

- Fig. 14. *Microparmarion pollonerai*, n. sp. View from right side, showing right and left dorsal lobes of the mantle, *r.d.l.* and *l.d.l.*  $\times 2.4$ .
15. Caudal mucous pore.  $\times 4.6$ .
16. Visceral sac, dorsal view: *r.s.l.*, right shell-lobe.  $\times 8$ .
17. Visceral sac, lateral view.  $\times 8$ .
18. Jaw.  $\times 12$ .
19. Portion of lingual ribbon.  $\times 368$ .
20. Portion of lingual ribbon.  $\times 368$ .
21. Portion of stomach and intestine, showing position of salivary gland, *s.gl.*, and its duct, *d.*, opening into the buccal cavity, *b.c.*
22. Generative organs.  $\times 6$ . Lettering as before.
23. Penis and flagellum.  $\times 8$ .
24. Interior portion of flagellum, showing the papillated surface.  $\times 4$ .
25. Dart-sac and dart *in situ*.
26. *Microparmarion simrothi*, n. sp. View from the right side, showing the position and extent of the right and left dorsal mantle- and shell-lobes.  $\times 4$ .
27. *Microparmarion simrothi*, n. sp. Anterior portion from the left side.  $\times 3$ .
28. Shell of the same.  $\times 2$ .
29. Head and anterior portion of the same.  $\times 4$ .
30. Jaw.  $\times 4$ .
31. Visceral mass, showing salivary gland, *s.gl.*  $\times 4$ .
32. Generative organs.  $\times 4$ . Lettering as before.
33. Upper portion of penis with flagellum.  $\times 6$ .
34. The same, showing a variation in the form of the flagellum.  $\times 6$ .
35. Dart-sac and dart *in situ*.  $\times 12.5$ .
36. Generative organs of *Parmarion pupillaris*, Humb. (after Semper). Lettering as before.
37. Dart of *P. pupillaris*, Humb. (after Semper).
38. Isolated teeth from lingual ribbon of *P. pupillaris*, Humb. (after Semper).
39. Generative organs of *Microparmarion strubelli*, Simr. (after Simroth). Lettering as before.

4. On Collections of Lepidoptera from British Central Africa and Lake Tanganyika. By ARTHUR G. BUTLER, Ph.D., F.L.S., F.Z.S., &c.

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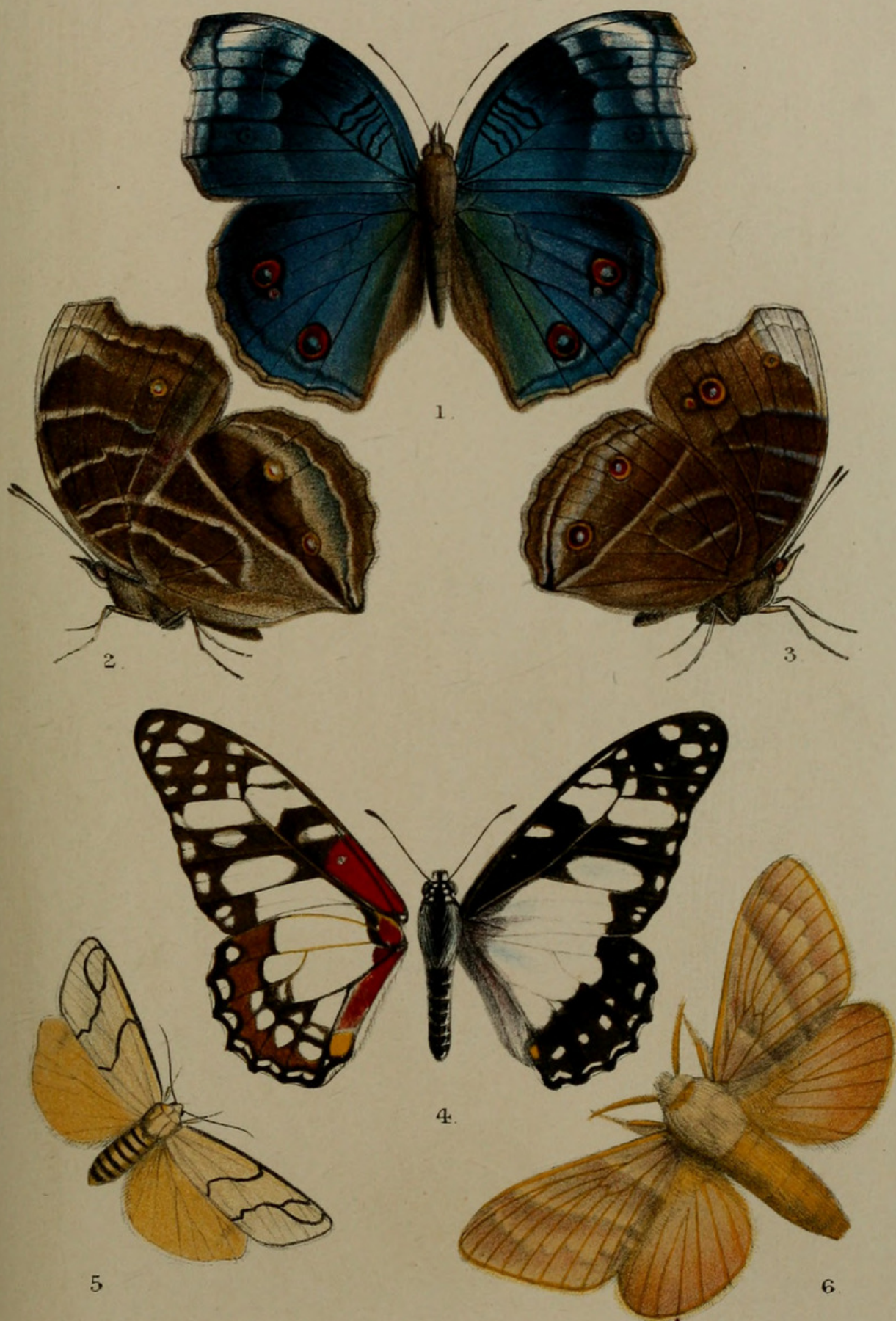
(Plates XV. & XVI.)

