

NEW GEOMETRIDAE FROM CENTRAL CERAM.

COLLECTED BY C., F., AND J. PRATT.

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OENOCHROMINAE.

1. *Ozola ramifascia* sp. nov.

♂ ♀. 42—46 mm.

Head, collar, patagia, tegulae and part of pectus orange, the face with a transverse dark band below middle, the palpus dark-mixed on outer side. Thorax, abdomen and legs dark-drab to blackish, the venter paler, with some ochreous, somewhat mixed with orange.

Fore wing narrow, but not falcate, termen smooth, blackish; the costal edge as far as the band dotted, or minutely strigulated, with white; an oblique white band from costa somewhat beyond middle to hind margin close to tornus, its anterior end 2—3 mm. wide, its posterior 3—5 mm. (usually broad), its proximal edge straightish, its distal usually with minute irregular teeth and a rather stronger one at (behind) R^2 ; a small tapering branch from its proximal edge at M^2 to SM^2 ; a small, usually less pure white patch on hindmargin just proximal to (generally confluent with) this branch; a terminal line of the ground-colour; fringe almost concolorous. Hind wing with the band narrower at costa, broadening rapidly, branching at or before M^2 , but with its proximal branch the broader, reaching the abdominal margin a little beyond the middle, its distal branch variable, rarely reaching hindmargin, occasionally rudimentary.

Underside the same.

Central Ceram: Manusela, 6,000 feet, October to December, 1919, sixty-eight ♂♂, forty-nine ♀♀, including the holotype ♂ and allotype ♀; 3,000 feet, January to February, 1920, one ♂, two ♀♀; 4,000 feet, one ♂.

Probably nearest to *albimacula* Warr., from Obi, but very distinct, curiously recalling the totally unrelated *Hyposidra albifurcata* Warr. (Nov. Zool. iv, 119), from the Philippines.

2. *Pingasa porphyrochrostes* sp. nov.

♂. 48—50 mm.; 53—56 mm.

Face ochreous-brown, above very slightly darker and more reddish than below, but without any indication of the blackish transverse band of *lariaria*. Palpus nearly as in *lariaria*, in the ♀ with the third joint rather larger. Head and body whitish, the collar and forecoxa tinged with brown, the abdominal crests mixed with brown on their sides. Legs largely brownish or infuscated.

Fore wing shaped as in *lariaria* or with termen very slightly less oblique; coloration nearly as in *lariaria*, but with the irroration less coarse, particularly in the proximal and median areas, where they appear more whitish; antemedian line nearly as in *lariaria*; cellmark rather smaller and less angular, in the ♀ usually quite weak; postmedian with corresponding distinctions.

Fore wing beneath in the ♂ very strongly, in the ♀ very faintly suffused with orange (posteriorly more pinkish), from base to cellmark, which is here stronger than above; a very broad distal border, shaped as in *lariaria* or slightly more sinuous-edged proximally, but very strongly suffused with purple in the ♂, and with slight purple reflections in the ♀. Hind wing in the ♂ with well-developed black cellspot, in the ♀ with slight or moderate indications of the same, occasionally fairly strong where the discocellulars meet the cellfold; ♂ with proximal orange shade as in *lariaria*, ♀ with only very feeble suffusions to distinguish it from that of *chlora*; distal border in ♂ as purple as that of fore wing, in ♀ sometimes almost without purple reflections.

Manusela, 6,000 feet, October to December, 1919, 3 ♂♂, 7 ♀♀.

The ♀ might easily be passed over for slightly aberrant *chlora* except for the lack of black frontal band, but the ♂ underside is totally different. I suspect it may be a race of *manilensis* Prout (Nov. Zool. xxiii, 193) provisionally described (overlooking the coloration of the face) as a race of *lariaria*. The large size, less irrorate upperside and distinctively coloured underside, however, prevent my definitely associating *porphyrochrostes* with *manilensis* at present. The colouring of the upperside readily distinguishes the ♀ from another similar species, *subpurpurea* Warr.

3. *Tanaorhinus unipuncta* Warr. *zoomesta* subsp. nov.

♂ not essentially different from those (rather rare) aberrations of *unipuncta unipuncta* in which the median area is narrowed, the post-median line not very strongly outbent distally to cell, in the submedian area approaching (not infrequently meeting) the antemedian. Beneath quite similarly coloured to *unipuncta unipuncta* ♂.

♀ on an average smaller than that of *unipuncta unipuncta*. Deep green, the fore wing scarcely darker than that of the ♂ (excepting the brown-speckled part of the median area), thus strikingly different from the purple-mixed ♀ of the name-type, the dark cellmark nearly as conspicuous as in the ♂.

Central Ceram : Manusela, 6,000 feet, October to December, 1919, thirteen ♂♂, twenty-three ♀♀, including the type ♂ and allotype ♀; also one ♂ taken at 4,600 feet, in January, 1920, and one ♀ 3,000 feet in February, 1920.

The comparative lack of sexual dimorphism makes this race suggest, at first glance, the Indo-Malayan representative *rafflesii* Moore rather than *unipuncta*; but the sinuous and strongly dentate line of the hind wing, accompanied proximally by a well-marked blackish spot, the brightly coloured underside (on the fore wing not, as in *rafflesii*, largely light green) and other characters show unmistakably its real relationship.

4. *Anisozyga subvenusta* Warr. *diargema* subsp. nov.

♂. 36 mm.

Much larger than *subvenusta subvenusta* Warr., from New Guinea.

