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VIII.—New Geometridæ in the Joicey collection

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probably also by parasitic habits. The wide range of the family points to considerable antiquity, though it seems to be absent from Australia.

Ashmead (Trans. Ent. Soc. London, p. 235, 1900) assigns *Olizon* to the Bethylidæ, subfamily Emboleminæ, but gives no reason for placing it in that position, from which the very different antennæ seem to exclude it at once. It is by no means certain that Ashmead had seen specimens.

VIII.—*New Geometridæ in the Joicey Collection.*

By LOUIS B. PROUT, F.E.S.

[Plate VII.]

IN working through the Geometridæ in the collection of Mr. J. J. Joicey I have already come across several novelties, some of them of great interest, and as there is now sufficient material for a Plate—which Mr. Joicey, with his customary munificence, has provided in further elucidation of the species and forms—we think it desirable to publish them without further delay. As all the types are in his collection, it is unnecessary to specify this in each individual case.

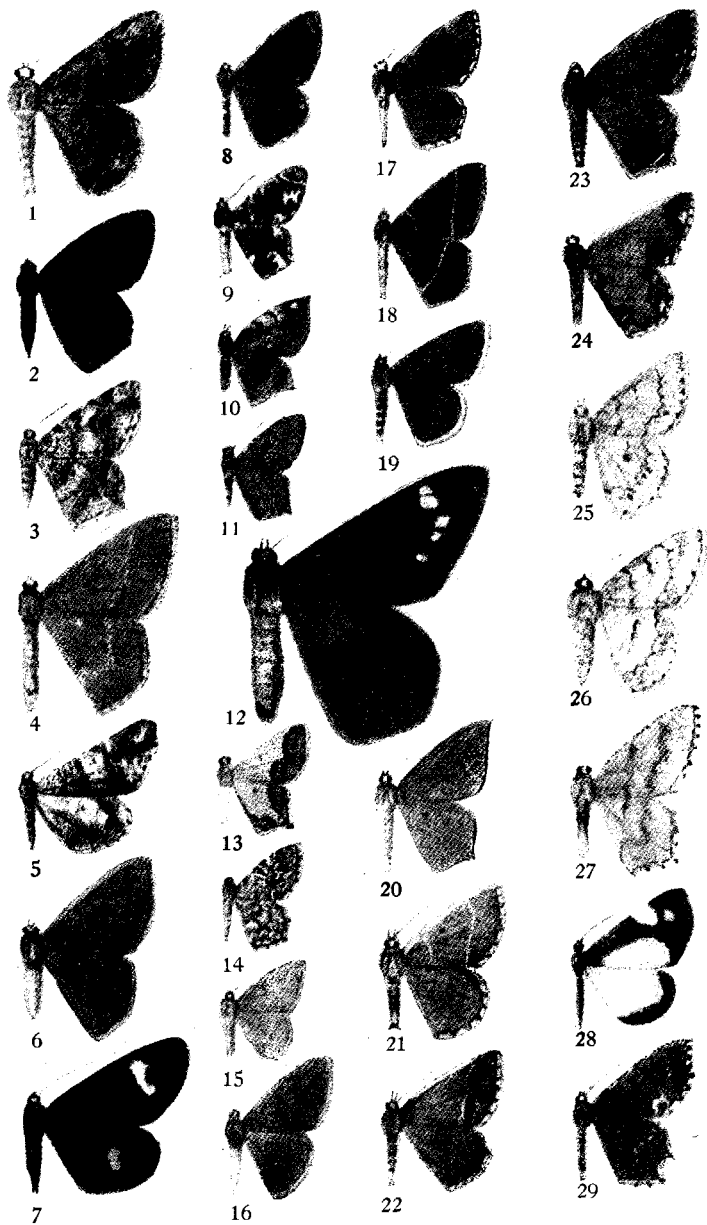
Subfam. *ÆNOCHROMINÆ*.

1. *Phellinodes biapicata*, sp. n.
(Pl. VII. fig. 5.)

♂.—36 mm.

Head and body white, slightly clouded with brown and irrorated with blackish; palpus blackish on upper and outer side.

Fore wing white, faintly clouded with brown and with moderate blackish irroration, which in places (especially near base) shows some tendency to form transverse strigulæ; a slightly curved blackish mark from hind margin nearly to M^2 just proximal to middle of wing; an elongate blackish cell-mark accompanied by indications of an irregular median line, crossed behind M^2 by a thick longitudinal dash which almost reaches termen and is followed posteriorly by some smoky shading; a large, irregularly bounded apical brown spot, posteriorly extending across R^2 , proximally in places almost reaching the cell, at about 4 mm. from apex traversed



by a thick, slightly curved mark from near costa about to R^2 ; some small dark spots near termen; elongate dark terminal marks at vein-ends; fringe weakly dark-spotted.

Hind wing without distorted venation; white, densely irrorated with blackish, but with a broad elongate clear patch in middle from base to at least three-fourths, bounded anteriorly by SC and R^1 , posteriorly by SM and M^1 , somewhat rounded at its end; a clear apical patch.

Underside similar, but with the entire posterior region of the fore wing smoky, the abdominal margin of the hind wing for a width of 2 mm. mostly white, with dark irroration and with some dark interruption about R^2 and the submedian area.

Contamama, Rio Ucayali, Peruvian Amazons (*J. C. Mounsey*).

Near *gratiosa*, Schaus; the wings shorter, the markings less sharply defined, but distinguished especially by the white apical patch of hind wing.

2. *Phellinodes leucoplethes*, sp. n.
(Pl. VII. fig. 28.)

♂.—32 mm.

Face white, sprinkled with blackish brown. Palpus with first joint predominantly white, second and third predominantly blackish brown. Antenna blackish, with ciliation rather long (exceeding diameter of shaft). Thorax white, mixed with blackish above. Abdomen above mostly blackish, beneath white.

