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NOVITATES ZOOLOGICAE.

Vol. X. APRIL, 1903. No. 1.

THE BIRDS OF THE OBI GROUP, CENTRAL MOLUCCAS.

By ERNST HARTERT.

RIGHT in the middle of the Moluccan Archipelago, between the Halmahera group or Northern Moluccas, and the Southern Moluccas (Ceram, Buru, and Amboina), lies the little Obi group, consisting of one large island, Obi or Obi Major, and the small islands of Bisa, Tapa, Obi-latu (Obi-latoe), Lojang, Gomomo, and a few other very tiny, insignificant islets. All the latter are so close to the dominating, large central island of Obi Major that it is safe to suppose that their fauna is the same, except that many of the forms found on the large island are absent from the outlying islets; and what we know of the birds from these small islands bears out our supposition.

The first explorer of Obi was the well-known traveller Bernstein, who for a number of years explored the eastern islands for the Dutch Government. His collections are preserved in the Leyden Museum. He discovered *Lycocorax obiensis* and most of the other species peculiar to Obi, but they were chiefly described by others. No collections were then made on Obi until, in October 1883, it was visited by the yacht *Marchesa*, when a fair collection was made by Dr. F. H. H. Guillemard and his party. The species are enumerated in the *P. Z. S.* 1885. pp. 562-9, and in the "Cruise of the *Marchesa*." New discoveries were, however, not made, as the collectors stayed only a few days and did not penetrate into the interior. The next bird collector who landed in the Obi group was the late William Doherty, who collected a good many birds there in September 1897. In 1898, from October to December, Mr. Lucas, of Brussels, stayed on Obi Major, and employed some native bird-skinners to collect for him. We are obliged to him for several rare and new species. Last, but not least, Mr. John Waterstradt made a stay of some months on Obi Major, and his natives made large collections of bird skins. They ascended the hills in the interior, where they obtained the new *Cryptolopha everetti waterstradti* and other interesting species.

The collections made by Bernstein are, as said before, in the Leyden Museum. Of the birds brought home by Dr. Guillemard the majority are in the Tring Museum. Doherty's collection is also at Tring, as well as that of Mr. Lucas and a selection from Mr. Waterstradt's skins.

We may safely assume that we are now acquainted with nearly all the resident birds of Obi, and that only an ornithologist might still do valuable ornithological work there.

Obi is well wooded—in fact, almost entirely clothed with forest—and the

mountains in the interior reach a height of about 5000 ft. It was for a long time uninhabited, but within the last ten years some villages have sprung up.

Though I have in all more important cases adhered to the system of quoting the original reference and habitat in full, I have sometimes disregarded it in order to save time.

The systematic arrangement of the following list is that of Salvadori's "Ornitologia della Papuasia," in order to facilitate comparison with that work.

1. **Cuncuma leucogaster** (Gm.).

Mr. Lucas brought with him several specimens. He quotes as native names "Koheba gunong" and "Koheba laut." Bernstein had obtained it already on Obi, also Guillemard (*P. Z. S.* 1885. p. 562).

2. **Haliastur indus girrenera** (Vieill.).

Native name, according to Lucas, is "Koheba."

Guillemard (*l.c.*) mentions *Haliastur intermedius*, but I am sure the birds from Obi must all belong to *girrenera*.

3. **Baza subcristata rufa** Schleg.

Baza rufa Schlegel, *Vog. Nederl. Ind., Valkvog.* pp. 41. 78 (1866: "groep van Halmahera).

We have a specimen from Mr. Lucas, obtained on Obi between October and December 1898. The native name is, according to Lucas, also "Koheba." The Obi specimen agrees with others from Batjan and Halmahera. (Cf. Nov. Zool. VIII. 1901. p. 379.)

4. **Tinnunculus moluccensis** Bp.

Tinnunculus moluccensis Bp., *Consp. Av.* i. 1850. p. 27 (ex Hombron et Jacq., Amboina!); Guillemard, *P. Z. S.* 1885. p. 526 (Obi).

Tinnunculus moluccensis orientalis Meyer & Wiglesw., *B. Celebes* i. 1898. p. 79 (Halmahera group).

Guillemard and Lucas obtained specimens on Obi Major.

According to Meyer and Wiglesworth the form from the Halmahera group—to which Obi belongs more or less—is to be separated from that of the Southern Moluccas (Amboina, Buru, Ceram, Goram, Peling). The material which I have been able to examine so far does not justify this separation. I can see two very distinct races—namely, a darker form, with more brown cheeks and ear-coverts, darker under wing-coverts and lighter under surface, inhabiting the Moluccas, and a lighter one, with more greyish cheeks and ear-coverts, much whiter under wing-coverts and lighter underside, inhabiting Celebes and the Lesser Sunda Islands to Kangean and Java. It is true that some few specimens from the Southern Moluccas are somewhat intermediate, but the majority before me are exactly like those from the Northern Moluccas, and all agree best with the latter. Moreover, some examples from the Moluccas are variable and lighter than usual. The form from Amboina is the typical *moluccensis*, and I must unquestionably unite with it the *orientalis* of Meyer and Wiglesworth, while certainly recognising *T. molucc. occidentalis* as distinct.

5. **Astur griseogularis obiensis** subsp. nov.

[*Astur griseogularis* G. R. Gray, *P. Z. S.* 1860. p. 343 ("Batchian, Gilolo, Ternate.") (Typ. loc. Batjan—cf. *Cat. B.* i. p. 124).]

A. griseogularis form. typ. simillimus, sed minor. Al. ♀ ad. 230—233, ♂ cr. 200 mm.

Hab : In Insula Obi Major dicta.

Three ♀♀ ad., March, April, June, 1902, Waterstradt coll.

♂ fere ad., March 1902, Waterstradt coll.

♀ juv., Lucas coll., No. 91, 1898.

The specimens from Obi Major have such small dimensions, compared with a series from Batjan (Platen, Waterstradt, Doherty, Wallace coll.), Ternate (Doherty coll.), and Morty (Dumas coll.) that I feel perfectly justified in separating them subspecifically under the name *obiensis*. While the wing of adult *females* of *A. griseogularis griseogularis* measures 258—280, that of the *females* from Obi is only 230—233 mm. long, a measure sometimes even surpassed by the *males* of the typical form, which are, of course, ever so much smaller than the *females*. The *male* of *A. griseogularis griseogularis* has the wing 215—240, while that of *A. g. obiensis* has it no longer than about 200 mm. Similar differences are obvious in the tails. The tails of adult *females* of the typical form from Batjan, Ternate, Halmahera, and Morty are always over 200 mm. long, that of *obiensis* about 185. Also the metatarsus and toes are generally smaller in Obi specimens. In most of the *females* the under surface is more or less distinctly barred, but the bars become often obsolete (apparently in the oldest birds), and no trace of them is to be found in very adult *males*, though I have not seen a *female* without a trace of light bars.

Type of *A. g. obiensis*: ♀, Obi Major, 6. iv. 1902, No. 0.67 Waterstradt coll. in Mus. Rothschild.

6. **Accipiter erythrauchen** Gray.

Accipiter erythrauchen Gray, *P. Z. S.* 1860. p. 344 (Gilolo=Halmahera).

♀ ad, ♀ juv., Obi Major. Native name "Koheba."

The adult *female* agrees with typical specimens.

The supposed young figured by Schlegel (*Vog. Nederl. Indië, Valkvog.* Pl. XIII. fig. 4. pp. 22. 60) is evidently erroneously united with this species. *Accipiter erythrauchen* belongs to the same group as *A. ceramensis* and *A. sulaensis* (not to be confounded with *soloensis !*). The adult *A. ceramensis* is greyish underneath, while the adult *sulaensis* lacks the rufous collar on the upper back. The young of all these forms are boldly striped underneath, without a trace of cross-markings. I have described the young *A. sulaensis* (with an almost cinnamon upperside) in Nov. Zool. 1898. p. 126, and the young of *A. ceramensis* (under the name of *A. rubricollis*) is described in *Cat. B. Brit. Mus.* i. p. 144. The young *A. erythrauchen* has the upper surface very deep brown, the crown darkest, almost black. Each feather is widely barred with white, and more or less buffy rusty colour towards the base, or at least has a white or whitish base. There are narrow rufous fringes to the tips of the feathers. Remiges deep brown, with deeper slaty brown bars, inner webs pale cinnamon for the basal half. Rectrices dark brown, with deeper, somewhat slaty-blackish bars, inner webs with a cinnamon wash towards the base. Underside whitish buff, with wide deep brown central stripes, but without any cross-markings whatever.

7. **Ninox rufostrigata** (Gray).

Athene rufostrigata G. R. Gray, *P. Z. S.* 1860. p. 344 (Gilolo=Halmahera).

One specimen, marked "♂," was obtained by Waterstradt's hunters on Obi Major on March 26th, 1902. This specimen agrees with the type of *Ninox rufostrigata* in the British Museum, except that it is perhaps a little paler underneath and considerably smaller. The wing of *N. rufostrigata* from Halmahera measures 285—295, while that of the Obi example is only about 258 mm. long. Whether this discrepancy is due to sexual or individual variation, or is a racial character, I am unable to say at present, the material in collections being very scanty. I know only of the type in London, three more from Halmahera in Leyden (Bernstein coll.), and two from Morty Island in the Tring Museum, the latter agreeing in every respect with the type. Their wings are 285 mm. long.

8. **Cacatua albus** (P. L. S. Müll.).

Psittacus albus Müll., *Naturayst. Suppl.* 1776. p. 76 (ex Daubenton, *Pl. Enl.* 263, Moluccas).

Cacatua alba Guillemard, *P. Z. S.* 1885. p. 562.

Dr. Guillemard recorded *C. albus* from the little island of Bisa in the Obi group. Mr. Lucas sent a specimen said to come from Obi Major. He gives "Gatala" as the native name.

9. **Tanygnathus megalorhynchos** (Bodd.).

Psittacus megalorhynchos Bodd., *Tabl. Pl. Enl.* p. 45 (1783: ex Daubenton, *Pl. Enl.* 713: La Nouvelle Guinée).

Messrs. Doherty and Waterstradt sent some examples from Obi, where it was also obtained by Mr. Lucas' hunters.

10. **Geoffroyus cyanicollis obiensis** (Finsch).

[*Psittacus cyanicollis* S. Müll., *Verh. Land- en Volkenk.* pp. 108. 182 (1839—1844: Gilolo=Halmahera: p. 182).]

Pionias obiensis Finsch, *Papag.* ii. p. 389 (1868: Obi).

Geoffroyus cyanicollis obiensis Rothsch. & Hart., Nov. Zool. 1901 p. 86 (Obi—differences and variations discussed).

Bernstein, Guillemard, Waterstradt, and Doherty obtained specimens on Obi Major.

11. **Eclectus roratus** (P. L. S. Müll.).

Collected by Bernstein and Doherty, as well as Waterstradt, on Obi Major.

12. **Lorius garrulus flavopalliatus** Salvad.

[*Psittacus garrulus* Linn., *Syst. Nat.* ed. x. p. 100 (1758: Hab. in Asia. We must regard Halmahera as the typical locality, as this form is only known from that island).]

Lorius flavopalliatus Salvad., *Ann. Mus. Civ. Gen.* x. p. 33 (1877: Obi, Batjan).

I can only look upon *Lorius flavopalliatus* as a subspecies of *Lorius garrulus*. There seems to be no appreciable difference between the two, except that *flavo-*

palliatus has a large yellow patch on the interscapulium, while the latter is wholly red, or red with small yellow spots, in *L. garrulus garrulus*.

Lorius garrulus flavopalliatus was obtained on Obi by Bernstein, Bruijn's hunters, Doherty, Lucas, and Waterstradt. Guillemard found it on Obi Latu and Obi Major. It is called by the Malays "Luri."

13. **Eos riciniatus obiensis** Rothsch.

[*Psittacus riciniatus* Bechst., *Kurze Uebers.* p. 69 (1811: "Moluckische Inseln" —I substitute Ternate as the typical habitat).]

Eos variegata obiensis Rothsch., *Bull. B. O. C.* x. p. xvi. (Nov. 1899: Obi Major).

(Probably Mr. Rothschild is right in accepting the name *variegatus* of Gmelin (ex Latham), for the species, but the description of the under wing-coverts as yellow makes it rather doubtful if we can accept that name, and Mr. Rothschild now agrees with me that it is safer to adhere to *riciniatus* Bechst.).

As already pointed out by Mr. Rothschild, the adult Obi birds have the entire head and neck uniform red, and the greater wing-coverts and scapulars much more black, almost uniform black, while most of the wing-coverts in typical *riciniatus* are mostly red. Other birds—we take them to be younger individuals—have the head red with only a small purplish blue patch on the hinder part of the crown, and a collar of the same colour round the neck; but the collar and the sincipital patch are not connected, while in typical *riciniata* they are widely connected, seldom almost interrupted. We have now eight Obi examples, collected by Guillemard, Lucas, Doherty, and Waterstradt, and twenty typical *riciniata* from Batjan, Halmahera, and Ternate for comparison, and the characters stated by Mr. Rothschild to distinguish the Obi form are very conspicuous if this series is compared, though single younger individuals may sometimes be indistinguishable. According to Lucas these birds are called by the natives "Perkiet." (Guillemard, *P. Z. S.* 1885. p. 564.)

14. **Hypocharmosyna placentis** (Temm.).

One example from Lucas, who says it is called by the natives "Burong Bandera." Also obtained by Waterstradt's hunters.

15. **Cuculus saturatus** Blyth (Probably migrant).

Cuculus saturatus Hodgs., *Blyth, Journ. A. S. Beng.* xii. p. 942 (1843); Blanford, *Fauna Brit. India, Birds* iii. p. 207 (1895); Finsch, *Notes Leyden Mus.* xxiii. p. 102 (1902).

♂, Obi Major, September 1897, W. Doherty coll. (Probably a migrant from the north.)

16. **Cacomantis insperatus** (Gould).

Cuculus insperatus Gould, *P. Z. S.* 1845. p. 19 (New South Wales).

Cacomantis insperatus Shell., *Cat. B.* xix. p. 273. 1891; Rothsch. & Hart., Nov. Zool. 1901. p. 185, note under no. 27.

Cacomantis dumetorum Finsch, *Notes Leyden Mus.* xxii. p. 85 (1900).

Cacomantis assimilis Salvad., *Orn. Pap.* i. p. 337 (1880).

Salvadori mentions Obi Major, on the authority of Bernstein. We have one adult bird from Lucas ("Burong swangi" of the Malays), also three young ones from Waterstradt, apparently belonging to this species.

17. **Scythrops novaehollandiae** Lath.

Bernstein obtained it on Obi Major.

18. **Centropus goliath** Bp.

Lucas sent a specimen from Obi Major. "Burong Jackies."

19. **Centropus javanicus** (Dumont).

Lucas also sent it from Obi Major. Native name "Cuscus."

20. **Rhyticeros plicatus** (Penn.).

Obi Major, fide Lucas. Native name "Burong Tahon."

21. **Merops ornatus** Lath.

Obi Major, Waterstradt, and fide Lucas. Native name: "Radjah udang buri."

22. **Alcedo ispida hispidoides** Less.

Doherty, Waterstradt, and Lucas obtained this kingfisher on Obi Major. "Bill black, basal half (about) dull red below" (Doherty). The specimens are of a very fine blue above. Bernstein obtained this bird already on Obi, and so did Guillemard (*P. Z. S.* 1885. p. 566). Our Obi birds are not smaller than usual.

23. **Alcyone pusilla** (Temm.).

"♂" jun., "♀" ad., Obi, May, June 1902, Waterstradt coll. A dark zone across the breast, caused by the blackish tips to the feathers; forepart of crown and back greenish.

24. **Ceyx lepida uropygialis** Gray.

[*Ceyx lepida* Temm., *Pl. Col.* iv. Pl. 595. fig. 1 (1836: Amboina).]

Ceyx uropygialis Gray, *P. Z. S.* 1860. p. 348 (Batjan, Ternate).

Ceyx lepida uropygialis Hart., Nov. Zool. 1901. p. 97 (Northern Moluccas).

The northern form of *C. lepida*, easily distinguished by its differently coloured light blue tips to the feathers of the pileum and other characters, described by me in 1901, is common on Obi Major, where specimens have been taken by Bernstein, Doherty, Lucas, and Waterstradt. Native name "tintis." "Iris chestnut, feet coral red, bill vermilion" (Doherty). Waterstradt's hunters met it in the hills at 2000 ft. above the sea.

25. **Halcyon diops** (Temm.).

This species was already obtained on Obi Latu by Bernstein. Doherty and Waterstradt sent specimens from Obi Major. Native name "Radja udang."

26. **Halycon chloris** (Bodd.).

Bernstein, Doherty, and Lucas met with this kingfisher on Obi Major, Guillemard on Bisa.

27. **Halcyon sanctus** Vig. & Horsf.

Obtained on the Obi Islands by Bernstein, Waterstradt, and Doherty. The latter sent it from Obi Major and Bisa.

28. **Halcyon saurophaga** Gould.

Obi Major: Bernstein, Doherty. "Feet blackish. Bill: upper mandible, commissure, and tip of lower mandible black; rest white" (Doherty).

29. **Tanysiptera hydrocharis obiensis** Salvad.

Tanysiptera obiensis Salvadori, *Ann. Mus. Civ. Gen.* x. p. 302 (1872, ex Schlegel, Obi Major); Salvadori, *Orn. Pap.* i. p. 433 (1880); Guillemard, *P. Z. S.* 1885. p. 567 (Obi Major and Bisa).

Tanysiptera dea obiensis Rothsch. & Hart., Nov. Zool. 1901. p. 160.

All collectors have obtained this beautiful kingfisher. Doherty described the iris as "deep brown, the feet brownish green, bill deep vermilion."

30. **Eurystomus orientalis australis** Swains.

Obi Major: Bernstein, Lucas, and Waterstradt. Malayan name "tjektjek."

31. **Caprimulgus macrurus** Horsf.

Obi Major: Bernstein and Doherty.

32. **Macropteryx mystacea** (Less.).

Obi: Bernstein (Mus. Leyden) and Lucas (Mus. Tring).

33. **Collocalia esculenta** (L.).

"♀" ad., Obi Major, June 1902, John Waterstradt coll.

34. **Monarcha diadematus** Salvad.

Monarcha diadematus Salvad., *Ann. Mus. Civ. Gen.* xii. p. 321 (1878: Obi).

There is a series of twenty-two, collected by Doherty and Waterstradt, of this flycatcher before me, which is only known from Obi. It is, however, not easy to understand the plumages of this species. What are evidently the youngest birds in the series have the whole upper surface slate-grey, the feathers of the forehead with rufous edges, the wings dark brown, tail black, lateral pair of rectrices large, second pair with smaller white tips; chin pale grey, foreneck and breast cinnamon, rest of under surface white, sides washed with cinnamon. The majority of the specimens have the forehead black, separated from the dark ashy grey (or slate-grey) upperside by a band of orange-rufous; chin and upper throat black, lower throat and breast pale orange-buff (or cinnamon), abdomen white, sides of body washed with orange-buff (or cinnamon). These birds, fully agreeing with the description in the *Catalogue of Birds* (vol. iv. 1879. p. 419) of the supposed adult *male*, are considered by Count Salvadori (*Orn. Pap.* ii. 1881. p. 19) to be younger *males*. I have been inclined to be of the same opinion; but these birds are quite frequent on Obi, and those before me show no signs of immaturity, so that now I doubt if they will ever lose their rufous breast and band on the crown. The *females* corresponding to this dress are less black on the upper throat, and perhaps a little paler on the breast and band on the crown, and have shorter wings. Then there is another plumage, evidently the most perfect one, and described by Salvadori (*l.c.*) as that of the fully adult *male*, but not mentioned in the *Catalogue of Birds*. In this the band separating the black forehead from the grey sinciput is white, throat and

breast white, or more or less faintly washed with orange-buff or cinnamon, and the white band on the crown has also sometimes a faint wash of cinnamon. It is difficult to say if these birds, when younger, have been cinnamon on breast and crown-band. The white tips to the rectrices vary in extent. In the lateral pair they occupy both webs, or almost only the inner web, trespassing only a little on to the outer web; on the second pair they vary in extent, and the third pair is either entirely black or with a small white patch. The iris is "deep chesnut, feet bluish black, bill leaden blue, tip black" (W. Doherty).

35. **Monarcha chalybeocephalus nitens** (Gray).

[*Muscicapa chalybeocephalus* Garn., *Voy. Coq. Zool. Atlas* Pl. XV. fig. 1 (♀) (1826: ex Nova Hibernia).]

Myiagra nitens Gray, *P. Z. S.* 1860. p. 352 (Batchian, Wallace coll., and Ternate).

Doherty collected four *males* and three *females* on Obi Major. Waterstradt sent an adult *male*. ♂: "Iris deep brown, feet black, bill leaden blue, black at tip." ♀. "Iris deep brown, feet black, bill black, gape red." In Nov. Zool. 1899. p. 208 I have discussed the various local forms of *Monarcha chalybeocephalus*. The form from the Northern Moluccas, *M. chalybeocephalus nitens*, is certainly separable from typical *chalybeocephalus*, as well as from the other forms. The wing is shorter (♂♂ wing 78—80 mm.), and the *female* is decidedly darker, more brownish, on the upper surface.

36. **Rhipidura tricolor** (Vieill.).

Muscicapa tricolor Vieillot, *Nouv. Dict.* xxi. p. 430 (1818: Timor). (The locality Timor is erroneous, and I substitute New Ireland as the typical locality.)

Doherty obtained two *males* on Obi Major.

37. **Rhipidura obiensis** Salvad.

Rhipidura obiensis Salvadori, *Ann. Mus. Civ. Gen.* vii. p. 987 (1875: Obi Major).

Doherty and Waterstradt sent a nice series from Obi Major; Guillemard (*P. Z. S.* 1885. p. 570) obtained it also on Bisa Island.

38. **Rhipidura torrida** Wall.

Rhipidura torrida Wallace, *P. Z. S.* 1865. p. 477. Pl. XXVIII. (Ternate).

