

ADDITIONS TO THE KNOWN PHILIPPINE DELPHACIDÆ
(HEMIPTERA)

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The Delphacidæ have been greatly neglected by collectors, especially in the tropics. This is seen in the species previously reported from the Philippine Islands, which amount to less than one dozen. The present list brings the number up to forty. This is but a small part of what will be eventually found. In Prof. C. F. Baker's collection are several undetermined species that I am unable to handle until my return to Honolulu.

The lack of knowledge of this family is to be regretted, as many of its species are of great economic importance. Were it not for the host of parasites that keep these species in check, many of our crops would be devastated.

In working out the species of this family, it is absolutely necessary to use the structural characters found in the male genitalia; especially is this the case in the complex of genera grouped about *Liburnia*, and failure to do so will lead to great confusion.

ASIRACINÆ

Genus UGYOPS Guérin

Ugyops GUÉRIN, Voy. Belanger, Zool. (1834), 4, 477.

Ugyops pictifrons Stål.

Ugyops pictifrons STÅL, Ofr. k. Vet.-Akad. Forh. (1870), 747.

MINDANAO and BASILAN (*Baker*).

Ugyops impictus Stål.

Ugyops impictus STÅL, Ofr. k. Vet.-Akad. Forh. (1870), 748.

MINDANAO and BASILAN (*Baker*).

Genus MELANESIA Kirkaldy

Melanesia Kirkaldy, Ent. Bull. Hawaiian Sug. Plant. Assoc. (1907), No. 3, 128.

Melanesia granulata (Melichar).

Ugyops granulatus MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 175
(included, evidently inadvertently, in *Cixiinae*).

Both joints of antennæ are longer and more slender than in the type, but the short vertex and the tegmina place it in *Mela-*

nesia. The furcation of the median facial carina has no generic importance.

Melanesia brevipennis sp. nov.

Male.—First joint of antennæ slightly more than half the length of second; median frontal carina forking near apex; head wider than long, vertex slightly longer than wide; tegmina reaching to end of abdomen.

Light brown; face darker with some small light dots on genæ; apex of clypeus dark; pro- and mesonotum dark between carinæ; dark over coxæ; abdomen dark with lighter marks along sides. Tegmina light brown, with dark brown or black markings over clavus, along veins, and over cross veins; the whole surface of tegmina granulated; wings light brown with dark veins.

Genitalia very similar to those of *M. pacifica* Kirkaldy; anal segment short but large, covering the greater portion of the opening of pygophor; a quadrate emargination occurs on ventral edge of pygophor through which the genital styles protrude; styles narrow, straight at base, then curved, the apices bluntly pointed.

Length, 4.3 millimeters; tegmen, 3.4.

Female.—Similar to male.

MINDANAO, Butuan (*Baker*).

Melanesia luzonensis sp. nov.

Male.—Both joints of antennæ longer than in *M. pacifica* Kirkaldy, the second more slender and terete. Vertex, middle of pro- and mesonotum, antennæ, and legs light brown; face, clypeus, and lateral portions of pro- and mesonotum darker brown; abdomen brown, darker along posterior edges of segments; a faint fuscous ring around second joint of antennæ. Tegmina brown, covered all over with whitish granules, which are more numerous before cross veins; darker over median portion of apical cells; a minute dark mark at apex of each of the first four apical veins; claval margin light, forming, when tegmina is closed, a double diamond pattern down the back.

Pygophor similar in type to that of *M. pacifica* Kirkaldy,¹ but with a subconical median process on the ventral edge. Penis very long, thin, and complex, the basal portion straight, followed by a more slender, curved portion with two spines at its base, the apical portion forming a spiral and ending in a long, slender point.

¹ *Ent. Bull. Hawaiian Sug. Plant. Assoc.* (1907), No. 3, 129, Plate XVII, figs. 13, 14.

Length, 4.5 millimeters; tegmen, 5.3.

Female.—Slightly darker in color, similar in size.

LUZON, Mount Maquiling and Baguio (*Baker*).

This species can be distinguished from *M. granulata* Melichar by the dorsal color pattern; by the medioventral process of pygophor being longer, narrower, and more acute at apex; and by the genital styles being much straighter.

Genus PUNANA Muir

Punana MUIR, Proc. Hawaiian Ent. Soc. (1913), 2, 249.

This genus has a single, simple median carina on face.²

Punana philippina sp. nov.

