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XX.—*Descriptions of new Species of Lepidoptera, chiefly from Duke-of-York Island and New Britain.* By ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

[Continued from p. 160.]

HOMOPSYCHE, gen. nov.

Aspect of the Homopterous genus *Flata*, but most nearly allied to *Barsinella*. Wings when closed taking much the same position as in *Cacoecia*: primaries broad, with arched costal margin, woolly, semitransparent, with strongly defined widely separated veins; discoidal cell long and narrow; costal vein short, not extending to the middle of the margin; subcostal with four branches, the first given off some distance before the end of the cell, the others beyond it; one radial emitted from the discocellulars (which are very oblique), so that it seems to be a fourth median branch; the three median branches emitted widely apart: secondaries elongate, almost triangular, but with the angles rounded off, coarsely scaled, semitransparent, strongly veined; the cell rather long, but not particularly narrow, the subcostal forking beyond it; discocellulars angulated; no radial vein. Body woolly, but the thorax, which is broad and short, almost naked above, so as to show its sutures*; anal tuft divided, very full, with the male harpagones very long, though slender; antennæ with an extremely long woolly basal joint, the remainder being slender, naked, and with an inner series of fine very short setæ; palpi very small and slender; proboscis rather large; legs thick, but rather long, the tibiæ with short, rather slender, terminal spurs.

43. *Homopsyche nudarioides*, sp. n.

White; the basal half of primaries with three equidistant pale-brown spots on both the costal and internal borders; a small darker-brown spot at the end of the cell; veins tipped with brown. Expanse of wings 20 millim.

New Britain.

44. *Pallene? metalligera*, sp. n.

Primaries above ochreous; the base and a large oblique spot before the middle of the internal border purplish opaline; an ill-defined arched discal opaline silvery line expanding below the radial vein into a broad silver patch, which fills the ex-

* This adds greatly to its likeness to a Homopteron.

ternal angle : secondaries cream-coloured : thorax ochreous ; abdomen and under surface cream-coloured. Expanse of wings 10 millim.

New Britain.

45. *Artaxa fulva*, sp. n.

♂. Bright deep cadmium-yellow ; primaries darker than secondaries, and crossed at about the basal third by a slightly arched whitish stripe ; fringes of all the wings pale creamy yellow ; abdomen pale along the dorsal region. Wings below ochreous, paler than above, with creamy borders ; body ochreous. Expanse of wings 23 millim.

Duke-of-York Island.

Allied to *A. lutea*.

46. *Aroa immaculata*, sp. n.

♂. Cream-coloured, with the exception of the upper surface of the primaries, which is ochreous, and the pectinations of the antennæ, which are testaceous. Expanse of wings 21 millim.

Duke-of-York Island.

The large deeply-pectinated antennæ at once distinguish this from all species of *Artaxa*.

47. *Syntherata Godeffroyii*, sp. n.

♂. Ochreous ; primaries above with the costal border and subapical area irrorated with brownish scales, giving them a sordid appearance ; basicostal border lilacine greyish ; lilacine greyish stripes as follows * :—a deeply dentate zigzag stripe from below the first median branch to the internal margin, a short irregularly dentate-sinuate stripe from costa across the external third of the cell, and two parallel undulated stripes enclosing a band of colour slightly paler than the ground-tint across the disk ; a small ocellus with blackish-edged hyaline white centre, and a white iris encircled by a lilacine-greyish line, at the end of the cell ; costal area at apex broadly lilacine greyish, crossed by a blackish spot ; a submarginal series of squamose blackish dashes : secondaries with a small triangular blackish spot with pale flesh-coloured border at the end of the cell, and immediately followed by an arched series of about nine large unequal diamond-shaped spots, outlined in lilacine greyish ; a dentate-sinuate flesh-coloured stripe, spotted with blackish between the veins, running

* This coloration is produced by a combination of reddish-chocolate and white scales.

parallel to the outer margin across the disk; a submarginal series of pale grey dashes: antennæ ferruginous; collar lilacine grey, a little more chocolate-tinted than the markings on the wings, and with whitish posterior margin. Wings below blotched and banded with chocolate-colour, the most prominent markings being two central bands, a large apical blotch on the primaries, a subapical blotch and a discal series of spots on the secondaries, a submarginal series of dashes, and the small ocelli; the basicostal areas are washed with clouded flesh-colour: venter with a series of brown dots on each side. Expanse of wings 147 millim.