Fore wing rather more vivid green, with the white markings purer and more extended, only the white spot in the end of the cell reduced, beneath with the dark posterior end of the subterminal line thickened. Hind wing also with the white markings extended, especially in abdominal area; no subapical dark spot; beneath with the subapical dark spot much reduced, on the other hand with traces of continuation recalling the subterminal band of *sublitrata*, though very much less strong.

Central Ceram, 4,600 feet, January, 1920.

May probably prove a separate species, but the unique specimen is not in perfectly fresh condition.

5. *Spaniocentra stictoschema* sp. nov. δ . 37 mm.

Face dull red. Palpus reddish above, dirty white beneath. Vertex white. Occiput narrowly red. Antennal shaft white proximally, reddish distally; pectinations ochreous. Thorax above green, beneath white. Abdomen above red-brown, mixed with white towards extremity, the paired white subdorsal spots of the third and fourth segments well separated by the ground colour at the suture and slightly edged with ochre-yellow on their proximal and posterior sides; beneath white; anal tufts well developed. Legs whitish; hind tibia strongly dilated, the spurs rudimentary.

Fore wing with termen strongly angled at R^3 —shape more extreme than in *undiferata* Walk., but not quite as in *gibbosa* Prout δ ; DC^2 with the inward angle rectangular (about as in *gibbosa*); bright green; costal edge snow-white, ending in small subterminal spots and continued finely in reddish to apex; antemedian and postmedian lines comparatively well developed, especially as red-brown spots or teeth on the veins; antemedian from one-fourth costa to near middle of hindmargin weak between M^2 and SM^2 ; celldot large, not mixed with black; another, rather less large, dot anteriorly thereto (on DC^2); postmedian line dentate, oblique outwards from two-thirds costa to R^1 , then parallel with termen to M^1 ; tornal blotch represented by two purplish-centred spots, a round-oval one between the medians and a crescentic one at tornus; terminal line fine, reddish, with small purple-mixed triangular extensions on the veins; fringe light ochreous-brown, dark-spotted at the veins. Hind wing rather narrow and elongate, the tooth at R^3 pronounced; abdominal flap white, somewhat expanded, long-fringed; the rest as on fore wing but without antemedian line. Underside whitish-green, unmarked except for the subterminal spots of fore wing, which are grey; fringes as above.

♀ rather larger, broader-winged, the fore wing very little bent at R^3 , the red-brown markings lighter and brighter, those at tornus of fore-wing and apex of hind wing considerably extended; hind tibia with all spurs present.

Central Ceram: Manusela, 6,000 feet, x-xii, 19, type δ and three ♀ ♀ .

Nearest *gibbosa* Prout, cellspots larger, red, markings stronger, red-mixed, white costa not underlined with red except at extreme base, tornal blotch subobsolete above as well as beneath, ♀ much less eccentric in shape.

6. *Thalassodes retusa* sp. nov.

♂ ♀. 43—45 mm.

Face green. Palpus in ♂ $1\frac{1}{2}$, with third joint fully half as long as second; in ♀ nearly 2, with third joint nearly as long as second; green, white beneath. Vertex white; occiput green. Antennal shaft white proximally, then pale green. Thorax above deep green, beneath greenish-white. Abdomen white, broadly green dorsally on first few segments, the green then narrowing, scarcely tinging the last segments. Legs predominantly white, the fore and middle legs tinged with reddish-ochreous on inner side; fore tibia thickened, the tufts of hair on underside in the ♂ stronger than in the allies; hind tibia not dilated, the spurs not shortened.

Fore wing with R^2 well forward, DC^3 markedly incurved, M^1 connate; blue-green (rather darker than in *veraria* Guen., *falsaria* Prout, &c.), with very fine white strigulation; costal edge whitish-buff; lines white fine, obsolete costally, otherwise moderately distinct; antemedian oblique, about as in the allies; postmedian nearly straight, slightly less nearly parallel with termen than in most of the group, reaching hindmargin at two-thirds; fringe cream-buff, tinged with greenish proximally. Hind wing with termen only very weakly bent at R^3 ; the white discal mark extremely slender to subobsolete; postmedian rather firm though fine, nearly straight to the usual bend at M^1 , then straightish or waved to abdominal margin; fringe as on fore wing.

Underside pale-green with DC^2-3 slightly whiter; costal margin of fore wing and fringes cream-colour.

Central Ceram: Manusela, 6,000 feet, October to December, 1919, one ♂, three ♀ ♀.

Easily distinguished from *falsaria* Prout by its larger size, deeper colour, much more bluntly bent hind wing, besides other slighter differences. The only member of the group in which the hind wing is quite so obtusely angled, is the red-faced *clarifimbria* Prout from Ceylon.

7. *Thalassodes hypocrites* Prout *vivida* subsp. nov.

♂ ♀.

Hind wing slightly broader than in *hypocrites hypocrites* (Assam to Singapore), the angle at R^3 not sharp. Ground-colour brighter green, rather more opaque, but appearing less smooth, the white irroration and strigulation being rather more developed. Termen without black

dots at veins, the white spots of the fringe encroaching minutely on to the wing.

Central Ceram : Manusela, 6,000 feet, October to December, 1919, ♂ type, ♀ allotype and two ♀ ♀ paratypes.

8. *Prasinocyma punctulata leucogramma* subsp. nov.

♂ ♀ . 32—41 mm.

On an average somewhat larger, and of a brighter bluish-green than *punctulata punctulata* Warr. (Nov. Zool. x, 357, New Guinea), but only differing constantly in the presence of a *conspicuous white dorsal line* on the abdomen.

