-140; width across eyes, 350-360; width of eyes, 90-100; interocular, 170-190; width of collum, 330-360.

Antennae. I, 90-120 × 30-50; II, 220-260 × 40; III, 190-220 × 20; IV, 220-260 × 20.

Rostrum. I, 140?; II, 400? III, 410?.

Pronotum. Anterior width (fore angles too gradually curved to allow measurement); posterior width, 570-720; median length, 290-400; lateral length, 350-410.

Scutellum. Anterior width, 400-500; median length, 290-330; lateral length, 350-430.

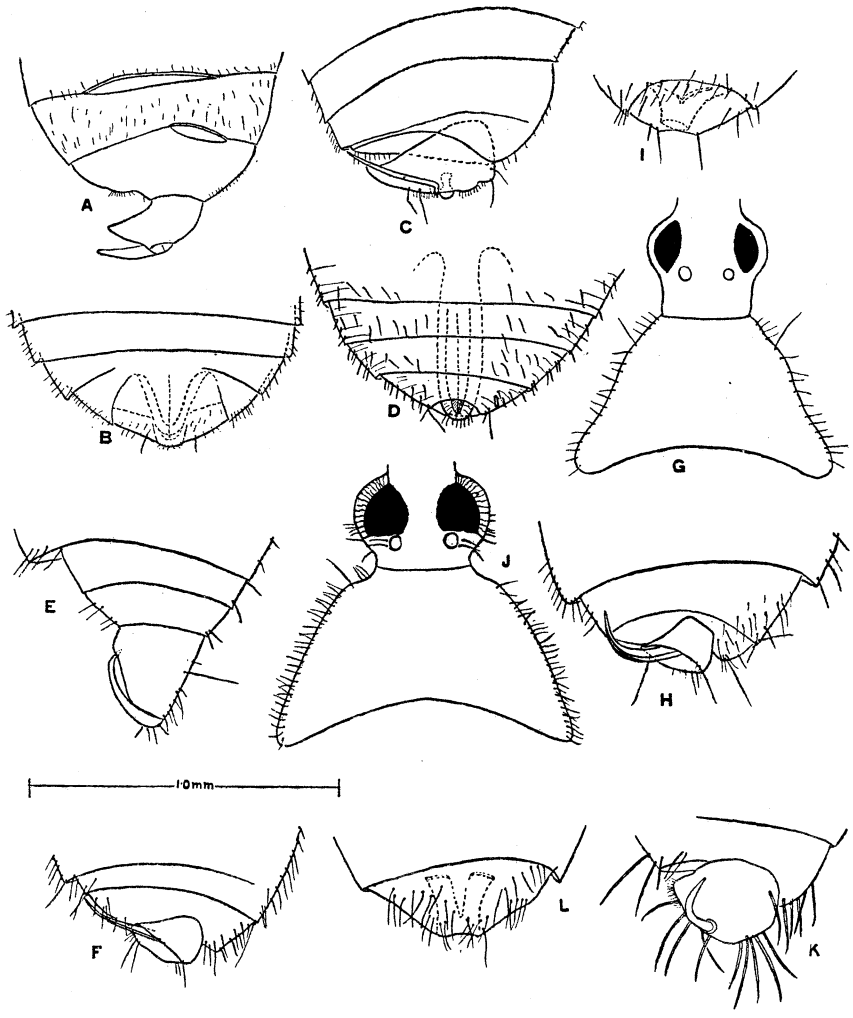

Fig. 3. A-B, *Xylocoris flavipes* (Reut.). A, apex of abdomen of male; B, apex of abdomen of female from above. C-D, *Xylocoris queenslandicus* sp. nov. C, apex of abdomen of male; D, apex of abdomen of female from above. E, *Plochiocorella elongata* Popp. Male. E, apex of abdomen from above. F, *Physopleurella mundula* (White). Male. F, apex of abdomen from above. G-I, *Physopleurella pacifica* sp. nov. Male. G, head and pronotum; H, apex of abdomen from above. Female. I, apex of abdomen from above. J-L, *Physopleurella armata* Popp. J, head and pronotum; K, apex of abdomen of male from above; L, apex of abdomen of female from above. (All enlarged 40 diameters.)

Legs	coxa	femur	tibia	tarsi I	II	III	Cl.
I	240–280	400–430	360–410	30	70	90–120	30
II	220–270	400–410	380–430	30–50	70	100	30–50
III	240–280	500–570	570–670	30–50	100–120	100–170	50

Total length, 1,500-2,260; width, 840-900; length abdomen, 1,070-1,170; length male genitalia (oblique), 380; length ovipositor, 260.

Loc. Fiji: Suva (R. A. Lever, 1st July, 1944, "Ex bagged rice," in Fiji Dept. Agriculture). Western Australia: Pintharuka (F. Wilson, August, 1941, "From insect-infested wheat," in C.S.I.R.O., Division of Entomology, Canberra). Has been recorded from similar locations overseas.