Fore wing in anterior and distal part blackish brown, posteriorly to the cell and beyond white, the white area being bounded from about the origin of M^1 to anal angle by a fairly regular curve; the blackish area irrorated with white in proximal half and containing two large white spots distally, one from costa to R^1 , broadest (4 mm.) at costa, its proximal edge reaching middle of costa, the other smaller, more distal, from R^2 nearly to SC^5 ; the white area slightly dusted with blackish near base.

Hind wing without distorted venation; white, slightly dusted with blackish brown near base and with a narrow distal border, narrowest about R^1 – R^2 and at tornus, slightly and gradually broadening between these points and apically.

Underside similar, but with the dark brown areas all irrorated with white and with the costal edge of hind wing dark-speckled.

Rio Pastaza, E. Ecuador (*M. G. Palmer*): Alpayacu, 3600 feet (type); El Rosario, 4900 feet. Also two worn ♀ ♀ from Intaj, Ecuador (*Buckley*), rather larger, with antennal ciliation short. All ex coll. H. Druce.

Subfam. *HEMITHEINAE*.

3. *Mimandria cataractæ*, sp. n.
(Pl. VII. fig. 25.)

♂.—34 mm.

Face black. Palpus whitish, with third joint and most of second blackish above. Tongue present, but quite short. Vertex and front of thorax mostly light brown; body otherwise whitish grey, irrorated with light brown.

Fore wing broad, with termen rather less oblique than in *insularis*; SC¹ anastomosing at a point with C and with SC²; whitish grey, irrorated with darker grey and with light brown, costal margin mostly dark grey; lines blackish grey; antemedian at nearly one-third, shallowly lunulate outward in cell and in submedian area; postmedian slender, 3–4 mm. from termen, lunulate-dentate, a little incurved in submedian area, the tooth on R¹ acute, the lunule between R³ and M¹ more shallow than the adjacent ones; an elongate dark cell-mark, somewhat interrupted in middle; subterminal pale line almost obsolete, accompanied proximally by a small wedge-shaped brown spot between R¹ and R² and another behind M², a larger and broader one between the medians, the rest of the series almost or altogether obsolete; triangular blackish terminal dots; fringe rather pale, very weakly marked.

Hind wing with first line wanting; cell-spot brown, rounded, slightly ocellated; the rest as on fore wing.

Underside dirty pale grey, the hind wing rather more whitish; both wings with small cell-spot on DC³ and ill-defined, somewhat interrupted, dark brown-grey submarginal shade; terminal dots a little weaker and more elongate than above.

Victoria Falls, Rhodesia (*E. H. Druce*).

Differently shaped from the only hitherto-known species (*insularis*, Swinh., from Madagascar), more resembling an *Epipristis*; the rows of spots distally to the postmedian line much less complete, less brightly coloured—in *insularis* they are reddish, though Swinhoe calls them “greyish ochreous.”

4. *Pingasa lahayei austrina*, subsp. n.
(Pl. VII. fig. 26.)

Spots beneath rather browner and more extended than in the Palæarctic race (Algeria and Morocco).

Gambia, ♂ (type) and ♀.

5. *Æolochroma prasina spadicocampa*, subsp. n.
(Pl. VII. fig. 1.)

♂.—42 mm.

Smaller than *prasina prasina*, Warr., from New Guinea and Fergusson Island, both wings with enlarged black discal spot, postmedian line thickened in middle.

Fore wing with median area between costal margin and M^2 mostly of the ground-colour, the reddish line before the subterminal brightened (bay, slightly inclining towards maroon), thickened into a band, running from hind margin to R^2 , then out along R^2 (– R^3) to termen.

Hind wing with the reddish subterminal spot between the radials enlarged.

Biak, Schouten Islands, June 1914 (A. C. & F. Pratt).

6. *Dysphania porphyroides*, sp. n.
(Pl. VII. fig. 12.)

♂.—67 mm.

Face light yellowish brown, with a purplish spot in middle. Palpus purplish, first and second joints beneath light brown. Crown mostly purplish. Collar bright yellow. Patagia and tegulæ deep purple. Thorax and abdomen above light brown, slightly mixed with purple, especially near anus; beneath bright yellow.

Fore wing dull purple; some slight cadmium-yellow markings near base—namely, a short irregular line or streak behind SC and some maculation about the fovea; the usual *Dysphania* markings faint, indicated in darker colour; basal streak apparently slight, the succeeding angulated band little interrupted, formed more as in *subrepleta* than in *militaris*; discal spot rather more conspicuous, elongate outward, its distal side tapering; submarginal white spots small, that between SC^5 and R^2 cut by a thick purple line along R^1 , those between R^2 and M^1 more distally placed, the posterior one the smaller, a quite small spot between M^1 and M^2 , the rest obsolete.

Hind wing with termen somewhat waved, not quite regularly rounded, being slightly straighter between SC^2 and R^3 ; dull purple, with the dark markings feeble, formed about as in *subrepleta*, Walk.

Underside with the ground-colour slightly paler, the markings consequently rather more distinct; veins somewhat dusted with yellow; fore wing with subbasal yellow streak better developed; hind wing with a rather broad, rapidly tapering yellow patch at base of costa, a small yellow spot at origin of R^1 , and a sinuous row of small interneural submarginal yellow spots between R^1 and fold, the second, third, and fifth placed nearer to the termen than the first and fourth.

Andaman Islands (*Watkins*).

7. *Agathia curvifiniens*, sp. n.
(Pl. VII. fig. 23.)

Distinguished from *carissima*, Butl., by having the proximal edge of the marginal band of the fore wing strongly sinuous, instead of nearly straight, a strong outward curve being formed between the radials (deepest between R^2 and R^3) and a slighter one between M^2 and SM^2 , the intervening part appreciably curved inward; the subapical green patch is formed, as in many *carissima*, of a large central and small anterior and posterior elements, very finely separated by red-brown dusting on SC^5 and R^2 ; the small submarginal green spot between M^1 and M^2 is almost or altogether obsolete.