Male.—Light brown; genæ and face below eyes lighter; legs and ventral surface lighter, legs marked with small dark bands. Tegmina yellow or light brown, minute brown granules irregularly arranged along the veins, also in the cells; apical veins slightly infuscate at margin; wings dark fuscous with darker veins.

Pygophor long, opening ventrad, ventral edge forming a deep, round emargination with a minute, angular projection in the middle; lateral edges also roundly and deeply emarginate, forming a projection on each side of anal segment; anal segment large, convexo-concave, about as broad as long, sides slightly arcuate, apex subtruncate, anus in middle on raised area; styles slightly flattened, broadest at base, apex subacute, basal two thirds straight, at an angle to apical third.

Length, 3.5 millimeters; tegmen, 4.5.

LUZON, Laguna, Mount Banahao (*Baker*).

Punana negrosensis sp. nov.

Male.—This species differs from *P. philippina* in having the front and middle coxæ and femora darker brown, a small fuscous spot in clavus, and fuscous over cross veins and along media to apex.

Pygophor similar in shape to that of *P. philippina*, but the medioventral process square with corners minutely produced, lateral edges without produced processes along edges of anal segment; anal segment with shallow emargination at apex; styles sickle-shaped, basal fifth straight, apical four fifths curved, apex pointed.

²I wrongly stated that this genus possesses two frontal carinæ. *Can. Ent.* (1915), 268.

Length, 3.2 millimeters; tegmen, 3.6.

NEGROS, Cuernos Mountains (*Baker*).

In the Baker collection there are three females from Butuan, Mindanao, and one from Puerto Princesa, Palawan, which I place with this species.

DELPHACINÆ

TROPIDOCEPHALINI

Genus **MALAXA** Melichar

Malaxa MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 275.

In this genus the tibial spur is cultrate, with the inner surface concave and with a single apical tooth, none on hind margin. It comes near *Sogatopsis* Muir in the Tropidocephalini.

Malaxa acutipennis Melichar.

Malaxa acutipennis MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 275.

One male specimen from Mount Maquiling differs from the description of the type (female) in the following points: Mesonotum, first and second coxæ, all femora, and abdomen except pygophor dark brown. Tegmina with three dark bands, the two across middle uniting on posterior half, the third near base.

Pygophor laterally compressed, edges entire, anal segment very short, projecting but slightly beyond edges of pygophor; styles reaching to lower edge of anal segment, acutely conical, curved inward.

Genus **CONOCRÆRA** novum

Head a little narrower than thorax; vertex triangular, length slightly more than width of base, sides carinate and with a single median longitudinal carina; in profile vertex ascending, making an acute angle with face; length of face four times the breadth or more, base turbinate, sides subparallel, carinæ on sides and a single median carina; clypeus tricarinate, in lateral view slightly curved, antennæ reaching to base of clypeus, terete, joints subequal; pronotum about as long as vertex, hind margin very shallowly and evenly emarginate, tricarinate, lateral carinæ reaching hind margin; mesonotum broader than long, tricarinate, lateral carinæ faint. Spur on hind tibiæ cultrate, slightly convex on inner surface, with a small apical tooth, but no teeth on hind edge. Tegmina laterally compressed, hind margin roundly produced beyond clavus, apex acute; from apex the apical margin forming a continuous curve with costal margin, the latter ending

about half way from apex; media touching both radius and cubitus.

This genus comes near to *Arcofacies* in the Tropidocephalini.

Conocraera acutipennis sp. nov.

Male.—Light green or yellowish, carinæ of head and thorax whitish, bordered with a fine brown hair streak, antennæ with a dark mark near apex of each joint; legs each with a fine brown longitudinal line. Tegmina light brown or yellowish brown, hyaline along costal cell, through middle of tegmina to apex of median sector, hyaline along inner border of clavus and in radial and median apical cells, a dark mark beyond apex of clavus surrounded with hyaline, veins with white granules, wings fuscous hyaline, veins darker.

Pygophor laterally compressed, ovate, a minute spine on medioventral edge; anal segment short, genital styles reaching to anal segment, flattish, narrow at base, gradually narrowing to apex which is truncate, basal two thirds slightly curved, apical third making a half spiral.

Length, 2 millimeters; tegmen, 2.7.

Female.—Unknown.

LUZON, Laguna, Mount Maquiling (*Baker, 2504*); Benguet, Baguio. PALAWAN, Puerto Princesa (*Baker*).

Genus TROPIDOCEPHALA Stål

Tropidocephala STÅL, Ofr. k. Vet.-Akad. Forh. (1853), 266.