XYLOCORIS QUEENSLANDICUS sp. nov.

Fig. 3 C, D.

Elongate oval. Dark brown, eyes black, ocelli red. Hemielytra yellowish, membrane milky, cuneus infuscated. Rostrum, tibiae and tarsi yellow, antennae and other parts of legs yellowish brown.

Head and pronotum sparsely pilose, but hairs on head long. Hemielytra with a thicker golden pubescence, also the underside of the abdomen.

Pronotum flattened, immarginate, behind the middle with a suggestion of transverse striae, lateral margins straight and with but gradually rounded angles, anterior collar very tenuous. Scutellum slightly raised anteriorly. Fore coxae elongate, middle and hind tarsi with rather more prominent spines than *X. flavipes.*

Male genitalia directed to the left, ovipositor of the female longer in relation to the length of the abdomen than in *X. flavipes.* Apex of abdomen without long hairs, but a few rather short ones present.

The standard measurements (in microns) of four males and one female are:

Head. Total length, 400-430; length in front of eyes, 120-170; length behind eyes, 90-140; length of eyes (oblique), 160-170; width across eyes, 410-470; width of eyes, 90-120; interocular, 210-260; width of collum, 350-400.

Antennae. I, 100-140 × 50; II, 290-360 × 50; III, 260-280 × 20; IV, 260-310 × 25.

Rostrum. I, 170-240; II, 350-400; III, 200-260.

Pronotum. Anterior width, anterior angles too gradually curved to permit a measurement; posterior width, 830-950; median length, 360-430; lateral length, 510-590.

Scutellum. Anterior width, 590-740; median length, 450-500; lateral length, 500-600.

Legs	coxa	femur	tibia	tarsi I	II	III	Cl.
I	380–450	500–570	450–570	30–50	70–90	120–160	70
II	290–360	480–600	430–570	30–70	90–100	120–160	70–80
III	290–380	560–720	670–880	30–70	100–140	170–190	70–80

Total length, 2,430-2,800; width, 910-1,140; length abdomen, 960-1,260; length male genitalia (oblique), 400-480; length female ovipositor, 590.

The individual measurements of the female tend to be 5-15 p.c. larger than those of the male, though not invariably, and this has contributed to the large observed range in some cases.

The differences in colouration and structure already mentioned distinguish this species from *flavipes.* From *X. discalis* (Van Duzee), the only other species in this region, of which I have only Abernathy's figure in Zimmerman's Insects of Hawaii (and which may not be a member of *flavipes* group as Abernathy's figure is no certain guide to whether the apex of the abdomen is with or without long hairs) *queenslandicus* seems to be distinguished by the lighter coloured antennae and fore tibiae.

Loc. Queensland: Cairns District (A. M. Lea, Holotype ♂, Reg. No. I 20077, Allotype ♀, Reg. No. I 20078, and three Paratypes, Reg. Nos. I 20079-81, in S. Aust. Museum).

Subfamily DUFOURIELLINAE.

Cell of hindwings without a hamus, second and third segments of antennae filiform, usually with a long pilosity.

This is our best represented subfamily, the two most characteristic genera being *Cardiastethus* and *Physopleurella,* both showing a marked reduction (or complete absence) of the ovipositor in the female.

The genera can be distinguished by the following key:

KEY TO AUSTRALIAN AND ADJACENT PACIFIC DUFOURIELLINAE.

1. Fore acetabula markedly intumescent, fore femora usually armed, fore tibiae bent ..... *Physopleurella* Reut.
   Fore acetabula not markedly intumescent 2
2. Fore femora interiorly armed 3
   Fore femora unarmed 4

3. Fore femora interiorly armed with bristle-like teeth, fore tibiae bent, body fairly thick set rounded, sparsely haired ..... *Orthosoleniopsis* Popp.

   Fore femora interiorly with more or less numerous stouter denticles, fore tibiae straight, hind femora also incrassated. Body slender, parallel sided, glabrous .... *Scoloposcelis* Fieb.

4. Basal margin of pronotum shallowly and broadly sinuate ... *Lasidiella* Reut.
   Basal margin of pronotum deeply sinuate 5

5. Orifice of scent gland on metapleura always bent forward and coalescing with the longitudinal keel in an arc reaching to, or nearly to, the anterior edge of the mesopleurae 6

   Orifice straight with apex more or less bent posteriad, the latter not coalescing with the longitudinal keel (where this is present) *Poronotellus* Kirk.

6. Antennae not very long, second segment not as long as head, our species fairly oval. Ovipositor absent .... *Cardiastethus* Fieb.

   Antennae very long, second segment longer than the length of head. A well-developed ovipositor present in the female ..... *Plochiocorella* Popp.

Genus LASIELLIDEA Reuter, 1895.

Lasiellidea Reuter, 1895. Ent. Mo. Mag., 31, 172.