Hind wing with a very minute red-brown cell-dot.

Ningpo, type ♂ and paratype ♀. Also from Gensan (Corea) and Kiushiu, in coll. Brit. Mus.

In *carissima* the median band of the fore wing is usually more oblique than in the new species, but varies somewhat.

8. *Anisozygia charma*, sp. n.
(Pl. VII. fig. 9.)

♂.—25 mm.

Face and palpus green above, white beneath. Vertex broadly white; occiput green. Thorax above green, with a large white metathoracic spot, beneath white; pencil beneath base of fore wing white, rather short. Fore leg brown, ringed with white. Hind leg mostly white; tibia without hair-pencil or process. Abdomen largely white, the first tergite broadly green, the succeeding ones narrowly and more faintly, each with a white spot at posterior end.

Fore wing opaque bright green, slightly irrorated with white; costal margin broadly (towards apex narrowly) white with strong red-brown irroration; antemedian line white, very fine or almost obsolete, sinuous; a small white mark on DC²; postmedian line white, almost or altogether broken into a thick oblique mark from beyond two-thirds costa, a thick spot between R² and M¹, almost or quite connected with a larger terminal spot between the same veins, and a large spot on hind margin near tornus; a white subterminal line indicated by a few anterior dots; termen somewhat dotted with white at veins; fringe green, with a white line at base and white spots opposite the veins.

Hind wing with a white dot on DC², the postmedian markings reversed, that on hind margin being small, that on costa large, almost reaching apex; the spot between R² and M¹ smaller than on fore wing, more bracket-shaped; mid-terminal spot as on fore wing.

Underside much whiter, with the markings shadowy; fore wing with costal margin nearly as above, narrowly bordered behind by a bright green shade.

Bidi, Sarawak, 1907-08 (*C. J. Brooks*), 4 ♂♂.

9. *Spaniocentra isospania*, sp. n.
(Pl. VII. fig. 22.)

♀.—32 mm.

Very similar to the forms of *megaspilaria* ♀ in which the tornal blotch is least darkened (reddish, largely overlaid with lilacine scales). *Hind tibia with terminal spurs only* *.

Fore wing with the dark irroration at base of costa and underlining the white costal edge stronger; tornal blotch narrower and shorter (not crossing R²—in paratype not crossing M¹), the narrow purple distal edging, on the other hand, better developed, forming small triangular projections on the veins.

Hind wing with corresponding distinction in the distal edging.

Bombay (*C. H. Druce*). A paratype from the same locality in coll. Brit. Mus.

Except for the difference in the tibial armature I should

* In my indication of this as a normal generic character for "both sexes" I was misled by a wrongly determined *isospania* in the British Museum collection; both in *megaspilaria*, Guen., which belongs here by its ♂ armature, and in its race (?) *pannosa*, Moore, the ♀ has all four spurs.

have regarded this, and not *pannosa*, as the Indian race of *megaspilaria*.

10. *Comibaena hemictenes*, sp. n.
(Pl. VII. fig. 21.)

♀.—34–35 mm.

Face green, in middle with an admixture of red, below rather narrowly white. Palpus as in the other African species. Crown green, with a white line in front. Antenna pectinate, the branches very short, about equal in length to the diameter of the shaft. Thorax and abdomen above green, beneath white; the abdomen dorsally with some red irroration, especially at the edges of the large snow-white spots of the third and fourth tergites; a slight red-brown spot on first abdominal. Legs white, more or less spotted (the hind pair very weakly) with reddish brown.

Fore wing bright green, as in *leucospilata*, Walk., etc.; costal edge white, shading off to yellowish; lines fine, white; antemedian from SC at 3·5 mm., slightly excurved to SM², then slightly oblique outward to hind margin; postmedian from SC⁵ at 4 mm. from termen, slightly oblique outward, slightly bent before M¹, then straightish to the proximal edge of tornal blotch at hind margin; cell-dot small, black, red-mixed; terminal line strong, red, extending 1 mm. round apex, interrupted by white dots at the veins, beyond M² gradually expanding into a small tornal blotch; fringe white, with curved or subtriangular red spots, placed so as to connect the terminal line on the outer side of the white dots.

Hind wing without the lines; cell-dot minute; terminal line and fringe as on fore wing, but with a small *apical* blotch corresponding to the tornal of fore wing.

Underside whitish, greener in proximal and costal parts of fore wing, especially subcostally (the costal edge itself white, as above); cell-dots and terminal markings (except the tornal blotch of fore wing) reproduced; fore wing with the two lines faint green, the postmedian crenulate; hind wing with a fine, rather weak, crenulate postmedian green line, about parallel with termen except after M¹, where it runs somewhat obliquely in the direction of the tornus.

Ivory Coast, type and another.

Distinguished from *leucospilata*, Walk., and its race (?) *esmeralda*, Warr., by the pectinate antenna. Of *rufitornus*, Prout (Nov. Zool. xxiii. p. 275), from East Africa, which is, perhaps, still nearer, the ♀ is unknown; but in that species the ground-colour is strongly strigulated with white.

11. *Racheospila penthica*, sp. n.
(Pl. VII. fig. 2.)

♂.—36 mm.

Face blackish. Palpus rather short, blackish, the first and second joints white beneath. Crown dirty green, with a large black spot on each side. Antenna blackish; pectinations scarcely longer than diameter of shaft. Occiput and front of thorax green; thorax and abdomen above otherwise black, beneath dirty white. Fore and (to a less degree) middle leg blackened, with white spots at ends of joints; hind leg white, the tibial process reaching just beyond middle of first tarsal joint.