Tropidocephala flava Melichar.

Tropidocephala flava MELICHAR, Notes Leyden Mus. (1914), 109.

The male genitalia are similar to those of *T. saccharicola* Muir,³ the head is much longer in proportion to the thorax, and the tegmina are very much lighter in color.

LUZON, Mount Maquiling, Los Baños. LEYTE, Tacloban. MINDANAO, Davao and Dapitan (*Baker*).

Tropidocephala festiva (Distant).

Samara festiva DISTANT, Fauna Brit. India, Rhyn. (1906), 3, 478.

The Philippine specimens of this species agree with those from Borneo and Java.⁴

LUZON, Los Baños, Mount Maquiling, Mount Banahao, and Baguio. PALAWAN, Puerto Princesa. MINDANAO, Davao (*Baker*).

³ *Proc. Hawaiian Ent. Soc.* (1913), 2, Plate 6, figs. 7, 7a.

⁴ *Ibid.*, Plate 6, figs. 9, 9a.

Tropidocephala philippina Melichar.

Tropidocephala philippina MELICHAR, Phil. Journ. Sci., Sec. D (1914), 9, 273.

The male genitalia of this species agree with those figured of *T. exima* (Kirkaldy), which is considered by Matsumura as a synonym of *T. brunnipennis* Signoret,⁵ which according to present identifications has a wide distribution over Africa, Australia, the Malay Archipelago, eastern Asia, Formosa, and Japan.

LUZON, Los Baños, Mount Maquiling, Mount Banahao, and Baguio. MINDANAO, Iligan, Davao, and Dapitan. PALAWAN, Puerto Princesa (*Baker*).

Tropidocephala saccharivorella Matsumura.

Tropidocephala saccharivorella MATSUMURA, Ann. Mus. Nat. Hung. (1907), 65.

The male genitalia of this species are very similar to those of *T. dryas* (Kirkaldy),⁶ but the base of the genital styles are broader, and there is a curved spine at the base which is absent in *T. dryas*; the pygophor is more rounded and is without the small spines on the lateral margins.

MINDANAO, Iligan (*Baker*). Formerly known from Formosa and southern China.

Tropidocephala nigrocacuminis sp. nov.

Male.—Vertex more than twice the length of pronotum (2.3 to 1). Light green, yellow, or light brown; two black lines on vertex, one on each side of median carina, from apex to middle, a black spot covering apex of face and base of clypeus partly divided by the lighter median carina, genæ below antennæ black, apex of first joint of antenna and a line on second joint black, coxæ and pleura black; abdomen dark with lighter pleura. Tegmina hyaline with minute white granules on veins, apical cells black with a lighter spot in apex of each cell.

Pygophor with a large spine on medioventral edge, lateral edges acutely angular; styles slightly flattened, rounded at base, slightly constricted near base, apex pointed and slightly twisted; a large, curved black spine with a granulated surface arises from the inner edge of the round basal portion of each style.

Length, 2.5 millimeters; tegmen, 3. •

⁵ *Ent. Bull. Hawaiian Sug. Plant. Assoc.* (1907), No. 3, Plate 17, figs. 15-16.

⁶ *Ibid.*, Plate 17, figs. 4 and 5.

Female.—Abdomen yellowish, tergites darker, sternites brownish along anterior margin.

Length, 3.5 millimeters; tegmen, 3.2.

LUZON, Mount Maquiling (*Baker, Muir*). MINDANAO, Davao and Iligan (*Baker*).

Tropidocephala baguioënsis sp. nov.

Apex of face ovate, not truncate, the lateral carinæ continuing and meeting, together dividing frons from clypeus; face straight in profile, clypeus forming a wide angle with face (about 130°), median carina on clypeus large. Vertex nearly one and a half times the length of pronotum (1 to 1.4).

Light brown; carinæ of vertex and pro- and mesonotum bordered with a fine black hair streak, most distinct along median carinæ; a fine black ring round apex of first antennal joint and round middle and apex of second; abdomen darker brown; tegmina brown, darkest over basal area between clavus and costa, a hyaline mark in clavus along suture, another from end of clavus to costa, broadest on claval suture, a hyaline spot in subcostal, radial, and first and second median apical cells; veins dark, studded with small white granules, a dark spot on media and another on clavus just in front of cross veins; wings slightly fuscous, veins brown.

