

the primaries: body whitish brown, slightly yellowish; palpi excepting the terminal joint dark grey at the sides; under surface pale whitish brown; the wings slightly suffused with grey. Expanse of wings 24 millim.

No exact locality given.

It is unfortunate that the male was not obtained; for, although no genus corresponding with this moth appears to have been described either as a *Noctuid* or a *Deltoid*, the characters of the male would indicate the affinities of the genus with greater certainty than those of the female.

PYRALIDÆ.

9. PYRALIS LISTERI, sp. n.

Allied to *P. gerontesalis* of Ceylon, but decidedly smaller, the outer black-edged white line of the primaries much less irregular and considerably nearer to the outer margin, and those of the secondaries ill-defined and partly obsolete. Expanse of wings 13 millim.

Seven examples, five of which, however, are rubbed clear of scales; without exact locality.

BOARMIIDÆ.

10. BOARMIA COMPACTARIA.

Boarmia compactaria, Walker, Cat. Lep. Het. xxvi. p. 1538 (1862).

Evidently a variable species; three males were obtained, one on a tree-trunk in Flying-Fish Cove on September 30th, the others on the 3rd and 4th October.

The type of *B. compactaria* was received from Penang.

10. On the Insects (exclusive of Coleoptera and Lepidoptera) of Christmas Island. By W. F. KIRBY, Assistant in the Zoological Department, British Museum.

[Received October 15, 1888.]

It is unnecessary for me to preface my paper with remarks on the general affinities of the insects collected by Mr. Lister. Most of the species that he obtained prove to be new, and the greater part even of these exhibit no very great affinity to any already contained in the British Museum. A few species obtained (chiefly small Orthoptera, several of which are immature) are not noticed, as we do not yet possess enough material for descriptions to be useful.

ORTHOPTERA.

FORFICULIDÆ.

LABIDURA NIGRICORNIS, sp. n.

Long. corp. 18-20 millim.

Black; head smooth, not much raised, broad behind, and narrowed

and produced in front; lower mouth-parts sometimes testaceous; antennæ 17-jointed, sometimes inclining to pitchy beneath, but with none of the joints white or yellow; pronotum smooth in front and very finely reticulate behind, nearly quadrate, the hinder edge rounded; a central groove on the front half, on each side of which is a slight elevation; tegmina nearly smooth, broader than the thorax, and $1\frac{1}{2}$ times as long as broad; projecting portion of the wings rather narrow, sparingly punctate, about $\frac{1}{3}$ as long as the tegmina, and very slightly tipped with pale testaceous; femora slightly thickened; tarsi, and sometimes the extreme tips of the tibiæ, ferruginous; abdomen thickly and finely punctured, the hinder margins of the segments appearing as if milled. Under surface more inclining to pitchy. Forceps nearly as long as the abdomen, moderately broad, more or less punctured, and incurved at the extremity; in the male with a tooth at the base, and another, preceded by two or three small denticulations, at two thirds of the length.

Several specimens obtained (October 3, 1887). This appears to be the common Earwig of the island; it has considerable external resemblance to *Chelisoches morio*, Fabr., from which the structure of its legs and its unicolorous antennæ will at once distinguish it.

BLATTIDÆ.

BLATTA LIVIDA, Fabr.

Blatta livida, Fabr. Ent. Syst. ii. p. 10. n. 23 (1793).

A cosmopolitan species. No record attached to the specimen.

PANESTHIA JAVANICA, Serv.

Panesthia javanica, Serv. Ann. Sci. Nat. xxii. p. 38 (1831).

"These insects abound under rotten wood and in large holes in it, which they seem to make. In various stages of development. West End, Christmas Island, October 1, 4, 5, 1887."

PHASMIDÆ.

CLITUMNUS STILPNOIDES, sp. n.

Long. corp. 100 millim.

Male. Uniform brown; head and pronotum somewhat more grey; antennæ about two thirds as long as the mesonotum; pronotum hardly longer than the head; mesonotum one fourth longer than the metanotum; two small horns between the eyes; legs long, slender, unarmed, clothed with very fine oblique bristles; outer anal appendages longer and less incurved than in *C. stilpnus*.