Manusela, 6,000 feet, October to December, 1919, a very long series, but only eight of them ♂ ♂ . Also two ♀ ♀ 4,600 feet, January, 1920.

9. *Prasinocyma simplex* Warr. ♂ .

This species was described (Nov. Zool. xix, 78) from two ♀ ♀ from the Arfak mountains and again three pages later (as *Pyrrhaspis reversa*) from one ♀ from the Snow mountains. Besides these, the Tring museum has a second Snow mountains ♀ . The ♂ has hitherto remained unknown.

♂ . 47 mm.

Palpus with third joint moderately elongate (rather over one-half). Antenna pectinate to about two-thirds, with long, coarse, *Thalassodes*-like branches. Hind tibia not dilated.

Fore wing relatively slightly shorter than that of the ♀ , hind wing with the termen slightly less convex. Similar in colour (or slightly deeper green) and in markings, but with the fringe strongly reddened, in its proximal half mixed with dark-grey.

Central Ceram, 3,000 feet, October to November, 1919.

Three ♀ ♀ , Manusela, 6,000 feet, October to December, 1919, agree with the New Guinea form.

10. *Prasinocyma limpida* sp. nov.

♀ . 34 mm.

Face green. Palpus about 2, third joint somewhat fusiform, nearly 1; green, beneath white. Vertex and antenna white. Occiput green. Thorax and abdomen green above, white beneath.

Fore wing with SC¹ anastomosing with C, R¹ stalked; costal edge buff; wing otherwise subdiaphanous, whitish green, irrorated in varying

degrees with deeper green, which forms a discal dot at the end of cell-fold, faint indications of an anterior one at base of R^2 , a vague basal patch reaching nearly to the antemedian, and moderately broad but ill-defined bands in the median area adjoining the lines; the lines themselves very faintly indicated in whitish, rather widely separated, the antemedian gently curved, the postmedian weakly lunulate-dentate, a little incurved at costa, otherwise fairly direct, slightly less oblique than termen; fringe more whitish green. Hind wing rather broad, the abdominal margin only moderately elongate, termen very weakly bent at R^3 , M^1 very shortly stalked; costal margin whitish; antemedian line wanting, postmedian bent at R^3-M^1 , the rest as on fore wing.

Fore wing beneath green, at base yellower-green costally, costal edge buff, the distal area and fringe almost white. Hind wing almost white, with the celldot and postmedian band greener.

Central Ceram: Manusela, 6,000 feet, October to December, 1919.

If the wing shape be valid as differential (as assumed by me in *Gen. Ins.*) this cannot be placed in *Gelasma*, with which it agrees in facies; but it is becoming increasingly doubtful whether the present classification will hold: *Gelasma balteata* Warr. with more crenulate margins and more contrasted colouring, has much in common with it.

11. *Gelasma pervicax* sp. nov.

♂. 26 mm.

Face green. Palpus fully $1\frac{1}{2}$, third joint fully half second; green, beneath white. Vertex white; occiput green. Antennal shaft white proximally; pectinations long and heavy, as in a *Thalassodes*, continued to beyond two-thirds. Body above green, the abdominal segments with slight white edging; beneath white. Legs white, the fore leg in part green; hind tibia with all spurs well developed, tarsus $\frac{2}{3}$ or almost $\frac{3}{4}$.

Fore wing with SC^1 anastomosing with C and touching SC^2 , R^1 just stalked; green, moderately opaque, costal edge narrowly vinaceous-buff; a darker green celldot; lines whitish, rather deeply lunulate-dentate in reverse directions, the tips of the teeth accentuated in purer white; fringe whitish blue-green. Hind wing fairly broad, termen faintly waved, the tooth at R^3 not strong; M^1 very shortly stalked; as fore wing but without first line.

Fore wing beneath scarcely paler green, with costal edge as above, and with not very sharply defined whitish distal border of about 2 mm. width, spreading posteriorly. Hind wing beneath whitish.

Central Ceram: Manusela, 6,000 feet, October to December, 1919.

Near *submixta* Warr., differing—apart from the structure—in having the celldots and lines stronger.

12. *Metallochloa militaris* T. P. Luc. *apicalis* subsp. nov.

♀.

Fore wing with the terminal dark dashes more elongate than in *M. militaris* T. P. Luc., at the apex extended into a conspicuous, proximally red-mixed spot. Hind wing with the red celldot minute or wanting (perhaps inconstant). Both wings beneath with conspicuous apical spot, considerably enlarged.

Central Ceram: Manusela, 6,000 feet, October to December, 1919, type and paratype.

13. *Hemithea dorsiflavata* sp. nov.

♀. 31 mm.

Face brownish-olive. Palpus over 2, with third joint as long as second; some dark grey admixture on outer side; beneath whitish. Vertex mixed white and buff; occiput green. Thorax and base and 5th—7th segments of abdomen dorsally green; abdomen otherwise whitish, tinged with buff, on upperside clouded with more yellowish buff; crests strong, whitish buff. Fore leg smoky on upper and inner sides.

Fore wing with termen nearly smooth, DC^3 incurved, SC^1 free, R^1 just stalked, M^1 connate; grey-green with some blue or violet iridescence, least developed in median area; costal edge ochreous-buff, dotted with black-grey; lines whitish; antemedian at rather beyond one-third, moderately excurved in cell, slightly at fold; postmedian strengthened by whiter veindots, placed rather beyond two-thirds, inbent at R^2 and incurved between M^1 and SM^2 ; terminal line scarcely darkened, interrupted by minute veindots; fringe with a very pale line at base. Hind wing rather narrow, termen waved, the tooth at R^3 moderately strong; antemedian line wanting; DC^2 slightly darkened, with a very small and inconspicuous whitish mark at its proximal side; postmedian nearly as on fore wing, rather more projecting at R^3 and M^1 ; terminal white dots rather stronger than on fore wing.