Fore wing with SC^1 free, R^1 just separate, M^1 widely separate; black, with an interrupted green mark, oblique outward, near base, slight green marks around the large but otherwise scarcely visible black cell-mark; a small, green, black-dotted patch at nearly three-fourths. Costa and a very narrow green distal border, widening slightly at apex and containing at its proximal margin a row of rather large inter-neural black spots; a similar terminal row, extending on to the fringe.

Hind wing with termen slightly subcrenulate, somewhat bent at R^3 ; black, with a small green subbasal mark, and a narrow green distal border, which throws a small projection inward in front of R^2 ; terminal spots as on fore wing.

Fore wing beneath nearly as above, but rather more brownish black and with a narrow blue-white hind-marginal area, which broadens near base so as to touch M . *Hind wing* beneath blue-white, with a blackish shade between R^2 and costal margin, deepest towards apex, fading out indefinitely proximally.

Huancabamba, Cerro de Pasco, E. Peru, 6800 feet.

Belongs to the *exertata* group (*Blechroma*, Möschl.), and suggests being an aberration of some species of more normal colour-proportions. From the rich district of Huancabamba I know hitherto only three species of the group—*nigricincta*, Warr., *conspersa*, Warr., and *tisstigmatica scotocephala*, Prout (Nov. Zool. xxiii. p. 163),—all in single specimens. I have compared it with particular care with all the three, but also with the rest of the group, and cannot make the wing-shape and the position of such markings as remain agree with any. The palpus and tibial process appear slightly shorter than in *nigricincta*, the costa more arched in middle, the submarginal dark spots nearer the termen, etc.; the shape of the hind wing differs from that of *tisstigmatica*.

12. *Racheospila inaequalis*, sp. n.
(Pl. VII. fig. 17.)

♂.—30 mm.

Face green, mixed with reddish on outer side. Palpus mostly reddish, with some dark admixture; base beneath whitish. Vertex white, occiput green, a narrow red band between. Antennal pectinations very short, scarcely equal to diameter of shaft. Thorax above green, beneath whitish. Abdomen above greenish, the first segment with a snow-white blackish-edged spot, the third and fourth with elongate, white, slenderly red-edged spots, the later segments with smaller and vaguer spots; beneath white. (Hind legs lost.)

Fore wing with termen strongly oblique, especially in its posterior part; SC¹ anastomosing shortly with C, M¹ separate; bright green; costal edge narrowly snow-white, at base red mixed with black, apically underlined narrowly with red; lines dull red, incomplete; antemedian at one-fourth, marked chiefly by spots on SC and M, and a larger one on SM²-hind margin, the vestiges in cell and at fold angulated outward; postmedian from nearly three-fourths costa to nearly two-thirds hind margin, incurved behind middle, consisting of distinct dashes on the veins and vague deep lunules inward between; cell-dot dull red, not minute; terminal line dull red, slightly interrupted at the veins except posteriorly, where it gradually thickens, reaching a width of nearly 1 mm. near tornus; fringe proximally pure white, with triangular dark red spots, distally with a thick dull red line.

Hind wing with termen feebly sinuate between the radials, slightly bent at R³; M¹ almost connate; concolorous with fore wing, antemedian line represented by a dot on M, the rest (except costally) nearly as on fore wing; a moderate apical blotch reaching R¹.

Fore wing beneath pale green, becoming white at distal margin (narrowly at apex, gradually widening posteriorly); a small reddish cell-dot; fringe nearly as above. Hind wing beneath whitish, with dark apical blotch; fringe nearly as above.

Santo Domingo, Carabaya, S.E. Peru, 6000 feet, November 1904 (*G. Ockenden*).

Presumably referable to my "*lafayaria* group" (Gen. Ins. fasc. 129, p. 103), but somewhat aberrant in shape.

13. *Racheospila lugentiscripta*, sp. n.
(Pl. VII. fig. 8.)

♂.—28 mm.

Closely allied to *promontoria*, Warr. (Nov. Zool. xi. p. 26), differing as follows:—

Antennal pectinations shorter (rather less than twice diameter of shaft). Abdomen above darker. Size smaller.

Fore wing in addition relatively somewhat shorter, the termen curving so as to become a trifle less oblique anteriorly; ground-colour rather duller green; markings much extended, heavily irrorated (except terminal spots at apex, R^1 , M^2 , and SM^2) with blackish; in particular, the tornal blotch extends along hind margin to 3 or 4 mm. from base, is broadly bounded anteriorly by M from well before origin of M^2 to well beyond M^1 , and is accompanied anteriorly by some smoky clouding which nearly reaches costa and contains the enlarged dark cell-spot.

Hind wing with both blotches broader than in *promontoria*, narrowly connected along termen; cell-dot somewhat enlarged; coloration as on fore wing.

Fore wing beneath very pale green, hind wing almost white; the dark markings reproduced (except the greater part of the tornal blotch of hind wing), less reddish, the paler spots at termen white.

San Antonio, W. Colombia, 5800 feet, December 1907 (*M. G. Palmer*), 2 ♂♂.

As subsp. (?) *dubia*, subsp. n., I describe a single ♂ from Intaj, Ecuador (*Buckley*), with the ground-colour a little brighter, the markings rather more red (though much darker than in *promontoria*), on the fore wing formed as in *C. lugentiscripta*, on the hind wing above with the anal blotch extended on abdominal margin to one-third from base, beneath entirely wanting, the ground-colour above reaching the terminal line between R^3 and M^1 .

14. *Phrudocentra senescens*, sp. n.
(Pl. VII. fig. 16.)

♂.—30–31 mm.

Face green. Palpus short, not reaching beyond frons; pale beneath. Vertex and antennal shaft white; pectinations short, scarcely exceeding diameter of shaft. Occiput green. Thorax and abdomen above green, the latter with white dots

at the ends of the segments. Hind tibial process rather longer than the first tarsal joint.

Fore wing moderately broad, apex not produced; duller and more greyish green than the allies; costal edge very narrowly brownish; cell-dot rather large, black; lines weak, represented only by brown-blackish dots on the veins, the postmedian nearer to the cell-dot than to the termen, gently curved anteriorly, then almost straight; no terminal line; fringe paler.