Pygophor oval, a small knobbed spine on medioventral margin, no spines on lateral margins; genital styles narrow, the inner apical corner produced into a flattened, narrow, curved process with a rounded apex; the outer apical corner produced into a small, blunt spine, from the base arises a large, slightly crooked spine.

Length, 2.7 millimeters; tegmen, 3.3.

Female.—Unknown.

LUZON, Baguio (*Baker*).

The markings on the tegmina and the shape of the genitalia of this species are very similar to those of *T. amboinensis* Muir.

Tropidocephala pseudobaguioënsis sp. nov.

In coloration and shape and proportional size of head this species is similar to *T. baguioënsis*; the antennæ have only one fine black ring which is on the second joint.

Pygophor with a knobbed spine on medioventral edge, no spines on lateral edges, styles flattened, from inner basal edge there arises a long, curved, flattened spine, with granulated surface, on outer edge near base there arises a short, broad, flattened spine, both these basal spines stand at right angle to the surface

of style, apex slightly broadened, truncate, the inner corner developed into a long, curved spine with a rounded apex, the curve forming a semicircle.

Length, 2.5 millimeters; tegmen, 3.

Female.—Similar to male, abdomen light brown, ovipositor darker on basal half.

Length, 3.0 millimeters; tegmen, 3.5.

MINDANAO, Iligan and Davao (*Baker*).

The shape of the genital styles separates this species from *T. baguioënsis*.

Genus PUROHITA Distant

Purohita DISTANT, Fauna Brit. India, Rhyn. (1906), 3, 470.

Purohita nigripes sp. nov.

Male.—Light brown; vertex and face between eyes darker, antennæ and base of face irrorated with dark brown or black, carinæ of thorax lighter; joints of first and second tarsi and apical joint of hind tarsi black; abdomen darker brown. Tegmina hyaline, costa yellow, other veins black with the black spreading out into cells, especially on apical half, subcostal vein before cross vein and all cross veins colorless, veins with fine granules bearing black hairs. Wings hyaline with light brown veins.

Ventral edge of pygophor forming two triangular plates touching in middle, the apex of each plate forming a small tooth with a smaller tooth on the inner edge; anal segment about twice as long as broad, sides subparallel, apex truncate, anus in apical third; styles thin, subulate apices slightly curved; penis long, strongly curved, and sharply pointed at apex.

Length, 3.5 millimeters; tegmen, 4.5.

Female.—Larger, but similarly colored; ovipositor broad and flat, forming a deep keel from middle to slightly beyond apex of abdomen.

Length, 5.2 millimeters; tegmen, 7.5.

LUZON, Laguna, Los Baños (*Muir*), on bamboo.

The eggs are laid singly in lines in the stem of young bamboo and covered with a mass of waxy secretion, which is secreted by glands on the sternites beside the ovipositor and transferred from there to the bamboo by the aid of the hind tarsi. The newly hatched nymphs have the antennæ terete, the first joint broader than long, the length of second about twice its width, the arista has a comparatively large, round base with a long flagellum. The basal joint increases in length at each ecdysis, at the penultimate it is much longer than the second joint and

has a slight ridge along it, but is not flattened until the adult stage. The face has two median carinæ until the last ecdysis.

This is the first species of this genus to be taken in the Philippine Islands; others are known from Ceylon, India, southern China, and Formosa. One species from Formosa approaches the Philippine genus *Lanaphora* Muir.⁷

Genus **LANAPHORA** Muir.

Lanaphora MUIR, Canadian Entom. (1915), 317.

Lanaphora bakeri Muir.

Lanaphora bakeri MUIR, Canadian Entom. (1915), 317.

LUZON, Laguna, Mount Maquiling (*Baker*).

Genus **ARCOFACIES** Muir

Arcofacies MUIR, Canadian Entom. (1915), 319.

Arcofacies fullawayi Muir.

Arcofacies fullawayi MUIR, Canadian Entom. (1915), 319.

LUZON, Manila (*Muir, Fullaway*).

DELPHACINI

Genus **BRACHYCRÆRA** novum

Head as wide as thorax; vertex very short, with more than twice the length; with a single median longitudinal carina; a carina dividing vertex from face; face distinctly longer than wide, slightly narrower at apex than at base, broadest just below eyes, sides arcuate, a single median carina with an indistinct minute furcation at extreme base, a diagonal carina across genæ from below antennæ to apical corner of frons; clypeus small, tricarinate, in profile in line with face, not angled; antennæ reaching nearly to apex of clypeus, first joint flattened, subtriangular, apex broader than base, second joint about double the length of first, flattened, subovate, the arista at apex; eyes with deep antennal emarginations. Pronotum short, tricarinate, lateral carinæ strongly diverging posteriorly, following hind margin of eyes, not reaching hind margin; mesonotum about as long as wide, tricarinate, lateral carinæ subparallel. Tibial spur cultrate in outline, slightly concave on both sides, with an apical tooth, but no teeth on hind edge. Tegmina long, narrow, pointed at apex, radius not touching media, first median sector touching cubitus.