Taken October 6, 1887. Also two immature specimens, apparently belonging to the same species. Closely allied to *C. stilpnus*, Westw.

GRYLLIDÆ.

PHISIS LISTERI, sp. n.

Long. corp. 15 millim.

Male. Pale green; head and pronotum darker, with two conspicuous yellow lines, slightly convergent, running from the back of the

eyes to the base of the pronotum; suture of the tegmina yellowish, and the antennæ, legs, and under surface of body likewise inclining to yellow; four front femora and tibiæ armed with long slender spines; hind femora considerably thickened before the middle; hind femora and tibiæ with very numerous short spines.

Three specimens, two immature. The adult specimen above described shows only three spines on the intermediate femora; but one of the others has four, showing that this is not a constant character.

One of the immature specimens bears a label "Christmas Island, October 3. Colour grass-green." The colour is now much varied with yellow.

Allied to *P. pectinata*, Guér., but considerably smaller than any of our specimens of that species.

PHYLLOPTERIDÆ.

GRYLLACRIS RUFOVARIA.

Long. corp. 32 millim.; ovipositor ♀ 12 millim.; exp. al. 65 millim.; long. antennarum circa 110 millim.

Yellowish brown; the head, especially the face, red; the vertex, the neighbourhood of the eyes and of the antennæ, the space between the latter, the lower mouth-parts, and the palpi more or less varied with yellowish; prothorax and sides of abdomen beneath varied with red; spines of the hind legs tipped with black; tegmina yellowish, with yellowish veins. Wings ample, pale grey; the longitudinal nervures yellowish brown; the cross-nervures blackish, bordered with dusky on each side, except the two or three outer rows, the outermost of all being varied with yellowish.

Moderately stout, smooth and shining; face with a few shallow punctures; head and thorax of equal breadth; antennæ, legs, and anal appendages (except ovipositor) sparingly clothed with fine short woolly hairs; hind femora with from nine to eleven short spines, hardly arranged in pairs, on each side; hind tibiæ with six irregular pairs, without counting the apical ones. In the male the last segment of the abdomen terminates in two short stout conical projections; the upper anal appendages are long, tapering, divergent in the middle, and slightly incurved at the tips; the lower appendages are only half the length of the upper ones, and are simply divergent. In the female the upper appendages are stouter at the base and more incurved at the tips than in the male, but are of nearly equal length.

Belongs to the same group as *Gryllacris tessellata*, Drury, but readily distinguished by the total absence of black markings on the head and thorax, and by the colour of the tegmina and wings. It is probably more closely allied to *G. variabilis*, Brunner (Verh. zool.-bot. Ges. Wien, xxxviii. p. 353, f. 40), than to any other described species.

Appears to be a common species on Christmas Island, as one male and four females were obtained.

Taken on leaves on a tall tree-top, October 9.

LOCUSTIDÆ.

PRIMNIA (?) ORIENTALIS.

Exp. al. 44 millim.; long. corp. 26 millim.

Grass-green; antennæ about twice as long as the head and pronotum, yellowish (faded?), the tips brownish; tips of mandibles and palpi dark green; vertex with four dusky lines approximating in front, the inner ones much nearer together than the space between these and the others; the transverse grooves on the pronotum black, the first shorter than the others, and ending in a dusky spot on each side, behind which is another dusky spot (between the second and third grooves); the second groove is angulated forwards at its extremities, ending in blackish spots; before the first groove runs a transverse reddish line, only distinct on the sides. Abdomen blackish above, green on the sides and beneath; a large dark green spot beneath, towards the extremity of the 8th segment. Elytra green, with many of the longitudinal nervures yellowish; the intermediate spaces inclining to hyaline beyond the middle. Wings smoky hyaline, with brown nervures; costal nervure yellow, and the nervures at the base and along the inner margin grass-green. Spines short, tipped with black, as well as the claws.

I refer this insect to *Primnia*, Stål (the type of which is from St. Helena), with some doubt.

“Flew into light in tent, October 9th.”