In 1894 we received, through Mr. A. Whyte, F.Z.S., a small collection of Lepidoptera made at Zomba by Mr. J. McClounie, especially remarkable for the number of specimens of the genus *Charaxes* which it contained. Among these were specimens of the female of *C. whytei* (the male of which I had described and figured in the Society's Proceedings for 1893), of two previously unnamed forms, possibly distinct species, and of two undoubtedly new species, also examples of *C. nyasana* confounded by the late Mr. Hewitson with his *C. azota*.

A second series has been selected from a large consignment of Lepidoptera collected at Fwambo, Lake Tanganyika, by Mr. Alexander Carson. This is especially interesting, not only as including examples of rare species previously only received from Zomba









and Lake Mweru, but several most startling novelties, the first of which is *Junonia pavonina*; a lovely new species allied to *J. artaxia*. Another very interesting Butterfly in the collection is the female of my *Crenis crawshayi*, clearly proving its distinctness from the allied *C. concordia* of Hopffer. Among the Moths of Mr. Carson's collection is one belonging to a beautiful new genus of *Lithosiidae* bearing a most striking resemblance, in the disposition of its colours and somewhat complicated pattern, to the Agaristid genus *Pais*: examples of the beautiful Noctuid moth *Calliodes glaucescens*, previously received from Zomba only, were also among those obtained.

The following is a list of the species of which specimens were acquired:—

#### RHOPALOCERA.

##### 1. AMAURIS WHYTEI.

*Amauris whytei*, Butler, P. Z. S. 1893, p. 644.

♀, Zomba.

##### 2. MELANITIS LIBYA.

*Melanitis libya*, Distant, Ann. & Mag. Nat. Hist. ser. 5, vol. x. p. 405 (1882); Trimen, P. Z. S. 1894, p. 22, pl. iv. fig. 2.

♂, Zomba.

##### 3. MELANITIS SOLANDRA.

*Papilio solandra*, Fabricius, Syst. Ent. p. 500 (1775).

Zomba.

##### 4. SAMANTA PERSPICUA.

*Mycalesis perspicua*, Trimen, Trans. Ent. Soc. London, 1873, p. 104, pl. i. fig. 3.

Fwambo.

##### 5. CHARAXES CASTOR, var. FLAVIFASCIATUS.

The Eastern and Central African race of *C. castor*; having the upper-surface coloration of *C. hansalii*, with the general marking of the type form, from which the width of the central band principally distinguishes it; on the under surface, however, the dark markings on the basal half are greenish grey, there is a black transverse spot on the wider central white band, and the deep red band is clearly broken up into spots by whitish nervular streaks. Expanse of wings 4 inches to 4 inches 4 lines.

Zomba.

##### 6. CHARAXES SATURNUS.

*Charaxes saturnus*, Butler, P. Z. S. 1865, p. 624, pl. 36. fig. 1; ♀, Lep. Exot. i. p. 5, pl. 2. fig. 2 (1869).

♂, Zomba.

In the same collection is the female of a male insect which I have considered since 1893 to be a variety of *C. saturnus*, but respecting

which I now have some doubt. We received the male from Sulim bin Najimb, Konde, where it was obtained by Mr. R. Crawshay. It differs from the typical form in the more falcate character of the primaries (particularly in the female), the lighter, redder basal area of the wings above, the clearer colouring of the postmedian tawny band, and the smaller black spots which traverse it; the marginal markings on all the wings extended inwards so as to form a broad band, divided into truncated ovoid tawny spots in the primaries and in the secondaries barely separated by the black veins into eight spots—the three first tawny, bell-shaped or obconical, slightly tipped at the outer angles with white, the fourth white with orange fold, the fifth and sixth similarly coloured but quadrate internally; the two last green varied with white and lavender, connate in the female; all the tawny spots below larger and of a more salmon tint, the grey-greenish markings on basal area with more slender white margins. Expanse of wings, ♂ 3 inches 3 lines; ♀ 3 inches 11 lines.

I think that this may prove to be at least a distinct race, having a restricted range in British Central Africa, and therefore I propose to call it var. *laticinctus*. We received a third example in the Salvin and Godman collection.

#### 7. CHARAXES DRUCEANUS.

♂. *Charaxes druceanus*, Butler, Cist. Ent. i. p. 4 (Oct. 1869); Lep. Exot. p. 26, pl. x. fig. 4.

♀, Zomba.

The female is slightly larger and has a broader tawny band than the male.

#### 8. CHARAXES POLLUX.

*Papilio pollux*, Cramer, Pap. Exot. i. pl. xxxvii. figs. E, F (1776).

♂, Zomba.

#### 9. CHARAXES MACCLOUNII, sp. n. (Plate XV. fig. 1.)

♂. Allied to *C. lasti*: primaries with less arched costa, less sinuated outer margin, and shorter inner margin; secondaries strongly produced at anal angle, with only two tails, the first of which (at extremity of third median branch) is a mere denticle, the second (at extremity of first median branch) barely half the length of that in *C. lasti*; colouring deeper throughout, with all the black markings considerably heavier, the discal spots of primaries continued to below first median branch, those of secondaries forming a continuous tapering submarginal band; under surface altogether more ochreous than in *C. lasti*, the markings mostly ferruginous, the black-bordered grey markings on interno-median area of primaries reduced in size, the silver band of secondaries widened out as in *C. cynthia*. Expanse of wings 80 millim.