Mr. Waterstradt sent a single specimen, marked "♂," of a *Rhipidura*, which I think must belong to *Rh. torrida*, though its wing is only 63 mm. long. Part of the tail is missing, and there are rather wide cinnamon-rufous tips to the upper wing-coverts, indicating, it seems, immaturity. Otherwise, however, this specimen agrees with a series from Batjan, collected by William Doherty. Batjan is a new locality for *Rh. torrida*, which is hitherto only known from Ternate. *Rh. torrida* is most closely allied to *Rh. rufifrons* of Australia, and not easily distinguishable. Generally the under tail-coverts are strikingly richer cinnamon, and the head and back, rump, and base of tail darker. The tips to the rectrices seem to be always very light, whitish, while in *Rh. rufifrons*, on the other hand, they are sometimes equally white, but more often of a very light greyish brown. These forms and others are better treated as subspecies, I think, but require more study.

39. **Myiagra galeata** Gray.

Myiagra galeata, Gray, *P. Z. S.* 1860. p. 352 (Batjan).

A series from Obi Major agree with Batjan specimens, and are therefore typical *Myiagra galeata*.

Dr. Finsch (*Notes Leyden Mus.* xxii. p. 203, 1901) declares that *Myiagra goramensis* Sharpe, described from a single specimen, evidently with an abnormal or discoloured bill, is specifically valueless. It is doubtless true that the distribution hitherto accepted for these forms—*i.e.*, *M. galeata* ranging from the Northern Moluccas to Buru and Amboina, and *M. goramensis* alone on Goram, is incorrect; but at the same time it is true that there are local differences between these birds. All those before me from Batjan, Halmahera, and Obi have the crown of a glossy greenish steel-black, in contrast to the slaty grey-blue back and rump; the lores, a narrow line on the forehead, just above the bill, are of the deepest black, the ear-coverts blackish. The wing (*males*) measures 65—70 mm.

The specimens from Goram have the crown not glossy greenish steel-black, but metallic slate-grey, scarcely or only little darker than the back and rump. The lores are also black; the ear-coverts are blackish. The wing measures 73—74 mm. The examples from Buru have the head like those from Goram, or even still paler, not in any marked contrast to the back and rump. The lores are less blackish, not much deeper than the crown, like the ear-coverts; wing 68—71 mm. I am, therefore, obliged to distinguish three subspecies, from the *males* alone, the *females* being not very distinct, and our series of them rather poor.

A. *Myiagra galeata galeata* Gray: lores and line on forehead deep black, ear-coverts rather blackish, crown very dark steel-green, in marked contrast to the back, wings 65—70 mm. Northern Moluccas. (Specimens from Batjan, Halmahera, Ternate, and Obi examined.)

B. *Myiagra galeata goramensis* Sharpe: similar to A, but crown less dark, less in contrast to the back, wing rather longer, 73—74 mm. Goram and Ceramlaut (Kühn coll.).

C. *Myiagra galeata buruensis* subsp. nov.: head scarcely in contrast to the back, lores and ear-coverts not deep black, absolutely no dark line on forehead, wing 68—71. Buru.

Type: ♂, Kayali, Buru, October, 1898, No. 2391, Dumas coll. (Everett's label), in Mus. Rothschild.

40. **Muscicapa griseisticta** (Swinh.) (Migrant).

♀, Obi Major, 1. iv. 1902, Waterstradt's hunters. (Migrant from the north.)

41. **Cryptolopha everetti waterstradti** subsp. nov.

Cryptolopha, C. everetti dictae typicae simillimus, sed gula maxima pro parte flavescente, gula summa modo albida.

Hab: In montibus insularum Batjan et Obi Major dictarum. Typus ex Batjan.

Mr. John Waterstradt sent one skin from Obi Major, obtained on April 16th, 1902, and thirty-one from Batjan, shot in the mountains between 5000 and 7000 ft. All these birds resemble the bird described by me as *Acanthopneuste** *everetti* [Nov.

* It will doubtless appear to be very inconsistent that I placed this bird two years ago in *Acanthopneuste*, now in *Cryptolopha*. But on several occasions I have already remarked that there is a group of birds neither agreeing properly with typical *Cryptolopha*, nor with *Phylloscopus*. I am, however,

Zool. VIII. (1900) p. 239] from the mountains of Buru; but, while in the latter the whole throat is dirty white, in *C. waterstradti* the uppermost portion of the throat only is whitish, the rest yellow, or yellowish, the feathers being yellow, whitish in the centre. These birds, therefore, closely resemble the young of *C. everetti*, which have the entire throat, up to the bill, yellowish, but the underside is brighter yellow, and it cannot for a moment be supposed that all the thirty-one specimens from Batjan and the one from Obi, all alike, are immature—in fact, they are evidently nearly all adult birds. The crown is not so greyish as in *C. everetti everetti*, nor so olive-green, uniform with the back, as in the young of the latter, but darker, more brownish olive. The superciliary line is mostly even more obscure. The ear-coverts are very conspicuously spotted, being deep olive-brown, almost blackish, with whitish centres, much less uniform than in typical *everetti*. The inner edges to the inner webs of the remiges are more yellowish, as are also the margins to the inner webs of the middle rectrices. The abdomen seems to be, as a rule, deeper and brighter yellow, and the greenish olive of the sides apparently more extended over the abdomen. Wing 55—61, tail 40—42 mm. Bill (in skin) black, feet (in skin) slaty.

Type: "♀," Batjan, 5000—7000 ft., July 1902, No. B.81, Waterstradt coll., in Mus. Rothschild.

42. **Stoparola panayensis** (Sharpe).

Eumyias panayensis Sharpe, *Trans. Linn. Soc.* 2nd series, *Zool.* i. p. 326 (1879: Panay, Philippine Islands).

I am much puzzled by two flycatchers, marked as *male* and *female*, sent by Mr. Waterstradt from Obi Major, from 2000 ft. above the sea. They agree with *S. panayensis* from Panay and Negros in every way, except that the feathers of the chin and throat are slightly brighter blue and much longer. These two specimens, however, are freshly moulted, one showing a few spotted feathers of the juvenile dress, and I believe that in the Philippine birds these feathers would be equally long if we had equally freshly moulted ones. On the other hand, the occurrence of a Philippine form of restricted habitat on Obi Major is most remarkable. It cannot easily be supposed that an inhabitant of a tropical island like Panay migrates to the Moluccas, but I cannot at present classify our two Obi examples with anything else than the typical *Stoparola panayensis* (Sharpe).

43. **Graucalus papuensis melanolora** (Gray).

[*Corvus papuensis* Gmelin, *Syst. Nat.* i. p. 371 (1788, ex Daubenton, habitat in Nova Guinea).]

Campephaga melanolora Gray, *P. Z. S.* 1860. p. 353 (Batjan and Ternate).

Evidently not very rare on Obi Major, where Doherty obtained a series of five examples. Bernstein found it already on Obi. I find that—as already mentioned by Salvadori in *Orn. Pap.* ii. p. 135—specimens from the Halmahera group and Obi are smaller than typical New Guinea birds, and therefore prefer to make use of Gray's name *melanolora* for the former. The following measurements of the wings will be of interest:—

Halmahera: 159, 159, 157, 157, 157, 155, 148 mm.

afraid they cannot be called *Acanthopneuste*, as the type of *Acanthopneuste* is *borealis*, a true *Phylloscopus*, in my opinion. I refrain from creating a new genus for these birds, and call them now again (provisionally) *Cryptolopha*. In Dr. Sharpe's *Handlist* iii. p. 275, *C. presbytis* and *everetti* are not mentioned, probably because recorded as *Acanthopneuste*.

Obi Major: 157, 157, 155, 154 mm.
Kapaur, New Guinea: 148, 145, 143 mm.
Konstantinhofen, New Guinea: 144 mm.
Dorei, New Guinea: 143 mm.
Mysol: 152 mm.
Salwatty: 149, 150 mm.

44. **Edoliisoma obiense** Salvad.

Edoliosoma obiense Salvad., *Ann. Mus. Civ. Gen.* xii. p. 329 (1878); id., *Orn. Pap.* ii. p. 151 (Obi).

Obi: Bruijn, Bernstein, Guillemard, Doherty, Lucas, Waterstradt. There is a great variation in immature *males* and *females*. While the adult *female* is below cinnamon, above cinnamon-brown or chestnut-brown, with a slaty-grey crown, some examples have the crown of the same chestnut-brown as the back; these must be younger birds, although they have a uniform cinnamon underside. Others, doubtless immature, have blackish cross-markings on the underside; another one—probably an immature *male*, though we have a specimen moulting from a rich crimson plumage to the adult bluish slate one—is underneath pale buff with blackish cross-marks, above of a curious pale brownish grey colour, crown-feathers with narrow white tips. Doherty describes the iris as deep brown, the bill and feet as black. Native name, "Burong miniak" (Lucas).

45. **Edoliisoma marginata** Wall.

Campephaga marginata Wallace, *P. Z. S.* 1863. pp. 19. 34 (Buru).

One specimen was obtained on Obi Major by one of Mr. Waterstradt's hunters on April 17th, 1902. I am inclined to think that it is a straggler from Buru, and not a native of the Obi group of islands.

46. **Lalage aureus** (Temm.).

Ceblepyris aureus Temminck, *Pl. Col.* 382. fig. 2 (1825) ("Timor"—*errore!*. I accept Ternate as the typical habitat).

Doherty and Waterstradt obtained specimens on Obi Major. Both sexes have the "iris deep brown, feet nearly black, bill black" (W. Doherty).

47. **Dicrurus dohertyi** Hart.

Dicruropsis sp.? Guillemard, *P. Z. S.* 1885. p. 571 (Bisa).

Dicrurus dohertyi Hart., Nov. Zool. 1902. p. 441 (Obi Major).

A series from Doherty and Waterstradt. This form is apparently nearest to *D. megalornis* of the Key Islands, but has a shorter tail and a much less high and arched beak. Specimens sent by Bruijn from Obi Major were by Salvadori (*Orn. Pap.* ii. p. 174) united with *D. pectoralis* from Sula, but they are very different. The Obi bird is larger, has a longer and higher bill, larger feet, longer wing and longer tail; the iris is brown, not crimson; wing, ♂, 169—171, ♀, 167—170; tail, ♂, 142—148, ♀, 146—149; bill from forehead to tip, 38 mm.

48. **Pachycephala obiensis** Salvad.

Pachycephala obiensis Salvad., *Ann. Mus. Civ. Gen.* xii. p. 330 (1878: Obi); id., *op. cit.* xv. p. 45 (1879); id., *Orn. Pap.* ii. p. 219.

Doherty obtained this bird on Obi Major and Bisa, Waterstradt on Obi Major.

"Iris deep brown, feet purplish black, bill black." This form, as well as others, is a close ally of *P. melanura*, and will in future be considered a subspecies of the latter.

49. **Pachycephala johni** sp. nov.

Pachycephala corpore supra olivaceo-brunneo, remigibus secundariis pallidius marginatis; pileo griseo-schistaceo. Cauda brunnescente-nigra. Corpore maris subtus toto rufo-cinnamomeo, feminae gutture pectoreque plus minusve nigro-brunneo striolatis. Long. tot. ca. 140—150; al. ♂, 82—83, ♀, 78—79½; caud. 60—61; rostr. 12—13; metatars. 19 mm.

Hab. In insula Obi Major dicta.

This remarkable new *Pachycephala* was obtained by Doherty and Waterstradt. Doherty sent a single adult *male*, shot in September 1897; Waterstradt four examples, with uniform rufous-cinnamon underside, which must be an adult *male* and three *females*, though one of them may be an immature *male*.

The back, rump, and upper tail-coverts are olive-brown, the remiges blackish slate, primaries very narrowly, secondaries broadly margined with a paler greyish olive-brown, the crown slaty-grey; under surface from bill to tail rufous-cinnamon, the supposed (*females* and immature *males*?) with narrower or wider shaft-stripes down the centres of the feathers of the throat, breast, and upper part of abdomen. Doherty marked the iris as "deep crimson-brown, feet blackish, claws black, bill black." One of the specimens from Waterstradt has the bill light brown, and has wider pale edges to the secondaries.

This bird is named as a compliment to Mr. John Waterstradt, who made a good collection on Obi Major.

Pachycephala johni has no very close ally, as far as I am aware. It belongs to the group of *P. lineolata* and *examinata* (cf. Nov. Zool. 1900. p. 237), in which the *females* have narrow stripes on the breast, but its bright rufous-cinnamon underside distinguishes it at once from all others.

Type: "♀," or rather ♂, Obi Major, 25. iii. 1902, No. O.129, Waterstradt coll., in Mus. Rothsch.

50. **Cinnyris auriceps** (Gray).

Nectarinia auriceps Gray, *P. Z. S.* 1860. p. 348 (Batjan and Ternate).

Obi Major: Bernstein, Lucas, Doherty, and Waterstradt colls. Native name, "Burong tschui" (Lucas).

51. **Cinnyris frenata** (S. Müll.).

Nectarinia frenata S. Müller, *Land-en-Volkenkunde* p. 173 ("Door ons an de westkust van Nieuw-Guinea ontdekt").

Doherty and Waterstradt sent some examples from Obi Major which do not seem to differ from New Guinea specimens.

52. **Dicaeum schistaceiceps** Gray.

Dicaeum schistaceiceps Gray, *P. Z. S.* 1860. p. 349 ("Batchian and E. Gilolo").

One *female* from Waterstradt, similar to a Batjan *female* collected by William Doherty.

53. **Myzomela simplex rubrotincta** Salvad.

[*Myzomela simplex* Gray, *P. Z. S.* 1860. p. 349 ("Batchian and Gilolo").]

Myzomela rubrotincta Salvad., *Ann. Mus. Civ. Gen.* xii. p. 334 (1878 : Obi).

One ♀ from Doherty, two *males* and one *female* from Waterstradt. "Iris pale dull crimson, feet dull leaden, bill nearly black."

The Obi form of this *Myzomela* is not—as said by Dr. Gadow, *Cat. B.* xi. p. 143—intermediate between *Myzomela simplex simplex* and *M. s. rubrobrunnea*, but, on the contrary, the latter is somewhat intermediate between the two others. While *M. simplex simplex* has only a red tinge on the edges of the wings and tail and on the chest, *M. s. rubrobrunnea* has red margins to all the feathers of the back and underside, and *M. s. rubrotincta* has the whole upperside uniform brownish red, the abdomen, thighs, and under tail-coverts washed with pink. The red of the wings and tail is also much brighter and more extended than in *M. s. rubrobrunnea*.

54. **Criniger lucasi** sp. nov.

Criniger supra viridi-olivaceus, subtus flavus, olivaceo tinctus. Differt a *C. chloris* dicto, cui maxime affinis est, loris flavis (necnon fuscescentibus), colore laetiore, subtus purius flavescente, minus olivaceo tincto. Magnitudine *C. chloris* dicti.

Hab. Obi Major.

This very distinct new form of *Criniger* is nearest allied to *C. chloris*, but differs at a glance by its yellow, not brownish, lores. Its colour is generally brighter, the underside of a much purer yellow, less tinged with olive. With the two other species of Moluccan *Criniger* the Obi form has much less to do than with *C. chloris*. *C. mysticalis* from Buru, which has also yellow lores, differs, among other peculiarities, by its yellow eye-lid and the much darker, more olive-greenish underside, with rather distinct pale shafts. *C. affinis* from Ceram and Amboina differs at once in the pure yellow apical third of the tail.

Criniger lucasi is named in honour of Mr. Lucas, of Brussels, who made a very useful collection of birds on Obi Major, which contained, among others, the rare *Neoscolopax rochusseni*.

"Iris deep brown, feet bluish grey, bill pale olive-green, culmen above darker, chiefly at base" (W. Doherty).

We have a series of ten, collected by Doherty and others. The *males* are much larger than the *females* in this and allied species, wings about a centimetre longer.

Doherty sent two eggs of *Criniger lucasi*. They are like those of *C. chloris*, being of a glossless white, spotted all over with deeper and lighter red-brown and some deeper-lying purplish mauve spots. They measure 22·1 : 18·6 and 21·5 : 18·2 mm.

Type: ♂ ad., Obi, September 1897, No. 930, W. Doherty coll., in Mus. Rothsch.

55. **Pitta rufiventris** (Heine).

Coloburis rufiventris Heine, *Journ. f. Orn.* 1859. p. 406 (Loc. incert.—I substitute Batjan as the original locality).

Doherty and Waterstradt obtained specimens of this *Pitta* on Obi Major. "Iris deep brown, feet leaden-blue, bill black, pale at tip above."

The specimens from Obi do not differ from those from Batjan and Halmahera.

56. **Locustella fasciolatus** (Gray) (Migrant).

Acrocephalus fasciolatus Gray, *P. Z. S.* 1860. p. 349 ("Batchian").

♀ ad., Obi Major, September 1897, W. Doherty coll. "Iris pale sepia, feet pale brown, upper mandible black, lower mandible pale, gape yellow." (Migrant from the north.)

Though only a winter visitor to the tropical islands, this species was first described from Batjan, where Wallace had obtained it.

57. **Phylloscopus borealis** (Blas.) (Migrant).

Obi Major, September 1897, Doherty, 2. iv. 1902, Waterstradt. (Migrant from the north.)

58. **Calornis metallicus** (Temm.).

Lamprotornis metallicus Temm., *Pl. Col.* 266 (1824: Amboina).

One example from Obi Major, collected by Lucas. Native name "idi-idi."

59. **Calornis obscura** (Bp.).

Obi Major, Doherty and Waterstradt. "Iris deep brown, bill and feet black" (Doherty).

60. **Corvus orru** Bp.

Doherty obtained examples on Obi Major and Bisa.

61. **Corvus validus** Bp.

Corvus validus Bp., *Consp.* i. p. 385 ("Ceram, Gilolo." The typical habitat is Gilolo [Halmahera], "Ceram" being an error of Bonaparte).

Corvus validus Büttik., *Notes Leyden Mus.* xviii. p. 185 (1897; discussion on type and locality of type, and misuse of name).

Corvus validissimus Schleg., Notice sur le genre Corvus, in *Bijdr. tot de Dierk.* 1859. p. 12. Pl. I. f. 21 (1859). (The type of *C. validus* is also the type of *C. validissimus*, teste Büttikofer, *l.c.*)

Mr. Lucas sent two examples of this crow with its large and long beak, and strongly arched upper mandible. The native name is "Burong gaga."

This species is only known from Halmahera, Batjan, and Obi. It is not a representative form of *Corvus orru*, as both occur on Obi Major, and are easily distinguishable from each other.

62. **Lycocorax obiensis** Bernst.

Lycocorax obiensis Bernst., *J. f. O.* 1864. p. 410 (Obi).

A common bird on Obi Major, where it was discovered by Bernstein, and afterwards obtained by Bruijn's hunters, by Guillemard (*P. Z. S.* 1885. p. 573), by Doherty, Lucas, and Waterstradt. Doherty marked the iris as crimson, bill and feet black. Young birds seem to have a brown iris. The native name is, according to Lucas, "Burong andjing." I am inclined to treat all three *Lycocorax* as subspecies: *L. pyrrhopterus pyrrhopterus*, Halmahera; *L. pyrrhopterus obiensis*, Obi; *L. pyrrhopterus morotensis*, Morotai and Rau.

63. **Ptilinopus superbus** (Temm.).

Only one specimen from Lucas, who says it is called "marpati," and a young bird from Waterstradt.

64. **Ptilinopus granulifrons** Hart.

Ptilinopus granulifrons Hartert, *Bull. B. O. C.* vii. p. 35 (Febr. 1898: Obi Major); id., Nov. Zool. 1899. p. 219. Pl. IV. fig. 9.

This remarkable little green pigeon agrees in pattern and general colour entirely with *Ptilinopus hyogaster* (corr. *ionogaster*) from Batjan and Halmahera, but it differs strikingly by the presence of a mass of granuliform fleshy knobs on the forehead, at the base of the bill. The grey of the head is a shade lighter and reaches a little more down on to the occiput, its hind-margin being straight or somewhat convex, not at all concave as is the case in *P. hyogaster*, when properly skinned. The general colour is much more yellowish-green, not grass-green, especially the breast is washed with golden-yellow. The discoverer of this most interesting pigeon was William Doherty, who collected a nice series in September 1897. He marked the bare parts as follows: "♂: iris crimson; feet purple; bill yellow, more olive near tip, crimson at base above, granuliform wattles orange-ochreous. ♀: iris orange-ochreous, feet dark purple, claws blackish; bill olive-ochreous, crimson at base above, granuliform wattles at base of bill orange-ochreous." The sexes are, in skin, perfectly alike. Mr. Lucas also sent some skins and informed us that the local name was "marpati," and recently Mr. Waterstradt obtained more specimens.

In my opinion *Ptilinopus granuliformis* is of more interest and importance than any other of the forms peculiar to Obi. It is obviously a close ally and representative of *P. hyogaster*, but with the same right that the genus *Globicera* is separated from *Carpophaga*, it might be distinguished generically, as it has a remarkable "structural" difference, but I am convinced that this would in no way help us, and only add an unnecessary new generic term to our list. On the contrary, the consequence I draw from this case is, that the genus *Globicera* must be suppressed.

65. **Megaloprepia formosa** Gray.

Megaloprepia formosa Gray, *P. Z. S.* 1860. p. 360 ("Gilolo").

Waterstradt's hunters obtained specimens on the hills, about 2000 feet high, of Obi Major. Bernstein met with it on Obi many years ago.

66. **Carpophaga perspicillata** (Temm.).

Columba perspicillata Temm., *Pl. Col.* 246 (1823: Moluccas).

Doherty and Lucas obtained this species. Native name "kuru-kuru."

67. **Carpophaga basilica obiensis** Hart.

[*Ducula basilica* Bonaparte, *Consp.* ii. p. 35 (1854: Gilolo).]

Carpophaga obiensis Hartert, *Bull. B. O. C.* vii. p. 35 (February 1898, Obi Major).

Very different from *C. basilica basilica*, the entire head, throat, foreneck, and breast being much deeper vinous, with a greyish wash; the hindneck darker grey, separated from the vinous head by a rusty patch; abdomen and under tail-coverts deep cinnamon, instead of pale cinnamon. 'Iris dark crimson, eyelids vermilion;

feet vermilion; bill nearly black" (W. Doherty). (The bare parts of *C. basilica* from Ternate are marked by Doherty as follows: "Iris crimson; feet pale carmine; bill black.") Bernstein's specimens of *C. basilica* from Obi in the Leyden Museum must, of course, belong to this form, but Doherty was its discoverer, as I described it from his examples. Lucas and Waterstradt also got it.