CYRTACANTHACRIS FUSILINEA, Walk. (?).

Cyrtacanthacris fusilinea, Walk. Cat. Derm. Salt. iii. p. 564. n. 30 (1870).

I am not quite certain that the specimen from Christmas Island is identical with Walker's species from Ceylon; but it closely approaches it, and as there is only a single specimen from the former locality, and that not in very good preservation, I have been unwilling to describe it as new.

CYRTACANTHACRIS DISPARILIS, sp. n.

Exp. al. ♂ 90 lin., ♀ 115 lin.; long. corp. ♂ 54 lin., ♀ 80 lin.

Male. Head and body yellow, inclining to reddish above; antennæ with the first two joints yellow, the remainder black above, beneath pitchy or yellowish; tegmina longer than the abdomen, yellow; the longitudinal veins darker; towards the tip the membrane becomes nearly hyaline, and many of the nervures are brown. Wings smoky hyaline, the nervures towards the base and costa yellow, the remainder brown; the nervures immediately at the base incline to reddish. Legs yellow, darker above; tarsi inclining to reddish; the joints sometimes marked with green; claws black at the tips; hind femora with three carinæ above, with short and distant serrations; these and the lower lateral carina are irregularly marked with black; the intermediate space above is slightly reddish, more so at two points than in others, which gives the appearance of two interrupted bands. Sutures of the knee-joint black. Hind tibiæ with a green

spot at the base above, otherwise dull-green; the under surface yellow. Spines yellow, tipped with black; hind tarsi yellowish or reddish.

Female. Reddish brown, inclining to black on the upper part of the head and thorax; antennæ black (including the two basal joints), and pitchy towards the extremity; face reddish. The frontal concavity is black on the sides, but is filled up with yellow, which forms the front of a broad yellow stripe which runs to the extremity of the prothorax, of which the borders, and especially the lower hinder angles, are more or less yellow; the borders of this streak above, the facial carinæ, and a stripe under each eye are darker than the surrounding parts. Four front legs dirty green, varied with yellow; the arolia reddish; middle femora with a double row of yellow spots on the outside. Hind femora brown above and reddish beneath, with two blackish transverse bands above; the space between the lateral carinæ with oblique or oval whitish or pale yellow marks, and a continuous yellow stripe on the under surface. Hind tibiæ black above, with a yellow spot at the base, and brownish yellow beneath; spines yellow, tipped with black. Hind tarsi reddish, with a black carina above; tegmina brown, the interspaces more hyaline towards the tips. Wings as in the male.

Allied to *C. melanocerus*, Serv. (*nigricorne*, Burm.), from Java and Malacca.

I should not have ventured to place these insects together but for a memorandum which accompanied them, stating that they were found *in coitú* by Lieut. Richardson near the shore of Christmas Island on October 1, 1887. Another specimen of the male was met with on October 2 at Flying-Fish Cove.

EPACROMIA RUFOSTRIATA, sp. n.

Exp. al. ♂ 43 lin., ♀ 40 lin.; long. corp. ♂ 20 lin., ♀ 22 lin.

Male. Testaceous, speckled with reddish and black; a small black spot beneath each eye; a black stripe (bordered above by a pale line and suffused below) runs behind each eye to the extremity of the pronotum; it is intersected at the third groove of the pronotum by the pale line which runs below instead of above the hinder part of the black stripe, which is conical and more sharply defined than the rest; hind femora on the inside black for half their length, followed by a long black spot; the inside sutures of the knees are also black; hind tibiæ beneath black at the base and for the last three quarters of their length; spines whitish, tipped with black. Tegula testaceous, subhyaline beyond the middle, with reddish nervures; the basal half of the principal nervure black; wings clear hyaline, with pale nervures; several of the longitudinal nervures before the middle of the wing black for at least part of their length.