♀. Extremely like Mr. Trimen's figure of *C. lasti* ♀ (P. Z. S. 1894, pl. v. fig. 6), but altogether deeper in colour, the black markings heavier, the macular submarginal band much wider,

reducing the marginal tawny border of the primaries to a series of oval spots; the secondaries somewhat produced at anal angle, with the inferior tail slightly incurved, but both tails well developed and only slightly shorter than in *C. lasti*: below, the wings are much paler than in the male, the silver band of secondaries being replaced by a broad creamy stramineous belt in continuation of that on the primaries. Expanse of wings 18 millim.

Two pairs, Zomba.

This species is intermediate in character between *C. lasti* and *C. cynthia*.

#### 10. CHARAXES BRUTUS.

*Papilio brutus*, Cramer, Pap. Exot. iii. pl. ccxli. figs. E, F (1782).

♂, Zomba.

The single specimen obtained is distinctly shot with dark bronze-green on basal area and indigo-blue on external area; the white band tapers more than usual on the primaries, the five upper spots being smaller than in most examples. This species is, however, known to vary in all these characters.

#### 11. CHARAXES NYASANA.

*Charaxes nyasana*, Butler, Ann. & Mag. Nat. Hist. 1895, xv. pp. 248-9.

*Charaxes azota*, Hewitson, Ent. Month. Mag. xiv. p. 181 (1878).

♂, Zomba.

Hewitson's description of his Nyasa example is insufficient to enable anyone to distinguish it from the true male of *C. azota* from Delagoa Bay: the latter is smaller than examples from Nyasaland, and on the upper surface of the primaries the reddish-tawny border divides above the second median branch, the inner furca consisting of five and the outer of six spots; in the Nyasa form the border divides above the third median branch, leaving only two and a half spots of the inner furca free; the remaining divisions of the border are also marked with black spots: on the secondaries the outer red area occupies nearly half the wing in the male from Delagoa Bay, but in *C. nyasana* only two-fifths, in the former the inner edge of this border is nearly straight; in the latter it is zigzag. On the under surface the shiny glaucous lilacine central band in *C. nyasana* is of double the width of that in *C. azota*: expanse of wings in the former 95 millim., in the latter 87 millim.

*C. calliclea*, H. G. Smith, is an intermediate race.

#### 12. CHARAXES LEONINUS, sp. n. (Plate XV. fig. 2.)

Allied to *C. nichetes*, similar in form. Above deep orange, tawny in the male, paler in the female; a single or double black spot in the cell of primaries just below the subcostal vein, a transverse subcuneiform spot at end of cell, two quadrate spots beyond the cell, and three smaller spots in the median interspaces; a black zigzag discal band, diffused on both sides towards costa and bounding

a macular increasing band of the ground-colour, which commences below the last subcostal branch with the first of four tawny spots; below the second median branch, however, this band is much broader and unbroken; apical half of costa, apex, and external border ferruginous: secondaries crossed beyond the middle by a tapering, more or less sinuated black band continuous with the discal band of primaries; a series of annular submarginal ocelloid markings, the first six of which are nearly of equal size, the last two smaller and dotted externally with black pupilled with bluish white in the male, larger but confluent in the female: body tawny, the thorax slightly blackish. Under surface ferruginous, glaucous from the middle outwards, with dark brown markings as in *C. nichetes* on the basal half, traversed beyond the middle by a continuous, nearly straight, slate-black line, followed by an interrupted deep ferruginous zigzag stripe, which becomes indistinct on the primaries and is bounded externally towards the apex of the latter wings by whitish scaling; external border without gloss: secondaries traversed by a series of indistinct small ocelli, the last four of which (between the third median branch and the anal angle) are touched with black and pupilled with blue; immediately beyond these ocelli is a lunulate ferruginous stripe partly confluent with a diffused marginal stripe; in the female all these markings are far less defined than in the male. Expanse of wings, ♂ 75, ♀ 85 millim.

One pair, Zomba.

The allied *C. nichetes* appears to have been described by Dewitz as *C. hamatus*, and *C. ogovensis* by Dr. Holland; I cannot discover any characters by which to distinguish them.

### 13. CHARAXES CANDIOPE.

*Nymphalis candiope*, Godart, Enc. Méth. ix. p. 352 (1823).

♀, Zomba.

The single imperfect example obtained is very peculiarly coloured on the under surface, all the markings on the primaries being much less defined than usual and the secondaries being pearly dove-greyish with mere indications of the whitish markings, the postmedian lunulated band obliterated, but all the veins as usual bright green. This can, I think, hardly be more than an accidental variation, for the pattern of the upper surface is quite normal. *C. viridicostatus* of Aurivillius appears to be the same as *C. candiope*.

### 14. CHARAXES GUDERIANA.

♂. *Nymphalis guderiana*, Dewitz, Nova Acta Akad. Naturf. Halle, 1879, p. 200, pl. 2. fig. 18.

♀. *Charaxes guderiana*, Butler, P. Z. S. 1893, p. 648; Trimen, P. Z. S. 1894, pl. v. fig. 8.

♀, Fwambo.

One brightly coloured female was obtained; males were also in the collection, but were not required for the Museum.

## 15. CHARAXES ETHALION.

♀. *Charaxes ethalion*, Boisduval, Voy. de Deleg. ii. p. 593 (1847).

♂, Zomba.

The male of this species, though probably often confounded with those of *C. hollandi* and *C. alladinis*, is common in collections.