"Kumkum boké" is the native name.

68. **Myristicivora melanura** (Wall.).

Carpophaga melanura Wallace, *P. Z. S.* 1863. p. 33 (Buru).

Bernstein and Guillemard obtained this species in the Obi group (Obi Latu); Lucas and Doherty sent specimens from Obi Major. Local name "Kumkum puti."

69. **Columba albigularis** Bp.

Lucas sent a specimen from Obi Major. Name "Kumkum."

70. **Reinwardtoena reinwardtsi** (Temm.).

Columba Reinwardtsi Temminck, *Pl. Col.* 248 (1823: Celebes!—*errore!* I substitute as the original locality Ternate).

Reinwardtoenas reinwardti obiensis Hart., *Bull B. O. C.* vii. p. 35 (February 1898: Obi).

Reinwardtoena reinwardtsi reinwardtsi Hart., Nov. Zool. 1900. p. 241; Rothsch. & Hart., Nov. Zool. 1901. p. 126.

Reinwardtoenas reinwardti Mey. & Wigl., *B. Celebes* ii. p. 642.

In 1898 I erroneously separated the Obi form on account of a yellowish buff face obvious in Doherty's specimens, but recent material has shown that this peculiarity is of no systematic value, as it is clearly the result of the juice of some kind of fruit.

Bernstein, Doherty, Guillemard (Obi Latu), Lucas, and Waterstradt obtained this bird. Native name "Ekorpandjang."

71. **Macropygia amboinensis batchianensis** Wall.

(Cf. Nov. Zool. 1901. p. 124.)

Doherty and Waterstradt, as well as Lucas, who calls it also "Ekor pandjang," obtained examples on Obi.

72. **Chalcophaps indica** (L.).

Both sexes sent by Waterstradt from Obi Major.

73. **Caloenas nicobarica** (L.).

Lucas sent a specimen from Obi, where it had already been obtained by Bernstein. Guillemard collected it on Bisa.

74. **Megapodius freycinet freycinet** Quoy. & Gaim.

(Cf. Nov. Zool. 1901. p. 138).

Obi: Bernstein. Obi Bisa and Obi Major: Doherty. Obi Major: Lucas. Native name "moleo." Obi Major: Waterstradt.

75. **Neoscolopax rochussenii** (Schleg.).

Scolopax rochussenii Schlegel, *Ned. Tijdschr. Dierk.* iii. p. 254 (1866 : Obi).

This most remarkable woodcock was originally sent by Bernstein from Obi. I am only aware of the existence of three specimens: the type from Obi in the Leyden Museum, a specimen (now in the British Museum) obtained by Mr. Harting from Frank in Amsterdam, said to have come from Ternate, and a third brought home by Lucas from Obi Major in the Tring Museum. Obi is therefore the only locality known for certain as the home of this rare bird. The specimen from Frank is a native-made skin sent home with one of the usual North Moluccan trade-skin lots, and there is no proof that it actually came from Ternate. Mr. Lucas says the bird was called by the natives "Snip utan," which means "wood-snipe." The figure in Seebohm's *Charadriidae* is not well coloured. The upperside is black, with large markings of an ochreous rufous, while on the plate the ground-colour is not black enough, the markings too yellowish, not rufous enough. Our specimen measures as follows: wing 205, tail 77, bill 100, metatarsus 47, middle toe 53 mm.*

76. **Numenius phaeopus variegatus** (Scop.) (Migrant).

Collected on Obi Major by Guillemard and Waterstradt. (Migrant from the north.)

77. **Esacus magnirostris** (Vieill.).

"♂" ad., June 1902, John Waterstradt coll.

78. **Herodias timoriensis** (Less.).

One skin, Obi Major, from Lucas. Native name "Soweko."

79. **Garzetta nigripes** Bp.

One, Obi Major, from Lucas. Native name "Soweko."

80. **Butorides stagnatilis** (Gould).

Also from Lucas, Obi Major. "Soweko."

81. **Tadorna radjah** (Garn.).

Obi Major, Lucas. "Bebeg utan." Already long ago obtained by Bernstein.

82. **Sula sula** (L.).

Obi Major, Lucas. Native name "Bebeg laut."

83. **Sterna bergii** Licht.

Obi Major, Bernstein and Lucas. Called "Pombog tanah" (*fide* Lucas).

84. **Sterna dougalli** Mont.

Obi Major, Bernstein coll. in Mus. Lugd.

85. **Sterna anaethetus** Scop.

Obi, Bernstein coll. in Mus. Lugd.

* While this article was in print we received a skin from the mountains of Batjan.

ON THE BIRDS COLLECTED ON THE TUKANG-BESI ISLANDS AND BUTON, SOUTH-EAST OF CELEBES, BY MR. HEINRICH KÜHN.

By ERNST HARTERT.

BEING particularly interested in the ornithology of the Celebes group, whence we had received such fine collections from Everett and Doherty, Mr. Walter Rothschild and I have for a long time been trying to induce collectors to go to the entirely unexplored Tukang-Besi Islands and Buton, south-east of Celebes, but in vain. Doherty had no inclination to go there, and Everett was unable to obtain the required permission from the Dutch authorities. The Tukang-Besi Islands belong to the Sultan of the island of Buton, which is a free tributary state of Holland. The Dutch have no power nor even any influence on Buton and the Tukang-Besi, Toekan-Besi, or Token-Besi Islands, which can only be visited by white men with the consent of the Dutch authorities at Makassar, after the Sultan of Buton has given formal permission. Mr. Kühn succeeded in obtaining these permissions, started for the islands in the autumn of 1901, and collected there in November and December 1901 and January 1902, though the permissions were apparently given somewhat reluctantly, for a limited time only, and not without restrictions and conditions. Mr. Kühn had to take four men of high rank from Buton, who travelled with him on his prau at his expense. They were a source of trouble to him, being constantly about him and doing their best, evidently by order of the Sultan, to keep the native population away from him. On the boat they filled the air with the unpleasant odour of their opium pipes, which they smoked most of the time. In addition to the four officials from Buton, a prau with thirteen men followed him everywhere. These people were, of course, a great bother, and were very troublesome when he was collecting, on account of their constant inquisitiveness and obtrusiveness. From Wantjee (Wangi, Wangi-Wangi) Mr. Kühn was at first turned back to Buton, and the return journey to Wantjee was one of nine days' beating against the wind.

The Tukang-Besi (Toekan-Besi, Token-Besi, or Toecambaro) Islands form an extensive but almost unknown archipelago to the eastward of Buton. They are of moderate elevation, with numerous rocks and reefs around and among them. Mr. Kühn visited Wantjee, Kalidupa, Tomia, and Binongka.

Wantjee (Wangi-Wangi, Wangi, Wantyi) is the largest and nearest to Buton. Though only eighteen miles eastward of the east point of Buton, a depth of 1070 fathoms has been found in the channel between them. The island is high, being visible for about twenty to twenty-five miles. The natives here and on the other islands always walk about with one or two kris in the belt, and on Wantjee they were insolent and in no way afraid of the Butonese officials. Binongka, or Binungku, is a geologically young, thickly populated island, which does not produce enough to feed its population, so that every year hundreds of men are obliged to emigrate to Amboina, Banda, and Celebes to trade or to work. There is no forest, or hardly anything that deserves the name; wherever the rugged and sharp coral limestone admits it, the

soil is planted with maize and other cultivated plants, which, however, yield but a poor crop. There is no fresh water on Binongka—only a brackish, objectionable fluid in the cavities of the coral rocks.

Tomia is a little more comfortable, there being at least some smooth and clean sandbanks on the coast, and the coral rock is a little more covered with soil. Nevertheless the thick population cannot obtain sufficient food from the land.

Kalidupa (Kaledoepa, Kadupa) is more fertile, being covered almost all over, even on the mountain-tops, with fertile soil. Although forests have almost entirely disappeared, and vast stretches are covered with the uniform long stiff alang-alang grass (*Imperata arundinacea*), Mr. Kühn believes that at the right season some good Lepidoptera might be found; but he had to leave Kalidupa after a short stay, the time which he was permitted to remain having elapsed.

The islands called Mattheus and Velthoen, to the east of the above-named ones, are uninhabited, but said to be full of birds. They were not visited.

The inhabitants of the Tukang-Besi Islands are of a very light colour, probably of Buginese origin. Most of the men and all the women had never seen a white man in their lives, and generally ran away to a distance of over a hundred yards. Mr. Kühn, however, suspects that this fear was partly due to the Butonese officials, who were overbearing and unkind to a degree, and did what they could to prevent Mr. Kühn's getting into contact with the natives.

No zoological collector has ever before touched the Tukang-Besi Islands, and all honour is due to Mr. Heinrich Kühn for having brought together, under most inconvenient and trying circumstances, the very interesting collection hereafter enumerated.

From the nature of the islands, which consist apparently of geologically young coral rock, being almost or entirely devoid of old forest, very thickly populated, and highly cultivated, a very rich fauna cannot be expected, and, in fact, Mr. Kühn calls it very poor. Many otherwise ubiquitous genera of birds of the Eastern Archipelago are indeed absent.

Buton has also remained ornithologically unknown, though it appears that Labillardère, one of the naturalists who accompanied D'Entrecasteaux's expedition in search of the lost ship *La Pérouse*, collected some birds on Buton or Muna. D'Entrecasteaux passed through the Strait of Buton, between Buton and Muna; eighteen days were spent in making the passage, and parties landed on both islands. On either of them they must have collected a number of birds, such as *Streptocitta albicollis*, *Gazzola typica* and others, which were partly, through some carelessness in labelling, attributed to New Caledonia. (Cf. Meyer & Wiglesworth, *B. Celebes* ii. pp. 576. 584.)

Altogether Mr. Kühn sent from his expedition seventy-three species, mostly in large series. Of these nine or ten are migrants from the north, the rest resident birds. While the birds from Buton are—as far as the very small collection from that island shows—practically the same as those of South Celebes, the birds from the Tukang-Besi Islands show on the whole a very different aspect. Though mainly the same as those of Celebes, or closely allied, there is among them also a fair mixture of Southern forms, just as we find it on Djampea, Kalao, and even, to some degree, on Saleyer. It is, to me, most strange that a number of forms (*Astur torquatus wallacei*, *Baza subcristata reinwardti*, *Tanygnathus megalorhynchos*, *Carpophaga concinna*) inhabit the islands quite close, sometimes all around, north and south of Celebes, but avoid the mainland, if we may call it so. The birds from Wantjee, Kalidupa

Binongka, and Tomia are entirely similar. The proportion of peculiar forms on the Tukang-Besi Islands is, in proportion to the number of species, fairly large, being:

1. *Pisorhina manadensis kalidupae*: Kalidupa.
2. *Tanygnathus megalorhynchos viridipennis*: Kalidupa, Binongka, Tomia.
3. *Dicaeum kühni*: Kalidupa, Binongka, Tomia.
4. *Cinnyris infrenata*: Wantjee, Kalidupa, Tomia, Binongka.
5. *Zosterops flavissima*: Wantjee, Kalidupa, Tomia, Binongka.
6. *Oriolus broderipi oscillans*: Wantjee, Kalidupa, Tomia, Binongka.
7. *Hypotaenidia kuehni*: Kalidupa, Binongka.

It is quite possible, and even probable, that on account of the thick population and the destruction of forests some interesting local forms have disappeared.

The systematical arrangement of the following list is, for the sake of convenience for those who wish to compare the lists, that of Meyer & Wiglesworth's *Birds of Celebes*. Though the system of giving full references to the original description and habitat has met with universal approval, and though I should like to adhere to it generally, at least in the more important instances, I could not carry it through in every case, for want of time.

1. **Astur torquatus wallacii** Sharpe.

[*Falco torquatus* Temminck, *Pl. Col.* 43 (1821 : ex Cuvier : Australia, Timor, Java, etc.!—Australia, *errore!* I accept Timor as the typical habitat, because the plate and description agree best with the Timor form).]

Astur wallacii Sharpe, *Cat. B. Brit. Mus.* i. p. 128 Pl. V. (1874: Lombok, Buru. Lombok is the typical locality, the Buru example being a young bird, probably belonging to a totally different bird).

Tomia Island; ♂♂ ad., 20. xii. 1901. "Iris orange, feet ochreo-chromeous, bill black, greyish at base below, about the nostrils and eyelids sulphur-yellow." ♀ juv., 23. xii. 1902.

Kalidupa: ♀♀ ad., 2, 10. i. 1902. (Nos. 4403, 4404, 4608, 4609, 4611.)

I have called these birds as above not without consideration. Restricting the habitat of typical *Astur torquatus* to the Timor group of islands, we have the following forms:—

Astur torquatus torquatus: Underside white, sharply barred with a more or less pale rufous, under tail-coverts often pure white, breast more or less washed with pale ash-grey. Timor, Savu, Alor.*

Astur torquatus wallacii: Underside much more rufous, the ground-colour generally much less pure white, more tinged with pale grey or rufous-grey; the bars generally wider, often less sharply defined; the chest much more rufous, less greyish; the barring less distinct on chest and breast. Lesser Sunda islands: Lombok, Flores, Java to Jampea, Kalao, and Tukang-Besi islands.

It is true that the Tomia and Kalidupa specimens are lighter grey on head and cheeks, but I do not venture to separate them without more evidence.

Astur torquatus cruentus: Much like *A. t. wallacii*, but the under wing-coverts much more distinctly and regularly barred. W. Australia and Southern New Guinea.

* Everett sent an adult pair from Alor, but in my Alor list (Nov. Zool. 1898) this species has inadvertently been omitted. On Alor *Astur sylvestris*, a species which is quite different and has no rufous collar above, also occurs (Nov. Zool. 1898. p. 462).

Astur torquatus sumbaënsis: Underside white with rufous-brown or greyish rufous bars, reaching quite down over the abdomen, even the thighs being strongly barred. Upperside rather dark, tail somewhat more distinctly barred. Sumba.

2. **Astur soloensis** (Lath.).

♀, S.W. Buton, 25. xi. 1901. "Iris sulphureous, feet chrome-yellow, bill black, grey at base, cere red-orange." (No. 4139.)

3. **Accipiter rhodogaster** (Schleg.).

Nisus virgatus rhodogaster Schleg., *Mus. P.—B., Astures* p. 32 (1862: Celebes).

♀, S.W. Buton, 25. xi. 1901. Moulting from the juvenile kestrel-like plumage to that of the adult bird. "Iris sulphureous, feet yellow-ochreous, bill black, cere olive-yellowish." (No. 4157.)

4. **Haliastur indus girrenera** (Vieill.).

Tomia, Binongka. One of the Tomia specimens (No. 4362) has distinctly dark brown shafts to the pectoral feathers, the other not a trace of them. (Nos. 4276, 4277, 4362, 4614.)

5. **Tinnunculus moluccensis occidentalis** Mey. & Wigl.

[*Tinnunculus moluccensis* Bonaparte, *Consp. Av.* i. 1850. p. 27 (ex Hombron et Jacq., Amboina!).]

Tinnunculus moluccensis occidentalis Mey. & Wigl., *Abh. Mus. Dresden* 1896, No. 2. p. 8.

A large series from Binongka, Kalidupa, Tomia. (Nos. 4612, 4613, 4278—4283, 4304—4309, Kühn coll.).

6. **Pandion haliaëtus leucocephalus** Gould.

♂, Kalidupa, 5. i. 1902. A typical *leucocephalus*, in my opinion. (No. 4615.)

7. **Baza subcristata reinwardti** (Müll. & Schleg.).

(Cf. Nov. Zool. 1901. p. 379.)

♂ ad., Kalidupa, 4. i. 1902; ♂ jun., Wantjee Island, 3. xii. 1901. (Nos. 4446, 4610.)

8. **Pisorhina manadensis kalidupae** subsp. nov.

An adult pair and a young little horned owl from Kalidupa (Nos. 4486, 4487, and 4488) appear to belong to a new subspecies of this vexed group. They differ widely from *P. manadensis manadensis* of Celebes and the latter's close ally *P. manadensis albiventris* (apparently only distinguishable, as a rule, when a series is compared, by its whiter abdomen) in their much larger size. In their dimensions they agree with *P. manadensis leucospilus* from the Northern Moluccas, rather than with *P. manadensis magica* from the Southern Moluccas. They are, in fact, hardly distinguishable from *P. manadensis leucospilus*, but there is a remarkable difference in the extent of the feathering on the metatarsus. In typical *P. manadensis leucospilus* (and *P. manadensis magica*) the feathers do not reach quite down to the toes, so that about four millimetres of the lower metatarsus remain bare. In *P. manadensis kalidupae* the feathers extend fully down the metatarsus, right on to the beginning of the toes. The specimens from Kalidupa are also remarkable for the

finer pattern of their markings, the black median lines of the feathers, both above and below, being narrower, less bold, the whole bird thus appearing to be more uniform. A skin from Batjan (Platen coll.) in the Tring Museum, however, approaches them in this respect. "The iris is sulphureous or ochreous yellow, feet dirty whitish, bill blackish, base of mandible light." Wing "♂" 170, "♀" 169, tail 85—89, metarsus 30, bill 23 mm.

Type in Mus. Tring No. 4486, ♀, Kalidupa, 29. xii. 1901. Heinrich Kühn coll.

It may be said that *P. manadensis manadensis* and *P. manadensis albiventris* differ so strikingly in their smaller size, and especially smaller bills, from *magica*, *leucospilus* and *kalidupae*, that one cannot help seeing a wider gulf between the former two and the latter three forms, so that one might almost say they were two species, each with some subspecies; but sometimes the differences are less than usual.

9. **Strix candida** Tick.

♀ ad., Kalidupa Island, 6. i. 1902. "Iris blackish brown; feet pale brownish grey; bill white." (No. 4489.)

This is the second specimen known from the Celebes region. One was obtained by Professor Max Weber in the Luwu district in 1889, and only this one *female* has been sent by Kühn. Ornithologists agree that the "grass-owl" extends its range from India to Australia. I have not sufficient before me to discuss the possibility of several local forms of this bird, but I am certainly not *à priori* convinced that they are all exactly the same from the various countries.

10. **Trichoglossus ornatus** (L.).

Common on Kalidupa, where a good series has been collected. "The iris is reddish orange, feet olive-grey, bill vermilion." Specimens from Kalidupa are entirely similar to those from Celebes. (Nos. 4515—4521.)

11. **Cacatua sulphureus** (Gm.).

Psittacus sulphureus Gmelin, *Syst. Nat.* i. p. 330 (1788: ex Brisson, Buffon, Albin, Edwards, and Latham. "Habitat in ins. Moluccis"; *errore:* the typical locality is Celebes.

Tomia, Binongka, and Wantjee Islands. Altogether seven specimens, four marked "♂," three "♀."

The sexing undoubtedly correct, as the *males* have much larger bills. The bills of these *males* are exactly as large as those of specimens from Celebes, while those of the *females* are not larger than those of the Djampea specimens, separated by me (Nov. Zool. 1896. p. 176) under the name *C. sulphurea djampeana*, on account of their smaller bills. I am therefore afraid that the Djampea form is not distinguishable, my *djampeana* having been founded on two *females* only. Mr. Kühn has marked the iris of the *males* as "blackish brown," "coffee-brown," and "brownish black," that of the *females* as "bright red," "blood red," and "dark vermilion." I do not know if this difference in the colour of the iris in the sexes is known, but cannot find it described. (Nos. 4248, 4249, 4250, 4363, 4364, 4365, 4456.)

12. **Tanygnathus megalorhynchos viridipennis** subsp. nov.

Tanygnathus T. megalorhynchos dicto typico simillimus, sed remigibus extus viridibus, minime caeruleis, rostro alisque minoribus.

Hab. In insulis Tukang-Besi dictis.

A very fine series of fourteen specimens from Kalidupa, Binongka, and Tomia (Nos. 4184, 4185, 4186, 4187, 4345, 4346, 4347, 4527, 4528, 4529, 4530, 4531, 4532, 4533) differ strikingly from typical *megalorhynchos*, of which I have a large series for comparison, in the outer aspect of the wings being green, not at all blue. The primary coverts only have more or less of a blue tinge, but the quills never. The wing measures, in this fine series of fourteen skins, not more than 230 to 245 mm., while in typical *megalorhynchos* it is 240 to 266. The bill (forehead to tip with compass) measures not more than 46 mm., but generally less, while in typical *megalorhynchos* it measures from 45 to 53 mm. The iris is pale yellow of various shades.

There are, it will be remembered, several more subspecies of *T. megalorhynchos*.

T. megalorhynchos megalorhynchos has the most peculiar distribution. It extends from N.W. New Guinea over the western Papuan Islands to the northern Moluccas, to Flores, Djampea between Celebes and Flores, and the islands north of Celebes—not only to Talaut, Sangi, Siao, but even to the small islands close to the coast: Mantehage, Biarro, and Tagulandang. There is, however, no evidence that it occurs on Celebes itself! The specimens said to have come from Manado (Musschenbroek) and Tondano (Reinwardt) were probably brought to Celebes from one of these islands.

The typical *megalorhynchos* may be described as a large bird with deep yellow under wing-coverts, a yellowish underside, and outwardly blue wings.

Specimens from Djampea and Flores have the wings outwardly green, hardly with any blue tinge at all, and are perhaps a shade darker greenish; but our series is too small for us to be certain if they belong to a distinct race, or if they can be united with *viridipennis*. They are, however, larger than *viridipennis*, and should probably receive a special name.

T. megalorhynchos sumbensis inhabits the island of Sumba. It is of the same size as typical *megalorhynchos*, and has outwardly blue quills, but the under wing-coverts are greenish yellow, the under-surface greener and darker. This is a very distinct race.

T. megalorhynchos viridipennis from the Tukang-Besi Islands is smaller than typical *megalorhynchos* and *sumbensis*, and has outwardly green wings without blue. The under wing-coverts are hardly more greenish.