Female similar to the male, but much redder, and hardly speckled; edges of the frontal concavity blackish, and from this run two slightly diverging blackish lines between the eyes and as far as the occiput. Markings of the head and pronotum nearly as in the male; sides of pronotum varied with yellowish. Hind femora red

(very bright red beneath), and marked as in the male; hind tibiæ black at the base on the inside and beneath; the basal third otherwise yellow, the middle third black, and the apical third red. Spines white, tipped with black; extreme tip of hind tibiæ, including the base of the terminal spines, and hind tarsi, yellow. Tegulæ and wings nearly as in the male; but the tegulæ, and especially most of the longitudinal nervures, darker; many of the cross nervures, a short stripe before the middle above the principal nervure, and most of the nervures on the inner marginal region are red.

In both sexes the costa is moderately arched at one fourth of its length.

Not very closely related to any species previously represented in the British Museum.

Captured October 1.

HYMENOPTERA.

FORMICIDÆ.

CAMPONOTUS MELICHLOROS, sp. n.

Long. corp. 7-8 lin.

Worker. Structure nearly of *C. ligniperda*. Thoracic sutures fairly well defined; node of petiole forming a rounded plate. Smooth and shining, sparingly clothed with erect white hairs; thorax honey-yellow; head and tarsi reddish; flagellum paler; abdomen black, with pale sutures; eyes and extreme tips of mandibles black, the latter sexdentate.

The following label was attached to the bottle:—"Two forms from same nest in rotten wood. Flying-Fish Cove, October 2." The specimens differ little, except that some are rather smaller and paler than others, and with conspicuously smaller head.

PONERIDÆ.

LOBOPELTA DIMINUTA.

Ponera diminuta, Smith, Cat. Hym. B.M. vi. p. 89. n. 23 (1850).

Four workers from a nest; found near the summit of Christmas Island, October 4. Originally described from Sarawak.

EUMENIDÆ.

ODYNERUS POLYPHEMUS, sp. n.

Long. corp. 10 millim.; exp. al. 17 millim.

Black, thickly and closely punctured; head with a yellow spot between the antennæ; the orbits opposite the antennæ very narrowly edged with yellow; a yellow streak on each side of the base of the clypeus, just below the antennæ, and a yellow streak behind each eye, above the middle. Prothorax edged in front with a broad yellow stripe, tapering and interrupted in the middle, and cut squarely off on each side. Tegulæ pitchy, with a very small yellow dot in the middle, a triangular yellow spot above, and another, subrotund, on the mesopleura. Scutellum with a broad longitudinal

yellow stripe on each side; postscutellum yellow; metathorax with a broad curved yellow stripe on each side. Abdomen with the first segment yellow above, except in front, a black line interrupted behind on the median line above; second segment yellow above except at the base, and on a wide conical space which extends to three quarters of its length; on the hinder edge of the segment the yellow colour is continued on the lower surface, but does not form a complete ring, being widely interrupted in the middle; the third segment bordered with yellow behind on the upper surface. Wings dirty hyaline, smoky along the costa and in the radial cell.

Allied to *O. confluentus*, Smith, from Sumatra, but differing much in colour from any described species.

No particulars of capture.

VESPIDÆ.

POLISTES BALDER, sp. n.

Exp. al. 28 millim.; long. corp. 13 millim.

Ochreous yellow, with linear black markings. Head with a black line just above the antennæ, the ends of which run upwards on each side and slightly diverge; below the antennæ the clypeal suture is black, and this curve is sometimes connected with the upper one by a black line on each side within the antennæ; a black line crosses the head just behind the ocelli, over which extends a continuous black spot; the tips of the mandibles are also black, as well as the basal parts of the head and prothorax. Thorax with all the sutures more or less black, sometimes not continuously; the central black line is frequently incomplete behind. Pectus and pleura black, the latter marked with four or five large and small yellow spots. Scutellum, postscutellum, and metathorax yellow; the sutures rather broadly black; groove of the metathorax black. Legs almost entirely yellow or reddish yellow; the trochanters and the extreme tips of the coxæ and bases of the femora black. Abdomen inclining to reddish yellow, but with no distinct markings, except a black spot above at the base of the 1st segment and the suture between the 1st and 2nd segments, which is generally black. Wings smoky hyaline, with brown nervures; costal nervure and costal region yellowish.