Body elongate, parallel, flat, shining and smooth. Head about as long as wide with a short collum. Rostrum reaching middle coxae, first segment reaching the eyes, second the fore coxae. Pronotum depressed with a median longitudinal impression. Femora unarmed, embolium narrow. Genotype: *L. glaberrima* Reut.

LASIELLIDEA GLABERRIMA Reuter, 1895.

L. glaberrima Reuter, 1895, *loc. cit.*, 172.

Piceous, shining all over, rostrum apex of the femora base of the tibiae and tarsi, pale testaceous. Membrane fuliginous, interior basal angle paler. Scutellum depressed. Second segment of antennae $2\frac{1}{2}$ times as long as the first and as long as the head up to the hind margin of the eyes. Length, $2\frac{3}{4}$ mm.

Loc. Victoria (*fide* Reuter).

Genus PLOCHIOCORELLA Popp., 1909.

Plochiocorella Poppius, 1909. Ac. Soc. Sci. Fenn., 37 (9), 22.

Large, elongate, above conspicuously shining. Head and pronotum sparsely pilose, hemielytra more densely pilose. Rostrum surpassing fore coxae, antennae very long, noticeably longer than the head and pronotum together. Pronotum

and head about the same length. Lateral margins of scutellum serrate. Orifice of the scent gland anteriorly directed. Legs long, femora slightly incrassated and with longish hairs. Genotype: *P. elongata* Poppius.

There is, so far, only the one species in this genus.

PLOCHIOCORELLA ELONGATA Poppius, 1909.

Fig. 3 E.

Plochiocorella elongata Poppius *loc. cit.*, 23.

Dark brown, hemielytra largely yellow, a fairly broad transverse band across corium at about the level of the apex of clavus, the cuneus and a band along the inner margin of clavus brown, antennae brownish or yellow, legs and rostrum largely yellow, the body beneath is brownish black.

The standard measurements from three specimens (in microns) are:

Head. Total length, 600-640 (690 if first true rostral segment is included); length in front of eyes, 220-260 (330 if first true rostral segment is included); length behind eyes, 120-160; length of eyes, 210-220; width across eyes, 430-470; width of eyes, 120-160; interocular, 160-240; width of collum, 350-360.

Antennae. I, 160 × 70; II, 530-600 × 40-50; III, 510-520 × 20; IV, 370-470 × 20.

Rostrum. I, 160-210; II, 690-790; III, 290-330.

Pronotum. Anterior width, 330-400; posterior width, 930-950; median length, 400-430; lateral length, 600-670.

Scutellum. Anterior width, 500-640; median length, 500-570; lateral length, 500-570.

Legs	coxa	femur	tibia	tarsi I	II	III	Cl.
I	240–310	640–800	740–790	50	70–120	120–140	50
II	220–290	740–790	740–810	50–70	100–120	140–160	50–70
III	200–260	880–950	1100–1170	50–90	160	140–170	50–70

Total length, 2,550-3,550; width, 1,030-1,090; length abdomen, 1,650-1,820; length male genitalia, 380-400; length female ovipositor, 770.

Loc. Queensland: Mt. Tambourine (A. M. Lea); Cairns District (A. M. Lea, both in S. Aust. Museum); Stanthorpe (E. Sutton, April, 1929, 3 males and 1 female, in Queensland Museum). New South Wales: Gosford (in S. Aust. Museum); Vaucluse (Dr. K. K. Spence); Deep Creek (Dr. K. K. Spence, February, 1932); Sydney (Dr. K. K. Spence, April, 1931, Reg. No. K64188, all in Australian Museum).

Genus SCOLOPOSCELIS Fieber.

Scoloposcelis Fieber, 1864, Wien. Ent. Monat., 7, 61; Van Duzee, 1917, Hem. Nth. of Mexico, 297 (Berkeley, California) (syn.); also Distant, 1906, Faun. Brit. India, 3, 6-7; 1910, *loc. cit.*, 5, 30; and Poppius, 1909, Ac. Soc. Sci. Fenn., 37 (9), 25.

Body elongate depressed, glabrous. Head in front of eyes broad. Rostrum surpassing the anterior coxae. Orifice of the scent gland curved forward, mesosternum flat, medially sulcate, acutely produced between the coxae at the base, apically truncate. Anterior and posterior femora flattened and incrassated, usually with spines or denticles along their length. Genotype: *S. crassipes* Flor. = *pulchellus* Zett.

There is only one recorded species from these regions and that is of remarkably widespread occurrence in the Indo-Australian region.

SCOLOPOSCELIS PARALLELUS (Motsch.), 1863.

Anthocoris parallelus Motschulsky, 1863, Bull. Soc. Mosc., 36 (3), 89.

Scoloposcelis parallelus Reuter, 1885, Act. Soc. Sci. Fenn., 14, 717; Distant, 1906, Faun. Brit. India, 3, 7; 1910, *loc. cit.*, 5, 304; Poppius, 1910, Wien. Ent. Zeit., 29, 140.