Hind wing with termen scarcely at all bent at R^3 ; cell-dot minute; antemedian wanting; postmedian dots almost parallel with termen.

Underside paler, greenest in central part of fore wing, both wings becoming whitish distally; costal edge of fore wing proximally more broadly brownish than above; both wings with a small discal dot and a very feeble but continuous postmedian line, slightly darker grey-green than the ground-colour.

Sierra del Libane, Colombia, 6000 feet (*H. H. Smith*), 3 ♂♂.

Possibly nearest *niveiceps*, Prout (Gen. Ins. fasc. 129, p. 122), except in shape, which more associates it with *marcida*, Warr. (Nov. Zool. xvi. p. 79), an evident *Phrudocentra*, by lack of ♀ frenulum and general affinity with *pupillata*, Warr.

15. *Oospila circumdata striolata*, subsp. n.
(Pl. VII. fig. 24.)

♂.—Abdomen above much darker than in name-typical *circumdata*, Warr. (Nov. Zool. xiv. p. 202). Both wings with cell-dot slightly enlarged; all the marginal rufous markings somewhat extended, heavily irrorated and striolated with blackish, leaving free only some small spots or patches at the wing-margins.

Rio Ampiyacu, Putumayo, Peruvian Amazons (*J. C. Mounsey*).

In a ♀ from Codajas, Upper Amazons, April 1907 (*S. M. Klages*), in coll. Tring Mus., the tornal patches do not, as in the Putumayo specimen, cross M^2 , but it is certainly referable to this race.

As the wings appear somewhat narrower than in *c. circumdata*, this may possibly prove a distinct species. The colouring must be nearly that of *quinquemaculata*, Warr. (Proc. U.S. Nat. Mus. xxx. p. 416), from French Guiana,

which I have not seen; but in that species the termen of fore wing is bent in the middle, the tornal spot of fore wing rounded, terminal line interrupted, etc.

16. *Oospila circumscissa*, sp. n.
(Pl. VII. fig. 13.)

♂.—24 mm.

Face reddish. Palpus reddish above, white beneath. Vertex and base of antenna reddish; occiput green. Thorax above green, beneath whitish (abdomen lost). Hind tibia slender.

Fore wing with termen rather more oblique posteriorly than anteriorly; DC³ rather deeply inbent, SC¹ touching C at a point, R¹ not stalked, M¹ well stalked; pale green, with costal edge narrowly reddish; a very minute dark cell-dot; distal border variegated, light red and more purple-red, the latter shade prevailing proximally, its proximal edge olive-brown, commencing at costa close to apex, forming (except for slight indentations at the veins, that at SC⁵ the most noticeable) a fairly regular curve to the middle of M¹, running inward for a short distance along M¹, then approximately vertical (slightly curved) to hind margin; a dark terminal line, interrupted at the veins; fringe reddish, with a yellower line at base.

Hind wing elongate, with strong toothed projection at end of R³; DC scarcely angled at origin of R², M¹ rather long-stalked; concolorous with fore wing, abdominal margin narrowly red nearly to base; cell-dot minute; the red border widening at costa and at abdominal margin, the ground-colour forming a strong projection into it between R³ and M¹; a very narrow yellow-green patch at distal margin between the radials; terminal line thickening, with darkening at the tail; fringe longest and darkest at the tail.

Underside whitish green, with the borders vaguely reddish proximally, only faintly tinged with reddish distally; terminal line obsolescent; fringe of hind wing dark reddish at the tail.

Contamama, Rio Ucayali, Peruvian Amazons, November–December 1912 (*J. C. Mounsey*).

Near *latimargo*, Warr. (Nov. Zool. xi. p. 20), but smaller, and with the border of the fore wing and that of the hind wing posteriorly quite different in shape.

17. *Bathycolpodes torniflorata*, sp. n.
(Pl. VII. fig. 29.)

♂.—33 mm.

Face green above, orange-brown (possibly faded?) below. Palpus reaching beyond face; reddish, with some dark admixture. Antenna simple. Crown whitish, somewhat mixed with green. Thorax above green. Abdomen whitish, dorsally with brown and pink suffusions and some blackish irroration; crests strongly mixed with blackish.

Fore wing dark green; costal edge ochreous, heavily spotted with blackish; cell-dot blackish red; a postmedian row of white vein-dots, incurved between SC^5 and R^3 , then excurved, from M^2 expanding into a tornal blotch, of which the proximal part is white, rounded to SM^2 , here deeply indented, the distal part mostly pinkish with dark irroration, at termen whitish with dark irroration; terminal line thick, blackish red, slightly interrupted at the veins; fringe whitish ochreous, broadly and heavily dark-spotted opposite the veins.

Hind wing with termen very deeply excised between the radials, somewhat prolonged posteriorly to the excision; dark green, with small blackish cell-dot and postmedian white vein-dots, more deeply indented at R^2 than on fore wing; termen and fringe as on fore wing.

Fore wing beneath pale green, at hind margin whitish; costal edge ochreous, with some large blackish dots; cell-dot redder than above; terminal line nearly as above, but expanding into a small blotch at tornus; fringe as above. Hind wing beneath whitish, with dark terminal line expanding into a very small blotch at apex; fringe as above.

Bitji, Ja River, Cameroons, 2000 feet, June–July 1909, dry season (*G. L. Bates*).

18. *Antharmostes simplicimargo*, sp. n.
(Pl. VII. fig. 20.)

♂.—33 mm.

Face and palpus brown-red, the latter whitish beneath. Antennal pectinations little longer than diameter of shaft. Vertex whitish; occiput green. Thorax above green. Abdomen brown-whitish, the vestigial crests dull reddish. Hind tibia not or scarcely dilated.