## 16. CHARAXES PHÆUS.

♀ as ♂. *Charaxes phæus*, Hewitson, Ent. Month. Mag. 1877, vol. xiv. p. 82.

♂. *Charaxes alladinis*, Butler, P. Z. S. 1893, p. 648.

Now that we have received the type of *C. alladinis* in the Godman and Salvin series, I find that my former identification of the male was incorrect; the latter is a West-African insect with the basal area of the primaries bronze-greenish, marginal spots of the same colour; secondaries with white submarginal spots and a discal lunulate green streak: it appears to inhabit the Cameroons. The male described by me in 1893 is undoubtedly that sex of *C. phæus*.

♂, Zomba.

It is a curious thing that not only did Hewitson describe and Mrs. Monteiro figure two females as sexes of *C. phæus*<sup>1</sup>, but Dewitz did the same thing in his attempt to figure the sexes of *C. alladinis*. I would propose the name of *Charaxes rosæ* for Hewitson's supposed female of *C. phæus* (which is well described by Mr. Trimen), its male doubtless would nearly resemble that sex of *C. etheocles*.

It is extremely probable that *Charaxes alladinis* ♀ of Dewitz (Nova Acta Leop.-Carol. Akad. Naturf. i. pl. xvii. fig. 9, 1887) is only a slight variety of *C. rosæ* ♀; but his *Charaxes alladinis* ♂ (fig. 8) is a female allied to *C. ethalion* and may be called *C. dewitzi*, it is perfectly distinct from *C. alladinis*. *Charaxes ephyra*, var., Dewitz (figs. 10-11), are probably the same as Mr. Trimen's recently described *Charaxes manica*, from which the female scarcely differs excepting on the apical border of the primaries: at any rate, without comparing specimens of both species, it would be unsafe to pronounce them distinct.

## 17. CHARAXES WHYTEI. (Plate XV. fig. 3, ♀.)

♂. *Charaxes whytei*, Butler, P. Z. S. 1893, p. 649, pl. lx. fig. 2. *Charaxes selousi*, Trimen, P. Z. S. 1894, p. 45, pl. vi. fig. 10.

♀. Above purplish black, browner on basal area; crossed beyond the middle by a broad pure white belt, which, however, is represented above the median vein of primaries by three elongated white spots; five other spots, sometimes lunate, in an angular series between the same belt and the costa, commencing in the second median interspace: secondaries with two spots immediately beyond and almost touching the belt upon the subcostal and radial

<sup>1</sup> Curiously enough Mr. Trimen has failed to discover this error, which he has repeated in his 'South-African Butterflies,' vol. i. p. 344.

interspaces; the inferior extremity of the belt abruptly narrowed; a submarginal series of white spots, or grey spots with white centres, the last two bordered externally with lilac; still nearer to the margin an interrupted blue-edged red stripe changing to olive-green at anal angle. Below, rather more silvery than in the male and crossed by a broad white belt as above, but the angular series of spots on the primaries forming a continuous band, bounding the outer edge of the belt to submedian vein and only divided by the dark nervures; markings beyond the belt on the secondaries better defined than in the male. Expanse of wings 67-69 millim. Two females, Zomba.

18. CHARAXES ACHÆMENES.

*Charaxes achæmenes*, Felder, Reise der Nov., Lep. iii. p. 446, pl. 59. figs. 6, 7 (1867).

One much damaged example, Zomba.

It being generally decided that my name of *C. jocaste* has no claim to recognition, I yield the point rather than show myself eccentric; so long as all are agreed, it matters little what name a species is known by.

19. CHARAXES CITHÆRON.

*Charaxes cithæron*, Felder, Wien. ent. Monatschr. iii. p. 308, pl. 8. figs. 2, 3 (1859).

♂ ♀, Zomba.

20. CHARAXES BOHEMANI.

*Charaxes bohemani*, Felder, Wien. ent. Monatschr. iii. p. 321, pl. 6. fig. 3 (1859).

♂ ♂, Zomba.

One of the specimens obtained by Mr. McClounie at Zomba is of interest, inasmuch as on the upper surface it is distinctly blue, instead of green shading into blue; the outline of the basal blue area on the primaries is also irregular, a large quadrate black patch, bounded externally by three blue spots, filling the end of the cell; underneath, the ground-colour is decidedly more rufous than usual. These differences are clearly individual.

21. CHARAXES VARANES.

*Papilio varanes*, Cramer, Pap. Exot. ii. pl. clx. figs. D, E (1779).

♂ ♂, Zomba.

22. EURALIA WAHLBERGI.

*Diadema wahlbergi*, Wallengren, Kongl. Sv. Vet.-Akad. Handl., Lep. Rhop. Caffr. p. 27 (1857).

*Euralia anthedon*, var. *marginalis*, Butler, Ann. & Mag. Nat. Hist. ser. 4, vol. xvi. p. 395 (1875).

♀, Zomba.

## 23. EURALIA MIMA.

*Diadema mima*, Trimen, Trans. Linn. Soc. xxvi. p. 506 note, pl. xliii. fig. 7 (1869).

Two females, Zomba.

Both sexes of this fine *Euralia* are in the *Hypolimnas* group of the Godman and Salvin collection recently added to the Museum series. The species is a good copy of *Amauris whytei*, the Nyasa representative of *A. albimaculata*, which it doubtless mimics in Natal, as Mr. Trimen observes.

## 24. JUNONIA ARTAXIA.

*Junonia artaxia*, Hewitson, Exot. Butt. iii. *Jun.* pl. i. fig. 6 (1864).

♀, Zomba.