New Britain.

Allied to *S. disjuncta* (*Antheræa disjuncta*, Walk.); the genus is really much closer to *Copaxa* than to *Antheræa*. *A. læpoides* from Borneo is also a *Syntherata*.

48. *Eumeta maxima*, sp. n.

♂. Primaries pale red-brown, with the subcostal area, including the discoidal cell and a broad longitudinal intermedian band, beginning at the base and tapering to a point upon the first median branch before reaching the outer margin, semihyaline whitish grey, with black margins; veins black: secondaries smoky brown, with reddish outer margin and hyaline greyish costal area: body pale sericeous cupreous brown, almost golden; abdomen with dorsal tufts of smoky-brown, tipped with white towards the base, the anal half clothed with woolly fuliginous hair; genitalia shining mahogany-brown; antennæ black. Wings below smoky greyish brown, with pale costal borders and a marginal series of pale reddish spots: primaries with pale sericeous brown internal border: body pale brown, the legs fringed with blackish hair. Expanse of wings 53 millim.

Duke-of-York Island.

Nearest to *E. Layardii* of Moore, and the largest species of the Psychidæ that I have seen.

49. *Zenzera bubo*, sp. n.

♀. Allied to *Z. strix*; pinky white, clouded with pale purplish brown, reticulated and spotted with black; the primaries with the base, a broad costal patch at about the basal third, a series of costal spots beyond the latter, a large patch immediately beyond the cell, and a discal series of large spots broken into three parts, each division placed further from the outer margin than the preceding one, so as to form an interrupted zigzag series, black: secondaries with the costal area

broadly sericeous brassy brown, grey in certain lights; abdominal area broadly purplish brown, a discal series of black spots tapering towards the apex; all the wings with large black marginal spots; sides of thorax blotched with black: abdomen with two longitudinal series of black blotches. Under surface altogether browner than the upper; the markings less defined, excepting upon the costal border of primaries, which is white; with the black markings of the upper surface: body fuliginous brown; tarsi indistinctly barred with white. Expanse of wings 158 millim.

New Britain.

50. *Phanaca? cossoides*, sp. n.

Aspect of a *Cryptophasa* (see *C. albicosta*), but differing entirely in structure, which is that of a Notodont: primaries silvery white, the basal two fifths more or less clouded with red-brown, the outer margin of the red-brown area inarched; an indistinct curved stripe of the same colour crossing the wing immediately beyond the cell; costal margin and external border also red-brown: secondaries smoky grey, with white-tipped fringe; head and collar smoky grey; thorax whitish; abdomen bronze-brown. Wings below brownish, with bronze reflections; body sericeous white. Expanse of wings 29-31 millim.

Duke-of-York Island and New Britain.

As the type of *Phanaca* is too much broken for me to decide its sex, and as it possesses simple antennæ, whereas both specimens of *P.? cossoides* are males with tapering pectinated antennæ, the generic identification of this species must for the present remain doubtful. In neuration it agrees fairly well with *Phanaca*, though, in this respect, one of the specimens exhibits a singular aberration, the upper radial of the left primary being forked.

51. *Acontia inconcisa*, sp. n.

Allied to *A. signifera*. Above sordid silvery white: primaries crossed from the middle to the apex by a forked Y-shaped bronze-brown band, the lower half ill-defined; a brown spot at base of costal border; external border irregularly speckled with brown; a marginal series of brown dots; fringe cream-coloured, flecked with brown and black and tipped with white: secondaries with greyish external border; fringe cream-coloured, tipped with white and traversed by a grey line. Primaries below shining grey, costal border cream-coloured, grey-speckled, spotted with black above the end of

the cell and at the apex; fringe cream-coloured, flecked with blackish: secondaries with the costal half cream-coloured, grey-speckled; a blackish discocellular spot and abbreviated discal line; a marginal series of linear black dots: body creamy white. Expanse of wings 18 millim.

Duke-of-York Island.

52. *Callopietria insularis*, sp. n.