T. affinis from the Southern Moluccas and *T. subaffinis* from Timorlaut (Tenimber) are also closely allied, and might be looked upon as subspecies of *megalorhynchos*; but all the other forms of the genus *Tanygnathus* are widely different from the group of *megalorhynchos* and allies.

The type of *Tanygnathus megalorhynchos viridipennis* is a *female* from Tomia Island (No. 4346).

13. **Cacomantis sepulcralis** (S. Müll.).

Cuculus sepulcralis S. Müller, *Land-en Volkenkunde* p. 177 (1839—1844: Java).

Cacomantis sepulcralis Finsch, *Notes Leyden Mus.* xxii. (1900) p. 82.

One ♂, 3 ♀♀, Tomia, Binongka, and Kalidupa. "Iris greyish brown, eyelid yellowish; feet ochreous yellow; bill black, mandible, except tip, yellowish grey." Wings 106—110 mm. (Nos. 4384, 4385, 4386, 4571.)

14. **Centropus javanicus** (Dumont).

A good series from Kalidupa. The very much larger size of the *females* is well shown by this series. *Centropus bengalensis* (from India alone) is distinguishable by its rufous-red mantle, which is sharply separated from the blue-black neck. If the two forms strictly represent each other geographically, they should be treated subspecifically. (Cf. Nov. Zool. 1900. pp. 232, 233.) Moulting specimens show of course that the change from the juvenile plumage to that of the adult is effected by moult, and not by "colour-change" within the feathers. (Nos. 4490—4498.)

15. **Pyrrhocentor celebensis rufescens** Mey. & Wigl.

Two specimens, *male* and *female* (Nos. 4164 and 4165), from S.W. Buton, Celebes, agree with *P. c. rufescens*, if that is a well-marked subspecies, and not with typical *celebensis* from North Celebes. (Cf. Mey. & Wigl., *B. of Celebes* i. p. 223; Hart., Nov. Zool. 1897. pp. 160. 164.)

16. **Phoenicophaus calorhynchus rufiloris** subsp. nov.

Ph. Ph. calorhynchus calorhynchus et *Ph. calorhynchus meridionalis* dictis simillimus, sed loris cinnamomeo-rufis distinguendus.

Hab. Buton. ♂♀, 25 xi. 1901. "Iris scarlet, feet black, bill sulphur-yellow, tip blackish for about 1 cm. with utmost point white for 2 or 3 mm., sides of base (round nostril) and under mandible dark scarlet." (Nos. 4162, 4163, H. Kühn coll.)

These two specimens closely resemble the northern typical *Ph. calorhynchus* and its southern very close representative *Ph. calorhynchus meridionalis*. The feathers of the crown are somewhat worn, and it is therefore difficult to say to which of the two forms they are nearer in the colour of the crown. The mantle and breast, which are generally lighter in *Ph. c. meridionalis*, are very rich cinnamon-chestnut-rufous. The wings are rather short, measuring only 172—174 mm., but they are partly moulting.

The majority of *Ph. calorhynchus calorhynchus* and all *Ph. calorhynchus meridionalis* in the Tring Museum are larger, having wings from 180—185 mm. and more, but several *Ph. calorhynchus calorhynchus* have wings only 174—178 mm. long. Messrs. Meyer & Wiglesworth quote for the northern form wings 174—185, for the southern (generally larger) form 174—202.

The bills of the two Buton examples are also smaller than in most examples of the two other forms, but here, too, we find several specimens closely approaching and practically equalling them. Altogether neither the measurements nor differences of colour (only two specimens being to hand) are of any importance, except that the Buton birds have on the lores a large cinnamon-rufous patch, almost of the same colour as the throat, though a shade duller. The discovery of this form, though closely allied (but better distinguished, I think, than *meridionalis*), is of great interest.

Type: No. 4163, ♂, S.W. Buton, 25. xi. 1901, H. Kühn leg., in Mus. Rothschild.

17. **Scythrops novaehollandiae** Lath.

Kalidupa, Tomia, Binongka, Wantjee. "Iris scarlet, lores and eyelid (naked skin round eye) crimson, feet bright grey (bright plumbeous), bill dark grey, dirty whitish towards tip, but varying." Nos. 4348, 4349, 4457, 4470, 4471, Kühn coll.)

18. **Alcedo ispida hispidoides** Less.

*Alcedo hispidoides** Lesson, *Compl. Buffon* ix. 1837 p. 345 ("Bourou, une des Moluques").

A large series from Kalidupa and Buton. (Nos. 4499—4508, 4547, 4129—4131.) The adult *male* has the entire bill invariably uniform black, but the adult *female* has the base of the under bill largely red. ♂: "black"; ♀: "bill black, base below dirty red (pale vermilion, brownish red"). This kingfisher is undoubtedly merely a form of *Alcedo ispida*. The four familiar races of the latter may briefly be diagnosed as follows:—

1. Ear-coverts cinnamon-rufous: 2.
   Ear-coverts deep blue or blackish blue, colour above very bright and very blue: *A. ispida hispidoides*.
2. Colours above paler, less bright and less blue: 3.
   Colours above brighter and more blue: *A. ispida floresiana*.
3. Size larger: *A. ispida ispida*.
   Size smaller: *A. ispida bengalensis*.

Within the area inhabited by *A. i. bengalensis* brighter and bluer specimens occur in certain places, as for example in Ceylon, where they have been called "var. *taprobana*" by Kleinschmidt; such individuals closely resemble *A. i. floresiana*, but may be distinguished by their slenderer bills, which are higher and thicker in *A. i. floresiana*.

19. **Halcyon coromanda** (Lath.).

♂ juv., North Buton, 16. i. 1902. "Iris dull dark brown, feet pale brownish vermilion, bill bright yellowish vermilion." (No. 4177, Kühn coll.)

I have not adopted the name *Halcyon coromanda rufa* (*Halcyon rufa* Wallace, *P. Z. S.* 1862. p. 338, ex Celebes) for this form, as I cannot see that the Celebes specimens differ from many others. They average rather large, but not strikingly; the colour is not darker than in specimens from the Malay archipelago, and not often darker than in Indian ones. There must either be a number of local forms, or none are clearly enough defined to be recognised by names, but the separation of only a typical form and *rufa* (Celebes alone!?) seems to be most confusing and not in accordance with facts.

20. **Halcyon chloris** (Bodd.).

Tomia, Kalidupa, Binongka, Wantjee and S.W. Buton. (Nos. 4132, 4244, 4245, 4246, 4247, 4353, 4354, 4356, 4357, 4444, 4445, 4540, 4541, 4542, Kühn coll.)

21. **Coracias temmincki** (Vieill.).

♂, Buton, S.W., 25. xi. 1901 (No. 4166, Kühn coll.) Iris coffee-brown, bill black." The specimen agrees perfectly with those from Celebes.

22. **Eurystomus orientalis** (L.).

♂, Binongka, 20. xii. 1901; ♀, Kalidupa 31. xii. 1901. (Nos. 4286, 4551, Kühn coll.)

* This is the spelling, not *ispidvides* or *ispidivdes*, as generally quoted.

23. **Pitta vigorsi** Gould.

♀ ad., Kalidupa, 3. i. 1902. "Iris coffee-brown, feet pale flesh-colour, bill black." (No. 4586, Kühn coll.)

The occurrence of this bird on the Tukang-Besi Islands is most unexpected, and I am inclined to think that it is only an accidental visitor there. If there was a resident race, one would expect it to differ from typical *vigorsi*, though the distribution of the latter is much wider than we knew formerly.

24. **Hirundo javanica** Sparrm.

Common on Kalidupa and Binongka. (Nos. 4267, 4268, 4269, 4270, 4271, 4593, 4594, 4595, 4596, Kühn coll.)

25. **Monarcha inornata kisserensis** A. B. Meyer.

[*Muscicapa inornata* Garnot, *Voy. "Coquille," Zool. Atl.* Pl. XVI. fig. 2 (1826); i. 2. p. 591 (1828: New Guinea).]

Monarcha inornatus var. *kisserensis* Meyer, *Sitzungsber. & Abh. Isis, Dresden*, 1884. p. 22 (Kisser).

A series from Kalidupa and Binongka. (Nos. 4265, 4266, 4293, 4294, 4295, 4296, 4297, 4410, 4573, 4574, 4575, 4576.)

I have doubtfully applied the above name to these specimens. One thing is certain: they differ from the (typical!) New Guinea birds as follows: the grey, especially on the head, neck and mantle, is lighter, more whitish; the abdomen is of a deeper chestnut colour; the bill is smaller. They seem to agree very well with Kisser specimens (Kühn coll.). It is, however, doubtful if the name *cinerascens* of Temminck, based on Timor specimens, is not available for these forms, but I have no Timor specimens to compare. The subspecies of this flycatcher are difficult to study. Dr. Finsch (*Notes Leyden Mus.* xxii. 1901. p. 259) denies the possibility of distinguishing any local forms. He says that the different colorations are due, in both sexes, to age. While freely admitting that Dr. Finsch is quite correct in remarking that the grey of the head, hindneck and foreneck is darker in young birds, lighter in adult ones, while the abdomen is lighter rufous in the young, deeper and more chestnut in old ones, I have sufficient adult birds for comparison to show that New Guinea birds are lighter rufous and darker grey (having also larger bills), and that those from the South-West Islands, Dammer, Timorlaut, the Tukang-Besis and other places have a lighter grey and deeper chestnut-rufous colour.

Monarcha inornata commutata [*Monarcha commutata* Brügg., *Abh. Ver. Bremen* 1876 v. p. 68 "Manado"—errore: Siao (?Sangi)] is evidently a darker grey form, and well recognisable as a subspecies; nevertheless, I cannot understand why Messrs. Meyer & Wiglesworth, who fully grasped the value of recognising subspecies, and used trinomials frequently, allowed "*commutatus*" to stand as a species, with two names, side by side with "*inornatus*," while "*commutatus*" is no more distinct, in my opinion, than "*kisserensis*"—the exact distribution of which is not yet understood, and obscured by the occurrence of young birds and probably also sometimes by aberrant individuals.

26. **Pratincola caprata** (L.).

♀, S.W. Buton, 25. xi. 1901. (No. 4135, Kühn coll.)

27. **Edoliisoma obiense** Salvad. (?)

Edoliisoma obiense Salvad., *Ann. Mus. Civ. Gen.* xii. p. 329 (1878 : Obi).

It is with some hesitation that I call these birds *E. obiense*. The *males* do not differ from those of *E. obiense*—neither in coloration nor in dimensions can I find any differences. The question is about the *females* : we have no red *females !* If the birds sent by Mr. Kühn are adult *females*, then this bird differs (in the female sex) appreciably from *E. obiense*, but I am not quite certain about this. There are eight *males*, two (Nos. 4406, 4407) from Tomia, and six from Kalidupa (Nos. 4556, 4557, 4558, 4559, 4560, 4561, Kühn coll.). "Iris deep brown (blackish brown, black), bill and feet black." Then there is a specimen from Tomia (No. 4408) marked "♂." Its underside is creamy white, abdomen washed with buff, under tail-coverts buff, the whole under-surface narrowly barred with brownish black, these bars becoming obsolete on the under tail-coverts. Upperside brownish grey, with remains of a spotted plumage. This specimen is, I think, an immature *male*. Then there are two (Nos. 4409, 4563), from Tomia and Kalidupa, both marked "♀," both perfectly alike, with the underside very pale buff, sparsely marked with stump arrow-shaped cross-marks, chiefly on the sides ; under tail-coverts and middle of throat uniform pale buff. Upperside grey-brown, crown bluish grey. I think these must be adult *females*. If this surmise is correct they cannot be called *Edoliisoma obiense*, because the adult *female* of the latter is below uniform cinnamon, above cinnamon-brown, with a slaty-grey or bluish grey crown. In view, however, of an immature bird received from Obi Major, and described by me in the list of Obi birds, which is somewhat similar to the two supposed adult *females* from the Tukang-Besi Islands, though evidently immature, as shown by the crown, which is not bluish slate, but of the colour of the back, with white tips to the feathers, I am not absolutely certain on this point. Another bird, marked "♂ ?" (No. 4562, from Kalidupa), is similar to the supposed adult *females*, but moulting into bluish grey on the throat.

The question arises : Can the supposed adult *females* be really immature *males*, and is the actual adult *female* cinnamon, like that of *E. obiense ?*

Edoliisoma obiense occurs not only on Obi, but also on the Sula Islands, and on Peling and Banggai, between Sula and Celebes.

28. **Lalage timoriensis** (S. Müll.).

2 ♂♂, Binongka, 10. xii. 1901 (Nos. 4299, 4300). "Iris coffee-brown, feet blackish, bill black." Both these specimens agree with *L. timoriensis*, but the white superciliary stripe is only very narrowly indicated. From our series of over twenty adult *males* from various localities, I deduct that the narrowness and even absence of the white superciliary line is not a local character, but purely individual. The absence of this stripe may be more frequent in Celebes, but we have not such large series as to show this, and there are Celebesian specimens with wide white superciliary stripes.

29. **Artamus leucogaster** (Valenc.).

Buton (Nos. 4136, 4173), Binongka (Nos. 4301, 4302), Tomia (Nos. 4387, 4388, 4389, 4390, 4391, 4392), Kalidupa (Nos. 4509, 4510, 4511, 4512, 4513, 4514, Kühn coll.).

30. **Dicrurus leucops** Wall.

Dicrurus leucops Wallace, *P. Z. S.* 1865. p. 478 (Celebes).

Seventeen specimens from Tomia (Nos. 4310, 1112, 1113, 1114, 1115), Binongka (Nos. 4272, 4273, 4274, 4275), Wantjee (No. 4454), and Kalidupa (Nos. 4522, 4523, 4524, 4525, 4526, 4534). Fourteen of these have large white tips to the axillaries and under wing-coverts, thus showing the characters said to be peculiar to the race from Sangi. Only two or three of these fourteen examples show the slightest trace of immaturity. Three only (♂ Tomia, No. 4315, ♂ ♀ Binongka, Nos. 4275, 4272) show no sign of white tips to either the axillaries or the under wing-coverts. The iris of the adults of these birds is marked as yellowish white, brownish white, or ochreous white, that of apparently immature ones as bright reddish brown or brownish white. Whether the iris is really less white than that of *D. leucops*, which is said to have a "white" or milk-white iris, is impossible to say. I cannot find any tangible difference in size, colour, and markings.

31. **Dicaeum celebicum** S. Müll.

Dicaeum celebicum S. Müll., *Verh., Natuurk. Comm.* 1839-44. p. 162 (Celebes).

Two *males* (Nos. 4133 and 4134) shot on Buton, November 24th and 25th, 1901, are evidently indistinguishable from *D. celebicum*. Kühn has marked the iris, feet, and bill as "black."

32. **Dicaeum kühni** spec. nov.

Dicaeum: ♂ supra nigro-chalybaeus, nitore purpureo-cyaneo; mento albo; collo antico pectoreque pulcherrime rubris; pectoris lateribus chalybaeo-nigrescentibus, abdomine medio flavo-albido, stria mediana nigro-chalybaea; hypochondriis cinereo-olivaceis; subcaudalibus albidis, vix flavidis; subalaribus axillaribusque copiosis albis; rostro nigro; pedibus nigris. Al. 53—54, caud. 27½—29, rostr. 10, metatars. 13—13½ mm. ♀ feminae *D. celebicum* dictae simillima, sed minor.

Hab. In insulis Tukang-Besi dictis.

Typus ex Kalidupa, 31. xii. 1901, No. 4587 Kühn leg., in Mus. Tring.

♂, Kalidupa, 31. xii. 1901 (No. 4587).

3 ♂♂, Tomia, 21, 22. xii. 1901 (Nos. 4427, 4428, 4429).

♂ ♀, Binongka, 8, 9. xii. 1901 (Nos. 4232, 4233).

"Iris dark brown (blackish brown, black), bill and feet black."

This very pretty new *Dicaeum*, which I have named in honour of its discoverer, is more similar to *D. sanghirense* Salvad. than to any other species I know. Its upperside is deep steel-blue with a purplish gloss, slightly more purplish than in *D. sanghirense*. The chin is whitish. The throat, foreneck, and entire breast are scarlet, while in *D. sanghirense* only the throat and foreneck to the chest are scarlet. Sides of breast, feathers bordering the red breast, and line along the middle of the abdomen black, washed with blue; middle of the abdomen, with the exception of the median black line, yellowish white. Flanks greyish olive, not ashy grey as in *D. sanghirense*. Under tail-coverts whitish, slightly tinged with yellow, but not so white as in *D. sanghirense*. Under wing-coverts, and the long silky axillaries pure white. Size the same as that of *D. sanghirense*. The *female* is like that of *D. celebicum*, but larger.

D. kühni differs widely from *D. celebicum*. It is much larger, the upperside is

deep steel-blue, with a purplish gloss, but not dark purple, the red extends farther down, over the breast; the flanks are dark greyish olive, more grey, not so dingy olive; the middle of the abdomen and under tail-coverts are much more yellowish.

33. **Cinnyris infrenata** sp. nov.

Cinnyris: ♂ supra obscure olivaceus, capite saturatiore, brunnescentiore; lineis superciliaribus malaribusque nullis; jugulo purpurascente, lateribus chalybeis; abdomine toto flavissimo, subcaudalibus pallidioribus; lateribus pectoris fasciculo plumarum aurantio-flavo ornatis, pectore pro usu paullo aurantiaco tincto; alis fuscis, anguste olivaceo marginatis; rectricibus nigris, tribus lateralibus utrinque plus minusve albo terminatis; subalaribus albis, sulphureo tinctis; rostro pedibusque nigris. Al. 53—55, caud. 34—37, rostr. 27—28½, metatars. 25—26 mm. ♀ supra brunneo-olivacea, subtus gastraeo toto flavo, cauda alisque ut in mari.

Hab.: In insulis Tukang-Besi dictis.

Typus ex Tomia insula, No. 4419 Kühn leg., in Mus. Tring.

5 ♂♂, 3 ♀♀, Tomia, December 1901. (Nos. 4414, 4415, 4416, 4417, 4418, 4419, 4420, 4421).

3 ♂♂, Wantjee, December 1901. (Nos. 4458, 4459, 4460.)

1 ♂, 3 ♀♀, Kalidupa, December 1901 and January 1902. (Nos. 4589, 4590, 4591, 4592.)

5 ♂♂, 2 ♀♀, Binongka, December 1901. (Nos. 4225, 4226, 4227, 4228, 4229, 4230, 4231.)

This very interesting new species differs from all the forms of *C. frenata* by the entire absence of the yellowish superciliary and malar stripes, and from the typical *C. frenata* very much in the colour of the upper surface. The colour of the upperside is very dark olive, deepest on the head. In this respect it differs most from typical *frenata*, which has an olive-yellow upperside, and is nearest to *C. frenata plateni* from the Makassar region, but still considerably darker, especially on the head. It is larger than *C. frenata*. The breast and abdomen are deep yellow, often more or less tinged with orange on the breast. The inner webs of the remiges are margined with dusky white. The outermost pair of rectrices have large whitish tips, varying in extent and generally clouded with brown, the second pair have tips of less extent, the third only a narrow margin. The *female* is very much like that of *C. f. plateni*, but darker above and below, and larger.

In the absence of the yellowish superciliary and malar lines, *Cinnyris jugularis* from the Philippine Islands comes very near to *C. infrenata*. Specimens from North Luzon, first separated by Mr. Grant as *C. obscurior*, but afterwards united with *C. jugularis*, are rather dark brownish and small, but very doubtfully distinct from *C. jugularis*. Our *C. infrenata* is easily distinguished from *C. jugularis*, and even from the dark birds from North Luzon, by its much darker, more brownish olive upperside, and the entire absence of the more or less marked orange-brown band bordering the metallic jugulum. (*C. jugularis* and *C. frenata* differ in many respects.)

34. **Zosterops flavissima** sp. nov.

Zosterops supra ceraceo-flava; fronte et loris aureis, annulo periophthalmico sericeo-albo, sub oculo macula parva nigrescente; remigibus fuscis, pogoniis externis ceraceo-flavo, internis albido marginatis; rectricibus atro-brunneis, anguste flavido marginatis; gastraeo toto aureo-flavo, lateribus vix viridi tinctis; rostri maxilla

fusca, mandibula pallida; iride chocolatino-brunnea. Al. 54—58, caud. 40, rostr. 10, metatars. 16½ mm.

Hab. In insulis Tukang-Besi dictis.

Typus ♂ ad. (No. 4215), ex Binongka insula, 9. xii. 1901, in Mus. Tring.

6 ♂♂, 4 ♀♀, Binongka, December 1901. (Nos. 4215—4224.)

1 ♀ Wantjee, 2. xii. 1902. (No. 4448,)

4 ♂♂, Kalidupa, January 1901. (Nos. 4577—4580.)

3 ♂♂ ♀ Tomia, December 1901. (Nos. 4422—4424.)

Zosterops flavissima is a very distinct form. It is probably nearest related to *Z. intermedia*, though it differs from the latter in the much more yellow upperside, brighter and more golden yellow lores and forehead, and smaller blackish spot under the eyes. In appearance *Z. stuhlmanni*, from Africa, is most similar to *Z. flavissima*, being about as yellow above and below; but the bill of *Z. stuhlmanni* is stronger and all black above and below, and the white ring round the eyes is less wide. M. Kühn describes the iris of *Z. flavissima* as chocolate (bright chocolate, pale chocolate), the feet as yellowish grey (bright yellowish grey, pale plumbeous), the bill blackish above, pale below.

35. **Zosterops intermedia** Wall.

Zosterops intermedia Wallace, *P. Z. S.* 1863. p. 486. (Typical locality Celebes—typus in Mus. Brit. ex Makassar.)

♂♀, S.W. Buton, 25. xi. 1901 (Nos. 4152, 4169, Kühn leg.). These two specimens are typical *Z. intermedia*.

36. **Trichostoma finschi** Walden.

Trichostoma finschi Walden, *Ibis* 1876. p. 378. Pl. XI. fig. 1. (Makassar, S. Celebes.)

♀, S.W. Buton, 24. xi. 1901. "Iris chocolate, feet pale plumbeous, bill blackish, greyish below." (No. 4154, H. Kühn coll.) This specimen is paler and less rufous than a dozen examples from Makassar. A series from Buton might possibly show that the Buton form is separable as a paler subspecies (?).