This genus is near *Stobæra*, but the short, broad head and

⁷ *Purohita maculata* Muir, *This Journal*, Sec. D (1916), 11, 311.

arcuate sides of face distinguish it. With a greater knowledge of the character of the spur in other genera, it may prove that this and several allied genera are better placed in the Tropidocephalini.

Brachyeraera albolineata sp. nov.

Female.—Green or light brownish green, carinæ of head and thorax lighter; a thin transverse white line across genæ and face below eyes, antennæ brownish, ovipositor brown. Tegmina yellowish, veins slightly darker with small, similarly colored granules.

Length, 2.8 millimeters; tegmen, 3.5.

LUZON, Laguna, Mount Maquiling; Benguet, Baguio (*Baker*).

Genus PERKINSIELLA Kirkaldy

Perkinsiella KIRKALDY, Entom. (1903), 36, 179.

This genus is of economic importance in countries where sugar cane is cultivated, as the eighteen species at present known all live upon that plant, as well as on some other grasses. Fortunately several parasites are locally active in keeping down their numbers, or sugar cane could not be grown over the region of their distribution, for a single species (*P. saccharicida*) introduced into the Hawaiian Islands threatened to ruin the sugar industry there until parasites were introduced to hold it in check. Six species are known in the Philippine Islands and can be distinguished by the following characters:

Key to the Philippine species of *Perkinsiella*.

- a¹. Basal half of face distinctly darker than apical half.
 - b¹. Granules on tegmina light in color, very small..... *lineata*.
 - b². Granules on tegmina dark.
 - c¹. Posterior half of tegmen dark fuscous..... *saccharivora*.
 - c². Dark pattern on tegmen confined to apical cells..... *pseudosinensis*.
- a². Basal and apical halves of face concolorous; a few light spots on face.
 - b¹. Median portion of pro- and mesonotum distinctly lighter than lateral portions *bakeri*.
 - b². Median portion of pro- and mesonotum not distinctly lighter than lateral portions.
 - c¹. Tegmina light fuscous brown, granules on veins dark brown, large. *fuscipennis*.
 - c². Tegmina not fuscous; granules on veins very minute, light. *vastatrix*.

Perkinsiella vastatrix (Breddin).

Dicranotropis vastatrix BREDDIN, Deutsch. Ent. Zeitschr. (1896), 107.

Common on sugar cane. Philippine specimens agree in coloration with specimens from Java.

Perkinsiella bakeri sp. nov.

Male.—Macropterous form; structure typical. Vertex and face brown, lighter spots coalescing and forming small bands across face, clypeus and antennæ darker brown; pro- and mesonotum light in middle, dark brown outside of lateral carinæ; rest of thorax, coxæ, femora, and abdomen dark brown; tibiæ and tarsi light brown, spur on hind tibiæ dark brown on outer side. Tegmina hyaline, fuscous brown, lighter over basal half, dark over apical half, especially distad of clavus; a triangular, lighter mark at end of costal cell and a smaller spot at apex of each apical cell, a small dark spot at apex of claval margin, rest of claval margin white or yellowish white; veins closely studded with black granules; wings hyaline, veins dark.

Pygophor slightly compressed laterally, ventral edge medially produced into a small plate which is bifid at apex; at each side of base of plate the pygophor is slightly depressed; anal segment with a long, thin, inwardly curved spine from each ventral corner, spines reaching across pygophor; genital styles small, basal portion spindle-shaped, slightly flattened, apex drawn to a point, which is at right angles to basal portion.

Length, 2.7 millimeters; tegmen, 4.

Female.—Macropterous form, similar to male. Brachypterous form: Heavier in build than the male, especially the abdomen, also lighter in color; tegmina reaching about one fourth from apex of abdomen, hyaline, veins with brown granules, margin of clavus whitish with dark mark at apex; wings rudimentary.

Length, 4 millimeters; tegmen, 4.5.