## 25. JUNONIA PAVONINA, sp. n. (Plate XVI. figs. 1-3.)

Allied to *J. artaxia*. Primaries above having the same general aspect, but brilliantly glossed all over with peacock-blue; the broad black patch from costa only represented by a diffused dark shade, with sinuous external edge, beyond end of discoidal cell; the subapical whitish bar of *J. artaxia* represented by an angulated blue band enclosing an oblique trifold snow-white streak near the costa; and halfway between this band and the end of the cell there are three or four transverse blue spots bounding the upper portion of the dark shade previously noted; a slightly irregular, but not sinuated black stripe separates the angular blue subapical band from a diffused blue marginal band which tapers along the edge of the black stripe at its upper extremity and along the margin at its lower extremity; fringe dull white, grey towards apex and external angle and traversed throughout by a dusky line flecked with black: secondaries brilliant peacock-blue in the male, and the centre of the wing to beyond the middle blue in the female; ocelli of nearly equal size, a little brighter in colouring than in *J. artaxia*; submarginal lines wider and blacker: body slightly darker. Under surface very dissimilar, olive-brown; the pattern of the primaries nearly as in *J. nachtigalii*, but only glossed with purple below the cell; the four transverse stripes sharply defined and whity-brown, slightly glossed with blue below the median vein; an apical costal cuneiform whitish patch, partly edged with diffused white spots towards costal margin; ocelli small, olivaceous grey, with yellowish iris flecked internally with red; submarginal line slender, blackish, irregularly undulated: secondaries somewhat paler and greyer, especially towards abdominal margin; a sharply defined, blackish-edged, central clear yellowish-white stripe from costa to anal angle; two other, less sharply defined stripes between the latter at the base from costa to submedian vein, where they unite in a loop, the inner stripe being straight and the outer obtusely elbowed; ocelli slightly larger than on the primaries, but similar in character, followed by a nebulous sinuated streak; submarginal line steel-bluish,

diffused internally but defined externally by a whitish irregularly undulated stripe; fringes with whitish basal and dark brown central lines; palpi below whitish. Expanse of wings 73–75 millim.

*Dry-season form* ♀. Smaller; the angle of primaries less produced below apex; the secondaries with slightly larger and brighter ocelli; a small ocellus indicated on the first median interspace of the primaries: wings below olive-brown, the bands across the primaries lilac, but the apical patch whiter; three sharply defined ocelli coloured as on the upper surface—one small, on upper radial interspace, a second large on lower median interspace, and the third very small, below the second: secondaries with all the whitish markings ill-defined, but both ocelli clearly defined. Expanse of wings 66 millim.

Fwambo.

Four typical specimens and two females of the supposed dry-season form were obtained. It is, without question, by far the most beautiful *Junonia* hitherto discovered.

Whilst deprecating the positive way in which Lepidopterists have, of late years, decided (without breeding in most instances) respecting the seasonal forms of Butterflies, I do not for a moment pretend to say that their conclusions are unlikely, in most instances, to prove correct. In the present case the two forms of female, though very different in aspect, are so evidently only modifications of the same species that it is but reasonable to conjecture that the smaller form with prominent ocelli is that of the dry-season.

#### 26. JUNONIA NACHTIGALII.

*Precis nachtigalii*, Dewitz, Nova Acta Akad. Naturf. Halle, 1879, p. 194, pl. i. fig. 16.

Fwambo.

One example of this rare species. Is it the dry-season form of *J. artaxia*?

#### 27. JUNONIA SESAMUS.

*Precis sesamus*, Trimen, South Afr. Butt. i. p. 231, pl. iv. fig. 3 (1887).

Zomba.

#### 28. JUNONIA ACTIA.

*Precis actia*, Distant, P. Z. S. 1880, p. 185, pl. xix. fig. 7.

One male, Zomba.

#### 29. JUNONIA ARCHESIA.

*Papilio archesia*, Cramer, Pap. Exot. iii. pl. ccxix. figs. D, E (1782).

♀, Zomba; ♂♂, Fwambo.

The whole of the specimens are very dark, larger than usual, and with the red ocellated belt narrower and slightly darker than in the majority of specimens; the under-surface colouring varies individually to an enormous extent, two examples exactly represent

the *Precis staudingeri* of Dewitz, which is thus seen to be only one of the sports of *J. archesia*.

### 30. JUNONIA CHAPUNGA.

*Junonia chapunga*, Hewitson, Exot. Butt. iii. *Jun.* pl. i. figs. 2, 3 (1864).

♀, Zomba.

The pale ocelloid band strongly developed, nearly approaching some specimens of *J. pelasgis*.

### 31. JUNONIA CUAMA.

*Junonia cuama*, Hewitson, Exot. Butt. iii. *Jun.* pl. i. figs. 4, 5 (1864).

One damaged male, Zomba.

### 32. JUNONIA NATALICA.

*Precis natalica*, Felder, Wien. ent. Monatschr. iv. p. 106 (1860).

One specimen, Zomba.

### 33. JUNONIA BÖOPIS.

*Junonia bööpis*, Trimen, Trans. Ent. Soc. London, 1879, p. 331. Zomba.

### 34. JUNONIA CLELIA.

*Papilio clelia*, Cramer, Pap. Exot. i. pl. xxi. figs. E, F (1779).

Zomba.

A specimen with narrow white fascia beyond the cell as in *J. epiclelia*.

### 35. PYRAMEIS CARDUI.

*Papilio cardui*, Linneus, Faun. Suec. p. 276. no. 1054 (1761).

♂, Zomba.

### METACRENIS, sp. n.

*Harma* (part), Hopffer in Peters's Reise n. Mossambique, v. p. 391. (Type, *H. concordia*, Hopff.)