Scoloposcelis picicornis Poppius, 1909, Ac. Soc. Sci. Fenn., 37 (9), 26.

Glossy, piceous or dark brown, tibiae, tarsi and often the corium basally and near the claval suture yellowish brown. Head with some long hairs dorsally and laterally, fore and hind angles of the pronotum each with a long hair. Basal margin of pronotum very slightly excavate, about twice as wide as the median length and 1½ times as wide as the anterior margin. Fore femora with about four strong teeth, hind femora with more. Length, 2·5 mm.

Distributed from Ceylon to Queensland. One specimen apparently of this species (for it lacks the hind tibiae on which certain identification can be made) in S. Aust. Museum.

Genus ORTHOSOLENIOPSIS Popp., 1909.

Orthosoleniopsis Poppius, 1909, Ac. Soc. Sci. Fenn., 37 (9), 21.

Elongate, shining with a long erect dorsal pilosity. Head clearly longer than interocular, rostrum not attaining fore coxae, second segment not surpassing the base of the head. Base of margin pronotum deeply excavated. Fore acetabula simple, fore femora incrassated with short erect setae along the whole

of the anterior margin, fore tibiae weakly arched. Genotype, *O. australis* Popp.

Poppius compared this genus with *Cardiastethus,* but it is likely to be much more easily confused with *Physopleurella,* indeed it may be only a subgenus of this genus. It seems to be distinguished by not having the expanded fore acetabula of *Physopleurella,* in having a longer rostrum and a very broad interocular. The genotype is still the only species included.

ORTHOSOLENIOPSIS AUSTRALIS Popp., 1909.

Orthosoleniopsis australis Poppius, 1909, *loc. cit.,* 22.

Yellowish red. The legs yellow, the eyes, the apex of the second antennal segment, and the third antennal segment brown, the cuneus brownish red, pilosity yellow.

Head not longer than wide across the eyes. The second antennal segment clearly longer than these former. Posterior width of the pronotum about twice the median length. Posterior portion of the disc finely punctate. Hemielytra shining indistinctly punctured. Length, 3 mm.

Loc. New South Wales (*fide* Poppius).

Genus PHYSOPLEURELLA Reuter, 1885.

Physopleurella Reuter, 1885, Ac. Soc. Sci. Fenn., 14, 114 and 124.

Oblong, lateral margins of pronotum and embolium often with long backwardly directed cilia. Ocelli very large and prominent.

Rostrum short, thick, hardly (or not) surpassing the base of the head. Anterior collar of the pronotum distinct but tenuous. Fore acetabula markedly intumescent, anterior femora very incrassated, in our species armed with long spines along the inner margin, sometimes in several rows. Fore tibiae arched. Scutellum with lateral margins serrate. Genotype: *P. mundula* (White).

This genus is well represented in this region by at least five species. I have found the genus extremely difficult to treat for there is a great deal of uncertainty over the identity of the three species described here. *Physopleurella mundula* B. White has a conspicuous dark stripe down portion of the centre of the scutellum according to Zimmerman's figure, a Fijian specimen showing this character has, therefore, been relegated to that species. A series of specimens from N.S.W. and Queensland agree in many points with Poppius' *Ph. armata* and in other points with his *Ph. obscura,* showing amongst themselves quite a range of colour variation. I have, therefore, followed Usinger and regarded these two species as synonymous, and, as the firstnamed is first in Poppius' paper,

the species stands as *Ph. armata*. The remaining specimens fall into three new species.

These five species may be separated by the following key:

1. Apex of abdomen with long hairs 2
   Apex of abdomen with but very short hairs 4
2. Scutellum with a broad brown stripe running from the base to two-thirds way to apex, male genitalia in the form of an expanded, backwardly facing, cup with two very long sinistrally directed processes *mundula* B. White.
   Scutellum concolorous 3
3. Male genitalia composed of a large flat plate with a short process (fig. 3 K) hardly exceeding the limits of the plate. Sides of pronotum nearly straight, broadly rounded anteriorly *armata* Popp. = *Ph. obscura* Popp.
   Male genitalia composed of an expanded posteriorly directed cup from which emerge 2 long processes directed sinistrally *pacifica* nov. (fig. 3 H).
4. Lateral margins of pronotum almost straight, almost without hairs, broadly rounded anteriorly .... *bribiensis* nov.
   Lateral margins of pronotum sinuate, with long hairs in the anterior portion, anterior angles almost straight .... *australis* nov.

PHYSOPLEURELLA MUNDULA (White).

Fig. 3 F.

Cardiastethus mundula White 1877, A.M.N.H. (4), 20, 111.

Physopleurella mundula Reuter, 1885, Ac. Soc. Sci. Fenn., 14, 125; Usinger, 1946, Bernice P. Bishop Mus. Bull., 189, 55; Zimmerman, 1948, Insects of Hawaii, 3, 177, fig.