This species is near *P. amboinensis*, but the genitalia are very distinct; it can easily be distinguished also by the dark lateral margins of pro- and mesonotum.

LUZON, Laguna, Los Baños (*Baker, Muir*), on sugar cane and sorghum.

Perkinsiella saccharivora sp. nov.

Male.—Macropterous form; structure typical. Antennæ, clypeus, and frons between eyes dark brown, frons below eyes, genæ below antennæ, and a few small spots between eyes light brown or yellowish; two small dark spots occur at apex of frons; vertex and median portion of pro- and mesonotum light brown or yellow, lateral portions dark brown; front and middle coxæ, front femora, a ring around front tibiæ, and the front tarsi dark brown, spur slightly darker along edge; abdomen dark brown. Tegmina hyaline, all anterior of media colorless, all

posterior, including clavus, light brown, veins with small brown granules, hyaline spots in apical cells, hind margin of clavus yellowish white; wings hyaline with brown veins.

Ventral edge of pygophor bearing in middle two large spines, contiguous at base, diverging distally and reaching to anal segment; anal segment with a spine projecting from each ventral corner, the spines curving forward; styles narrow, reaching to anal segment, basal portion slightly flattened, apical portion flattened in the opposite plane, the apex pointed and curved inwardly, making nearly a complete spiral.

Length, 2.8 millimeters; tegmen, 4.3.

Female.—Macropterous form, similar to the male.

Length, 3.2 millimeters; tegmen, 4.6.

LUZON, Laguna, Los Baños (*Muir*).

This species is near to *P. bicoloris* Muir (New Guinea) of which only the female is known. It approaches *P. sinensis* Muir (China and Japan) in its genitalia.

Perkinsiella lineata sp. nov.

Male.—Macropterous form: Vertex, frons between eyes, antennæ, and clypeus light brown, frons below eyes and genæ light yellow, apex of first antennal joint dark, pro- and mesonotum light brown, lateral margins darker; legs light brown, front and middle legs with dark mark on coxæ, a fine longitudinal line on femora, a small dark band on tibiæ and tarsi. Tegmina hyaline, clavus fuscous with white hind margin, a light brown mark down middle from base to apex; veins with small brown granules, a small brown spot at apex of each vein.

Medioventral edge of pygophor produced into two very small, straight spines; anal spines strong, diverging, reaching about halfway across pygophor; styles broad and rounded at base, apically produced into sharp, curved spines, a small spine from upper portion of broad base.

Length, 2.8 millimeters; tegmen, 4.8.

Female.—Similar to the male.

Length, 3.5 millimeters; tegmen, 5.6.

LUZON, Laguna, Los Baños (*Muir*), on sugar cane. PALAWAN, Puerto Princesa (*Baker*).

Perkinsiella fuscipennis sp. nov.

Male.—Head, thorax, and legs light brown; small light dots on face, coxæ, and longitudinal marks on femora and tibiæ dark brown; abdomen dark brown, lighter at base. Tegmina fuscous brown, darker over the three posterior apical cells with a light dot in apex of each, a dark mark on hind margin at end of clava

vein; veins light with large brown granules; hind wings fuscous with dark veins.

Pygophor about as deep as wide, a pair of very small, flattened spines on the medioventral edge; anal spines large, slightly flattened, diverging and slightly curved; styles broadest at base, narrowing to apex where they are produced into small bifurcations.

Length, 2.7 millimeters; tegmen, 4.2.

Female.—Unknown.

MINDANAO, Davao (*Baker*).

This is a Philippine representative of the Australian *P. graminicida* Kirkaldy; there is little difference in the genitalia, but the concolorous face and the greater expanse of the fuscous area on the tegmina distinguish it.

Perkinsiella pseudosinensis sp. nov.

Male.—Face between eyes, clypeus, front coxæ, pleura, and abdomen dark brown; face beyond eyes, genæ, antennæ, and legs yellow or light brown; apex of first joint and sense organs of second joint of antennæ dark; vertex and nota brown with lighter carinæ. Tegmina hyaline, veins light, granules brown, a fuscous spot at end of claval vein fuscous from cross veins over sixth and in apical portion of sixth and seventh apical cells; wings hyaline, veins brown.

Medioventral spines of pygophor flattened, broad, cultrate in outline, and spines subulate, slightly diverging and curved, genital styles quadrate at base, the outer, upper corner produced and continued in a bifurcate process, the inner furcation flattened, curved into a semicircle, apex rounded, the outer furcation short, flattened, curved, the two together forming three fourths of a circle.