Primaries above cream-coloured, silvery in certain lights, irregularly spotted and striped with sandy yellow; the blackish markings squamose, ill-defined, similar to those of *C. exotica*, excepting that the spot at the end of the cell and the marginal spot on the second median interspace are pupilled with silvery white; the other marginal spots are also depressed, olivaceous, and extend to apex; the two slender black lines converge in the same manner upon the interno-median area: secondaries shining greyish brown; fringe sandy buff, traversed by an imperfect grey line: head white; collar testaceous, thorax opaline white, abdomen opaline greyish. Wings below almost exactly as in *C. exotica*: body creamy whitish; femora, especially of the hind pair of legs, fringed with dark greenish-grey hair; a bifid blackish tuft on the posterior tibiæ. Expanse of wings 28 millim.

Duke-of-York Island.

Nearest to *C. chloriza* of Java.

53. *Anophia sericea*, sp. n.

Nearly allied to *A. olivescens*, but differing from it in the greater prominence of the black markings and the absence of any white markings on the upper surface, in which respects it more nearly approaches *A. Ramburii* of Europe. From the latter it may be at once distinguished by its glossy primaries, the absence of white marginal markings on the under surface of these wings, and the brown costal border of the secondaries on the under surface. Expanse of wings 36 millim.

Duke-of-York Island.

54. *Purbia muscigera*, sp. n.

Closely allied to *P. discrepans* (*Ophideres discrepans*, Walk.), but differing in the pinker tint of the primaries, on which the green spots are more vivid, the much more strongly angulated dusky stripes across these wings, the total absence of the two white spots on the median interspaces and of the blackish nebula beyond them, the absence of the whitish

costal border of secondaries, and the smaller black lunate spot on the disk of these wings. Expanse of wings 89 millim.

New Britain.

As Mr. Moore has figured *P. discrepans* in his revision of the Ophideridæ, there will be no difficulty in identifying the species described above.

55. *Ctypansa bocanidia*, sp. n.

Lilacine grey; the wings traversed by two more or less diffused chocolate-brown stripes, the first at about the basal third oblique and regular, the second irregularly angulated, bounded externally by a series of white points, and crossing the centre of the disk; fringes, especially of the male, bluish grey and spotted with chocolate; primaries with a black spot at the end of the cell. Under surface dark smoky grey, the wings crossed by three equidistant dusky stripes, the outermost of which is bounded externally by a series of creamy-white spots. Expanse of wings 41 millim.

Duke-of-York Island.

The female is a little darker and more purplish than the male, and the stripes on the upper surface of its wings are darker and more diffused.

56. *Heleona tyrianthina*, sp. n.

♂. Allied to *H. mars* of Boisduval (?=*fenestrata*, Swains.), shining blue-black; primaries with a trifid bluish-white hyaline band before the middle, a small spot at the end of the cell; three spots in a subapical series and an oblong spot near the external angle upon the first median interspace: secondaries with a broad belt of semitransparent creamy white before the middle; basal half of costal area lilacine grey; an irregular discal series of bright orange spots: palpi, borders of collar, and posterior margins of abdominal segments bright orange; abdomen more purplish, and the thorax more greenish than the wings; anterior half of pectus and posterior half of venter bright cadmium-yellow: legs below greyish, above dark purplish; posterior tibiæ with large sandy-brown tufts; base of abdomen pale purplish brown, with a whitish posterior border. Expanse of wings 92 millim.

Duke-of-York Island.

A pair of this beautiful species, from New Ireland, was presented to the collection by Messrs. Salvin and Godman. They both have paler bodies (ash-grey with yellow bands) than the example before me; but as they are somewhat worn, this may be due to fading. The female also has the entire

basal half of the secondaries hyaline white streaked with yellow, thus more nearly approaching *H. flavata* of Walker, from Timor.

57. *Boarmia repetita*, sp. n.

♂. Pale brown, black-speckled; wings with a lunule outlined in black at the end of the cells, almost filled in with black on the primaries, followed by two irregularly dentate-sinuate black lines upon the disk, the outer one almost submarginal and with a white external border; primaries with two closely approximated irregular black lines across the basal fourth; basal two thirds of antennæ broadly ramose-ciliate. Under surface greyish; the wings with blackish spots at the end of the cells; external area rather broadly dusky, with a white marginal spot on the second median interspace on all the wings; primaries with the apex white; secondaries with a white spot near the anal angle. Expanse of wings 41 millim.