Underside whitish green, almost unmarked; costal edge of fore wing pale-buff, not dotted; on hind wing an apical grey shade faintly indicated.

Central Ceram: Manusela, 6,000 feet, October to December, 1919.

Can be placed between *quadripunctata* Warr. and *undifera* Walk.

STERRHINAE.

14. *Anisodes pauper* Butl. *egens* subsp. nov.

♀. 34—36 mm.

Smaller than *pauper pauper* (New Guinea and eastwards to the Solomons), slightly narrower-winged, of a more fleshy tone, the cell-mark of the hind wing reduced to a dot, the terminal dots of both wings beneath not connected by dark shading.

Central Ceram: Manusela, 6,000 feet, October to December, 1919, type and paratype.

Possibly a separate species.

15. *Anisodes acrobeles* sp. nov.

♂. 41 mm.

Face rosy. Palpus rather over 2, third joint as long as second; pale, the upper and outer side rosy, slightly mixed with black, beneath white. Head whitish brown. Thorax and abdomen concolorous with wings, the abdomen above more vinaceous. Hind leg glabrous, tibia rather short, with three crowded spurs, tarsus long.

Fore wing rather elongate, apex pointed, termen very faintly crenulate; areole present; pale fleshy-brown, with very slight dull-red irroration; rather paler costally and between median and postmedian lines; a black celldot; lines represented by red, black-mixed veindots or short dashes; antemedian with that on SM^2 much more proximal; postmedian rather distally placed, curving slightly proximal from M^1 inwards; the spot on R^2 considerably more proximal, slightly elongate; a rather weak grey median shade, rather more incurved posteriorly than the post-median; faint grey shades defining the subterminal; termen with dots at and between the veins. Hind wing correspondingly marked; in addition, a dark mark on base of SC.

Under side paler, especially on fore wing posteriorly and on hind wing, the fore wing anteriorly with a vinaceous tinge; fore wing with a small celldot and a median shade; both wings with postmedian dots; terminal dots connected by a line.

♀ similar, palpus slightly longer. Sometimes (*ab. argyrostigma* *ab. nov.*) with cellspots white, black-ringed, that of the hind wing larger, more elongate.

Central Ceram: Manusela, 6,000 feet, October to December, 1919, four ♂♂, four ♀♀.

Nearest *penumbrata* Warr., rather narrower, dots more elongate, proximal markings of fore wing beneath more obsolete, &c.

16. *Scopula montivaga* sp. nov.

♂. 35 mm.

Face and palpus black, narrowly pale below. Head and body very pale brown, above irrorated (excepting the vertex and tegulae) with black; collar browner. Antenna with rudimentary pectinations (not as long as diameter of shaft), bearing long fascicles of fine cilia. Fore and middle legs blackened on inner side; hind tibia dilated, with a strong whitish hair-pencil from femoro-tibial joint, tarsus a little shorter, but not greatly abbreviated.

Fore wing with apex moderate, termen oblique, very slightly curved, almost smooth; very pale brown, with fine but rather strong black irroration; celldot sharply black; lines warmer-brown, the antemedian and postmedian very fine, but accentuated by black veindots, the median shade thicker, clearer, just beyond the celldot, but projecting, some slight suffusion around this; antemedian angled outward in cell; postmedian nearer to termen than to celldot, rather oblique outward from costa to R^1 , gently incurved between radials and at fold, the black dots placed at its distal side and slightly elongate; termen with black interneural dots; fringe with smaller dots opposite the veins. Hind wing with termen slightly waved, feebly bent at R^3 ; similar to fore wing but with antemedian line wanting; median and postmedian rather more proximal, the former—by a very slight inward curve—preceding the celldot.

Underside with the ground colour whiter, the irroration in part (especially on hind wing) feeble or obsolete, but with the fore wing as far as to the median shade suffused with smoke-colour (at base of costa black); antemedian wanting; median on fore wing smoky, on hind wing nearly obsolete; postmedian on both wings smoky, with black veindots as above; termen and fringe as above.

Central Ceram: Manusela, 6,000 feet, October to December, 1919.

Perhaps related to *sordida* Warr. (Nov. Zool., ii, 93), but with the pectinations much shorter, the hind tibia shorter, the radial cloudings wanting, &c.

LARENTIINAE.

17. *Gonanticlea subcaesia* Warr. *neutralis* subsp. nov.

♀.

Hind wing and underside of the nondescript purple-grey hue of that of *sublustris* or of the African *meridionata* Walk., instead of the deeper blue-grey colouring of name-typical *subcaesia* from Dutch and British New Guinea

Central Ceram: Manusela, 6,000 feet, October to December, 1919.

Although the palpus is not quite so long as in typical *Gonanticlea* and the termen of the fore wing not bent in the middle, I think this species has more in common with *Gonanticlea* than with *Anticlea* (type *derivata* Schiff.).

18. *Xanthorhoë callisthenes* sp. nov.

♂. 34—37 mm.

Frontal cone well developed. Palpus rather long (almost 2), heavily scaled. Antennal pectination long, ceasing after about the thirty-second joint. Head and body pale-grey tinged with fleshy-ochreous, above with rufous irroration, beneath pale, with the irroration fuscous. Abdomen above with posterior edges of segments pale, preceded by ill-defined dark marks.