Fore wing with termen almost straight; green, without markings except the faint indication of a darker green cell-

dot; costal edge and terminal line rosy, coarsely irrorated with blackish fuscous; fringe proximally rosy.

Hind wing with tail shorter than in the other species; as fore wing, except costal edge.

Underside whitish green, the borderings fainter and duller than above.

Udamba, Kuila River, S.W. Congo State (*J. S. Bousfield*).

19. *Thalassodes floccosa*, sp. n.
(Pl. VII. fig. 4.)

♂.—44 mm.

Face green. Palpus with third joint elongate. Vertex and base of antennal shaft white. Thorax and abdomen green; abdomen beneath strongly pilose. Hind tibia densely clothed with long, golden-brown, floccous hair; tarsus not shortened, with similar clothing on the first joint, becoming progressively shorter on the second and third joints.

Fore wing green (faded), with the usual white postmedian line almost straight, placed at about 6 mm. from termen, chiefly marked as dots on the veins; termen with a fine dark line, darker-dotted on the veins; fringe whitish (defective).

Hind wing elongate, with the angle at R^3 well marked; a somewhat raised white cell-mark on DC^3 , nearly as pronounced as in *Eretmopus marinaria*, Guen., more elongate; postmedian line of the normal form, chiefly marked as white vein-dots; termen as on fore wing; beneath clothed to beyond middle with floccous light brown hair.

Prov. Wellesley, Malay Peninsula (*Distant*).

Probably near *leucospilota*, Moore, suggesting an interesting transition towards *Eretmopus marinaria*, Guen.

20. *Prasinocyma rhodocycla*, sp. n.
(Pl. VII. fig. 6.)

♀.—37 mm.

Palpus slightly over twice as long as diameter of shaft, second joint reaching beyond frons, third joint longer than second. Like *oculata*, Prout (Nov. Zool. xxii. p. 316), from Uganda, but with the face reddish, somewhat mixed with green, the wings broader, with rather more rounded termen, the white strigulation less strongly developed, a small white spot beyond middle of hind margin of fore wing. The fringe—green in the proximal part—is greyer and rather paler in the distal.

Ivory Coast.

Has already been mentioned from Kumasi (Coomassie) in the description of *oculata*, but I think it should be regarded as a distinct species—at the least, it will be a West-African race.

21. *Hemithea notospila*, sp. n.
(Pl. VII. fig. 27.)

♂.—36 mm.

Like *subflavida*, Warr., but with third joint of palpus still shorter, abdomen with second and third tergites and their crests red, heavily mixed with black, the crest of the third tergite strong.

Wings with distal margins rather more noticeably waved than in *subflavida*, fringes more strongly chequered; fore wing beneath nearly as in *subflavida reducta*, Warr., but with some slight additional shading subterminally, especially between SC^4 and SC^5 ; hind wing beneath with the terminal dark band well developed from apex to R^2 and again from SM^2 to tornus, shadowy between.

Borneo?

It is unfortunate that the type has not better data; but according to some MS. notes a specimen from North Borneo (? Kina Balu), in coll. Sarawak Mus., which Mr. Moulton showed me some years ago, and which I took to be *subflavida*, Warr., certainly belongs here.

22. *Hemithea antigrapha*, sp. n.
(Pl. VII. fig. 11.)

♂ ♀.—21–26 mm.

Face green. Palpus in ♂ at least one-and-a-half times, in ♀ over twice as long as diameter of eye; third joint in ♂ moderate, in ♀ long; reddish, blackening distally, beneath white. Antennal joints scarcely projecting; ciliation in ♂ somewhat longer than diameter of shaft. Vertex narrowly white; occiput green. Thorax and base of abdomen above green; third and fourth abdominal tergites red, much mixed with black. Hind tibia in ♂ long, moderately dilated, the spurs very unequal, tarsus scarcely one-fourth as long as tibia.

Fore wing dull grey-green; costal edge narrowly ochreous, black-dotted; lines white; antemedian indistinct, slightly interrupted, deeply bent outward in cell, angled inward on M

and SM², outward at fold, oblique outward to hind margin; postmedian strongest as dots on the veins and a dash on hind margin, formed as in the rest of the group (*tritonaria*, Walk., etc.); faint indications of a dark green cell-mark; terminal line blackish, interrupted by conspicuous dirty white dots at the veins; fringe dark grey, paler distally, and with a fine pale line at its base.

Hind wing rather long and narrow, with the tail at R³ rather well developed; as fore wing, but without costal markings or first line, the cell-mark rather more noticeable.

Fore wing beneath whitish green; costal edge as above, but more weakly dotted; terminal line blackish, interrupted at the veins; a small grey spot at tornus; fringe dark grey, pale at base. Hind wing beneath whitish, with a dark grey blotch between apex and R¹, darkest in its anterior half; termen and fringe as on fore wing.

Khasis, in various collections. Also from Penang and Mount Tahan, Malay Peninsula, in coll. Tring Mus.

Darker than *tritonaria*, Walk.; further distinguished by the greener face (in *tritonaria* nondescript olivaceous to reddish), more black-mixed patch on the abdomen, presence of dark blotches on the wings beneath, and structurally by the longer palpus.

23. *Hemithea distinctaria leta*, subsp. n.
(Pl. VII. fig. 18.)

♂ ♀.—Abdomen almost entirely without the rosy and black dorsal ornamentation of segments 2-4. Wings brighter green, the colour resembling that of *nigropunctata*, Warr.

Khasis.

The costal edge of the fore wing is not or scarcely dotted with fuscous, but this is also sometimes the case with *d. distinctaria*.

24. *Neromia enotes*, sp. n.
(Pl. VII. fig. 15.)

♂.—23 mm.

Face deep red, heavily mixed, except at edges, with black. Palpus minute, dull reddish. Tongue vestigial. Antenna dentate, with short ciliation. Crown green, mixed with ochreous. Thorax above green, narrowly orange-ochreous in front. Abdomen whitish ochreous, whiter beneath. Fore coxa deep red in front; fore and middle femora and tibiæ partly reddish.