Allied to *P. hebræus*, but smaller and differently coloured. The first segment of the abdomen, too, appears to be a little longer and more gradually widened.

Two nests accompanied these Wasps. They are round, and the smaller one is considerably raised in the middle. The upper surface is grey; the outer portion is inky black towards the base, and whitish on the sides above.

One of the Wasps was taken on October 1 at Flying-Fish Cove; a nest, with eggs, larvæ, and cocoons, was found on the underside of a branch at the same place on October 2; and another nest, with Wasps flying round it, on October 5.

HEMIPTERA.

LYGÆIDÆ.

LYGÆUS SUBRUFESCENS, sp. n.

Long. corp. 11–13 millim.

Pitchy brown above ; the head, pronotum, and base of the elytra bordered with dull red ; the ocelli and the space between each eye brighter red ; antennæ and legs pitchy brown above and below ; head and body dull red beneath (in the female the abdomen is shaded with brown on the sides and towards the extremity, and the legs are of a redder brown beneath than above). Proboscis pitchy, extending to the middle of the third segment of the abdomen.

Allied to *L. longiusculus*, Walk., from Celebes.

The female was taken at Flying-Fish Cove on October 2.

HOMOPTERA.

CICADIDÆ.

OXYPLEURA CALYPSO, sp. n.

Male. Black, with testaceous markings. Head black ; front of vertex with a wide testaceous stripe on each side, extending from the inside of the eye to the striated portion of the face. Longitudinal sulcation broad, rather deep, black, surmounted by a trapeziform ochreous spot ; the transverse striations, except the upper ones, are marked with ochreous, ending in a continuous ochreous stripe, not striated, on each side of the extremity of the longitudinal sulcation. Sides of face clothed with thick yellowish-grey hair ; labrum with a longitudinal testaceous stripe, expanded above and below ; proboscis testaceous, black towards the extremity, and reaching as far as the hinder trochanters ; antennæ black. Pronotum testaceous, entirely so behind ; a dumbbell-shaped black mark in front of this, extending to the front edge, and the central sutures blackish ; sides not greatly expanded, with irregular black markings, and clothed with grey hair ; mesonotum black, with two short thick tawny stripes on each side, not reaching the front edge, and a spear-headed tawny mark, filled with black in the middle, directed forwards ; scutellum with the hinder half and lateral ridges testaceous. Abdomen black ; sutures narrowly edged with testaceous, especially on the sides ; segment 7 with two testaceous dots in the middle and a larger spot on each side. Sternum mostly black, clothed with greyish hair ; legs testaceous ; coxæ, four front femora, and tarsi streaked with black above ; opercula testaceous, extending nearly to the end of the first segment of the abdomen. Abdomen beneath testaceous ; basal segment entirely black, the following segments triangularly blackish on each side at the base, the last two lateral lobes spotted with black. Tegulæ and wings hyaline, with brown nervures ; costal nervures and inner marginal nervures testaceous.

Allied to *O. bufo* and *O. polita*, Walk., but differently marked.

An extremely hairy pupa, marked "Dug up, earth, October 8,"

accompanied the specimen, besides an empty pupa-skin, both probably belonging to the same species.

FULGORIDÆ.

RICANIA FLAVICOSTALIS, sp. n.

Exp. al. 20 millim.; long. corp. 7 millim.

Male. Head yellow, with four keels; vertex depressed, brown, except at the sides and on the median line; front quadricarinate, the angles of the outer carinæ very prominent, the middle ones hardly projecting on the frontal edge; all the carinæ black, and with a short dark line on the clypeus between them, the middle ones rather wide apart, and meeting in a point at the extremity of the clypeus. Thorax and abdomen blackish brown above, the thorax tricarinate, varied with ferruginous on the sides and along the outer edges of the two outer carinæ; abdomen with the second segment greenish, and the base of the three following segments ferruginous. Under surface of the body and legs yellowish; the four front tibiæ brownish above; abdominal segments edged behind with a green line; the last two segments reddish brown. Wings hyaline; fore wings with the costal space yellow as far as the black stigma, beyond which is a hyaline space; hind margin broadly purplish brown, intersected by a curved line nearly parallel to the hind margin; within the middle of this runs a narrow vitreous stripe covering the outer half of seven cells; one or two very irregular series of transverse cells beyond the middle of the wing, not even uniform on both sides; inner marginal region tinged with yellow, but less strongly than the costa; costal cross-nervures not forked, but most of the apical nervures beyond the stigma and on the hind margin are forked. Hind wings hyaline, brown along the hind margin, the first six or seven marginal nervures from the tip furcate or bifurcate.