Length, 2.5 millimeters; tegmen, 3.7.

Female.—Similar to the male.

Length, 3 millimeters; tegmen, 4.

MINDANAO, Davao, Iligan (*Baker*).

This species is superficially very similar to *P. sinensis* Kirkaldy, but the genitalia are very different.

Genus **STENOCRANUS** Fieber

Stenocranus FIEBER, Verh. Zool. Bot. Ges. Wien (1866), 16, 519.

Stenocranus agamopsyche Kirkaldy.

Stenocranus agamopsyche KIRKALDY, Ent. Bull. Hawaiian Sug. Plant. Assoc. (1906), No. 2, 409.

Previously recorded from Queensland on grasses and sedges.

LUZON, Laguna, Los Baños (*Muir, Baker*), on sugar cane and grasses.

Stenocranus pacificus Kirk.

Stenocranus pacificus KIRKALDY, Ent. Bull. Hawaiian Sug. Plant. Assoc. (1907), No. 3, 139.

Previously recorded from Fiji on sugar cane and grasses. The anal spines are blunter than in the type.

LUZON, Laguna, Los Baños (*Baker, Muir*), on grasses.

Stenocranus pseudopacificus sp. nov.

Male.—Apex of vertex slightly broader, lateral carinae on pronotum outwardly curved posteriorly, but reaching hind margin; otherwise similar in build and coloration to *S. pacificus*, except in the genitalia.

Pygophor longer than broad, medioventral edge slightly emarginate; lateral edges cut off square at middle, the dorsal half cut back to base of anal segment, at the angle on each side a pair of short, flat spines with wide bases; anal segment large, the ventrolateral corners being produced into large spines, the left one flattish, curved, with rounded apex, the right one flattish, curved, then bent back to ventral surface of anal segment in the form of a wide thin plate; genital styles wide and flattened at base, thinning off to a pointed apex which is curved outward, from the wide base a wide, curved spine arises, reaching about one third from base in front. The genitalia are very distinct.

Female.—Unknown.

Length, 2.2 millimeters; tegmen, 3.4.

LUZON, Benguet, Baguio (*Baker*).

Genus *SARDIA* Melichar

Sardia MELICHAR, Hom. Ceylon (1903), 96.

Hadeodelphax KIRKALDY, Ent. Bull. Hawaiian Sug. Plant. Assoc. (1907), No. 1, 410.

Sardia pluto (Kirkaldy).

Hadeodelphax pluto KIRKALDY, Ent. Bull. Hawaiian Sug. Plant. Assoc. (1907), No. 1, 410.

MINDANAO, Davao and Butuan (*Baker*).

Previously known from Queensland and Fiji. It has been suggested that this species is a synonym of *S. rostrata* Melichar

from India, Ceylon, Java (?), and the Malay Peninsula (?). Only a comparison of the male genitalia will decide this point.

Genus **PHYLLODINUS** Van Duzee

Phyllodinus VAN DUZEE, Bull. Buffalo Soc. Nat. Sci. (1898), 5, 240.

I am not sure of the distinctions between this genus and *Platybrachus*.⁸

Phyllodinus luzonensis sp. nov.

Male.—Fore and middle tibiae broad and thin, femora flattened, but not distinctly widened. Brown; carinae on head and thorax lighter, small light brown spots on base of face, lateral edges of pro- and mesonotum darker, abdomen dark brown, pygophor lighter; front and middle tibiae and tarsi dark brown, hind tibiae with a fine longitudinal mark. Tegmina hyaline, slightly fuscous, veins whitish; small brown granules scattered irregularly over surface, apical portion black or dark brown. Tibial spur broad, lamellate, with numerous small teeth on hind edge.

Pygophor short, broad, medioventral edge produced into two flat, short processes with rounded apices; a little laterad of these the edge produced into small processes with round points; anal segment very short; styles not quite reaching to anal segment, gradually tapering to point at apex, apex curved and recurved.

Length, 3 millimeters; tegmen, 2.

The female I associate with this species has the fore and second tibiae less dilated and lighter in color and the granules on tegmina more regular on the veins.

LUZON, Laguna, Los Baños and Mount Maquiling (*Baker*).

Genus **EUMETOPINA** Breddin

Eumetopina BREDDIN, Deutch. Ent. Zeitschr. (1896), 109.

Eumetopina flavipes Muir.

Eumetopina flavipes MUIR, Proc. Hawaiian Ent. Soc. (1913), 5, 248.