Fore wing whitish-grey, slightly glossy, with varying suffusions, throughout with more or less strong rufous irroration; basal patch narrowing to hindmargin, predominantly red, bounded by a lunulate whitish line; succeeding area reddish in proximal half, more ochreous in distal; median band broad, edged by fine whitish lines, which are indented on the veins; anterior half of the band considerably broader than posterior, central part generally pale (containing the somewhat elongate black cellmark), each margin containing three blackish lines (in places connected by dark suffusion), the first of the postmedian series very strongly oblique inwards anteriorly, nearly meeting the last antemedian at costa; the commencement of a zigzag red-brown line at costa beyond median band; subterminal white, interrupted, partly defined by greyish cloudings; a paler patch proximally to it, between SC^5 and R^2 and some pale dots on most of the veins; a small oblique whitish apical dash; terminal line moderate, cut by pale dots at the veins and midway between; fringe with dark spots opposite the veins. Hind wing less rufous, except the abdominal margin, tornus and fringe; markings not strong, not reaching costa, consisting of a pair of grey lines about middle, three lunulate-dentate lines enclosing two paler ones (representing the "rivulet" band of the *Larentiinae*) and a few white subterminal dots.

Both wings beneath strongly rufous-shaded, with black cellmark; the principal lines beyond represented in dark-grey, the distal boundary of median band (indistinctly) in whitish, the subterminal by whitish dots.

♀ more uniformly rufous.

Central Ceram : Manusela, 6,000 feet, October to December, 1919, four ♂♂, four ♀♀.

Nearest to *dissociata* Warr. (Nov. Zool. iv, 73, Luzon), distinguishable at once by the anteriorly more excurved postmedian lines, especially the first one. Like that species, it is evidently variable, especially in the ♂; two are redder than the described type, less unlike the ♀ form, the fourth is a very beautiful aberration with the pale parts almost clear white—*ab. albifusa* *ab. nov.*

19. *Xanthorhoë hedyphaës* sp. nov.

♂. 32 mm.

Structure of the preceding. Head and body darker greyish, the irroration being predominantly blackish, the rufous elements weak and dull (red-brown). Thorax above in part olive-green. Abdomen above with paired black spots.

Fore wing green, with the markings blackish; basal patch less oblique-edged than in *callisthenes*, with a rather deep indentation on M, posteriorly much mixed with green; some dark and whitish costal irroration between this and the median band; median band constricted in middle, the antemedian line being deeply excurved; postmedian rather strongly lunulate-dentate; enclosed area variegated, somewhat mixed with red-brown anteriorly, then with green (including a small black cellmark); a black longitudinal mark in posterior half of cell, and between R^2 and R^3 , behind this some white irroration, finally a green admixture at hindmargin; distal area mostly clear green, but with a variegated (predominantly red-brown) patch at costa and some clear white, dark-edged subterminal dots or dashes in the anterior part (as far as R^3) and again near tornus; apical dash and terminal line as in *callisthenes*; fringe rufescent, with dark spots opposite the veins. Hind wing grey, with traces of alternately paler and darker wavy (or somewhat punctiform) lines in outer part; terminal line and fringe paler and less marked in anterior part than posteriorly.

Both wings beneath more as hind wing above, but with moderately distinct cellspot and postmedian line.

Central Ceram : Manusela, 6,000 feet, October to December, 1919.

20. *Xanthorhoë pratti* sp. nov.

♂. 31 mm.

Structure as in the two preceding. Head and body coloured as in

hedyphaës, the thorax almost without green admixture, the black dorsal spots in abdomen less strong (in the paratype almost obsolete).

Wings similar to those of *hedyphaës*, except as noted below.

Fore wing nowhere clear green, only in the subbasal area, and in a narrow band beyond the median shaded with brownish olive; basal patch more uniformly mixed with red-brown, less deeply indented at M; an ill-defined band in the succeeding area; median band shaped more nearly as in *callisthenes* but less broad, especially at hindmargin, where it is not, or scarcely, half so broad as at costa; its colour is less variegated than in *hedyphaës*, the black longitudinal shade weak; the white defining lines broader; the white subterminal line continuous, though rather irregular, weakly lunulate-dentate, accompanied proximally and distally by irregular brown shadings, and proximally between the radials by well-developed black spots; a small white spot at mid-termen; terminal line broken into sharply-defined pairs of black dots. Hind wing with a pair of fine grey central lines indicated, recalling those of *callisthenes*; postmedian lines excurved behind middle.

Underside rather more heavily dusted than in *hedyphaës*, at least on hindwing; postmedian of both wings excurved at or behind middle.

♀. 34—35 mm.

Slightly darker, median band of fore wing considerably broader.

Central Ceram: Manusela, 6,000 feet, October to December, 1919, two ♂♂, two ♀♀.

GEOMETRINAE.

21. *Bordeta posticigutta* sp. nov.

♂. 46—47 mm.

Face and palpus blackish-brown, palpus paler beneath. Antenna with fascicles of cilia slightly over 1. Thorax above blackish, beneath orange-yellow. Abdomen orange-yellow, with narrow black belts posteriorly on the second to fourth tergites and confluent patches on the fifth to seventh, joining an anal one. Femora and tibiae in part (chiefly beneath) orange.