Duke-of-York Island.

58. *Hypochroma sublimbata*, sp. n.

Above snow-white, densely irrorated with greyish olivaceous and brick-red scales: wings crossed by the two usual slender blackish dentate-sinuate lines, followed by a broad greyish belt traversed by a zigzag or crinkled white stripe, ill-defined, and followed by conical marginal white spots on the secondaries; a slender interrupted black marginal line; fringe touched with pale buff at the base: primaries with a slender transverse black discocellular line; costal border slightly brownish. Under surface snow-white: wings with creamy costal borders; a broad external black belt; fringe, several conical marginal spots, and the apex of the primaries snow-white; the latter wings with a well-defined black discocellular litura: antennæ with reddish-testaceous pectinations; proboscis ochreous; legs slightly yellowish, the anterior pair streaked with black. Expanse of wings 44 millim.

Duke-of-York Island.

Nearly allied to *H. crenaria*.

59. *Comibæna nivisparsa*, sp. n.

♀. Emerald-green; wings semitransparent, with a series of silvery-white lunules parallel to the outer margin, followed by a submarginal series of white dots and a marginal series of white spots; primaries with a dark green dot at the end of the cell, preceded by a silvery white spot, another spot

before the middle of the inner margin ; costal border, excepting at base and a spot at the base of all the wings, silvery white : face sap-green, vertex of head silvery white ; antennæ white above, yellowish below ; abdomen with a dorsal series of white spots. Wings below sericeous greenish white, with creamy costal borders : body white ; the legs and venter creamy. Expanse of wings 32 millim.

Duke-of-York Island.

Allied to *C. insperata*.

60. *Lycauges? angulata*, sp. n.

Sordid white ; wings crossed in the middle by a brown stripe, which limits the slightly greyish basal area and encloses the discocellular spot of the primaries, whilst just avoiding that of the secondaries ; these spots are black, conspicuous, and with pale borders ; external half crossed by two undulated lines and two stripes placed alternately, the outer stripe forming the external border, but separated from the margin by a slender sordid white line ; the inner stripe of the primaries marked with an oblique blackish dash upon the upper radial interspace ; a marginal series of black dots. Under surface bone-white, the markings somewhat confused, brown ; the discocellular spots even more conspicuous than above. Expanse of wings 14 millim.

New Britain.

Notwithstanding its great resemblance to the other species of *Lycauges*, I hesitate to pronounce *L. angulata* finally a member of that genus, on account of the decided angle at the extremity of the third median branch of its primaries.

61. *Hypena comes*, sp. n.

Primaries above lilacine grey, transversely striated and speckled with darker grey, and crossed beyond the middle by an oblique slender ferruginous line ; a black dot at the end of the cell ; the commencement of a second ferruginous line at the basal fourth of the internal area : secondaries ash-grey, with a slender brown marginal line and white fringe : body lilacine grey ; eyes blackish. Primaries below brownish grey ; secondaries and body whitish. Expanse of wings 24 millim.

New Britain.

Near to *H. ferriscriptalis*.

62. *Pharambara aurata*, sp. n.

Golden ochraceous, mottled with sienna-red, and reticulated with lilac-grey ; four lines of dark grey dividing the wings

into five nearly equal parts, the first two straight, the third and fourth angulated, and when seen through a lens apparently confused with the reticulations before mentioned; under surface with all the markings much less distinct than above. Expanse of wings 28 millim.

New Britain.

63. *Microsca cuprea*, sp. n.

Pale shining copper-brown; wings crossed by four or five irregular dull orange bands, with blackish margins, two near the centre of the primaries only edged externally with blackish; fringe golden at base, with a cupreous-brown central line and silvery white external edge; the wings in certain lights have a slightly lilacine gloss: secondaries with cream-coloured costal border. Wings below rather paler than above, but with similar markings: body sericeous, the pectus and legs cream-coloured. Expanse of wings 23 millim.

New Britain.

64. *Pyrausta viola*, sp. n.

Black with violet reflections; basal half of wings sordid white, blotched and spotted with violet-black; external half crossed in all the wings, from costa to outer margin, by a narrow sordid white stripe. Wings below paler, the discoidal and other blotches on the basal area much paler, the reniform spot enclosing a white >-shaped marking: body below white. Expanse of wings 17 millim.