Pale rufous brown, with fairly dense long ochraceous pilosity, vertex of the head, first segment of antennae, the disc of the pronotum, a broad longitudinal stripe in the basal two-thirds of the scutellum, the cuneus, most of the underside of the body and femora darker. Collum very short, anterior margin of pronotum straight, posterior margin excavate, lateral margins sinuate and strongly ciliate, anterior angles very flat.

Orifice of scent gland directed anteriorly at apex, mesopleurae striate. Male genitalia in the form of an expanded backwardly-directed cup with 2 long thin sinistrally-directed processes, curving anteriorly at the tip. Apex of abdomen with long hairs.

The standard measurements (in microns) from one specimen are:

Head. Total length, 450; length in front of eyes, 140; length behind eyes, 90; length of an eye, 210-220; width across eyes, 410; width of an eye, 160; interocular, 100; width of collum, 280.

Antennae. I, 100 × 50; II, 360-380 × 50; III, 190-210 × 20; IV, 210 × 30.

Rostrum. 393.

Pronotum. Anterior width, 330; posterior width, 790; median length, 400; lateral length, 550.

Scutellum. Anterior width, 620; median length, 530; lateral length, 500-530.

Legs	coxa	femur	tibia	tarsi I	II	III	Cl.
I	200–220	520–530	430–450	30	30	50	30
II	200–220	500–520	450	30	70	80–100	30
III	210–220	590–620	670	30–40	90	100–120	30

Total length, 2,500; width, 1,120; length abdomen, 860; length male genitalia, 240. White quotes the length as $2\frac{3}{4}$ mm.

Loc. Fiji: Moturiki (A. M. Lea, June, 1 male in S. Aus. Museum). Is apparently widespread over the Pacific, being recorded from Hawaii and Guam.

PHYSOPLEURELLA PACIFICA sp. nov.

Fig. 3 G-I.

Dark brown. Second, third and fourth segments of antennae, ocelli, apical portion of scutellum, rostrum, underside of embolium and tibiae and tarsi yellow. Eyes red to black, underside of abdomen (except centrally) infuscated. Pilosity golden, first segment of antennae, a transverse patch on hind margin of pronotum yellowish brown. Cuneus with a reddish tinge.

Collum distinct, glabrous. Anterior margin of pronotum straight, posterior margin deeply excavated, lateral margins sinuate, prominently ciliate, anterior angles nearly straight. Pronotum with a centrally raised portion which has a longitudinal channel. Scutellum raised anteriorly, transversely impressed about halfway back, then plane in posterior half. Mesopleurae striate, orifice of scent gland directed posteriorly at the apex.

Lateral margins of hemielytra slightly sinuate, ciliate.

Male genitalia in the form of an expanded backwardly directed cup with two processes sinistrally directed, these processes shorter and stouter than *P. mundula.*

The standard measurements of 6 specimens treated statistically (in microns) are:

	Mean	Standard deviation	Theoretical range	Observed range	Coeff. of variation
Head.					
Length of head	500·0±9·6	23·5±6·8	429·5–570·5	465–534	4·7
Length of head in front of eyes	183·3±3·6	8·8±2·5	156·9–209·7	172–189	4·8
Length of head behind eyes				52–103	
Length of eyes	222·8±4·7	16·3±3·3	173·9–271·7	207–241	7·3
Width of head across eyes	418·7±5·7	13·9±4·0	377·0–460·4	396–430	3·3
Width of eye	136·5±6·8	23·6±4·8	55·7–207·3	103–172	17·0
Interocular	167·6±5·5	13·6±4·0	126·8–208·4	121–172	8·1
Width of collum	295·6±10·2	25·1±7·2	220·3–370·9	275–310	8·5
Antennae.					
I				103–155	
II	426·4±9·8	32·8±6·9	328·0–524·8	413–500	7·7
III	278·6±3·6	8·1±2·5	254·3–349·1	275–293	2·9
IV	241·0±5·1	11·6±3·6	206·2–275·8	224–258	4·8
Rostrum.					
1 and II	262·0±6·0	13·6±4·3	211·2–302·8	207–276	5·2
III	174·8±2·8	6·9±1·9	154·1–195·5	172–189	3·9
Pronotum.					
Anterior width	367·3±22·0	54·0±11·7	205·3–529·3	293–430	14·7
Posterior width	889·5±16·3	40·0±11·5	769·5–1009·5	844–946	4·5
Median length	430·3±6·4	15·7±4·5	353·2–477·4	413–448	3·6
Lateral length	620·9±9·3	32·5±6·6	525·4–716·4	585–671	5·2
Scutellum.					
Anterior width	554·0±25·5	62·5±18·0	426·5–681·5	500–654	11·3
Median length	441·8±9·3	23·0±6·6	372·8–510·8	413–551	5·2
Lateral length	490·8±9·3	32·4±6·6	393·6–588·0	465–551	6·6
Legs.					
Coxa I	195·6±6·7	22·3±4·7	129·7–262·5	172–241	11·4
Coxa II	205·1±6·8	22·5±4·7	137·6–272·6	172–241	11·0
Coxa III	205·0±6·1	21·1±4·3	141·7–268·3	189–275	10·3
Femur I	571·4±20·2	64·1±14·3	379·1–763·7	602–688	11·2
Femur II	561·4±13·8	43·7±9·7	430·3–692·5	517–637	7·8
Femur III	631·0±17·4	60·4±12·3	509·8–752·2	671–774	9·6
Tibia I	560·4±5·9	17·7±4·1	508·3–612·5	534–602	3·2
Tibia II	560·3±12·5	39·5±8·8	450·8–669·8	517–637	7·0
Tibia III	812·1±23·3	77·4±16·5	579·9–104·4	602–947	9·5
Tarsus I I				34–52	
Tarsus I II				34–69	
Tarsus I III				86	
Tarsus II I				52–69	
Tarsus II II				52–121	
Tarsus II III				86–121	
Tarsus III I				52–69	
Tarsus III II				103–121	
Tarsus III III				103–138	
Claw I				34–52	
Claw II				34–52	
Claw III				34–52	