Fore wing not narrowed, venation not distorted, cell about half, SC^{1+2} coincident, connected by a bar with stalk of SC^{3+4} ; black-brown; markings white, very slightly sprinkled with pale orange-yellow scales; a small or moderate, rather oblique patch in cell near its end, posteriorly crossing M, on which, however, it is sometimes dotted with blackish; a narrower, usually longer patch from C to R^3 or M^1 ,

attenuated anteriorly, crossing the base of SC^5 , tapering posteriorly; a small spot at M^2 close to termen; often also a minute one on SM^2 , slightly more proximal. Hind wing bright orange-yellow, with brown-black (before C greyer) distal border, which is about 7 mm. wide in anterior part, gradually tapers from radial fold to tornus (where it is less than 3mm.) and encloses a small or moderate posterior orange-yellow spot.

Underside the same, only with the forewing—especially posteriorly—slightly paler,

Central Ceram: Manusela, 6,000 feet, October to December, 1919, type and 13 paratypes; 4,600 feet, January, 1920, 4 paratypes.

Broader-winged than *lemnica*, R^1 of fore wing not stalked, maculation of abdomen and wings quite distinct. From *tricolor* Warr., and *klossi* Roths., apart from other differences, it is distinguishable by the uniformly dark tegulae. The markings of the fore wing vary between white and pale buff, as well as varying in size; subternal spot of hind wing also variable in size.

22. *Eucharidema apora* sp. nov.

♂.

Similar to *trichroa* Roths. and Jord. Fore wing with the band white in all the known examples, not broader beneath than above. Hind wing with red-orange band very variable but always much reduced, never reaching the costal margin; in the extreme in one direction (labelled 8/8), *vide* Bull. Hill Mus. 1, 7, it is only 1 mm. wide and does not cross R^3 forward, while in the other extreme (1/8) it widens to almost 4 mm. at R^3 , thence tapering rapidly, continuing extremely attenuated from R^1 to C.

Central Ceram: 4,600 feet, January, 1920, 8 ♂♂, the holotype labelled 1/8; Manusela, 6,000 feet, 3 ♂♂, October to December, 1919.

♀.

The ♀, which must surely belong here, in spite of remarkable differences in venation, has the structural characters of a simple *Craspedosis* or *Milionia*, SC^{1-2} (coincident) of the fore wing arising from the cell and running free midway between C and SC^{3-5} , R^2 from middle (or slightly before middle) of discocellulars. Fore wing with the band usually creamy-white (slightly less pure than in the ♂), on an average broader (but variable), slightly more distal, or at least more oblique outwards, forking about M^2 , its proximal and more slender branch (which, however, may become obsolete or be

interrupted) running to hindmargin near tornus, its distal (rarely interrupted, never obsolete) towards hind margin, which it almost (but never quite) reaches between M^2 and fold; in one aberration there is also a small white spot in the cell, near its end. Hind wing with the orange band less variable than in the σ , averaging about 2 mm. in width, just crossing R^3 .

Note.—In Rothschild and Jordan's original description of this genus (D. E. Z., 1907, p. 197), "second and third radials" is a laps. cal. for "first and second."

φ , ab. *dichroa* ab. nov. Band of fore wing orange.

Central Ceram, 4,600 feet, four $\varphi \varphi$ typical, four ab. *dichroa*; Manusela, 6,000 feet, nine $\varphi \varphi$ typical, one ab. *dichroa*.

The φ forms much resemble the enigmatical *Craspedosis bicolorata* Warr. (see supra), but differ in the clearer, differently shaped markings (that of hind wing not so reduced) and in the lack of yellow on abdomen posteriorly beneath. Probably *fractura* Prout is really nearer to *apora* than is *trichroa*, but its φ is still unknown; in that of *trichroa* the venation agrees with that of the σ .

23. *Milionia leucomelas* Montrz., *scotomelas* sp. nov.

σ .

The yellow band of the hind wing above greatly reduced, forming a short triangle which tapers to a point at M^1 or R^3 and is generally much dusted over with black scales, in extreme aberrations entirely suppressed, as in the φ ; beneath generally with hardly a suggestion of yellow scaling.

φ .

Hind wing above and beneath entirely black, or rarely with a yellow subternal dot. Abdomen with the black belts commonly much broadened, reducing the yellow to very narrow rings.

Central Ceram, 3,000 feet, January to February, 1920, six $\sigma \sigma$ five $\varphi \varphi$, including the type σ and the allotype φ ; 4,600 feet, January, 1920, one σ , two $\varphi \varphi$.

M. leucomelas Montrz. (Faune Woodlark, p. 131, 1856) is the oldest name for the collective species which has commonly been called *callimorpha* Oberth.; *leucomelas leucomelas* supplants *callimorpha brevis* Roths.

24. *Milionia talboti* sp. nov.

♂. 43—48 mm.

Eye hairy. Head and body black, with strong admixture of blue or green according to the angle of light) metallic scaling.

Fore wing black with deep-purple gloss and with short or moderate streaks of metallic blue (or green) along proximal part of M and of SM²; an elongate scarlet spot just outside cell, in one aberration reaching C anteriorly and crossing M¹ posteriorly, but usually shorter; sometimes also a small scarlet dot before SM² about 3 mm. from termen. Hind wing black with the purple-blue suffusion somewhat stronger, the proximal streaks of metallic blue extending to middle of wing or rather beyond, sometimes broad and more or less confluent and extended anteriorly; occasionally with a small red mark at SC²—R¹ close to termen (in one example present above and beneath, in one beneath only).

Underside with the proximal blue more extended and less shot with green, the red markings of upperside reproduced.

Central Ceram: Manusela, 6,000 feet, October to December, 1919, six ♂♂.