Fore wing rather short and broad; very pale green, the costal edge pale ochreous, more broadly at base; antemedian line wanting; postmedian slender, ochreous white, from hind margin at about three-fourths, obsolescent from R¹ forward; terminal line and fringe whiter.

Hind wing with abdominal margin relatively long, termen strongly rounded in posterior part; line of fore wing continued, farther from termen, weak at abdominal margin.

Fore wing beneath nearly as above, the line weaker; hind wing somewhat whiter, the line weakly indicated.

Gambia (*A. Moloney*).

Closely similar to *N. carnifrons*, Butl., the only non-African species of the genus.

25. *Neurotoca insolens*, sp. n.
(Pl. VII. fig. 19.)

♂.—33 mm.

Face red. Palpus extremely minute, red. A short tongue present. Vertex and proximal part of antennal shaft red; occiput green. Antennal pectinations about twice as long as diameter of shaft. Thorax above green; abdomen dirty whitish ochreous, with dark belts (possibly discoloured), crests slight. Underside whitish. Fore leg marked with red on upper and inner side.

Fore wing less pointed than in the typical species; M¹ connate; green, as in *Heterorachis simplex*, Warr. (*haplou*, Prout); costal margin red at base; cell-mark faintly darker green; fringe white.

Hind wing more rounded than in the typical species; C anastomosing with SC at a point near the base, then diverging, M¹ shortly stalked; as fore wing, except costal margin.

Underside almost uniform whitish green; fore wing with costal margin ochreous, at base reddish, the costal and apical regions slightly greener than the rest of the wing.

Victoria Falls, Rhodesia (*E. H. Druce*), type and another.

Placed provisionally in *Neurotoca*, as it would fall there by my keys (Gen. Ins. fasc. 129, p. 14; Nov. Zool. xx. p. 434), but probably requiring a new genus. There can be little doubt it is a direct development of *Heterorachis*, with the median spurs of the hind tibia wanting.

26. *Prohydata ignita*, sp. n.
(Pl. VII. fig. 10.)

♀.—23 mm.

Face white, with a tinge of yellow, the upper part light

red. Palpus nearly three times as long as diameter of eye; white, the first and second joints shaded with red on outer side. Vertex white, occiput green, a slight red line between. Antenna thick, lamellate, the scaled surface white. Thorax and abdomen above green, brighter than on the wings.

Fore wing with a light red, yellow-mixed costal area, broadening from base to beyond cell, where it reaches R^2 , then narrowing to a point at apex; the rest of the wing pale olivaceous, mostly translucent behind the cell and R^3 from base to postmedian line, otherwise darkened with slaty grey, only becoming pale green at extreme termen and on fringe; lines dark grey, rather thick but only defined on the red costal patch, where the postmedian is accompanied distally by some yellow spots; a long-oval yellow spot near apex; an ill-defined oblique blackish dash from apex, deepest on fringe; some ill-defined slaty-grey patches on hind margin in the translucent area, the most prominent enclosing a pale space.

Hind wing strongly angled at R^1 ; C approximated to SC for a short distance near base, including anastomosis at a point only; nearly all grey, the basal and distal areas more brownish, the median more slaty; cell-mark and curved (near abdominal margin sinuate inward) postmedian line indicated in darker grey; a green spot on abdominal margin proximal to median area and slighter green shades distally on the same margin; distal margin very narrowly green; fringe green.

Underside paler greenish, similarly but more vaguely marked.

Cachi, Costa Rica.

In spite of the great differences it is conceivable that this may be a ♀ form of *busa*, Druce (Biol. Centr.-Amer., Lep. Het. ii. p. 92), of which the unique type (from Chiriqui, Panama) is a ♂ in Coll. Staudinger and unknown to me. That there is sometimes strong sexual dimorphism in this genus is shown by *latifusciata*, Warr., and others, in which the ♀ has complete and broad distal border to the fore wing, while that of the ♂ is broken.

27. *Berta chrysolineata philippina*, subsp. n.
(Pl. VII. fig. 14.)

♂.—22 mm.

Smaller and greener than the name-type, the white markings narrowed; particularly noticeable is the slender but almost uninterrupted postmedian line of the fore wing.

Palawan (*Doherty*), 2 ♂♂ in Coll. Joicey, another in Coll. Tring Mus.

Subfam. *GEOMETRINÆ*.28. *Macaria laquatia*, sp. n.
(Pl. VII. fig. 3.)

♀.—33–35 mm.

Frontal tuft very small. Palpus one-and-a-half times as long as diameter of eye. Head and body concolorous with wings.

Fore wing with termen waved, a scarcely noticeable sinus between R^1 and R^3 ; SC^1 arising from C; SC^2 free; white, shaded almost throughout with violaceous fuscous and with some coarse dark fuscous irroration; an ill-defined ochreous-brown admixture in the region of the lines, especially post-medially; costal margin indefinitely dark-spotted basally; lines thick and strongly oblique outward at costa (at approximately one-fifth, two-fifths, and three-fifths), otherwise ill-defined and oblique inward, the antemedian inbent behind M, the median forming a sinuous shade in the region of the somewhat elongate, obliquely placed, dark cell-mark, the postmedian forming a marked inward curve between R^1 and M^2 , accentuated by a long blackish mark on its proximal side, which is swollen in the middle and gradually tapers posteriorly; the blackish marks between the radials beyond the postmedian line (characteristic of many of the genus) unusually elongate—nearly or quite 2 mm. in length; a large dark ferruginous spot from nearly four-fifths costa almost to the subcostal angle of postmedian line; an oblique darker mark from tornus to fold; the space between median shade and postmedian, a small patch distal to the ferruginous one, and another at mid-termen mainly whitish, the second of these patches usually culminating in a clearer white spot between SC^5 and R^1 ; termen with shallow elongate dark lunules, which are sometimes almost confluent; a slight interrupted white line at base of fringe, extending minutely on to the wing distally to the lunules; fringe otherwise violet-fuscous, quite weakly dark-spotted opposite the veins.