Duke-of-York Island.

Most nearly allied to *P. absistalis*.

65. *Desmia perfecta*, sp. n.

Velvety black: primaries with a round spot at the inferior angle of the cell pearly hyaline white; three minute spots (the upper two sometimes confluent) placed transversely near the apex, and a fourth on the second median interspace, white: secondaries crossed near the base by a broad pearly hyaline white band; costal border brown: abdomen somewhat greyish sericeous. Primaries below as above; secondaries with a white marginal spot on the radial interspaces; pectus white, tibiae and tarsi black; venter dark grey, sericeous with white transverse spots towards the base. Expanse of wings 27 millim.

New Britain and Duke-of-York Island.

66. *Asopia angusta*, sp. n.

♂. Wings golden stramineous, with white-tipped black

fringe; primaries with two minute dashes at the base of the costa, a small spot near the base, and a costal spot at apical fourth, violet-grey; a small spot in the cell and an oblique dash on the discocellulars blackish violet. Body silvery, the collar testaceous; legs yellowish above. Expanse of wings 20 millim.

Duke-of-York Island.

67. *Hydrocampa stenoides*, sp. n.

Pearly white, with blackish-edged, pale sandy yellowish markings; primaries above with almost the same pattern as *Stenia bruguieralis*, but much more defined, owing to the white background: secondaries with a slender oblique sub-basal interno-median blackish line; a quadrate spot at the end of the cell, from which a slender blackish line runs to the abdominal margin; a slender blackish discal line from the first subcostal to the second median branch; an oblong dark brown anal spot; an irregular pale sandy yellowish submarginal streak, blackish at the extremities, and a blackish marginal line; fringe traversed by a slender blackish line; head and basal segment of abdomen crossed by a brown line, and the anal segments by black lines: markings below indistinct. Expanse of wings 16 millim.

Duke-of-York Island.

68. *Stegothyris picata*, sp. n.

Wings above semihyaline creamy white; a discal band and the external border bronze-brown; primaries with the veins of the discoidal cell, an irregular streak on the discocellulars and the costal border bronze-brown: body banded throughout with pale bronze-brown. Wings below with the markings paler than above, the body wholly white; proboscis ochreous. Expanse of wings 18 millim.

New Britain.

69. *Glyphodes lachesis*, sp. n.

Allied to *G. Doleschalii* of Lederer (Tafel xiv. fig. 1), but differing in the absence of discoidal spots on the primaries, in the presence of an arched opaline-white internal spot, in the circular form of the discal spot (which in *G. Doleschalii* forms a subapical abbreviated band), and in the presence of a broad pearly white central belt in place of the central patch on the secondaries. Expanse of wings 40 millim.

Duke-of-York Island.

70. *Morocosma polybapta*, sp. n.

Allied to *M. margaritaria* of Cramer (Lederer, Tafel xiv. fig. 7), but with the hyaline tapering bands of the primaries reduced to much smaller triangular costal patches; the secondaries also with a submarginal triangular silver spot beyond the amethyst-centred orange discal band of the secondaries: the longitudinal thoracic stripes pale metallic bronze-brown. Expanse of wings 34 millim.

Duke-of-York Island.

71. *Margaronia plumifera*, sp. n.

Wings rather narrow and elongated; snow-white, opaline and semihyaline; the veins testaceous: primaries with testaceous costal border; costal vein, a small spot at the end of the cell, and a marginal series black: secondaries with two marginal black spots at apex: body silky pearly white; head metallic golden with the vertex white; antennæ white above, testaceous below; palpi with the upper half glistening metallic silver, the lower half white; proboscis silvery white at the base, otherwise testaceous; tibiæ and tarsi of anterior legs dusky above: at the base of the primaries is a small pouch containing a very long plumose pencil of testaceous hairs, which, when fully exerted, curl upwards and forwards in front of the costal margin to the middle of the wing. Expanse of wings 38 millim.

New Britain.

Nearest to *M. conchylalis*, but almost sufficiently peculiar to form the type of a distinct genus.

The collection contains a *Hoterodes* from Duke-of-York Island which seems to be the same as *H. ausonialis* of Tropical America.

72. *Hoterodes regalis*, sp. n.