Fore wing in general with more, hind wing with less blue than in *rubrifascia* Joicey and Talbot, the red band shorter.

25. *Milionia lacteisticta* sp. nov.

♂. 32 mm.

Eye with the hair excessively minute. Face rougher than in typical *Milionia*, palpus shortish, the second joint with some projecting hair beneath. Antennal ciliation normal. Hind tibia not dilated. Head and body black, slightly mixed with blue; fourth, fifth and sixth segments ventrally, the latter two also laterally, bright yellow.

Fore wing rather long and narrow, termen scarcely oblique anteriorly, moderately oblique posteriorly; fovea wanting; R¹ shortly stalked with SC³⁻⁵; brownish-black, shot with blue at base; a cream-white spot beyond middle of cell, about 1 mm. wide anteriorly, (at SC), tapering and becoming rather oblique posteriorly, just crossing M; fringe whitish. Hind wing strongly shot with blue except at margin; an elongate cream-white midcostal spot, bounded posteriorly with SC; fringe whitish.

Fore wing beneath rather less dark, suffused proximally (to end of cell) and posteriorly as far as tornus with grey-blue; spot in cell purer

white than above and with a narrow bluish-white circumscription which makes it appear larger. Hind wing with white costal patch, otherwise blue to beyond end of cell and to tornus; a brownish-grey distal border, separated in its broad anterior part from the blue colour by an ill-defined patch.

Central Ceram: Manusela, 6,000 feet, October to December, 1919.

The exact systematic position somewhat doubtful.

26. *Milionia dispar* sp. nov.

♂ ♀. 31—35 mm.

Structure of the preceding, the female antennal ciliation very short; R¹ of fore wing separate or connate, not stalked. Head and body coloured as in the preceding, the yellow abdominal patch of the female much duller (reddish-buff), and extended to anus.

♂. Wings shaped nearly as in the preceding. Fore wing brownish-black, shot with blue at base; a large orange patch proximally to middle, its main portion roughly oval but flattened anteriorly, (at C), running rather obliquely outward (so that its distal edge crosses M near the end of the rather long cell), nearly reaching to SM²; variable extensions of this patch proximally; a slender, strongly curved orange band well beyond cell, reaching from SC⁵ to fold; fringe whitish. Hind wing broadly black apically and terminally, shot with blue on abdominal margin; a large orange patch from base, reaching costally to beyond two-thirds, posteriorly to fold, its distal extremity 3—4 mm. from termen; fringe whitish.

Underside similar, the distal borders in places suffused with brownish.

♀. Wings similarly shaped. Fore wing with the orange parts much paler (whitish-buff), ampler, the extensions of the proximal blotch reaching the base; termen broadly suffused with orange-brown, leaving irregular dark streaks on the veins. Hind wing with the orange parts of the male similarly lightened, the apical and distal border entirely dull orange. Both wings predominantly dull orange; fore wing with costal edge, discal band and abdominal margin irregularly dark blue-grey, proximal area in one example whitish-buff; hind wing also paler proximally, a large triangular area at abdominal margin, dark blue-grey.

Central Ceram: Manusela, 6,000 feet, October to December, 1919, two ♂♂, two ♀♀.

27. *Ctimene ocreata* sp. nov.

♂. 37—41 mm.; ♀, 40—44 mm.

Head, body and legs black; tegulae orange.

Fore wing banded, black and orange; basal patch black, extremely obliquely bounded, only 2 or 3 mm. wide at costa, 5 mm. or more at hindmargin, sometimes narrowly joined along hindmargin to next black band; succeeding band light orange, fading to whitish buff; a broad (5—8 mm. variable) black band from beyond middle of costa to tornus, its proximal edge somewhat sinuous, often indented at fold, or sometimes behind SM^2 , its distal edge very gently excurved between R^1 and M^1 , meeting terminal black line before M^2 ; a narrow or moderate leg-and-foot-shaped orange subapical band, the sole of the foot running close to termen from R^2 , the toe between M^1 and M^2 ; termen and fringe black. Hind wing orange; abdominal margin broadly black; termen narrowly black; fringe black.

Under side the same.

Central Ceram: Manusela, 6,000 feet, October to December, 1919, eleven ♂♂, twenty-five ♀♀, including the type and allotype; 3,000 feet, December, 1919, one ♂; January to February, one ♂, two ♀♀.

An aberration—represented by the ♂ from 3,000 feet, January to February, 1920, and one ♀ from Manusela—has an orange spot in the middle of the black band (behind the base of R^3).

28. *Abraxas monychata* Feld. *ceramensis* subsp. nov.

Abraxas albiquadrata Roths., Nov. Zool. 22, 217 (1915) (nec Warr.).

♂ ♀.

Fore wing with some orange basal and subbasal spots, one of the latter (behind base of cell) extending a little along SM^2 . Hind wing with the white band reaching abdominal margin. Differs on the hind wing from those specimens of *monychata arfaki* Beth.-Bak. in which the post-discal white band of fore wing is uninterrupted in retaining the white subbasal band, or at least traces of it.

Central Ceram, 3,000 feet, January to February, 1920, type ♂ and two ♀♀.

Felder's type was merely labelled "Moluccas" and may have come from Celebes, but I am provisionally uniting it with *albiquadrata* from the North Moluccas (though it is a very different aberration), which has the abdominal margin of the hind wing black, &c.

29. *Arycanda boöpis* sp. nov.

♀. 42—45 mm.

Face grey. Palpus and vertex darker grey. Thorax and abdomen grey, shaded with bluish, especially dorsally.