*H. concordia* and its allies have hitherto been regarded as belonging to the genus *Crenis*; to which, however, they bear but a slight resemblance: their more rounded primaries, pattern, and robust habit are far more characteristic of *Argynnis* or *Atella*; but their nearest allies seem to be the species of the genera *Hamanumida* and *Diestogyna*, from which, however, the stouter and more erect palpi of the type species would at once separate it if the very dissimilar character of these organs in the allied *M. rosa* did not demonstrate the unreliability of such a distinction. It may, however, be differentiated from *Hamanumida* as follows:—Secondaries comparatively smaller and less produced at anal angle: discoidal cell of primaries shorter, upper discocellular not oblique, inarched; second and third median branches emitted nearer

together, but with slight variations in the different species; lower discocellular of secondaries better defined. All other characters are inconstant, such as the relative position and length of furca of the subcostal branches of the primaries, the form of the præcostal veinlet of the secondaries, the stoutness of the antennæ, the length and uprightness of the palpi, and the robustness of the thorax; they serve only to distinguish the species.

From *Crenis*, apart from its totally different outline, broader wings, and utterly dissimilar style of coloration, *Metacrenis* differs in the longer and cylindrical club to the antennæ, the less strongly inarched discocellulars of the primaries, and the broader and less produced discoidal cell of secondaries. The position of the præcostal veinlet differs greatly in *M. crawshayi* and *M. rosa*—being emitted as in *Hamanumida* in the former, and as in *Crenis natalensis* in the latter: in fact, if all the structural characters were to be regarded as of generic value, these two evidently allied species would have to be widely sundered, the first being placed nearer to *Hamanumida*, the last to *Crenis*.

### 36. METACRENIS CRAWSHAYI.

♂. *Crenis crawshayi*, Butler, P. Z. S. 1893, p. 654, pl. lx. fig. 5.

♀. Approaches Hopffer's figure of his *M. concordia* (Peters's Reise, Zool. v. p. 391, pl. 22. figs. 3, 4, 1862), but the ground-colour above is bright rosy-lavender, with all the black spots much more elongated; the primaries show two little diffused white dashes instead of the oblique yellow bar of *M. concordia* and all the other yellow shades are wanting, but the nervures between the discal and submarginal series of spots have rufous-brownish borders and the spots themselves are connected by blue-grey streaks: below, the colouring is much brighter than in Hopffer's figure, the black spots are elongated; the first four discal spots of the primaries are connected by blue longitudinal streaks with the submarginal spots; there is no continuous blue border on any of the wings, but only small marginal blue spots as in my figure of the male. Expanse of wings 69 millim.

One female, Fwambo.

Hopffer's figures of *M. concordia*, if intended to represent this species, are so bad that it is no marvel that (with the book on my table) a cursory glance at the plate failed to save me from committing what my friend Trimen assures me is a grievous blunder. In the first place, Hopffer described his species as a *Harma* and in Kirby's 'Catalogue of Diurnal Lepidoptera' it remains in that genus under its emended title; so that, in looking up the known species of *Crenis*, I naturally did not have my attention particularly called to it. When Mr. Trimen, with his wide knowledge of African Butterflies, assured me that my species was a synonym of Hopffer's, I again looked at the figure and concluded that he was correct; but, with the female of *M. crawshayi* before me, I feel certain, when we see *M. concordia*, that we

shall discover the illustration to be correct, and the butterfly differing from mine, as above noted<sup>1</sup>; that is to say, in some respects, more nearly related to *M. rosa*, which has the rounded black spots, disconnected blue spots, but continuous blue border of *M. concordia*. It is also most probable that the antennæ and palpi, as well as neuration, will be found intermediate between the two.

37. *HAMANUMIDA DÆDALUS*.

*Papilio dædalus*, Fabricius, Syst. Ent. p. 482. n. 174 (1775).  
Zomba.

38. *PSEUDARGYNNIS DUODECIMPUNCTATA*.

*Iaera duodecimpunctata*, Snellen, Tijd. voor Ent. 2nd ser. part 7, pl. 1. figs. 1, 2 (1872).  
♀, Zomba.

39. *ATELLA COLUMBINA*.

*Papilio columbina*, Cramer, Pap. Exot. iii. pl. cccxxviii. figs. A, B, iv. pl. cccxxvii. figs. D, E (1782).  
Zomba.

40. *NEPTIS AGATHA*.

*Papilio agatha*, Cramer, Pap. Exot. iv. pl. cccxxviii. figs. A, B (1782).  
Zomba.

41. *ACRÆA CABIRA*.

*Acræa cabira*, Hopffer, Ber. Verh. Akad. Berlin, 1855, p. 640; Peters's Reise n. Mossamb. p. 378, pl. 23. figs. 14, 15 (1862).  
Zomba.

42. *ACRÆA EXCELSIOR*.

♂. *Acræa excelsior*, E. M. Sharpe, P. Z. S. 1891, p. 192, pl. xvii. fig. 3.  
♂ ♀, Fwambo.

43. *ACRÆA VENTURA*.

*Acræa ventura*, Hewitson, Ent. Mo. Mag. xiv. p. 51 (1877).  
♂ ♂, Fwambo.

44. *ACRÆA ACRITA*, var.

*Acræa acrita*, Hewitson, Exot. Butt. iii. *Acr.* pl. 3. fig. 18 (1865).  
♂, Fwambo.

A most interesting specimen, exactly halfway between typical

<sup>1</sup> Hopffer says, "Mit einer graublauen Randeinfassung," and, later on, "eine Reihe schwarzer, rundlicher Fleckchen"; his locality is Querimba, Mozambique.

*A. acrita* and *A. pudorina*, Staud.: the latter therefore can only be regarded as an imperfectly isolated race of *A. acrita*.

45. *ACRÆA*, sp. inc.