The neururation of this and the two following species somewhat resembles that of *R. panorpæformis*, Spin. No dates of capture are attached to any of the specimens.

RICANIA AFFINIS, sp. n.

Exp. al. 22 lin.; long. corp. 9 lin.

Male. Very similar to the last species, but darker above, the brown bands on the clypeus beyond the inner carinæ darker; under surface of body yellow, with irregular black markings beneath the wings, and a large spot on the pectus between the first two pairs of legs; abdomen not banded with green above, but with a row of yellow spots on the sides. Wings hyaline, not tinged with yellow on the costa or inner margin, but with a yellow spot on the costa (likewise edged with black within) before the black stigma; below the stigma are some small brown blotches along the line of the inner row of transverse cells; there are also two small brown spots nearer the base on the lower half of the wing; hind margin brown for about one sixth of the width of the wing, and marked with two irregular hyaline spaces, each covering several cells; close to the hind margin runs an interrupted row of small hyaline dots. Hind wings hyaline,

edged with brown, except towards the anal angle. Neuration nearly as in the last species, but the outer row of transverse cells less numerous.

RICANIA HYALINA, sp. n.

Exp. al. 15 millim.; long. corp. 5 millim.

Male. Head yellowish; the carinæ black, the clypeus marked with brown lines between them; the middle carinæ not projecting on the vertex, which is deeply and triangularly depressed in the middle; thorax reddish above, the middle carinæ yellow; abdomen brown above, the sides marked with yellow, and the segments bordered with green behind. Under surface of the body yellow, the femora, the extremities of the first five segments of the abdomen, and a large spot at each side at its extremity green; the base of the first five abdominal segments rich cream-colour.

Allied to *R. pellucida*, Spin., and *R. panorpæformis*, Germ.

DIPTERA.

ASILIDÆ.

LAPHRIA NIGROCÆRULEA, sp. n.

Exp. al. 28 lin.; long. corp. 14 lin.

Head black; the hairs on each side in front within the eyes silvery white; beard and proboscis black; hairs at the back of the eyes slightly greyish. Thorax above inky black, hardly shining; the front, sides, and sutures clothed with white hair, inclining to silvery. Legs inky black, more shining than the thorax, clothed with white hair; pulvilli brown. Abdomen deep purple, shading into green at the extreme ends of the segments, and with three spots formed of white hairs on each side of the first three incisions. The first segment of the abdomen is slightly expanded; the remainder are of nearly equal width to the extremity, the last segment being slightly narrowed and subtruncated. Wings hyaline brown, with a very slight purplish iridescence, and, towards the base, more transparent; halteres of a conspicuous orange-brown.

Allied to *L. aurifacies*, Walk., from Borneo, and to several other species from the Malay Archipelago.

MUSCIDÆ.

STILBOMYIA JUCUNDA, sp. n.

Long. corp. $7\frac{1}{2}$ –10 lin.

Head black; middle of face, antennæ, &c. hoary or lead-colour; sides white; mouth-parts reddish; hinder orbits narrowly white. Thorax and abdomen green, strongly punctured; front of prothorax edged with hoary; abdominal segments narrowly edged behind with blue-black; thorax beneath, in the middle and hinder portion, as well as the legs, black; sides of front part of thorax green; wings hyaline (?) (discoloured in all the specimens); halteres white; spines on the body and legs black.

Several specimens, without date of capture.

Allied to *S. decrescens*, Walk., from Morty Island.



Kirby, W. F. 1888. "On the insects (exclusions of Coleoptera and Lepidoptera) of Christmas Island." *Proceedings of the Zoological Society of London* 1888, 546–555.

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