37. **Cisticola cisticola** (Temm.).

S.W. Buton, November 1901. (Nos. 4140, 4153, 4163.)

Kalidupa. January 1902. (Nos. 4598, 4601, 4602, 4603, 4605.)

Tomia, December 1901. (Nos 4393—4399.)

38. **Cisticola exilis** (Vig. & Horsf.).

Malurus exilis Vig. et Horsf., *Trans. Linn. Soc.* xv.. p. 223 (1827, ex Latham's MS., Australia).

Kalidupa, January 1902. (Nos. 4599, 4600, 4604, 4606, 4607.)

39. **Locustella fasciolatus** (Gray). (Migrant.)

Acrocephalus fasciolatus Gray, *P. Z. S.* 1860. p 349. ("Batchian.")

Binongka, ♂ (?) ad., 12. xii. 1901. (No. 4298.)

Kalidupa, ♀ ad., 10. i. 1902. (No. 4583.)

Tomia, 2 ♂ ad., December 1901. (Nos. 4412, 4413.)

Wantjee, ♀ juv., 3. xii. 1902. (No. 4449.)

(Migrant from the north.)

40. **Motacilla boarula melanope** Pall. (Migrant.)

[*Motacilla boarula* Linn., *Mantissa Plant.* p. 527 (1771 : "Hab. in Europa : Suecia").]

Motacilla melanope Pallas, *Reise Russ. Reich.* iii. *App.* p. 696 (1776 : "Dauuria").

2 ♂♂, 4 ♀♀, Tomia, December 1901. (Nos. 4430—4435.)

♂♀, Kalidupa, January 1902. (Nos. 4584, 4585.)

41. **Anthus gustavi** Swinh. (Migrant.)

Anthus gustavi Swinhoe, *P. Z. S.* 1863. p. 90 (Amoy, China).

♂♀, Kalidupa, 3. i. 1902. (Nos. 4581, 4582.)

(Migrant from the north.)

42. **Munia molucca** (Linn.).

Loxia molucca Linné, *Syst. Nat.* ed. xii. 1. (1766) p. 302 (ex Brisson : Isles Moluques, envoyé à M. le Comte de Bentinck, Mus. Réaumur. I accept Amboina as the typical habitat).

♀, Wantjee, December 1901. (No. 4447.)

♀, Kalidupa, January 1902. (No. 4588.)

♂, Tomia, December 1901. (No. 4426.)

3 ♂♂, 5 ♀♀, Binongka, December 1901. (Nos. 4236—4243.)

Some of these specimens agree perfectly with typical *Molucca*, others with *M. m. propinqua*. (Cf. Meyer & Wiglesw., *B. Celebes* ii. pp. 5495–51 ; Hartert, Nov. Zool. ix. 1901. p. 439.)

43. **Calornis minor** (Bp.).

Lamprotornis minor Bonaparte, *Consp. Av.* i. p. 417 (1850 : ex Müll, MS. in Mus. Lugd., Timor).

4 ♂♂, Binongka, 11. xii. 1901. Nos. 4289—4292.) "Iris vermilion, bill and feet black." *Calornis minor* is known to extend to South Celebes, where it has been obtained by Messrs. Ribbe & Kühn, Weber, the Sarasins, and Everett. (Cf. Mey. & Wiglesw., *B. Celebes* ii. p. 561.)

44. **Streptocitta albicollis** (Vieill.).

Pica albicollis Vieill., *Nouv. Dict. d'Hist. Nat.* xxvi. p. 128 (1818 : ex Labillardière, etc. Hab. "La Nouvelle Calédonie"—*errore*, loc. typ. Buton vel Muna ins. (Cf. Mey. & Wigl., *B. Celebes* ii. p. 576.)

3 ♂♂, 3 ♀♀, S.W. Buton, November 1901. "Iris deep brown (coffee-brown, blackish), bill blackish, tip sulphur-yellow, feet black." (Nos. 4137, 4138, 4041, 4142, 4155, 4160.)

45. **Gazzola typica** Bp.

Gazzola typica Bp., *Comptes Rend.* xxxvii. p. 828 ("Nouvelle Calédonie"—*errore*! I accept Buton as the original locality. (Cf. Mey. & Wiglesw., *B. Celebes* ii. p. 584.)

♂♂, S.W. Buton, 25. xi. 1901. "Iris coffee-brown, bill and feet black." (Nos. 4149, 4150.)

This is a somewhat rare bird, but still more remarkable is perhaps *Gazzola unicolor* Rothsch. & Hart. (*Bull. B. O. C.* xi. p 29, November 1900), which is exactly like *G. typica* in form and dimensions, but uniform black, with a fine purplish blue gloss above, while the hindneck and underside are dull slaty-black. Two skins in the Tring Museum from a native-made collection from Banggai, containing, among others, *Basileornis galeatus* and *Pitta dohertyi*, are apparently the only ones known at present.

46. **Corvus enca** (Horsf.).

Fregilus enca Horsf., *Trans. Linn. Soc.* xiii. p. 164 (1820: Java).
3 ♂♂, 1 ♀, Buton, November 1901. (Nos. 4159, 4174—4176.)
3 ♂♂, 3 ♀♀, Binongka, December 1901. (Nos. 4178—4183.)
1 ♂, 2 ♀♀, Tomia, December 1901. (Nos. 4350—4352.)
3 ♂♂, 3 ♀♀, Kalidupa, January 1902. (Nos. 4472—4477.)
"Iris dark sepia-brown (coffee-brown or blackish brown), bill and feet black."

47. **Oriolus broderipi oscillans** subsp. nov.

A large series of *Orioles* from Kalidupa (Nos. 4461—4467, 5 ♂, 2 ♀, January 1902), Binongka (Nos. 4194—4205, 9 ♂, 3 ♀, December 1901), Tomia (Nos. 4377—4383, 5 ♂, 2 ♀, December 1901), Wantjee (Nos. 4438, 4439, 4401—4403, 3 ♂, 2 ♀, December 1901), are difficult to distinguish from *Oriolus boneratensis* Mey. & Wigl., from Bonerate, Kalao, and Djampea, while single specimens of *O. broderipi* are also hardly distinguishable. *Oriolus boneratensis* is a large form of *O. broderipi*. The three subspecies can be separated as follows:

1. *O. broderipi broderipi* Bp. (*P. Z. S.* 1850. p. 279, Pl. XVIII., ex ins. Sambawa): Smaller, bill comparatively more elongate, being less high and stout, inner webs of remiges black, without whitish edges; yellow tips to secondaries wider. Lesser Sunda Islands, from Lombok and Sumbawa to Sumba, Flores, Alor, Pantar, and Lomblen. (Specimens from Alor, Pantar, and Lomblen are usually bigger, and closely approach *O. b. oscillans*, but there are no whitish edges to the inner webs of the remiges.)

2. *O. broderipi oscillans* subsp. nov.: Generally a little larger, bill stronger, inner webs of remiges with more or less wide but always conspicuous whitish edges; yellow tips to secondaries narrow, sometimes obsolete. Tukang-Besi Islands, S.E. of Celebes. The iris is described as purple (dark purple, blood-red, dark blood-red), feet as plumbeous grey, bill as pinkish flesh-colour. (The whitish edges are never absent, though ranging in width. In *O. broderipi broderipi* they are entirely absent or only very narrowly indicated.)

Type ♂, No. 4201, Binongka, 12. xii. 1901, Kühn leg., in Mus. Tring.

3. *O. broderipi boneratensis* Mey. & Wigl. (*Abh. Mus. Dresden*, 1896, No. 1, p. 16; Hart., Nov. Zool. 1896. p. 169; Mey. & Wigl., *B. Celebes* p. 589). Like *O. b. oscillans*, but with a stouter and higher bill, the distance from the cutting edge to the top of the culmen of the upper bill being 1 to 2 mm. more; wings generally a little longer; whitish edges to the inner webs of the remiges and yellow tips to secondaries as in *O. b. oscillans*. Islands of Bonerate, Kalao, and Djampea, south of Celebes.

It is of little avail to give detailed measurements, as such differences as exist

between these subspecies can only be seen when series are compared. In general colour there is no difference. Adult birds often (though apparently not always) are deep orange, others yellow. The extent of black and yellow in the tail is very variable

48. **Treron griseicauda wallacei** (Salvad.).

[*Treron griseicauda* Gray, *List B. Brit. Mus. Columbae* p. 10 (1856: ex Bonaparte, *Consp. Av.* ii. p. 10, 1854; hab. incert. Loc. typ. Java—ex Bonaparte).]

Osmotreron wallacei Salvad., *Cat. B. Brit. Mus.* xxi. p. 42 (1898: Celebes).

(Cf. NOVITATES ZOOLOGICAE 1902. pp. 421, 422.)

♂, Wantjee, December 1901. (No. 4450).

1 ♂, 2 ♀♀, Binongka, December 1901. (Nos. 4254—4256.)

1 ♂, 1 ♀, Kalidupa, January 1902. (Nos. 4564, 4565.)

6 ♂♂, 2 ♀♀, 1 pull., Tomia, December 1901. (Nos. 4336—4344.)

I can see no constant differences from a series from Celebes and the Sula Islands.

"Iris (♂ ad.) ochreous (dull ochreous, dark burnt sienna), feet bright crimson, bill yellowish white with greenish about nostrils (whitish yellow with greenish base, yellowish white with pale green eyelids and nostrils)."

49. **Ptilinopus melanocephala aurescentior** subsp. nov.

A large series from the Tukang-Besi Islands differ from *P. melanocephala melanospila* Salvad. of Celebes in being much more golden-yellowish on the back, neck and chest. They are evidently more similar to *P. melanocephala melanocephala* of Java and the Lesser Sunda Islands, but differ in the smaller black occipital patch and generally slightly darker yellow gular patch. They must therefore be separated under a special name, if all the other hitherto recognised forms are separated. They are all subspecies of one species, and may be reviewed as follows:—

1. *P. melanocephala melanocephala* (Forst.) (*Columba melanocephala* Forst., *Zool. Ind.*, 1781, p. 16 Pl. VII.): Back, sides of neck and chest strongly washed with golden yellow, black nuchal patch large, size smaller, yellow gular patch generally lemon-yellow. Vent deep yellow. Java, Bali, Lombok, Sumbawa, Sumba, Satonda, Flores, Djampea, Kalao and Saleyer.

2. *P. melanocephala aurescentior* Hart. (subsp. nov.): Back, sides of neck and chest strongly washed with golden-yellow, black nuchal patch decidedly smaller than in No. 1, size smaller (the same as that of No. 1), yellow gular patch generally slightly deeper yellow, vent deep yellow. Tukang-Besi Islands, Buton (? S. Celebes).* Type No. 4567, ♂ Kalidupa 7. i. 1902, Kühn coll. in Mus. Tring.

3. *P. melanocephala bangueyensis* Mey. (*Ptilopus bangueyensis* Meyer, *J. f. O.* 1891 p. 70, Banguey). Entirely similar to No. 1, the gular patch not at all larger, this when supposed to be the case being due to preparation, but wing often about 5 mm. longer. Southern Philippines and Sulu archipelago. (A very poor and hardly separable form, much less distinct than No. 2.)

4. *P. melanocephala melanospila* (Salvad.) (*Iotreron melanospila* Salvad., *Ann. Mus. Civ. Gen.* vii. 1875. p. 671, Celebes). Much less tinged with yellow, otherwise like No. 1. Celebes.

5. *P. melanocephala chrysorrhoa* (Salvad.) (*Iotreron chrysorrhoa* Salvad., *Ann Mus. Civ. Gen.* vii. 1875. p. 671, Sula & Ceram). Nuchal black patch very narrow, gular patch and vent deep orange, green with a yellow tinge, often as strong as in

* I have not been able to examine S. Celebes birds, but as Meyer & Wiglesworth say they have smaller black occipital patches, they may be like my *aurescentior*.

No. 2. Wing 115—121 mm. (The best-marked form of all.) Sula Islands, and, it is said, Ceram (?).

6. *P. melanocephala pelingensis* Hart. (*Ptilinopus chrysorrhous pelingensis* Hart., Nov. Zool. 1898. p. 135, Peling and Banggai). Entirely like No. 5, but wing only 109—114 mm. Peling and Banggai.

7. *P. melanocephala xanthorrhoa* (Salvad.) (*Iotreron xanthorrhoa* Salvad., *Ann. Mus. Civ. Gen.* vii. p. 671, 1875, Sanghir). Black occipital patch large, gular patch very pale lemon-yellow, vent and shorter under tail-coverts deep orange, wing very long, 130—139 mm. Sangi Islands.

8. *P. melanocephala talautensis* subsp. nov. In every way like No. 7, but smaller, wing 120—130 mm. Talaut Islands.

Type No. 4444, ♂, Lirung, Talaut Islands, May 1897, collected by John Waterstradt's natives.

The following specimens of *P. m. aurescentior* have been sent by Mr. Kühn:

3 ♂, 2 ♀♀, Kalidupa, January 1902. (Nos. 4567—4570.)

6 ♂♂, Tomia, December 1901. (Nos. 4209, 4214, 4358—4361.)

3 ♂♂, 1 juv., 1 ♀ (? juv.), Binongka December 1901. (Nos. 4127, 4128, 4210, 4212, 4213.)

3 ♂♂, 1 ♀, Wantjee, December 1901. (Nos. 4211, 4436, 4437, 4400.)

2 ♂♂, 1 ♀, Buton, November 1901. (Nos. 4158, 4161, 4170.)

50. **Carpophaga concinna** Wall.

Carpophaga concinna Wallace, *Ibis* 1865. p. 383 ("Matabello, Sanguir Island, Aru [one small island west of]; Banda Island, Ké Island (seen, but no specimens obtained; Philippine Islands? [B. M.]." Typical locality Matabello! Cf. *Cat. B. Brit. Mus.* xxi. p. 187.)

Kalidupa (Nos. 4535, 4536, 4537).

Binongka (Nos. 4188—4192).

Tomia (Nos. 4326—4331).

All these are typical light grey *C. concinna*, while on the Key Islands is a much whiter form, *C. concinna separata* Hart. I cannot in the least see the reason why Messrs. Meyer and Wiglesworth (*B. Celebes* ii. p. 617) should have taken the trouble to warn me not to "split" *C. concinna* into subspecies. I am of opinion that I had examined a sufficiently large material to know that there was no seasonal change in the direction of my *separata*, and that these birds did not migrate from Matabello to the Key Islands. I have now, in the Tring Museum alone, 50 typical *C. concinna* and 8 *C. concinna separata* for examination, and they show at a glance the differences of the two races. Dr. Finsch (*Notes Leyden Mus.* xxii. p. 295) also mentions "Uebergänge," but I find my "*separata*" a most distinct form, though of course only a subspecies; so that there may be specimens "fast so grau wie Exemplare von andern Inseln," confirming my view as to this subspecies.

51. **Carpophaga rosacea** (Temm.).

Columba rosacea Temminck, *Pl. Col.* 578 (1835: Timor).

♀ juv., Binongka, 9. xii. 1901. "Iris dark crimson, feet pale crimson, bill slate-grey." (No. 4193, Kühn leg.)

52. **Myristicivora bicolor** (Scop.).

Columba bicolor Scopoli, *Del. Flor. et Faun. Insubr.* ii. p. 94 (1786: ex Sonnerat, "Pigeon blanc mangeur de muscade de la Nouvelle Guinée."

♀, Wantjee, 3. xii. 1901. (No. 4451).

53. **Turacoena manadensis** (Quoy et Gaim.).

Columba manadensis Quoy et Gaimard, *Voy. de l'Astrolabe* i. p. 248 Pl. XXX. (Manado, Celebes).

♂ ♀, Buton, 25. xi. 1901. "Iris pale ochreous (coffee-brown), naked space round eye carmine, bill and feet black." (Nos. 4143, 4144 Kühn coll.)

Comparing our series of *T. manadensis*, I cannot find that the *females* are appreciably smaller than the *males*. I find, however, that the birds from the Sula Islands and from Peling are much smaller. There are five from Sula in the British Museum, two (all collected by A. R. Wallace) in the Tring Museum, and one from Peling in the Tring collection, which shows no sign of immaturity. The wing of Celebes examples measures 190 to 210 mm., but very seldom under 195, while that of the Sula and Peling birds is only 180 to 185 mm. long. It is therefore opportune to separate the form inhabiting Sula and Peling under a new subspecific title, and I herewith call it

Turacoena manadensis sulaënsis subsp. nov.

Type of *T. m. sulaënsis* No. 9307a. (ex. coll. Bartlett), Sula Islands, A. R. Wallace coll., in Mus. Rothschild.

54. **Macropygia amboinensis albicapilla** Bp.

[*Columba amboinensis* Linné, *Syst. Nat.* i. (ed. xii.) p. 286 (1766, ex Brisson: loc. typ. Amboina).]

Macropygia albicapilla Bonaparte, *Consp. Av.* ii. p. 57 (1854: Celebes). (Cf. Nov. Zool. 1901 p. 123.)

5 ♂♂, 3 ♀♀, Kalidupa, January 1902 (Nos. 4478—4485).

2 ♂♂, Binongka, December 1901 (Nos. 4257, 4258).

1 ♂, Wantjee, December 1901 (No. 4452).

These specimens are averaging rather large, the wings of the adult *males* measuring 158 to 164 mm. Some Celebes specimens, however, are equally large. The Sangi race (*sangirensis*) is much larger. Sula examples are usually smaller, and can probably be separated as a smaller race, but we have not a sufficient series to allow us to conclude.

55. **Turtur tigrina** (Temm. & Knip).

Columba tigrina Temm. & Knip, *Pigeons* i. Pl. XLIII. p. 94 (1811: Java, Timor, etc.—spec. described and figured evidently from Java, therefore Java must be taken as the typical locality).

♀, S.W. Buton, 25. xi. 1901 (No. 4148).

56. **Geopelia maugeus** (Temm. & Knip).

Columba Maugeus (sic!) Temm. & Knip, *Pigeons* i. p. 115. Pl. LII. (1811—loc. incert.—I accept Timor as the original habitat).

♂, Tomia, 21. xii. 1901. "Iris bright bluish grey, bare eyelids chromeous, feet greyish violet, bill bluish ash-grey, nostrils pale greenish."

This species is quite new to the Celebesian fauna,

57. **Chalcophaps indica** (L.).

1 ♂, 2 ♀♀, Binongka, December 1901 (Nos. 4206—4208).

1 ♀, Wantjee, December 1901 (No. 4453).

The ♂ is perhaps not quite adult, and resembles the supposed race from Sangi, but immature birds from other localities are very much like it.

58. **Megapodius duperreyii** Less & Garn.

Megapodius duperreyii Lesson & Garn., *Bull. Sci. Nat.* viii. (1826) p. 113 (Dorey, New Guinea).

1 ♂, Kalidupa, December 1901 (No. 4538).

3 ♂♂, 2 ♀♀, Tomia, December 1901 (Nos. 4332—4335, 4539).

1 ♂, 2 ♀♀, Binongka, December 1901 (Nos. 4252—4254).

59. **Turnix maculosus** (Temm.).

Hemipodius maculosus Temm., *Hist. Nat. Pig. et Gall.* iii., 1815. pp. 631. 757. (sur le continent de la Nouvelle Hollande).

3 ♂♂, Tomia, December 1901 (Nos. 4400—4402). "Iris yellowish white or greyish white, feet pale yellowish or pale greyish-yellowish, bill black, pale yellowish at base below." The distribution of this bird extends from Australia to Timor, Flores, etc., and to Celebes. Specimens from Southern Celebes were described by Count Salvadori as *T. beccarii*, but they do not seem to differ from *maculosus*. Adult *females* should, however, be compared.

60. **Hypotaenidia kuehni** W. Rothsch.

Hypotaenidia kuehni W. Rothsch., *Bull. B. O. Club* xii. p. 75 (June 1902, Tukang-Besi Islands).

♂♀ ad. Upper surface deep olive-brown, with light olive-brown edges to the feathers. Crown somewhat darker. No rufous patch on the sides of the chest or lower neck. A broad blackish superciliary band, followed by a wide white band from the base of the bill to the sides of the neck. Under-surface black, each feather with three or more narrow white bars, the basal one of which is mostly interrupted and sometimes absent; these bars very narrow, obsolete, or absent on the throat. "Iris blood-red (burnt-sienna red); bill blackish brown with crimson spots at base; feet dull brown."

Wing ♂ 175, ♀ 169; tail ♂ 75, ♀ 70; metatarsus 54; middle toe without claw 45 mm.

♂, Binongka, 12. xii. 1901 (No. 4288).

♀, Kalidupa, 12. i. 1902 (No. 4325).

Type: ♂, Binongka, 12. xii. 1901 (No. 4288) Kühn coll., in Mus. Rothschild.

H. kuehni is evidently nearest to *H. sulcirostris* from the Sula Islands, but differs in the deep olive-brown, instead of "burnt umber" (*i.e.* a more or less rufous brown), and the wing is longer. *H. saturata* from New Guinea is also very much like *H. kuehni*, but differs in the more uniform and lighter olive-brown upperside, shorter wing and purer black throat. *H. celebensis* differs much more, being considerably smaller, with a much shorter bill, and having a paler, more olive upper surface.

61. **Amaurornis phoenicurus** (Forst.) (? subsp.).

Rallus phoenicurus Forster, *Zool. Ind.* p. 19. Pl. 9 (1781 : Ceylon).

1 ♀, S.W. Buton, November 1901 (No. 4167).

1 ♂, Binongka, December 1901 (No. 4287).

♂ ♀, Kalidupa, January 1902 (Nos. 4564, 4555).

4 ♂♂, 5 ♀♀, Tomia, December 1901 (Nos. 4315—4324).

None of these birds have any white across the forehead, and I am not at all sure that it is correct to suppress *leucomelaena* as a subspecies.

62. **Esacus magnirostris** (Vieill.).

♂ ♀, Binongka, December 1901 (Nos. 4234, 4235).

♂ ♀, Kalidupa, December 1901 (Nos. 4468, 4469).

63. **Charadrius dominicus fulvus** Gm. (Migrant).

[*Charadrius dominicus* P. L. S. Müll., *Naturayst. Suppl.* p. 116 (1776 : ex Brisson—hab. St. Domingo).]