A somewhat melanistic female specimen, having the primaries very like *A. acrita* on both surfaces; but the pattern and coloration of the under surface of the secondaries curiously like *A. anacreon*, with the central rosy band well developed. It would be rash to describe it on this single example, without carefully studying the whole of the species, as it may prove to be an aberrant example of some described species; but, so far, I have failed to identify it. At first I supposed it to be the female of M. Oberthür's *A. chæribula*, but a careful comparison with the male of that species proves clearly that it is distinct.

Fwambo.

46. *ACRÆA NATALICA*.

*Acræa natalica*, Boisduval, Voy. de Deleg. p. 590 (1847).

♂, Zomba.

47. *ACRÆA ARECA*.

*Acræa areca*, Mabille, Bull. Soc. Ent. France, 1888, p. clxix; Nov. Lep. p. 100, pl. xiv. fig. 5 (1893).

♂ ♂, Zomba.

48. *ALÆNA AURANTIACA*, sp. n. (Plate XV. fig. 4.)

Bright orange above; the cell of primaries black, leaving a triangular subbasal spot and a quadrate subterminal spot of orange; costal border black, with a fine basal orange streak; base, nervures, one or two spots near the base below origin of first median branch and internal border black; external border rather more broadly black, widest at apex, its inner edge sinuated between the nervures; base of the secondaries occupied by a broad irregular black blotch; a black spot on upper discocellular; veins partly black, outer border broadly black: body black; collar tufted at the sides with orange; abdomen orange at the sides. Under surface with the black slightly more restricted than above, the costa of primaries streaked with ochreous, the outer border interrupted by two rows of cream-coloured spots, the inner row irregular, abbreviated, consisting of five oval spots, the outer regular, of seven: secondaries—the basal black patch interrupted by two rows of creamy spots, the inner consisting of four, the outer of two spots; external border enclosing two series of eight creamy-white spots: body black, legs and sides of abdomen orange. Expanse of wings 34 millim.

Two examples (one much damaged), Fwambo.

In the pattern of the upper surface this pretty little species is nearest to *A. amazoula*, but the under surface more nearly approaches *A. interposita*.

## 49. AXIOCERCES AMANGA.

*Zeritis amanga*, Westwood, in Oates's 'Matabele-Land,' p. 351 (1881).

♂, Fwambo.

## 50. MYLOTHRIS AGATHINA.

*Papilio agathina*, Cramer, Pap. Exot. iii. pl. ccxxxvii. figs. D, E (1782).

Two females, Zomba.

## 51. TERIAS CHALCOMIÆTA.

*Terias chalcomiceta*, Butler, Ann. & Mag. Nat. Hist. ser. 5, vol. iii. p. 190 (1879).

Two males, Zomba.

## 52. TERACOLUS EPIGONE.

*Teracolus epigone*, Felder, Reise der Nov. Lep. ii. p. 186.

♂, Zomba.

## 53. CATOPSILIA PYRENE.

*Colias pyrene*, Swainson, Zool. Ill. i. pl. 51 (1820-21).

♂, Zomba.

## 54. BELENOIS MESENTINA.

*Papilio mesentina*, Cramer, Pap. Exot. iii. pl. cclxx. figs. A, B (1782).

Two males of the var. *lordaca*, Zomba.

## 55. PAPILIO CORINNEUS.

*Papilio corinneus*, Bertoloni, Mem. Acc. Bologna, 1849, p. 9, pl. 1. figs. 1-4.

Zomba.

## 56. PAPILIO NIVINOX. (Plate XVI. fig. 4.)

*Papilio nivinox*, Butler, P. Z. S. 1893, p. 667.

Two males, Fwambo.

This species differs from the allied *P. taboranus* of M. Oberthür in its superior size; the larger white spots on the subapical area of the primaries; the larger postmedial spots, which form an oblique band; in the white spots of secondaries forming a complete broad belt over the basal two-thirds; in the small discal spots on these wings; in the inner discal series of under surface consisting of three spots and bounded internally by ochreous clay-colour, in the much larger spots of the outer series; in the confluence of the crimson and yellow on the internal area and the darker submarginal band,

57. *PAPILIO OPHIDICEPHALUS*.

*Papilio ophidicephalus*, Oberthür, Études, iii. p. 13 (1878).

♀, Zomba.

58. *TAGIADES FLESUS*.

*Hesperia fesus*, Fabricius, Spec. Ins. ii. p. 135 (1781).

♂, Zomba.

One curious example, in which the hyaline spots on the primaries have either disappeared or been greatly reduced in size.

59. *SAPÆA TRIMENI*, sp. n. (Plate XV. fig. 5.)

*Abantis zambezina*, Trimen (not Westwood), Smith, Afr. Butt. iii. p. 344, footnote.

Neither the figure nor the description of Westwood's insect correspond with this species, nor is there the slightest reason for Mr. Trimen's supposition that the sides of the abdomen had "probably become discoloured." The following comparison will, I think, show that this view of the case will not account for the differences between the two types:—

*Oxynteta zambesiaca*, Westwood (not *Abantis zambezina*).

"The fore wings are chalybeous black.

"The head and body are black, the head with a large white frontal spot, and two small ones between the eyes. The tippets of the collar or prothorax are clothed with scarlet hairs, the tegulæ or wing-scales, together with a pair of dots in front of them, and a second pair behind them at the sides of the disc, as well as the narrow hind margin of the scutellum, white: the latter is followed by a curved band of scarlet, the extremity of the abdomen being of the same colour: the four middle segments of the abdomen are luteous, with a narrow dark longitudinal line down the centre."

*Sapæa trimeni*, Butler (*Abantis zambezina*, Trimen).

The fore wings are peacock-green, black in the centre; the hyaline spots rather smaller than in Westwood's species, and there is usually a small extra one on interno-median area.