Hind wing with median shade curving inward proximally to the cell-spot, which is rounder (less elongate) than on fore wing; distal area more weakly marked than on fore wing, wanting the characteristic dark markings.

Both wings beneath purer white, though with coarse strigulate irroration; costal edge and veins more or less strongly ochreous; cell-marks strong; median shade present, but ill-defined; area distally to postmedian line dark, ferruginous-mixed, enclosing on the fore wing white patches corresponding

to the whitish ones of upper surface and on the hind wing a triangular white patch from tornus about to R^3 and some ill-defined white apical shading; termen as above; the white at base of fringe broader on posterior half of fore wing and most of hind wing, the dark spots at vein-ends strengthened.

Ivory Coast, type and another; Coomassie, 3 ♀ ♀ in Coll. Brit. Mus.

Characterized by the strongly incurved postmedian line and the length of the dark marks distally to it.

29. *Milionia anisochrysa*, sp. n.
(Pl. VII. fig. 7.)

♀.—46 mm.

Face black. Palpus short, blackish. Vertex blackish brown; occiput black. Collar, front of thorax, and fore coxa yellowish white. Thorax and abdomen above black, the latter with some yellow scales at the ends of the segments; sides of abdomen bright yellow, venter much paler and duller.

Fore wing rather long and narrow; SC^{1-2} coincident, free; black, with a transverse oblique white patch of 1–2 mm. width from SC^{3-5} (and basal part of SC^5 after its separation) to M^2 , constricted in middle, its proximal edge being nearly straight, its distal projecting at R^1 , sinuate inward between this and R^3 .

Hind wing rather elongate; black, with a few yellow scales in places and a small patch of the same colour between R^1 and M^1 , about halfway between cell and termen.

Fore wing beneath as above, the white band slightly widened. *Hind wing* beneath yellow, with a black border and an interrupted black band joining the border at costa and towards tornus, just entering the anterior corner of the cell, suddenly narrowed at cell-fold by a projection of the proximal ground-colour, widening again gradually from M^1 ; the distal black border is rather broad on apical region, with slight indentations of the ground-colour, narrower (scarcely 2 mm.) from R^3 to behind M^1 .

Biak, Schouten Islands, June 1914 (*A. C. and F. Pratt*).

The upper surface rather recalls *bicolorata*, Warr. (Nov. Zool. iii. p. 398), but the under shows affinity with *tricolor*, Warr. (Nov. Zool. iii. p. 130). I cannot see that the group (*Pseudeusemia*, Weym., in Lep. Niepelt. i. p. 10) is separable structurally from *Milionia*.

EXPLANATION OF PLATE VII.

- Fig. 1. *Æolochroma prasina spadiceocampa*, ♂, p. 111.
 Fig. 2. *Racheospila penthica*, ♂, p. 115.
 Fig. 3. *Macaria laguatia*, ♀, p. 126.
 Fig. 4. *Thalassodes floccosa*, ♂, p. 121.
 Fig. 5. *Phellinodes biapicata*, ♂, p. 108.
 Fig. 6. *Prasinocyma rhodocycla*, ♀, p. 121.
 Fig. 7. *Milionia anisochrysa*, ♀, p. 127.
 Fig. 8. *Racheospila lugentiscripta*, ♂, p. 117.
 Fig. 9. *Anisozyga charma*, ♂, p. 112.
 Fig. 10. *Prohydata ignita*, ♀, p. 124.
 Fig. 11. *Hemithea antigrapha*, ♂, p. 122.
 Fig. 12. *Dysphania porphyroides*, ♂, p. 111.
 Fig. 13. *Oospila circumssessa*, ♂, p. 119.
 Fig. 14. *Berta chrysolineata philippina*, ♂, p. 125.
 Fig. 15. *Neromia enotes*, ♂, p. 123.
 Fig. 16. *Phrudocentra senescens*, ♂, p. 117.
 Fig. 17. *Racheospila inæqualis*, ♂, p. 116.
 Fig. 18. *Hemithea distinctaria læta*, ♂, p. 123.
 Fig. 19. *Neurotoca insolens*, ♂, p. 124.
 Fig. 20. *Antharmostes simplicimargo*, ♂, p. 120.
 Fig. 21. *Comibæna hemictenes*, ♀, p. 114.
 Fig. 22. *Spaniocentra isospania*, ♀, p. 113.
 Fig. 23. *Agathia curvifeniens*, ♂, p. 112.
 Fig. 24. *Oospila circumdata striolata*, ♂, p. 118.
 Fig. 25. *Mimandria cataractæ*, ♂, p. 110.
 Fig. 26. *Pingasa lahayeae austrina*, ♂, p. 111.
 Fig. 27. *Hemithea notospila*, ♂, p. 122.
 Fig. 28. *Phellinodes leucoplethes*, ♂, p. 109.
 Fig. 29. *Bathycolpodes torniflorata*, ♂, p. 120.

IX.—A new Genus of Ursidæ.

By R. I. Pocock, F.R.S.

IN 1914 (P.Z.S. p. 940) I pointed out that mainly by the structure of the feet the existing species of bears might be referred to the following genera:—*Thalarctos*, *Ursus*, *Tremarctos*, *Helarctos*, and *Melursus*. On the evidence supplied by the feet, two species were assigned to *Tremarctos*—namely, *ornatus*, the type of the genus, from the Andes of South America and *thibetanus* from Central Asia. The latter has been previously and universally referred to the genus *Ursus*, and was the only well-marked species of the family to escape the gift of a special generic or subgeneric title.

Subsequent comparison between the skulls of the two species in question convinces me that they cannot consistently be ascribed to the same genus. I propose, there-