	Mean	Standard deviation	Theoretical range	Observed range	Coeff. of variation
Total length	2748±66·2	162·0±46·8	2362·0–3234·0	2580–4000	5·9
Total width	927·2±23·1	56·8±16·4	756·8–1097·6	880–1000	6·1
Length of abdomen	1222·0±53·3	130·5±37·7	830·0–1614·0	1050–1448	16·9
length of male genitalia				327–362	
Length of female genitalia				155	

Hemielytra exceed the length of the abdomen and therefore the quoted total length by about 140μ.

Loc. Fiji: Viti Levu (A. M. Lea, Holotype ♂, Reg. No. I 20068, Allotype ♀, Reg. No. I 20069, and 3 Paratypes, Reg. Nos. I 20070 and I 20067). Queensland: Cairns District (A. M. Lea, Paratype ♂, Reg. No. I 20066, all in S. Aust. Museum).

PHYSOPLEURELLA ARMATA Popp., 1909.

Fig. 3 J-L.

Physopleurella armata Poppius, 1909, Ac. Soc. Sci. Fenn., 37 (9), 12.

Physopleurella obscura Popp., *loc. cit.*, 13.

Yellowish brown, fairly shining above. Hemielytra dull with semi-erect sparse hairs. Beneath, first segment of antennae and tip of second, scutellum and legs darker.

Head with a prominent collum. The anterior margin of pronotum almost straight, posterior margin deeply excavate, lateral margins straight, ciliate, margined, anterior angles lying behind the collar, broadly rounded.

Scutellum depressed, hemielytra longer than the abdomen, clavus, corium and cuneus indistinctly punctate. Male genitalia composed of a large plate with short process on the left side placed on the edge and sinistrally and anteriorly directed (fig. 3 K).

The standard measurements (in microns) treated statistically from nine specimens are:

	Mean	Standard deviation	Theoretical range	Observed range	Coeff. of variation
Head.					
Length of head	558·2±12·4	37·1±8·3	446·9–669·5	482–602	6·6
Length of head in front of eyes	199·0±5·2	15·5±3·6	152·5–245·5	172–224	7·8
Length of head behind eyes				52–155	
Length of an eye	250·6±3·1	12·4±2·1	213·4–287·8	224–258	4·9
Width of head across eyes	476·3±4·0	12·0±2·8	440·3–512·3	448–482	2·5
Width of an eye				138–189	
Interocular	134·2±5·5	16·5±3·8	84·7–233·7	121–172	12·3
Width of collum	356·3±5·7	17·0±4·0	301·3–407·3	345–396	4·8