Dark grey, the primaries shot with emerald-green to the middle and with purple from the middle to the outer margin, an opaline-white ovoid spot a little beyond the end of the cell; secondaries greenish at base, otherwise shot with purple; fringes of all the wings greenish bronze-colour: body shining bronzy grey. Under surface pale bronzy greenish grey; wings shot with purple towards the centre; white spot of primaries less oval than above; lower half of palpi, collar, tibiæ, and tarsi pearly white. Expanse of wings 36 millim.

♂ ♀, New Britain.

73. *Botys amplipennis*, sp. n.

Greyish brown, with bronze reflections, and in certain lights with a slight tint of lilac: primaries with an indistinct oblique arched dusky line across the basal fourth, a slender discocellular dusky litura, a widely arched discal line, retracted and zigzag below the first median branch, and an arched greyish submarginal streak divided by paler nervures: secondaries with a small black spot at the end of the cell, immediately followed by a white spot; an irregularly angulated and crenulated dusky discal line; a marginal series of blackish spots; fringes of all the wings smoky brown, with whity brown basal line and spots: body paler than the wings and somewhat pearly. Wings below whitish, with small black discocellular spots; a discal series of blackish dots on the veins, immediately followed by an indistinct dusky crenulated line: pectus snow-white; anterior femora brownish above; anterior tibiæ with black distal half; venter whitish. Expanse of wings 39 millim.

♂ ♀, New Britain.

74. *Botys perfenestrata*, sp. n.

Dull rose-colour; the wings spotted with gamboge-yellow spots, many of which have hyaline whitish centres, and arranged much as in *Pygospira tyres*, though less numerous; they consist in all the wings of two large discoidal spots, a very irregular discal series duplicated in the middle, and a marginal series; body spotted with gamboge-yellow. Wings below greyish, with pink reflections; all the spots white, with a slight bluish reflection: body sericeous bone-white, the legs streaked with dull pink or flesh-colour. Expanse of wings 32 millim.

New Britain.

A variety occurs in which all the wing-spots are much smaller than in the type.

Ægeriidae.

PHLOGOTHAUMA, gen. nov.

Allied to *Paranthrene*, with which it agrees in the structure of its body and secondaries: the primaries, however, are slightly broader and quite different in neuration; the subcostal emits its first branch before the end of the cell, the second at the end, and its two others from a long footstalk; the discocellulars are very long and strongly angulated, the radials being emitted on each side of the angle; the first and

second median branches also lie close together for almost their entire length, the third being further apart from them.

75. *Phlogothauma scintillans*, sp. n.

Primaries above golden cupreous, with fiery-pink reflections; a tapering hyaline marginal band from the inner margin to above the upper radial vein, slightly tinted with yellow; costal and external borders, inner margin, subcostal and median veins, and the outer two thirds of the radials purplish black: secondaries with the basal half from costa to submedian vein golden cupreous, with fiery reflections; abdominal and external areas hyaline, slightly yellowish, and traversed by black veins; fringe purplish black, with a few cupreous scales along the internal edge (as also in the primaries): body blue black; front of head and collar pearly white; palpi, coxæ, and under surface of femora brassy yellow; the broad tibial fringe of anterior legs purplish black, golden cupreous at the base. Expanse of wings 34 millim.

New Britain.

Hyponomeutidæ.

76. *Corinea aurata*, sp. n.

Primaries shining metallic golden: secondaries with the interno-basal half reddish golden (or golden ochreous), the apical half dark grey, shot with emerald-green: body golden. Primaries below and apical half of secondaries smoky grey, with slight purplish (or plum-coloured) reflections; the base of primaries and interno-basal half of secondaries golden ochreous; pectus dark brown, with large lateral silvery-white patches: the legs bronze-brown, with one or two white bars, the tarsi pale; venter golden ochreous, banded with white. Expanse of wings 25 millim.

Duke-of-York Island.

XXI.—*On the Structure and Functions of the Elytra of the Aphroditacean Annelids.* By WILLIAM A. HASWELL, M.A., B.Sc.

THE possession of elytra, or scales, is one of the most characteristic peculiarities in the structure of the Aphroditacea. These elytra are thin squames of varying shape, but always more or less rounded, sometimes delicate and membranaceous, at other times stiff and horny, which cover the back of the