Charadrius fulvus Gmelin, *Syst. Nat.* i. 2. p. 687 (1788 : ex Latham—hab. Tahiti).

♂, Buton, November 1901 (No. 4172).

♂ ♀, Tomia, December 1901 (Nos. 4375, 4376).

2 ♂♂, 1 ♀, Binongka, December 1901 (Nos. 4262, 4263, one without number).

Migrant from the north.

64. **Ochthodromus geoffroyi** (Wagl.) (Migrant).

Charadius geoffroyi Wagler, *Syst. Av., Gen. Charadrius*, No. 19 (1827 : hab. in Pondichery et frequentiss. in ins. Java. Mus. Paris., Lugd.).

1, December 1901, Tomia (No. 4376).

Migrant from the north.

65. **Heteractitis brevipes** (Vieill.) (Migrant).

Totanus brevipes Vieillot, *Nouv. Dict. d'Hist. Nat.* vi. p. 410 (1816 : "Pays inconnu"—typus ex Timor; cf. Pucheran, *Rev. et Mag. Zool.* 1851. p. 370).

2 ♂♂, 1 ♀, Kalidupa, December 1901 (Nos. 4548—4550).

♂ ♀, Tomia, December 1901 (Nos. 4372, 4374).

Migrant from the north.

66. **Tringoides hypoleucos** (L.) (Migrant).

Tringa Hypoleucos Linn., *Syst. Nat.* ed. x. p. 149 (1758 : "hab. in Europa"—loc. typ. Suecia : ex Fauna Suecica).

♂ ♀, Buton, November 1901 (Nos. 4151, 4171).

1 ?, 3 ♂♂, 2 ♀♀, Tomia, December 1901 (Nos. 4367—4371, 4373).

2 ♀♀, Binongka, December 1901 (Nos. 4259, 4260).

♀, Kalidupa, January 1902 (No. 4597).

Migrant from the north.

67. **Gallinago stenura** (Bp.) (Migrant).

Scolopax stenura Bonaparte (ex Kuhl MS.), *Ann. Stor. Nat. Bologna* iv. fasc. xiv. p. 335 (1830 : Sunda Islands).

♂, Binongka, 13. xii. 1901 (No. 4261).

This specimen is a typical adult *G. stenura*. It is new to the Celebesian fauna. Migrant from the north.

68. **Numenius phaeopus variegatus** (Scop.) (Migrant).

[*Scolopax Phaeopus* Linn., *Syst. Nat.* ed. x. (1758) p. 146 (hab. in Europa—typ. Suecia, ex Fauna Suecica).]

Tantalus variegatus Scopoli, *Del. Flor. et Faun. Insubr.* ii. (1786) p. 92 (ex Sonnerat: Luzon).

♂, Buton, November 1901 (No. 4145).

♀, Tomia, December 1901 (No. 4366).

♀, Binongka, December 1901 (No. 4264).

♂, Wantjee, December 1901 (No. 4455).

1 ♂, 3 ♀♀, Kalidupa, January 1902 (Nos. 4543—4546).

Migrant from the north.

69. **Ardea sumatrana** Raffl.

Ardea sumatrana Raffl., *Trans. Linn. Soc.* xiii. 1822. p. 325 (Sumatra).

2 ♀♀, Tomia and Binongka, December 1901 (Nos. 4620, 4621).

"Iris golden yellow (chromeous), bill black, greenish underneath (pale yellowish underneath), feet dull black, soles yellow."

70. **Demiegretta sacra** (Gm).

1 ♂ (white), 1 ♀ (white). 1 ♀ (black) Binongka, December 1901 (Nos. 4484, 4485, 4406).

71. **Butorides javanica** (Horsf.) (? subsp.).

Ardea javanica Horsf., *Trans. Linn. Soc. Lond.* xiii. p. 190 (1821: Java).

The bill in the specimens from Celebes, the Tukang-Besi Islands and Buru is remarkably small, being as a rule slenderer and from 5 to 10 mm. shorter than in those from Java, Borneo, and the Lesser Sunda Islands. I am convinced that a close examination of a sufficient number of examples from various localities would enable us to divide *B. javanica* into several local forms.

2 ♂♂, 1 ♀, S.W. Buton, November 1901 (Nos. 4146, 4147, 4156).

3 ♂♂ (1 juv.), Kalidupa, January 1902 (Nos. 4617—4619).

72. **Dupetor flavicollis** (Lath.) (? subsp.).

Ardea flavicollis Latham, *Ind. Orn.* ii. p. 701 (1790: "hab. in India").

It seems that Celebesian examples are as a rule darker, less reddish, on the foreneck than Indian ones; but our series is not sufficient to come to a definite conclusion as to the constancy of this character.

♂, Kalidupa, 7. i. 1902. "Iris bright yellowish chestnut brown, feet blackish brown, bill black, pale brownish at base, yellowish white below."

73. **Sterna media** Horsf.

Sterna media Horsf., *Trans. Linn. Soc.* xiii. p. 198 (1820: Java).

♂ ♀, Kalidupa, 9. i. 1902. "Iris dark coffee-brown, bill yellowish (chromo-ochreous), feet black."

ON A COLLECTION OF MAMMALS FROM THE SMALL ISLANDS OFF THE COAST OF WESTERN PANAMA.

By OLDFIELD THOMAS.

As with the interesting collection from Coiba Island worked out last year,* I owe to the kindness of the Hon. Walter Rothschild the opportunity of examining a series of mammals obtained by the same collector, Mr. J. H. Batty, on the smaller islands off the same coast, but of the western part of Panama.

The islands visited are all quite small, and close to the mainland, and their fauna would appear to be practically the same as that of the latter, without any marked insular specialisation. At the same time this collection is hardly complete enough, especially in the smaller and more plastic forms, to enable me to make this assertion very positively.

The only new species, the Porcupine (*Coendou rothschildi*), is a highly interesting one, as it belongs to a group not hitherto known to occur in Central America at all. Whether it also is found on the mainland, or is confined to the islands on which Mr. Batty obtained it, remains to be seen.

A very important paper on the mammals of the mainland opposite these islands has recently been published by Mr. Bangs,† and it is this paper that is meant when his name is referred to below.

In the following list the figures following the names of the islands represent the number of the specimens, which it has not been thought worth while to enumerate separately.

1. **Alouatta palliata** Gray.

Sevilla, 5; Almijas, 1; Insoleta, 2.

Like mainland specimens, these Howlers are larger than the small insular form of Coiba I., *A. p. coibensis*, Thos.

2. **Saimiri oerstedi** Reinh.

Sevilla, 3; Almijas, 3.

3. **Molossus obscurus** Geoff.

Gobernador, 1.

4. **Hemiderma perspicillatum** Linn.

Sevilla, 4; Jicaron, 3; Gobernador, 1; Brava, 6; Insoleta, 2; Cebaco, 4.

5. **Glossophaga soricina** Pall.

Gobernador, 4; Insoleta, 1; Jicaron, 3; Palenque, 1; Brava, 16; Parida, 2; Boqueron, 1; Cebaco, 17.

* Nov. Zool. ix. p. 135. 1902. I am informed both by Mr. Batty and my Chiriqui correspondent, Mr. H. J. Watson, that *there are no small mammals on Coiba Island*, a most remarkable and interesting fact. Probably at some period of its history the island was lowered to such an extent as to drown out all burrowing and terrestrial animals, while leaving such species as either were arboreal (Monkeys and Opossum), or were able to live in some slight depth of water or swampy soil (*Odocoilcus*, *Dasyprocta*).

† *Bull. Mus. Harvard*, xxxix. p. 17. 1902.

6. **Artibeus bilobatus** Peters. (*convexus* Lyon).

Brava, 4; Gobernador, 3; Insoleta, 1; Sevilla, 1; Jicaron, 1; Cebaco, 1.

Mr. Lyon has recently separated the Isthmian *bilobatus* under the name of *Uroderma convexum*,* on the ground that the tooth row is more arcuate. But the material available to me does not confirm the separation—at least, on this ground. For of two specimens from Bogava, Chiriqui, collected by Mr. Watson, the tooth row of one is strongly arcuate (breadth across molars 9·8 mm.), as is one from Ecuador, while that of the other exactly matches, in its slight arcuation (breadth 9·0 mm.), an example from Para, Brazil. As the difference between two specimens from one place exceeds that quoted by Mr. Lyon (9·2 compared to 9·6 mm.) I prefer in the meantime, until other characters are pointed out, to use the older name for this bat.

7. **Artibeus watsoni** Thos.

Sevilla, 1; Cebaco, 2.

8. **Vampyrops zarhinus** H. All.

Sevilla, 1.

9. **Potos flavus megalotus** Mart.

Parida, 1; Sevilla, 2; Almijas, 2.

These Kinkajous vary in colour to a certain extent, some of them being almost as pale as Guatemalan specimens of subsp. *aztecus*, but all show an indication of the dark dorsal streak.

10. **Sciurus melania** Gray.

Sevilla, 3; Insoleta, 2; Cebaco, 1; Brava, 3.

11. **Sciurus hoffmanni chiriquensis** Bangs.

Insoleta, 1; Sevilla, 1; Cebaco, 5.

In the Cebaco series there is a considerable variation in the amount and degree of the reddish or yellowish of the belly, two of the specimens being as red below as true *S. hoffmanni*, from which they could hardly have been separated. The others agree closely with *topotypes* from Bogava (Watson coll.).

There can be no question that, whatever other S. American forms may be allied to it, the present Squirrel is entirely distinct from the Guianan *S. aestuans* Linn.

12. **Mus rattus** L.

Brava, 20; Cebaco, 14.

13. **Zygodontomys cherriei** Allen.

Cebaco, 6.

Received from Mr. H. J. Watson from Chiriqui, whence it is also recorded by Mr. Bangs.

The latter author places *Oryzomys chrysomelas* Allen under *Zygodontomys*, but specimens which I refer with confidence to that animal have the typical molar structure of *Oryzomys*, the cross-crochet between the true laminæ being clear and well developed.

* *P. Biol. Soc. Wash.* xv. p. 83. 1901.

But it must be confessed that though essentially *Oryzomys* in tooth structure, the *phoeopus-chrysomelas* group are very aberrant, as compared with normal *Oryzomys*, and I would suggest that a special subgenus should be formed for their reception. This might be called *Melanomys* from the general dark colour of its members, and its characteristics would be the short tail and generally Akodont external form of the species, the strictly Oryzomyine molars, the broad-rounded brain-case, short muzzle and well-marked supra-orbital ridges. The type would be *Oryzomys* (*Melanomys*) *phoeopus* Thos. from Ecuador, to which *O.* (*M.*) *chrysomelas* is nearly allied.

14. **Reithrodontomys** sp.

Cebaco, 2.

(Too young for determination.)

15. **Sigmodon** sp.

Cebaco, 8 (mostly young).

16. **Proechimys centralis chiriquinus** Thos.

Gobernador, 15; Brava, 2; Cebaco, 13.

17. **Coendou rothschildi** * Thos.

Sevilla, 5; Brava, 1.

Allied to *C. quichua*, Thos., of Ecuador, but more strongly white speckled, and with various cranial differences. No relationship to the common Central American form *C. mexicanus*.

Size slightly larger than in *C. quichua*. Pelage practically entirely spinous, a few short fine hairs mixed with the spines, but these are only visible on close examination. General colour black, coarsely and numerously speckled with white; rump black. Individual spines of back about 40—50 mm. in length, the basal three-fifths yellowish white, the next two-fifths black or blackish brown, the tips white or (rarely) brownish white. In skins in good condition the basal white scarcely shows through, being hidden by the dark subterminal rings of the spines. Spines of rump shorter than those of body, without the white tips, and with less or no basal white. Fine hairs of muzzle black. Head grizzled black and white, like body. Ears with a small tuft of bristles, mostly white, but some with dark bases. Under surface clothed with spinous bristles, arranged in tufts of three or four together, white basally, brown mesially, and the tips white. Upper surface of hands and feet dark brown. Tail with the upperside of its base coloured and spinous like the rump; sides of base white, grizzled like the body generally; rest of tail (except the tip) uniformly black, clothed with thick coarse black bristles, tip practically naked.

Skull rather larger than that of *C. quichua*, very variable in shape, as usual in this group. Dorsal outline more inflated above the orbits than above the squamosals, the converse being the case in *C. quichua*; supra-orbital and parietal ridges well defined. Nasal opening larger, and, especially, wider than in *C. quichua*. Muzzle rather more thrown forward, the incisors pointing less directly downwards. Palatal foramina long and wide, but in no two specimens alike. Anterior cheek-tooth (p^4) scarcely or not larger than the molars.

* Preliminary description, *Ann. Mag. N. H.* (7). x. p. 169. 1902.

Dimensions of the type, measured in the flesh :—

Head and body, 410; tail, 330; hindfoot s.u. 60, c.u. 68 mm.

Skull, basilar length, 71 mm.

Skull of a larger specimen (No. 1082) female, also from Sevilla :—

Greatest length, 88; basilar length, 74; zygomatic breadth, 50; nasals, 26 × 18; inter-orbital breadth, 30; height of frontal inflation from palate, 31·5; height of brain-case from between bullae, 26; width of nasal opening, 17; diastema, 25; palatal foramina, 10·5 × 5·5; length of tooth-row, 17·5 mm.

Hab. Sevilla (type) and Brava Is.

Type: Male. Original number 723. Collected January 24th, 1902, by J. H. Batty.

This animal is a most interesting discovery, for it has no connection with the only Porcupine, the hairy *C. mexicanus*, hitherto known from Central America. It is a member of the *C. bicolor* group, which is now shown to range from Bolivia (*C. simonsi*) through Peru (*C. bicolor*) and Ecuador (*C. quichua*) northwards to the present locality. As might be expected, it is most nearly allied to the last-named, but is more heavily white-speckled than that animal, besides differing in various cranial details.

To *C. prehensilis* there is an even stronger superficial resemblance than is the case with the other species of the group, but all are readily distinguished from that animal by the rump spines being differentiated from those of the body in colour and length.

18. **Sylvilagus gabbi** All.

Gobernador, 6.

19. **Tamanduas tetradactylus** L.

Gobernador, 1; Cebaco, 2.

These specimens are not unlike the form described by Gray as "var. *opistholeucus*." (Type from Colombia.) Mr. Bangs uses Cope's name "*sellata*," originally based on a Honduras example.

20. **Cholaepus hoffmanni** Peters.

Espartal, 2; Sevilla, 1; Cebaco, 7.

21. **Didelphis marsupialis** Linn.

Sevilla, 2; Afuera, 2; Gobernador, 3; Tologa, 1; Brava, 5; Cebaco, 3.

As on the mainland, these island opossums differ much among themselves, but none are as uniformly brown-faced as the Coiba form, *D. m. battyi*.

22. **Metachirus (opossum) fuscogriseus** Allen.

Sevilla, 2.

23. **Caluromys laniger pallidus** Thos.

Brava, 1; Gobernador, 1; Cebaco, 2.

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CHALCURUS INOPINATUS Rothsch. ♂ & ♀ ad

THE BIRDS OF BATJAN.

By ERNST HARTERT.

THE beautiful, well-known island of Batjan, close to the southern peninsula of the large island of Halmahera (or Gilolo) in the northern Moluccas, has been rather well explored with regard to its ornithology. Mr. A. R. Wallace, the celebrated author of the *Malay Archipelago*, was the first ornithologist to collect birds on Batjan. Although birds from the Moluccas had reached Europe, especially Holland, long ago, mostly from Ternate, or at least *via* Ternate, in the north, and from Amboina in the south, it seems that Batjan birds were unknown, or else such a remarkable bird as *Semioptera wallacei* would have been known before Wallace's memorable visit to Batjan. Moreover, Wallace discovered not only the *Semioptera*, but a good number of other new species on Batjan. They are mostly described by G. R. Gray in the *Proceedings of the Zoological Society of London*, 1860. pp. 341—366.

About the same time Dr. Bernstein collected on Batjan, and his very extensive collection is preserved in the Leyden Museum.

The yacht *Marchesa* visited Batjan in 1883, and a list of the collections made on that island by Messrs. Powell and Guillemard is given in the *Proceedings of the Zoological Society* 1885. pp. 561—576. There is also a list of the birds collected by the naturalists of the *Marchesa* in Guillemard's interesting book *Cruise of the Marchesa*; but that list is almost useless, as the islands whence the various species came are not mentioned.

In 1882 and 1892 Dr. Platen collected on Batjan, and Mr. Nehrkorn has presented us with a list of his birds, together with all the species known from that island, in the *Journal für Ornithologie* 1894. pp. 157—161. This list contains in all 125 species known to have occurred on Batjan, but two or three require confirmation.* Recently Count Berlepsch enumerated the birds brought home from Batjan by Prof. Kükenthal, but they were only 35, of which only a few were of special interest (*Abh. Senckenb. Ges.* xxv. 2. pp. 311—316).

Faunistically Batjan agrees with its larger sister island Halmahera; but although so near to the latter, some of the forms differ from the Halmaheran ones, especially the Bird of Paradise, *Semioptera wallacei*, which is represented on Halmahera by *Semioptera wallacei halmaherae*.

While neither Platen's magnificent collections nor those of Guillemard and Kükenthal contained any novelties, the material sent recently to the Tring Museum by Doherty and Waterstradt, especially the latter, has made us acquainted with some interesting novelties, partly forms new to science, partly not hitherto known to occur in the Moluccan archipelago. These discoveries are merely due to the fact that these collectors ascended the mountains in the interior. Doherty reached elevations of 4000 ft., Waterstradt or his collectors those of [illegible]000 ft. The new forms found on these high mountains are (cf. *Muscicapula maculata westermanni*, *Muscicapula hyperythra pallidipectus*, *Cryptolopha [illegible] waterstradti*,

* In the *Natuurkundig Tijdschr. voor Nederl.-Indië* lviii., *Aflevering* [illegible] 171—252, Dr. A. G Vorderman published an article "Molukken-Vogels," in which a number of Batjan birds are mentioned.

Phylleryates ererctti dumasi) mostly of Indo-Malayan affinities, and prove again the existence of a formerly unknown Indo-Malayan element on the high mountains of the Moluccas, which I mentioned as being found on Buru in Novitates Zoologicae VII. 1900. pp. 226, 238, 239.

The lowlands of the various Moluccan islands are now more or less well known, but it is in the higher mountains that ornithologists can still make interesting discoveries, and I hope to be able to record some more before long.

1. **Spizaëtus gurneyi** (Gray).

Aquila (*Heteropus?*) *gurneyi* G. R. Gray, *P. Z. S.* 1860. p. 342. Pl. 169 ("Batjan").*

Batjan : Wallace, Bernstein, Platen.

2. **Cuncuma leucogaster** (Gm.).

This widespread species occurs on the coasts of all the Moluccan islands, and has been recorded from Batjan by Wallace.

3. **Pandion haliaëtus leucocephalus** Gould.

Batjan : Bernstein, Platen.

4. **Haliastur indus girrenera** (Vieill.).

Batjan : Bernstein, Wallace, Kükenthal.
(Mr. Dumas obtained it also on Morty).

5. **Baza subcristata rufa** Schleg.

(Cf. Nov. Zool. VIII. p. 379).

♂, Batjan, August 1897, W. Doherty coll. Batjan : Bernstein, Wallace.

6. **Tinnunculus moluccensis** Bp.

Batjan : Bernstein, Wallace, Platen, Kükenthal, Guillemard, Vorderman. Batjan : Doherty, Waterstradt, in Tring Museum.

"Iris yellow, feet ochreous, claws black, bill leaden-blue with black tip." ♂ ad., Doherty.

(Morty : Bernstein ; Dumas, in Mus. Tring.)

7. **Astur henicogrammus** Gray.

Astur henicogrammus Gray, *P. Z. S.* 1860. p. 343 ("Gilolo") (juv.).
Astur muelleri Wallace, *P. Z. S.* 1865. p. 475 ("Gilolo") (adult).

Batjan : Platen (4 juv.). Batjan : ♀ juv. in Mus. Tring, collected by Waterstradt's natives.

This species is, of course, utterly different from *A. griseogularis*, being much smaller, deep bluish slate above, without a rufous collar, and having a totally different young, barred also on the breast.

* There is in the British Museum a specimen labelled "Waigiu," marked as the type of the species. This cannot be correct. The bird was described from Batjan, and no birds from Waigiu had at that time reached England. The so-called types of Mr. Wallace were evidently marked as the types long after they were described, but not at the time when described by Gray. They are not, therefore, absolutely reliable.

8. **Astur griseogularis** Gray.

Astur griseogularis G. R. Gray, *P. Z. S.* 1860. p. 343 ("Batchian, Gilolo and Ternate": typical locality Batjan; cf. *Cat. B.* i. p. 123).

Batjan: Wallace, Platen, Kükenthal. In Mus. Tring: Platen, Doherty, Waterstradt.

"Iris gelb, Schnabel schwarz, an der Wurzel bläulich, Wachshaut gelbgrün (♀) oder gelb (♂)." (Platen).

The young are barred on the abdomen, striped on the breast, thus differing widely from those of *A. henicogrammus*. The adult birds are very variable, some being heavily barred with whitish, others indistinctly barred or almost quite uniform. From the specimens before me I conclude that the barred ones, which have also a darker ground-colour, must be the less aged ones.

(Mr. Dumas sent several skins from Morty, where it was also obtained by Wallace, and these—though much larger than *A. g. obiensis*—seem mostly a little smaller.)

9. **Astur soloensis** (Horsf.).

Falco soloensis Horsf., *Trans. Linn. Soc.* xiii. 1821. p. 137 (Java).

Batjan: Wallace, (Morty: Bernstein, Dumas, in Mus. Tring).

10. **Accipiter erythrauchen** Gray.

Accipiter erythrauchen G. R. Gray, *P. Z. S.* 1860. p. 344 ("Gilolo").

Batjan: Bernstein, Platen, Kükenthal, Waterstradt.

11. **Pisorhina manadensis leucospila** (Gray).

Ephialtes leucospila G. R. Gray, *P. Z. S.* 1860. p. 344 ("Batjan and E. Gilolo: original locality Batjan; cf. *Cat. B.* ii. p. 73, type in Brit. Mus.).