	Mean	Standard deviation	Theoretical range	Observed range	Coeff. of variation
Antennae.					
I				86–138 × 50	
II	447·6±5·3	22·1±3·7	381·3–513·9	413–482 × 50–60	4·9
III	259·6±4·8	16·0±3·4	211·6–307·6	224–275 × 20	6·2
IV	264·5±5·5	15·8±3·9	217·1–311·9	241–293 × 20	6·0
Rostrum.					
I and II	303·5±10·3	29·2±7·3	221·9–385·1	258–345	9·6
III	232·6±4·0	11·5±2·9	199·1–266·1	224–258	4·9
Pronotum.					
Anterior width	558·7±10·7	32·2±7·5	462·1–655·3	534–620	5·8
Posterior width	1071·0±12·1	40·0±9·4	911·0–1231·0	1017–1138	3·7
Median length	430·6±8·7	26·0±6·1	352·6–508·6	396–465	6·0
Lateral length	674·8±5·1	21·6±3·6	610·0–739·6	637–723	3·2
Scutellum.					
Anterior width	719·0±16·2	48·5±11·4	583·5–854·5	654–792	6·7
Median length	608·0±11·5	34·4±8·1	504·8–711·2	568–671	5·7
Lateral length	633·0±7·9	33·8±5·6	531·6–633·6	585–688	5·3
Legs.					
Coxa I	277·4±6·3	260·0±4·4	199·4–355·4	258–345	9·4
Coxa II	262·2±7·1	29·5±5·0	173·7–350·7	207–327	11·3
Coxa III	242·1±19·9	74·7±12·8		241–327	30·8
Femur I	631·8±12·8	52·8±9·0	473·4–790·2	620–723	8·4
Femur II	584·2±3·0	12·6±2·1	546·4–625·0	482–637	2·2
Femur III	722·7±16·4	63·8±11·6	531·3–914·1	620–826	8·8
Tibia I	580·1±6·3	26·3±4·5	501·2–659·0	534–620	4·5
Tibia II	504·7±11·0	43·9±7·7	373·0–636·4	482–602	8·7
Tibia III	873·7±13·3	55·1±9·4	708·4–1039·0	723–929	6·3
Tarsus I I				30–70	
Tarsus I II				52–86	
Tarsus I III				50–100	
Tarsus II I				30–70	
Tarsus II II				50–90	
Tarsus II III				70–120	
Tarsus III I				50–70	
Tarsus III II				90–100	
Tarsus III III				90–140	
Claw I				30	
Claw II				50	
Claw III				30–70	
Total length	3387·0±24·1	72·3±17·0	3170·0–3604·0	3170–3876	2·1
Total width	1147·0±22·8	68·3±16·1	942·0–1352·0	1030–1280	6·0
Length of abdomen	1753·0±21·5	64·4±15·1	1530·0–1946·0	1550–2150	3·8
Length of male genitalia				275–360	
Length of female genitalia				189–207	

Hemielytra exceed the length of the abdomen and therefore the quoted length by about 180μ.

Loc. Japan and New Guinea (*fide* Poppius). Queensland: Cairns District (A. M. Lea, in S. Aust. Museum). New South Wales: Gosford (in S. Aust. Museum).

PHYSOPLEURELLA BRIBIENSIS sp. nov.

Fig. 4 A, B.

Elongate oval. Above and below castaneous, cuneus and eyes darker. Legs possibly lighter.

Pronotum similar microscopically to *P. pacifica,* but the lateral margins are margined, straight with the anterior angles broadly rounded like *P. armata,* but not ciliate as in the latter. Scutellum anteriorly raised, transversely sulcate well behind the middle.

Mesopleurae striate, metapleural orifice curved strongly forward almost to fore margin of pleurite. Apex of abdomen without prominent long hairs.

The standard measurements (in microns) from one female are:

Head. Total length, 530; length in front of eyes, 170; length behind eyes, 160; length of an eye, 250; width of eyes, 470; width of eye, 130; interocular, 140; width of collum, 350.

Antennae. I, 120; II, 400; III, 250-260; IV, 220-230.

Rostrum. Missing.

Pronotum. Anterior width (across collar), 380; posterior width, 1,030; median length, 410; lateral length, 570-620.

Scutellum. Anterior width, 620; median length, 520; lateral length, 570-590.

Legs	coxa	femur	tibia	tarsi I	II	III	Cl.
I	260–280	620–650	530	30	50–70	90	missing
II	220–260	500–570	480–530	50	70	100	missing
III	240–310	620–690	770	missing	missing	missing	missing

Total length, 2,970; width, 1,140; length abdomen, 1,640; length female genitalia, 210.

Closely allied to the following species in the very short hairs at the apex of the abdomen and almost glabrous sides of the pronotum, but in the shape of the pronotum it resembles *Ph. armata.*

Loc. Queensland, Bribie Island, Moreton Bay (Lea and Hacker, Holotype ♀, Reg. No. I 20063, in S. Aust. Museum).

PHYSOPLEURELLA AUSTRALIS sp. nov.

Fig. 4 C, D.

Elongate oval. Dark brown; middle of venter, tibiae and tarsi, rostrum, humeral angles of pronotum and hemielytra yellow. Pilosity golden. Eyes black, ocelli red. Head with a distinct collum, pronotum with a distinct though