Originally described from western Borneo and from Papua. Philippine specimens differ in having the light edge of pronotum obscure.

⁸ *Platybrachus* is preoccupied (Stål, Hemiptera), but until I am sure of the distinction between the two genera, it is better not to propose a substitute.

LUZON, Tayabas, Mount Banahao (*Muir, Baker*), on sugar cane; Laguna, Los Baños (*Baker*).

Genus **MEGAMELUS** Fieber

Megamelus FIEBER, Verh. Zool. Bot. Ges. Wien (1866), 519.

Megamelus proserpina Kirk.

Megamelus proserpina KIRKALDY, Ent. Bull. Hawaiian Sug. Plant. Assoc. (1907), No. 3, 147.

Previously known from Fiji. Now found to occur in the Philippines on Mount Maquiling.

Genus **PEREGRINUS** Kirkaldy

Peregrinus KIRKALDY, Entomologist (1904), 37, 175.

Peregrinus maidis (Ashmead).

Delphax maidis ASHMEAD, Psyche (1890), 323.

Dicranotropis maidis VAN DUZEE, Bull. Buffalo Nat. Hist. Soc. (1897), 5, 240.

Pundaluoya simplicia DISTANT, Fauna Brit. India, Rhyn. (1906), 3, 468, fig. 255.

LUZON, Laguna, Los Baños (*Baker, Muir, Osborn*).

Throughout the year on maize and grasses. Also known from most parts of the Oriental and Malay Regions; Australia; Fiji; Hawaii; North, Central, and South America; the West Indies; and East Africa.

This is one of the commonest leaf hoppers at Los Baños. The eggs are parasitized by a mymarid (*Paranagrus* sp.); otherwise it might be a very serious pest on maize.

Distant, while considering the Hawaiian form specifically the same as the Indian, questions it being the same as Ashmead's type. I have not had an opportunity to examine the type, but specimens from North America that I have examined are specifically the same as the Hawaiian. Crawford, who had specimens from Hawaii, North and South America, and the West Indies, considered them the same species.

Although I have not seen specimens of *Pundaluoya ernesti* Kirby, the description and figure given in The Fauna of British India deter me from placing it in the same genus as *maidis*. The vertex is considerably broader than long, the basal joint of antenna is very short, the lateral edges of the pronotum are described as being marginally strongly carinate—characters that do not fit *P. maidis*; the tegmen also is distinct. For these reasons I retain the two genera as distinct.

Genus **DICRANOTROPIS** Fieber

Dicranotropis FIEBER, Verh. Zool. Bot. Ges. Wien (1866), 16, 521.

Dicranotropis koebelei (Kirk.).

Phacalastor koebelei KIRKALDY, Ent. Bull. Hawaiian Sug. Plant. Assoc. (1906), No. 1, 408.

LUZON, Laguna, Los Baños (*Baker, Muir*). Previously recorded from Queensland, Fiji, and Java. Perhaps India and Ceylon.⁹

Genus **LIBURNIA** Stål**Liburnia puella** Van Duzee (?).

Liburnia puella VAN DUZEE, Bull. Buffalo Soc. Nat. Sci. (1898), 5.

LUZON, Laguna, Los Baños (*Baker*). Previously known from North America, Queensland, and Fiji.

There is a slight difference in the genitalia from the figure given by Kirkaldy.

Genus **DELPHAX** Fabricius

Under this inclusive name Kirkaldy¹⁰ described a number of species from Australia and Fiji. At a later date I hope to place Kirkaldy's species in their proper genera. The following I find among the Philippine species:

Delphax kolophon Kirkaldy.

LUZON, Laguna, Los Baños and Mount Maquiling (*Baker*).

Delphax eupompe Kirkaldy.

LUZON, Benguet, Baguio (*Baker*). Previously known from Australia and Fiji.

Delphax albicollis Motsch.

LUZON, Laguna, Los Baños (*Baker, Muir*). Previously known from Ceylon and Java.

Delphax anemonias Kirkaldy.

LUZON, Laguna, Mount Maquiling; Benguet, Baguio (*Baker*). Previously known from Queensland.

⁹ *Pundaluoya pulchella* Distant [Ann. & Mag. Nat. Hist. (1912), IX, 8, 190, and Fauna Brit. India, Rhyn. (1916), 6, 135], I believe, is this species.

¹⁰ Ent. Bull. Hawaiian Sug. Plant. Assoc. (1907), No. 3, 149.