♂ ad. and juv., Batjan: Waterstradt coll. Batjan: Platen.

12. **Ninox rufostrigata** (Gray).

Athene rufostrigata G. R. Gray, *P. Z. S.* 1860. p. 344 ("Gilolo").

Batjan: "♂" Waterstradt coll., August 1902. "♀" juv., September 1897, W. Doherty coll.

"Iris yellow, feet whitish, claws black, bill bluish white, dark at tip" (W. D.).

13. **Ninox hypogramma** (Gray).

Athene hypogramma G. R. Gray, *P. Z. S.* 1860. p. 344 ("Batjan and Gilolo": typical locality Batjan, being the first-mentioned one).

Batjan: Wallace, Bernstein. Batjan: ♀ ad., August 1897, W. Doherty coll. Batjan: 2 ♂♂, 1 ♀ ad., July August 1902, Waterstradt coll. The *females* seem to be much larger.

14. **Cacatua albus** (Müll.).

Batjan: Bernstein, Wallace, Platen, Guillemard, Vorderman, Waterstradt.

15. **Tanygnathus megalorhynchos** (Bodd.).

Batjan: Bernstein, Wallace, Platen, Kükenthal.

16. **Loriculus amabilis** Wall.

Loriculus amabilis Wallace, *Ibis* 1862. p. 349 (Halmahera).

Batjan, according to Bernstein. It is strange that neither Wallace, Platen, Kükenthal, nor Doherty and Waterstradt have found it on Batjan !

17. **Geoffroyus cyanicollis** (S. Müll.).

Psittacus cyanicollis S. Müll., *Verh. Land-en Volkenk.* pp. 108. 182 ("Gilolo"—not Celebes !).

Batjan : Wallace, Bernstein, Beccari, Guillemard, Platen, Vorderman, Kükenthal, Doherty, Waterstradt.

18. **Eclectus roratus** (P. L. S. Müll.).

Batjan : Bernstein, Wallace, Guillemard, Platen, Vorderman, Kükenthal, Doherty, Waterstradt.

(Morty : Bernstein ; Dumas in Mus. Tring.)

19. **Lorius garrulus flavopalliatus** Salvad.

Lorius flavopalliatus Salvad., *Ann. Mus. Civ. Gen.* x. 1877. p. 33.

Batjan : Wallace, Bernstein, Beccari, Doherty, Platen, Vorderman, Waterstradt. (Morty : Bernstein, Wallace, Dumas.)

20. **Eos riciniatus** (Bechst.).

Psittacus riciniatus Bechstein, *Kurze Uebers.* p. 69 (1811) ("Moluckische Inseln" : I substitute Ternate as the typical habitat).

Batjan : Wallace, Bernstein, Guillemard, Platen, Vorderman, Doherty, Waterstradt.

21. **Hypocharmosyna placentis** (Temm.).

Batjan : Wallace, Platen, Doherty, Waterstradt.

"Iris orange-red, feet coral-red, claws grey ; bill, upper mandible vermilion, lower mandible rose-colour." (W. Doherty).

22. **Cuculus saturatus** Blyth.

Batjan : in Mus. Lugd. (Finsch, *Notes Leyden Mus.* xxiii. p. 103).

23. **Cacomantis insperatus** (Gould).

Batjan (common) : Beccari, Bernstein (Mus. Leyden), Platen, Kükenthal, Doherty, Waterstradt. Thirteen specimens in the Tring Museum. There is much variation in these birds.

The underside is cinnamon-rufous, or partly suffused with grey, or almost entirely ashy greyish ; the colour of the upperside is (in freshly moulted examples) deeper, or (in worn specimens) paler.

The wing varies from 122—133 mm.

24. **Misocalius palliolatus** (Lath.).

(Finsch, *Notes Leyden Mus.* xxii. p. 92, is of opinion that the description of Latham's *Cuculus palliolatus* is so bad that it cannot be accepted as the basis for

the specific name of our bird. In that case the name *Misocalius osculans* (Gould) would have to be accepted).

Bernstein obtained this bird on Batjan, and the specimen is in the Leyden Museum. Probably not resident, but only a straggler to the Moluccan Islands.

25. **Surniculus musschenbroeki** Mey.

Surniculus musschenbroeki A. B. Meyer, Rowley's *Orn. Miscell.* iii. p. 164 (1878 : Batjan).

Dr. Meyer received this species direct from Batjan. It was also obtained there by Platen and Kükenthal, but neither Doherty nor Waterstradt found it.

26. **Eudynamis honorata** subsp. ?

Bernstein collected specimens of an *Eudynamis* on Batjan and Halmahera. Salvadori refers these with some doubt to *E. orientalis* ; Shelley refers a young bird from Halmahera to *E. orientalis*. Dr. Finsch (*Notes Leyden Mus.* xxii. p. 103) refers the specimens from Batjan and Halmahera to *E. honorata*. As this ornithologist, however, does not separate *E. honorata honorata*, *E. honorata malayana*, and *E. honorata mindanensis*, and I have not been able to examine an adult individual from the North Moluccas, I do not know to which form they belong, but expect them to be separable as a new subspecies.

27. **Scythrops novaehollandiae** Lath.

Batjan : Wallace, Bernstein, Platen, Vorderman, Waterstradt.

28. **Centropus goliath** Bp.

Centropus goliath Bonaparte, *Consp. Av.* i. p. 108 (1850 : Halmahera, ex Forsten MS. in Mus. Lugd.).

Batjan : Wallace, Bernstein, Beccari, Guillemard, Vorderman, Platen, Kükenthal, Doherty, Waterstradt.

" Iris very deep brown (♂ ♀), bill and feet black." (W. Doherty.)

(Dumas obtained *C. goliath* also on Morty.)

29. **Centropus javanicus** (Dumont).

Batjan : Bernstein, Platen, Kükenthal ; Doherty, ♂ ad., August 1897.

(Dumas obtained a young bird on Morty Island.)

30. **Rhyticeros plicatus** (Penn.).

Batjan : Wallace, Beccari, Guillemard, Platen, Kükenthal, Vorderman, Doherty.

31. **Merops ornatus** Lath.

Batjan : Finsch, Kükenthal, Doherty (frequent in August 1897), Waterstradt (August 1902).

In all the specimens before me from Batjan the black throat patch is largely developed, the bills are not at all longer than in Australian specimens, nor is there any other difference.

32. **Alcedo ispida hispidoides** Less.

Batjan : Bernstein, Waterstradt, Guillemard, Platen.

33. **Alcyone azurea affinis** Gray.

Batjan : Wallace, Bernstein, Platen, Kükenthal, Vorderman.
Dumas collected this species on Morty. (Cf. Nov. Zool. 1901. p. 144.)

34. **Alcyone pusilla** (Temm.).

Batjan : Platen, one *male*.

35. **Ceyx lepida uropygialis** Gray.

[*Ceyx lepida* Temm. *Pl. Col.* 595. f. 1 (1835 : Amboina).]
Ceyx uropygialis G. R. Gray, *P. Z. S.* 1860. p. 348 (Batjan and Ternate : typical locality therefore Batjan).
Ceyx lepida uropygialis Hartert, Nov. Zool. VIII. 1901. p. 97.

Batjan : Wallace, Bernstein, Beccari, Platen, Doherty, Waterstradt.

36. **Tanysiptera hydrocharis margarethae** Heine.

[*Tanysiptera hydrocharis* Gray, *P. Z. S.* 1858. pp. 172. 190 ("Aru Islands").]
Tanysiptera margarethae Heine, *J. f. O.* 1859. p. 406 ("Angeblich von Neuguinea, wahrscheinlich aber von einer der benachbarten Inseln" : I accept Batjan as the typical locality !).

Batjan : Wallace, Bernstein, Guillemard (Powell), Platen, Kükenthal, Doherty, Waterstradt.

"Iris very deep brown, feet pale olive-brownish, claws darker, bill scarlet." (W. Doherty).

(In Novitates Zoologicae VIII. pp. 158—162 Mr. Rothschild and I gave a review of the forms of this group of *Tanysiptera*. We there grouped ten forms as subspecies of one species, calling them *T. dea dea*, *T. d. riedeli*, *T. d. ellioti*, *T. d. rosseliana*, *T. d. margarethae*, *T. d. acis*, *T. d. obiensis*, *T. d. hydrocharis*, *T. d. galatea*, *T. d. meyeri*.

Authors having quoted the 12th edition of Linnaeus only, we did not compare the 10th edition, but in doing so now I find that it is impossible to accept the name *dea*. Linnaeus (ed. x. *Syst. Nat.* i. p. 116, 1758) names merely Edwards' "Swallow-tailed Kingfisher" (Pl. X.), which is no Kingfisher, but one of the *Galbulidae*. In the 12th edition the diagnosis of the *Galbula* is repeated, but instead of quoting Edwards, Linnaeus quotes Seba and Brisson, who, under the name of "*Avis paradisiaca ternatana*" and "*Ispida ternatana*" have described the form of *Tanysiptera* inhabiting Amboina and Ceram, which they wrongly attributed to the island of Ternate, and which is now—cf. Salvadori, *Orn. Pap.* i. p. 436 ; Sharpe, *Cat. B.* xvii. p. 310—known as *Tanysiptera dea*. It is, nevertheless, quite impossible to accept the name *dea*. First of all we now begin our nomenclature 1758 (10th edition of Linnaeus), and in 1758 "*Alcedo dea*" refers to Edwards' Pl. X., which is a *Galbula*, Seba being quoted merely as a doubtful synonym. In 1766 (12th edition of *Linnaeus* i. p. 181) the same diagnosis "A. rectricibus duabus longissimis medio attenuatis, corpore nigro-caerulescente, alis virescentibus") is repeated, with the locality Surinam, though the original, from which the diagnosis and locality are taken—*i.e.* Edwards' Pl. X.—is omitted,

and instead Seba's and Brisson's Kingfisher is most erroneously added as a synonym. How it was possible to identify Edwards' and Seba's figures as the same bird is unexplainable; but Linnaeus committed several similar atrocities, and his carelessness cannot induce us to accept his name "*dea*" for the Amboinese Kingfisher. This group of *Tanysiptera* should have the following nomenclature:—

a. Tanysiptera hydrocharis naïs Gray.

Tanysiptera naïs Gray, *P. Z. S.* 1860. p. 346. "Amboyna," type in coll. Wallace. (In the British Museum—cf. *Cat. B.* xvii. p. 311—a skin from Ceram is marked as the "type of species"—should have been said type of *T. naïs*—but this of course is an error, committed when Wallace's birds were labelled afterwards.)
Tanysiptera dea dea Nov. Zool. 1901. p. 158.

Hab. Amboina, Ceram, Manawoka, Goram, Boeno, Manipa.

b. Tanysiptera hydrocharis riedeli Verr.

Tanysiptera riedeli Verreaux, *Nouv. Arch. Mus. Bull.* ii. p. 11. Pl. III (Mysori).
Tanysiptera dea riedeli Nov. Zool. 1901. p. 158.

Hab. Biak and Korrido (Schouten Islands or Misori) in Geelvink Bay.

c. Tanysiptera hydrocharis ellioti Sharpe.

Tanysiptera ellioti Sharpe, *P. Z. S.* 1869. p. 630. (Locality doubtful: hitherto only known from Koffiao.)
Tanysiptera dea ellioti Nov. Zool. 1901. p. 159.

Hab. Koffiao, near Mysol.

d. Tanysiptera hydrocharis rosseliana Tristr.

Tanysiptera rosseliana Tristram, *Ibis* 1889. p. 557 (Rossel Island).
Tanysiptera dea rosseliana Nov. Zool. 1901. p. 159.

Hab. Rossel Island, Louisiade group.

e. Tanysiptera hydrocharis margarethae Heine.

Tanysiptera Margarethae Heine, *J. f. O.* 1859. p. 406 (no exact locality: I substitute Batjan!).
Tanysiptera dea margarethae Nov. Zool. 1901. p. 159.

Hab. Northern Moluccas: Batjan, Halmahera, and Morty.

f. Tanysiptera hydrocharis acis Wall.

Tanysiptera acis Wallace, *P. Z. S.* 1863. pp. 23. 24 (Buru).
Tanysiptera dea acis Nov. Zool. 1901. p. 160.

Hab. Buru.

g. Tanysiptera hydrocharis obiensis Salvad.

Tanysiptera obiensis Salvadori, *Ann. Mus. Civ. Genova* x. p. 302 (1877: Obi).
Tanysiptera dea obiensis Nov. Zool. 1901. p. 160.

Hab. Obi Islands, Central Moluccas.

h. Tanysiptera hydrocharis hydrocharis Gray.

Tanysiptera hydrocharis Gray, *P. Z. S.* 1858. pp. 172. 190 (Aru Islands).
Tanysiptera dea hydrocharis Nov. Zool. 1901. p. 160.

Hab. Aru Islands.

i. Tanysiptera hydrocharis galatea Gray.

Tanysiptera galatea Gray, *P. Z. S.* 1859. p. 154 (New Guinea).
Tanysiptera dea galatea Nov. Zool. 1901. p. 160.

Hab. All over New Guinea (as far as explored), with the exception of the northern coast from Takar to Astrolabe Bay, and Waigiu and Salwatty.

j. Tanysiptera hydrocharis meyeri Salvad.

Tanysiptera meyeri Salvadori, *Ann. Orn. Pap.* i. p. 54 (1889: hab. in Nova Guinea, prope Kafu).
Tanysiptera dea meyeri Nov. Zool. 1901. p. 161.

Hab. Northern New Guinea from Takar and Kafu to the Astrolabe Bay.

37. **Halycon diops** (Temm.).

Alcedo diops Temm., *Pl. Col.* 272 (1824: "Amboina, Timor et Celèbes"—errore! Typus ex Ternate in Mus. Ludg., cf. Schleg., *Mus. Pays-Bas, Alcedines* p. 41.

Batjan: Wallace, Bernstein, Beccari, Guillemard, Platen, Vorderman, Kükenthal, Doherty, Waterstradt.

38. **Halcyon saurophaga** Gould.

Halcyon saurophaga Gould, *P. Z. S.* 1843. p. 103 (New Guinea).

Batjan: Bernstein, Platen, Doherty.

39. **Halycon chloris** (Bodd.).

Batjan: Wallace, Bernstein, Platen, Waterstradt.

40. **Halcyon sanctus** Vig. & Horsf.

Batjan: One specimen from Waterstradt in Mus. Tring.

41. **Eurystomus orientalis australis** Swains.

Batjan: Wallace, Bernstein, Guillemard, Platen, Kükenthal, Doherty, Waterstradt.

42. **Eurystomus azureus** Gray.

Eurystomus azureus G. R. Gray, *P. Z. S.* 1860. p. 346 (Batjan, type in Brit. Mus.).

Batjan: Wallace, Bernstein, Guillemard, the latter's single specimen (*P. Z. S.* 1885. p. 569) now in the Tring Museum.

The bill is "bright coral red" in the adult bird; the figure on Pl. III., *Cat. B. Brit. Mus.* xvii., is that of a young bird, but there is a good plate of the adult bird in Dresser's monograph of the *Coraciidae*.

43. **Aegotheles crinifrons** (Bp.).

Batrachostomus crinifrons Bonaparte, *Consp. Av.* i. p. 57 (1850: no locality! Typical locality Halmahera, the type specimen in the Leyden Museum being labelled Halmahera).

Batjan: Wallace.

♂ Batjan, August 1897. "Iris deep brown, feet pale flesh-colour, bill above brownish, below pale flesh-colour" (W. Doherty). This specimen differs very much from the specimens described by Salvadori (*Orn. Pap.* i. p. 521) and by me (*Cat. B.* xvi. p. 646, and Tierreich, *Lief.* 1. p. 10) in detail. It is above brownish

black, finely vermiculated with reddish brown, quills deep brown, outer webs with pale rufous-brown spots, tail dusky with pale reddish brown and blackish cross-bars; the underside is salmon-buff, each feather with two or three blackish shaft-spots, here and there vermiculated with blackish. I think this must be an adult *male*, the adult *females* and young being rufous-cinnamon, as described *l l.c.c.*

As this species was hitherto unknown in a brown phase (whether they are all *females* and immature birds, or whether the adult bird is dimorphic, occurring in a red and in a brown plumage), this specimen obtained by Doherty is of great interest.

Aegotheles crinifrons differs widely from *Ae. insignis* (Arfak, New Guinea), principally in the entire absence of round whitish spots on the back, in the buff, not whitish patches on the underside. *Ae. crinifrons* is only known from Halmahera and Batjan, *Ae. insignis* from a single specimen from Arfak, New Guinea (cf. *Ibis* 1896. p. 375. Pl. VI.). *Ae. pulcher* Hartert (*Bull. B. O. Club* viii. p. viii. October 1898) is the representative of *Ae. insignis* in the mountains of British New Guinea. It is larger, and differs in some details of markings, but should probably only be a subspecies. It would be most interesting to find a brown "phase" of *Ae. insignis* and *Ae. pulcher*, as we now know it to occur in *Ae. crinifrons*.

44. **Macropteryx mystacea** (Less.).

Batjan: Wallace, Bernstein, Beccari, Guillemard, Platen, Doherty.

45. **Collocalia esculenta** (L.).

Batjan: Wallace.

46. **Hirundo rustica gutturalis** Scop. (Migrant).

Batjan: Wallace, Platen. (Doubtless as a winter visitor only.)

47. **Hirundo javanica** Sparrm.

Batjan: Bernstein, in Mus. Lugd.

48. **Monarcha inornata** (Garnot).

Muscicapa inornata, Garnot, *Voy. Coq. Atl.* Pl. XVI. fig. 2 (1826), text i. 2. p. 591 (1828: Dorey, New Guinea).

Batjan · teste Finsch.

49. **Monarcha bimaculata** Gray.

Monarcha bimaculata G. R. Gray, *P. Z. S.* 1860. p. 352 ("Batchian and Gilolo"—typ. loc. Batjan, types in Brit. Mus.).

Batjan: Wallace, Platen, Kükenthal, Doherty, Vorderman, Waterstradt. The latter two gentlemen sent a large series each. Among Doherty's specimens many are in the plumage of the supposed adult *male*, marked by Doherty as *females*, and with the following note: "The sex-colouring seems reversed in this species." It is hardly probable that such a careful naturalist as Doherty made a mistake, as he deliberately called attention to the phenomenon; but some of the specimens, which are exactly like those marked as *females*, being marked as *males*, it is probable that the adult *males* and *females* are alike, those with a black throat (formerly supposed to be *females*) being young.

There can be no doubt whatever that "*Piezorhynchus morotensis*" * is the same

* *Cat. B. Brit. Mus.* iv. p. 423.

as *bimaculata*. Not only occur both forms, *i.e.* the one with the orange-rusty breast and the one with the white breast, on Morty Island, but also on Batjan and Halmahera, and we find every intergradation between the two. Moreover, exactly the same variation occurs in the allied *Monarcha bernsteini* on Obi.

50. **Monarcha chalybeocephalus nitens** (Gray).

I have already (*vide supra* in the article on the Birds of Obi) described the various races of *M. chalybeocephalus*. The form *nitens* was first described from Batjan, where it is common: Wallace, Bernstein, Guillemard, Platen, Doherty. Mr. Dumas obtained it also on Morty.

51. **Rhipidura tricolor** (Vieill.).

Muscicapa tricolor Vieillot, *Nouv. Dict. d'Hist. Nat.* xxi. p. 430 (1878: "Timor"—errore! ex coll. Maugé. I accept New Ireland, the typical locality for *M. melaleuca*, as the typical habitat).

Batjan: Wallace, Guillemard, Platen, Doherty. (Also obtained on Morty by Dumas.)

Though it has become customary to regard all the black and white "*Saulo-proctae*" from the Moluccas to Australia as belonging to one form, this is obviously wrong, if a large series is laid out and looked at. It strikes at once even the casual observer that those from Australia have smaller bills, and such is indeed the case. While I am not able to make any divisions between those from the Solomons, New Britain, New Ireland, and New Guinea to the Moluccas, I must separate the Australian form, which has to bear the name

Rhipidura tricolor motacilloides Vig. & Horsf.

(*Rhipidura motacilloides* Vig. & Horsf., *Trans. Linn. Soc.* xv. p. 248. 1826: type St. George R., Australia), as it differs constantly and strikingly by its smaller bill. In general its dimensions are slightly less all round, but nothing is so evident and constant as the smaller bill.

52. **Muscicapa griseisticta** Swinh.

Batjan: teste Finsch. (Morty: Dumas coll.)

53. **Muscicapula maculata westermanni** Sharpe.

Two adult *males* were obtained on Batjan, between 5000 and 7000 ft. high, in June and July 1902, by Mr. Waterstradt. This species was hitherto only known to extend eastwards as far as Celebes. Its occurrence in the Moluccan Islands extends its area considerably. It is doubtless only found on the high mountains.

54. **Muscicapula hyperythra pallidipectus** subsp. nov.

Muscicapula M. h. hyperythra dictae persimilis, ♂ differt gula pectoreque pallidioribus, hypochondriis olivascentioribus, ♀ supra obscuriore, schistaceo tincta, gula abdomineque pallidioribus, hypochondriis olivascentioribus.

Mr. John Waterstradt sent a large series of a *Muscicapula*, obtained on the mountains of Batjan, between 5000 and 7000 ft. high. These birds at a glance closely resemble the well-known *M. hyperythra*, of which I have a large series for comparison, but differ as follows: The *male* has the throat and breast paler orange-rufous, the abdomen distinctly more whitish, the flanks darker, more olivaceous.

The *female* is similar to that of *M. hyperythra hyperythra*, but the upperside is darker, tinged with slate-colour, the throat and abdomen more whitish, flanks darker, more olivaceous. The dimensions are the same as in *M. h. hyperythra*.

Mr. Waterstradt found also the young, just fledged. They are blackish above, spotted with orange-buff like a young robin, below buff with blackish bases and edges to most of the feathers.

Type: ♂ ad., Batjan, 5000—7000 ft., July 1902, John Waterstradt coll. No. "B. 478."

William Doherty sent one *female*, obtained at an elevation of 4000 ft.

The discovery of this little Flycatcher on the mountains of Batjan is of considerable interest. It shows again that there is an Indo-Malayan element on the high ranges of the Moluccas.