Fore wing relatively rather short; cell fully one-half; glossy light grey-blue, the costal margin somewhat irrorated with black, especially at base; some black spots or rudimentary lines near base; lines black; antemedian at one-fifth, not very strong, more or less macular; very large (circ. 3 mm. in diameter) deep black cellspot, shortly followed by the postmedian line, which is nearly perpendicular from costa to R^3 , here angled, then gently incurved, and is very fine and weak except at the veins, where it is cut by longitudinal short dashes or dots; a very broad black border, nearly reaching the postmedian; fringe grey, mottled with black. Hind wing with cell $\frac{1}{2}$ or slightly over; as fore wing (the cellspot slightly less large). Underside without the lines; cellspots and borders as above.

Central Ceram, 4,600 feet, January, 1920, type and three other ♀ ♀ in coll. Joicey; also a rather smaller example of the same sex (38 mm.) taken at 3,000 feet, January to February, 1920.

30. *Arycanda tenebrica* sp. nov.

♂ ♀. 40—50 mm.

Head and body mixed slate-grey and brown-grey, anal tuft tinged with ochreous; abdomen dorsally with indication of paired dark spots. Antennal ciliation in ♂ slightly over 1, in ♀ slightly under 1.

Fore wing with fovea in ♂ rather less strong than in *hypanis* Cram., in ♀ almost wanting; slate-grey, darker than in *hypanis*, the black markings numerous and heavy; vague basal irroration or maculation; a subbasal band of rather large spots, acutely angulated outward in cell, then oblique inward; a thick, curved, antemedian line; a rather large cellspot (less large than in *hypanis*); the succeeding line still more excurved round cellspot than in *hypanis*, incurved to fold; two rows of long thick interneural marks beyond, weakened—especially the distal—in cellule 3, sometimes partly confluent, the distal row reaching the subterminal; terminal interneural marks, less strongly developed than in *hypanis*; fringe concolorous. Hind wing with the costal margin almost as clear as in *hypanis*, unmarked as far as postmedian line, the rest concolorous with fore wing; median (antemedian) line curved or bent; cellspot and markings beyond nearly as on fore

wing, the postmedian more macular, the two series beyond more rounded.

Underside with cellspots and dark borders, recalling that of *boöpis*.

Central Ceram, 4,600 feet, January, 1920, type and paratype ♂, allotype and paratype ♀; Manusela, 6,000 feet, October to December, 1919, three ♀ ♀.

31. *Hypochrosis agalma* sp. nov.

♂. 34—37 mm.; ♀ 42 mm.

Face olivaceous, in lower half overlaid with red-ochre, in upper half with black. Palpus orange, distally red on outer side. Vertex blackish. Body orange, overlaid dorsally (except at anal end) with blackish.

Fore wing rather less acute than in *festivaria* Fabr.; ochreous, tinged (particularly along SC) with orange, and rather strongly, but irregularly, strigulated with dark grey; strigulation heavy and black-mixed in costal region (except at apex); markings very dark green, almost black; proximal patch slightly variable, at hindmargin occupying approximately the second quarter, in its distal half suggesting a neck, its anterior half broadening distally, forming a rough figure of a head, with flattened crown (behind SC) and more or less projecting nose and chin (between bases of medians); distal patch irregularly oval, oblique, placed between SC⁵ and R³; a pale shade distally to the "neck," a slaty-grey cloud distally to the "nose and chin"; fringe orange, from apex to behind SC⁵ blackish. Hind wing broadly orange costally, narrowly orange at abdominal margin; the rest concolorous with fore wing, with a black-green posterior patch, large, but less so than in *festivaria*.

Underside bright orange, slightly reddish. Fore wing with costal edge yellow, with a few blackish dots; an irregular black-grey shade embracing the anterior part of proximal patch (in cell), the distal patch and the dark grey cloud; fringe as above. Hind wing unmarked.

Central Ceram: Manusela, 6,000 feet, October to December, 1919, 3 ♂ ♂, 1 ♀.

Walker's *imbutaria*, of which I only know the original 3 ♀ ♀ (Mysol and Aru), is slightly smaller than the ♂ of *agalma*, face unicolorous ochreous, wings more fawn, with the markings much weaker, differently shaped; *nundata* Feld. (perhaps from Celebes only, though Felder's type is registered from "Moluccas"), is longer-winged,

with only weak remnants of the fore wing markings and these *costal*, and I cannot think Swinhoe right in sinking it; *chlorophora* Warr. (Nov. Zool. 4, 120, from Wetter) is another relative.

32. *Hypochrosis pachiaris* Walk. *obnubilata* subsp. nov.

♀. 65—68 mm.

Larger and more deeply coloured than *pachiaris pachiaris* from India, Burma, the Andamans, and Hainan, the "rufous" areas strong, considerably mixed with slate-grey or violet-grey (in one aberration predominantly slaty).

Central Ceram: Manusela, 6,000 feet, October to December, 1919, 7 ♀ ♀.

Variation slight. The very variable *miliaris* Swinh., from the Nilgiris, which I agree with Swinhoe in regarding as a separate species (rounder-winged, etc.), occasionally throws aberrations somewhat resembling *obnubilata* but which cannot be confused with it. The new race, or a closely similar one, occurs also in Dutch New Guinea, but as I have only 2 ♀ ♀ and 1 ♂ before me, I leave dealing with them for a future occasion.



Prout, Louis B. 1922. "New Geometridae from Central Ceram." *Bulletin of the Hill Museum : a magazine of lepidopterology* 1, 279–299.

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