The hind wings have the external area almost wholly metallic Prussian blue (not chalybeous black).

The palpi are almost wholly snow-white, like the frontal patch; there is a central transverse white line on the vertex, as well as the two dots at the base of the antennæ; the pterygodes are purplish black at base, with a large patch of white before the terminal fringe, which is dull black; there is also a double white spot at the base of the front wings.

As with Westwood's species there are two convergent tufts of carmine hairs, forming what he calls "a curved band of scarlet" at the back of the thorax, and the abdomen terminates in a tuft of the same colour, but here the resemblance ceases: the upper

surface is blue-black, with a broad quadrate snow-white patch occupying three (not four) segments on each side and separated by a broad black dorsal stripe; looking at the insect in profile this patch is seen to be united by a stripe of white to a narrower white patch on the basal segment; the venter, again, is snow-white down the centre, but purplish black at the sides; the front and middle coxal joints are clothed with carmine hair and the sides of the pectus with delicate long white hair; the tibial and tarsal joints are white.

Three specimens, Fwambo.

It is hardly probable that staining would convert three central and a basal snow-white segments of the abdomen into four central fulvous segments, or peacock-green into chalybeous black; but when it is noted that all the other white markings remain unchanged in Westwood's insect, the chance of change by staining becomes next to impossible. The Zambezi insect is probably nearer to *S. paradisea* than is *S. trimeni*: thus the fulvous segments are accounted for.

60. CYCLOPIDES MIDAS. (Plate XV. fig. 6.)

*Cyclopides midas*, Butler, P. Z. S. 1893, p. 671.

♂, Fwambo.

61. BAORIS INCONSPICUA.

*Hesperia inconspicua*, Bertoloni, Mem. Acc. Bol. 1849, p. 15.

Fwambo.

One starved example, with unusually brightly-coloured under surface.

62. CERATRICHIA PUNCTULATA, sp. n. (Plate XV. fig. 7.)

Above with the general aspect of *C. stellata* (*Cycl. mineni*, Trimen), black-brown: primaries with two superposed white dots in the cell, and a slightly irregular elbowed series of eight slightly larger white spots beyond the cell; fringe greyer than the wings, especially at the tips, and interrupted at its base by a series of elongated whitish spots: secondaries with five indistinct whitish dots in a zigzag series beyond the cell; fringe as in the primaries: abdomen black, edges of segments white laterally; antennæ with white rings, the club only ringed below; palpi greyish. Primaries below blackish, the costal border and apex yellowish olive-brown, traversed by whitish veins; the white spots arranged as above but larger, the elbowed series having an additional white point between the seventh and eighth spots; fringe blackish, with conspicuous elongated white spots and grey tips: secondaries yellowish olive-brown, with whitish veins; the white spots larger than above and seven additional spots, two bounding the middle third of the subcostal area, a small one in the cell behind the upper discocellular, and the other four in pairs bounding the middle third of interno-median area; an indistinct zigzag whitish submarginal line, also feebly indicated on the primaries; fringe as

in primaries: legs brown, paler internally; venter whitish. Expanse of wings 30 millim.

A pair, Fwambo.

I have failed to discover any published description of this species.

63. *HESPERIA*?, sp.?

It is impossible to fix even the generic position of this species with certainty, as it has lost its palpi; but it appears to be allied to "*Proteides xychus*," Mabille, of which it may possibly be the male; the antennæ are white above.

♂, Fwambo.

HETEROCERA.

64. *XANTHOSPILOPTERYX AFRICANA*.

*Eusemia africana*, Butler, Ann. & Mag. Nat. Hist. ser. 4, vol. xv. p. 142 (1875).

*Eusemia meretrix*, Westwood in Oates's 'Matabele Land,' p. 355 (1881).

♀, Zomba.

Two somewhat worn specimens were obtained.

65. *ANOMÆOTES NIGRIVENOSUS*.

♀. *Anomæotes nigrivenosus*, Butler, P. Z. S. 1893, p. 676, pl. lx. fig. 10.

♂. Smaller than the female, creamy pale straw-yellow, with blackish veins and edges to the wings; thorax blackish brown; abdomen golden yellow, becoming tawny on the margins of the segments; pectus and legs brown, venter pale yellow; clasp ochraceous brown, shining. Expanse of wings 28 millim.

♂ ♀, Fwambo.

Two males and one female, the latter slightly longer in wing and with blacker thorax than the type; the front of the discoidal cell of the secondaries also projects slightly more prominently forward in this example; but slight variations of neuration may be expected to occur in this group of Moths.

66. *ARGINA LEONINA* (= *A. AMANDA*, var., Boisd.).

*Deiopeia leonina*, Walker, Cat. Lep. Het. xxxi. p. 262 (1864).

♂, Fwambo.

67. *ARGINA OCELLINA*.

*Deiopeia ocellina*, Walker, Cat. Lep. Het. ii. p. 571. n. 9 (1854).

♂, Fwambo.

The single example of this form has the ground-colour of the primaries white, thus bearing out the opinion which I have long held—that in Africa there is only one species of this genus, of which the synonymy would be as follows:—

*ARGINA AMANDA*.

*Euchelia amanda*, Boisduval, Voy. de Deleg. ii. p. 597 (1847).

*Deiopeia cingulifera*, Walker, Lep. Het. ii. p. 569 (1854).

*Deiopeia ocellina*, Walker, l. c. p. 571.



Butler, Arthur G. 1895. "4. On Collections of Lepidoptera from British Central Africa and Lake Tanganyika." *Proceedings of the Zoological Society of London* 1895, 250–270. <https://doi.org/10.1111/j.1469-7998.1895.tb00008.x>.

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