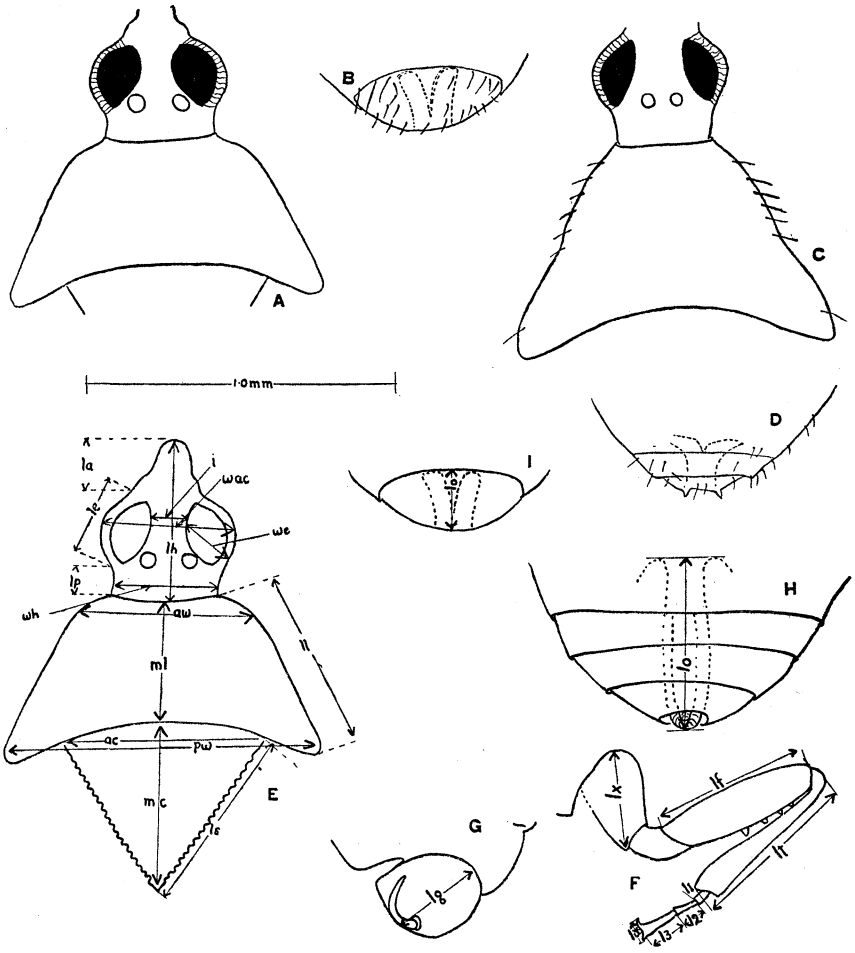

Fig. 4. A-B, *Physopleurella bribiensis* sp. nov. Female. A, head and pronotum; B, apex of abdomen from above. C-D, *Physopleurella australis* sp. nov. Female. C, head and pronotum; D, apex of abdomen. E-I, series of dorsal outline sketches showing methods of taking some of the standard measurements. E, head and pronotum, and I, apex of abdomen of female of *Physopleurella bribiensis* sp. nov.; F, fore right leg of *Oplobates femoralis* Reut.; G, apex of abdomen of male of *Physopleurella armata;* H, apex of abdomen of female *Xylocoris queenslandicus* sp. nov. (All enlarged 40 diameters.)

ac, anterior width of scutellum; *aw,* anterior width of pronotum; *i,* interocular; *l1,* length tarsus I: *l2,* length tarsus II; *l3,* length tarsus III; *la,* length of head in front of eyes; *lc,* length of claw; *le,* length of eye; *lf,* length of femur; *lg,* length male genitalia; *lh,* length of head; *ll,* lateral length of scutellum; *lo,* length female genitalia (or ovipositor when present); *lp* length of head behind eyes; *ls,* lateral length of scutellum; *lt,* length of tibia; *lx,* length coxa; *me,* median length of scutellum; *ml,* median length of pronotum; *pw,* posterior width of pronotum; *wac,* width of head across eyes; *we,* width of an eye; *wh,* width of collum.

tenuous collar, anterior margin almost straight, posterior margin deeply excavate, lateral margins sinuate, not conspicuously ciliate, and hardly marginate.

Scutellum slightly raised anteriorly, slightly impressed two-thirds of the way back. Sides of hemielytra not sinuate. Apex of abdomen without long hairs. Mesopleurae striate.

The standard measurements for one female specimen (in microns) are:

Head. Total length, 590; length in front of eyes, 210; length behind eyes, 120; length of eyes, 260; width across eyes, 470; width of an eye, 160-170; interocular, 140; width of collum, 310.

Antennae. I, 140 × 50; II, 460-480; III, 210 × 20; IV, 210-240 × 20.

Rostrum. I and II, 241; III, 172.

Pronotum. Anterior width, 360; posterior width, 1,020; median length, 500; lateral length, 650-700.

Scutellum. Anterior width, 670; median length, 590; lateral length, 550-640.

Legs	coxa	femur	tibia	tarsi I	II	III	Cl.
I	290–310	650–670	550–570	30	50	90	30
II	260–280	600–620	590–640	?	?	?	?
III	280–290	660–670	910–930	50–70	100	120–140	30–50

Total length, 3,570; total width, 1,170; length of abdomen, 1,810; length of female genitalia, 189.

Loc. Queensland: Cowell Creek (McNamara, Holotype ♀, Reg. No. I 20064, in S. Aust. Museum).

This species is allied to *Ph. bribiensis* in not having long hairs at the apex of the abdomen. The side of pronotum is sinuate and strongly ciliate, resembling in the latter respect *Ph. mundula, Ph. armata* and *Ph. pacifica,* and in the former *Ph. mundula* and *Ph. pacifica.*