Muscicapula luzoniensis and *M. nigrorum* from the Philippines (the *males* of which are hardly separable from each other) differ in the absence of the black chin, which is rather well developed in *pallidipectus*, and have less white above the lores.

55. **Rhipidura torrida** Wall.

Rhipidura torrida Wallace, *P. Z. S.* 1865. p. 477. Pl. XXVIII. (Ternate).

Obtained by Doherty and Waterstradt on Batjan. This *Rhipidura* differs from *Rh. rufifrons* of Australia in the much deeper brown colour of the head and back, and also darker cinnamon rump and base of tail, and much shorter wing.

♂ ad., Batjan, 2000 ft. "Iris deep brown; feet blackish; bill blackish, nostrils pale, base of lower mandible whitish" (W. Doherty).

56. **Myiagra galeata** Gray.

Myiagra galeata G. R. Gray, *P. Z. S.* 1860. p. 352 (Batjan).

Batjan: Wallace, Bernstein, Platen, Doherty. Doherty sent six *females* from Batjan. Dumas obtained it on Morty.

57. **Cryptolopha everetti waterstradti** Hart.

Cryptolopha everetti waterstradti Hartert, *antea* p. 9 (Typ. loc. Batjan).

Mr. Waterstradt sent a good series from elevations between 5000 and 7000 ft. I have described this form as above in my article on the Obi birds, Waterstradt having also obtained it on Obi Major.

58. **Graucalus magnirostris** Bp.

Graucalus magnirostris Bonaparte (ex Forsten MS., Mus. Ludg.), *Consp. Av.* i. p. 354 (1850: Gilolo).

Batjan: Bernstein, Kükenthal, Platen, Doherty, Waterstradt.

♂: "Iris dark brown, bill and feet black" (W. Doherty).

(The statement of the occurrence of *G. magnirostris* on Waigiu by Guillemard, *P. Z. S.* 1885. p. 633, is doubtless due to a mistake in labelling. We have a skin of *Lycocorax pyrrhopterus* labelled as coming from Obi!).

59. **Graucalus papuensis melanolora** (Gray).

Batjan: Wallace, Beccari, Platen, Vorderman, Doherty, Waterstradt. "Iris deep brown, bill and feet black" (W. Doherty).

60. **Edoliisoma melanotis** (Gray).

Campephaga melanotis G. R. Gray, *P. Z. S.* 1860. p. 353 (Batjan and E. Gilolo, Wallace coll. Typical locality, Batjan, this being the first-named island). (Sharpe and Salvadori—cf. *Cat. B.* iv. p. 353 ; Salvad., *Orn. Pap.* ii. p. 156—have rejected the name *melanotis* on account of the existence of a *Graucalus melanotis* Gould, *P. Z. S.* 1837. p. 143, which was afterwards, by Gray, *Gen. B.* i. p. 283, placed in the genus *Campephaga*. This unfortunate *Graucalus melanotis* being a synonym of *Graucalus melanops* Lath., and thus belonging to a different genus, *Graucalus*, there is not the slightest reason to reject the name *melanotis* for the *Edoliisoma* of the northern Moluccas).

Common : Wallace, Platen, Doherty, Waterstradt. ♂♀: "Iris deep brown, feet black, bill black, the latter more slaty in the *female*" (W. Doherty).

There is a great variation in the young birds, some on the under surface moulting from a rufous-brown, others from a pale buff colour, to the slaty dress of the adult *male*. A *female* from Morty (Dumas coll.) has rather wide black cross-bars.

61. **Lalage aureus** (Temm.).

Ceblephyris aureus Temm., *Pl. Col.* 382 (1825 : "Timor"—errore ! This species does not inhabit Timor nor—cf. Müll, *Land-en Volkenkunde* p. 190—Celebes ! Reinwardt has collected the type, and it must have come from the Moluccas. I substitute as the original locality : Ternate).

Batjan : Wallace, Platen, Doherty (large series).

62. **Artamus leucorhynchos** (L.).

Batjan : Wallace, Bernstein, Platen, Doherty, Waterstradt.
(Dumas sent it from Morty.)

63. **Dicrurus atrocaeruleus** Gray.

Dicrurus atrocaeruleus G. R. Gray, *P. Z. S.* 1860. p. 354 ("Batchian and E. Gilolo." Typical locality therefore : Batjan).

Batjan: Wallace, Platen, Kükenthal, Doherty, Waterstradt.

Two Morty specimens, sex unknown, collected by Dumas, are considerably smaller. If this is shown to be constant in a larger number of specimens, then the Morty form must be separated as a new subspecies.

64. **Pachycephala mentalis** Wall.

Pachycephala mentalis Wallace, *P. Z. S.* 1863. p. 30 (Typical locality: Batjan).

Common on Batjan : Wallace, Platen, Kükenthal, Doherty (large series), Waterstradt.

65. **Pachycephala cinerascens** Salvad.*

Pachycephala cinerascens Salvadori, *Ann. Mus. Civ. Gen.* vii. 1878. p. 332 (Typical locality : Ternate).

This interesting little *Pachycephala*, described from Ternate, and also known from Tidore and Morty, was found by Doherty plentiful on the hills of Batjan, from 2000 to 4000 ft. elevation. The adult is darker ashy above, the upper breast

* Dr. Guillemard (*P. Z. S.* 1885. p. 571) mentions as coming from Batjan a specimen of *Colluricincla megarhyncha*, but himself doubts the accuracy of the locality. There can be no doubt that a wrong label got attached to that specimen, as in the case of a *Graucalus magnirostris* (*vide* antea No. 58), and in that of a *Lycocorax pyrrhopterus* in the Tring Museum, which is erroneously labelled as having been collected on Obi. (Cf. Salvadori, *Ibis* 1886. p. 154.)

is dark grey, throat and abdomen paler, whitish grey. The *female*, and apparently also the immature *male*, is somewhat, but not much, paler above ; the under surface is more uniform, pale grey with a rufescent wash ; throat, breast, and sides with narrow deep ashy shaft-lines. Doherty described the iris as deep brown, the bill and feet as black.

Doherty sent ten specimens. Waterstradt, though the majority of his birds were taken in the mountains, did not send this rare species.

66. **Cinnyris auriceps** (Gray).*

Nectarinia auriceps G. R. Gray, *P. Z. S.* 1860. p. 348 ("Batchian and Ternate," in British Museum, typical locality Batjan).
Cinnyris morotensis Shelley, *Mon. Nectar.* p. 101. Pl. 34. fig. 2 (1877 : Morty).

Batjan : Wallace, Bernstein, Guillemard, Platen, Kükenthal, Doherty (large series), Waterstradt.

Dumas sent typical *C. auriceps* from Morty. Shelley's "*Cinnyris morotensis*" does not represent a local subspecies, but only an aberration. If large series of these birds are examined, variations like Shelley's "*C. morotensis*" from the ordinary type will be frequently found. We have a specimen approaching it, others are in the Turati collection, and, though their locality is uncertain, there is no reason to suppose that they are from Morty, since our Morty examples are not distinguishable from those from Ternate and Batjan. Among *C. proserpina* and *C. christinae* I find similar and almost more striking variations, and it is therefore evident that *C. morotensis* is only referring to an aberrant *C. auriceps*.

67. **Cinnyris frenata** (S. Müll.).

Nectarinia frenata S. Müller, *Land-en Volkenkunde* p. 173 (1843 : W. coast of New Guinea).

Batjan : Wallace, Bernstein, Guillemard, Platen, Doherty, Waterstradt.
(Dumas sent several specimens from Morty.)

68. **Dicaeum schistaceiceps** Gray.

Dicaeum schistaceiceps G. R. Gray, *P. Z. S.* 1860. p. 349 ("Batchian and E. Gilolo"—typical locality Batjan, type in British Museum).

Batjan : Wallace, Doherty, Waterstradt, low country.

(Mr. Dumas sent a pair from Morty. They are apparently duller, without so much of a golden tinge on the rump, and also duller, less golden, on the flanks. A larger series would probably show that the Morty birds are subspecifically separable.)

69. **Myzomela simplex** Gray.

Myzomela simplex G. R. Gray, *P. Z. S.* 1860. p. 349 (Batjan, Gilolo : typ. loc. Batjan).

Batjan : Wallace, Doherty, Waterstradt. No elevation is marked on Waterstradt's labels, but Doherty got this species only at heights of 4000 ft. The *female*, though apparently not different in colour from the *male*, is very much smaller. *Males* have the wing 64—66, *females* only 56—58 mm. long.

Dumas sent a specimen, evidently a *male*, from Morty, which differs from our series of ten *M. simplex* from Batjan in having a darker, sooty-brown throat and

* The alleged occurrence on Waigiu (Nehrkorn, *J. f. O.* 1885. p. 33) is due to an inadvertent mistake. Cf. Salvad., *Ibis* 1886. p. 152.

a narrow rosy-red band across the chest. In *M. simplex simplex* there are sometimes light reddish edges to some of the chest-feathers, but they are paler and less conspicuous than in this Morty bird. The abdomen and back of the Morty bird are also somewhat darker, more washed with soot-colour. Size like that of *males* of *M. simplex simplex*: wing 63 mm. I propose to call the Morty form

Myzomela simplex mortyana subsp. nov.

Type of *Myzomela simplex mortyana*: No. M. 59, Morty Island, Dumas coll., in Mus. Rothschild.

(Presumably an adult *male*, but sex not marked by the collector.)

70. **Myzomela batjanensis** sp. nov.

♂ ad. *Myzomela* capite, collo, tergo medio, uropygio, supracaudalibus rubris; loris macula nigra; alis nigris, remigum tectricumque majorum pogoniis externis flavidis, remigum pogoniis internis albo marginatis; pectore olivascente; abdomine albescente, olivaceo tincto; subcaudalibus olivaceis, flavescente marginatis; cauda nigra; subalaribus albis. Al. 57—58, caud. 38—40, rostr. 13½—14, tars. 14—15 mm.

♂ juv. Notaeo olivaceo-brunneo, uropygio subcaudalibusque rubro interspersis; fronte, mento, regione malari rubris; gastraeo pallide flavescente, jugulo pectoreque cinereo tinctis.

Hab. In montibus insulae Batjan dictae.

This new form of the beautiful genus *Myzomela* is above coloured like *M. chloroptera*, *M. sanguinolenta*, *M. boiei*, and it will probably be best to consider these all as subspecies of one form; but I cannot conclude about this without a closer study than I can at present afford.

The most similar form to my *M. batjanensis* is *M. chloroptera* of Celebes; but the latter is easily distinguished by the greater extension of the red below, where it covers the entire chest, and the red of *M. chloroptera* is not quite so deep. From *M. boiei* the new form differs by the absence of the black antepectoral band, and by the better development of the yellowish edges to the outer webs of the quills. From *M. sanguinolenta* it likewise differs by the lesser extent of the red underneath, only the throat being red, while *M. sanguinolenta* has the whole breast overspread with red, also the abdomen much more whitish.

Mr. Waterstradt found *M. batjanensis* only on the mountains between 5000 and 7000 ft. Doherty did not come across it.

Type of *M. batjanensis*: ♂ ad., Batjan, June 1902, 5000—7000 ft. above the sea, No. "B. 579" Waterstradt coll., in Mus. Rothschild.

71. ? **Philemon fuscicapillus** (Wall.).

According to Finsch (*Neuguinea* p. 165) and Gray's *Handlist* this species occurs on Batjan, but as apparently no collector has yet found it there, these statements require confirmation.

72. **Melitograis gilolensis** (Bp.).

Tropidorhynchus gilolensis Bonaparte, *Consp. Av.* i. p. 349 (1850: Gilolo = Halmahera, descriptio pessima).

Batjan: Wallace, Guillemard, Platen, Doherty, Waterstradt. Waterstradt's birds are partly marked "5000—7000 ft.," while Doherty stated no elevation, consequently he must have got them in the lowlands.

(We have also a specimen shot on Morty by Dumas. It agrees perfectly with *M. gilolensis*, but is very small—wing only 97 mm. It is probably a *female*.)

73. **Zosterops atriceps** Gray.

Zosterops atriceps G. R. Gray, *P. Z. S.* 1860. p. 350 (Batjan).

Batjan: Wallace, Platen, Kükenthal, Doherty, Waterstradt, low country.

"Iris deep brown, feet pale leaden grey (flesh-colour, tinged with purplish), bill black, basal half of lower mandible yellow" (W. Doherty).

74. **Zosterops obstinatus** Hart.

Zosterops obstinatus Hartert, Nov. Zool. 1900. p. 238 (Batjan and Ternate, type from Batjan).

This form is nearest to *Z. buruensis*, from which it differs in the obviously more greenish, less golden olive, colour of the upper surface and edges to the quills, by the ear-coverts being green, of the same colour as the back, not darker and not tinged with brown, by the smaller loral black spot, and generally smaller dimensions.

Wing 57—60, in one 62 mm. Evidently the larger examples are *males*. The Buru birds have the wing from 58 (♀) to 62 and 64 mm. (♂).

A larger series from Ternate must be studied to make sure that the Ternate form is exactly the same as *Z. obstinatus* from Batjan. *Z. obstinatus* is a mountain form. Doherty found it on Batjan 4000 ft. high, on Ternate from 3000 to 4000. Waterstradt sent a large series from Batjan, obtained at elevations estimated to be between 5000 and 7000 ft.

75. **Criniger chloris** Finsch.

Criniger chloris Finsch, *J. f. O.* 1867. pp. 12, 36 ("Halmahera, typus, auch auf Batjan und Morotai").

Batjan: Wallace, Bruijn, Kükenthal, Platen, Vorderman, Doherty, Waterstradt. Specimens from Halmahera and Morty (Dumas coll.) cannot be separated.

76. **Pitta rufiventris** (Heine).*

Coloburis rufiventris Heine, *J. f. O.* 1859. p. 406 (loc. ignot. I substitute Batjan as the typical habitat).

Batjan: Wallace, Guillemard, Kükenthal, Platen, Doherty, Waterstradt.

Count Berlepsch's notion (*Abh. Senckenb. Ges.* xxv. 2. p. 313) that examples from Batjan had apparently a lighter red abdomen than Halmahera ones is not in the least confirmed by our series, and can only have been conceived from somewhat faded examples.

77. **Acrocephalus orientalis** (Temm. & Schleg.) (Migrant!)

Batjan: Wallace.

* Dr. Vorderman (*Natuurk. Tijdschr. voor Nederl. Indië* lviii. 2. p. 225. 1898) mentions having received a specimen of *Pitta maxima* from Batjan. Though it is possible that a specimen may fly over occasionally from the near Halmahera, we have been informed by various collectors that *Pitta maxima*, though common on Halmahera, does not occur on Batjan, and we may therefore safely presume that Prince Oesman, who sent some skins from Batjan to Dr. Vorderman after his departure from that island, added this beautiful *Pitta* to the collection, but that it was brought over from Halmahera, and not actually shot on Batjan.

78. **Locustella fasciolatus** (Gray) (Migrant).

Acrocephalus fasciolatus G. R. Gray, *P. Z. S.* 1860. p. 349 (Batjan !)

Batjan : Wallace, Platen, Waterstradt, ♂ ad., 4. v. 1899.

Also obtained on Morty (1 ad. and 2 juv.) by Dumas. (A migrant, winter visitor, from Northern Asia.)

79. **Phylloscopus borealis** (Blas.) (Migrant).

Batjan : Wallace, Platen, Doherty. (Migrant from Northern Asia.)

80. **Phyllergates everetti dumasi** Hart. (an subsp. nov. ?)

Phyllergates everetti dumasi Hartert, *Bull. B. O. Club* viii. p. 31 (1899 : Buru).

Two specimens obtained by Waterstradt's men on the mountains of Batjan, between 5000 and 7000 ft. above the sea, seem to be the same as *P. e. dumasi* from the mountains of Buru. The hindneck and ear-coverts appear to be rather slaty-greyish, and the lores rather dusky, but the two specimens are not very well prepared, and the evidence insufficient to found a new subspecies. In any case, whether true *dumasi* or not, the occurrence of the genus *Phyllergates* on the mountains of a second island in the Moluccas is of considerable interest. (Cf. Nov. Zool. 1900. p. 238.)

81. **Motacilla boarula melanope** Pall. (Migrant.)

Batjan : Meyer, Platen.

82. **Motacilla flava** L. (Migrant).

Batjan, av. jr., Platen. (Nehrkorn, *J. f. O.* 1894. p. 159.)

83. **Anthus gustavi** Swinh. (Migrant).

Batjan : Wallace, Guillemard.

84. **Munia molucca** (L.).

Batjan : Wallace, Platen, Kükenthal, Doherty.

85. **Erythrura trichroa modesta** Wall.

[*Fringilla trichroa* Kittlitz, *Mém. Acad. Petersb.* ii. p. 8. Pl. X (1835 : Kushai).]
Erythrura modesta Wallace, *P. Z. S.* 1862. p. 351 (Ternate).
Erythrura trichroa modesta Rothsch. & Hart., Nov. Zool. 1900. p. 6.

Batjan : Finsch, native collections.

86. **Sturnia violacea** (Bodd.) (Migrant).

One specimen was obtained by Wallace on Batjan, but nobody else has found it again in the Moluccan archipelago.

87. **Calornis metallicus** (Temm.)

Lamprotornis metallicus Temm., *Pl. Col.* 266 (1824 : Amboina).

Batjan : Wallace, Waterstradt (juv.).

88. **Calornis obscura** (Bp.)

Lamprotornis obscura Bonaparte (ex Forsten MS. in Mus. Lugd.), *Consp. Av.* i. p. 417 (1850 : Gilolo).

Batjan : Wallace, Bernstein, Guillemard, Platen, Vorderman, Doherty, Waterstradt.

89. **Corvus validus** Bp.

(*Antea* p. 14)

Batjan : Wallace, Bernstein, Platen, Kükenthal, Waterstradt (2).

(Dumas obtained a specimen on Morty.)

It is strange that nobody came across *C. orru* on Batjan, though on Morty both *C. orru* and *validus* were found.

90. **Lycocorax pyrrhopterus** (Bp.).

Corvus pyrrhopterus Bonaparte, *Consp. Av.* i. p. 384 (1850 : Gilolo).

The first collector to obtain this bird on Batjan was Dr. Platen. Dr. Vorderman shot two himself on Batjan. Doherty obtained a fine series of eight examples, and a few were shot by Waterstradt's hunters. There is no difference between the *males* and *females*, though some of the birds sexed " ♀ " are smaller than those marked " ♂." Doherty marked the iris in the *male* as " deep crimson," in the *female* as " dull crimson " ; bill and feet black in both sexes.

91. **Semioptera wallacii** Gould.

Paradisea wallacii Gray, *P. Z. S.* 1859. p. 130 (descr. nulla !)
Semioptera wallacii Gould, *B. Austr. Suppl.* Pl. III. (1859) and text. (Descr. princeps.)

Batjan : Wallace, Bernstein, Beccari, Guillemard, Vorderman, Platen, Kükenthal, Doherty, Waterstradt.

Doherty sent many specimens from the month of August 1897. They were then in full plumage, though more or less worn. Some young birds had already begun to moult into the plumage of the adults. Doherty marked the bare parts as follows : ♂ ad. : " Iris deep brown, feet orange and orange-red, bill pale brownish." ♀ : " Iris deep chestnut, feet bright orange-ochreous, bill purplish grey, brownish at base.

Semioptera wallacii halmaherae Salvad. is easily distinguished by the darker back and crown in both sexes, longer green elongated pectoral plumes, and darker green abdomen.

92. **Ptilinopus superba** (Temm.).

Batjan : Wallace, Bernstein, Platen, Kükenthal, Doherty, Waterstradt.

93. **Ptilinopus monacha** (Reinw.).

Batjan : Wallace, Bernstein, Platen, Kükenthal, Doherty.

(On p. 160, *J. f. O.* 1894, Mr. Nehrkorn quotes a *male* of *Ptilopus nanus* as having occurred on Batjan. The author informed me (in litt.) that this is an error, and most kindly sent the specimen for my inspection. It is a *female* (correctly sexed) obtained by Platen on Waigiu in January 1884. It agrees perfectly with *females* from New Guinea, but is much smaller. A series might show that Waigiu has a smaller form than Papua.)

94. **Ptilinopus hyogastra** (Reinw.)

Batjan : Wallace, Bernstein, Platen, Doherty, Waterstradt.

95. **Megaloprepia formosa** Gray.

Carpophapa (*Megaloprepia*) *formosa* G. R. Gray, *P. Z. S.* 1860. p. 360 (E. Gilolo).

Batjan : Bernstein, Doherty, Waterstradt.

Evidently a bird of the mountains. Wallace and Platen did not come across it on Batjan; Doherty got a single specimen, but Waterstradt sent a fine series from the mountains between 5000 and 7000 ft.

96 **Carpophaga perspicillata** (Temm.).

Batjan : Wallace, Bernstein, Platen, Kükenthal, Doherty.

97. **Carpophaga basilica** (Bp.).

Ducula basilica Bonaparte, *Consp. Av.* ii. p. 35 (1854, ex Temminck & Sundevall, MS., hab. Gilolo).

Batjan : Wallace, Bernstein, Guillemard, Platen, Kükenthal, Doherty, Waterstradt.

98. **Myristicivora bicolor** (Scop.).

♂ ad., Batjan, August 1897, W. Doherty coll.

This specimen, with outer primaries in moult, is a typical *M. bicolor*. In Nov. Zool. 1901. p. 116, Mr. Rothschild and I recorded also a young ♂, collected by Dr. Platen in Batjan, but erroneously, the specimen of Platen being a young *M. melanura*.

99. **Myristicivora melanura** Gray.

Carpophaga (*Myristicivora*) *melanura* G. R. Gray, *P. Z. S.* 1860. p. 361 ("Batchian and Gilolo," type in Brit. Mus. ex Batjan).

Batjan : Wallace, Bernstein, Platen, Waterstradt.

The ♂ juv., collected on Batjan 30. iii. 1893 by Dr. C. Platen, is a young *M. melanura*, as quite correctly recorded by Nehrkorn, *J. f. O.* 1894. p. 160. In the young *melanura* the outer rectrices are differently coloured than in the adult; the black is less intense, the white is less sharply separated and reaches farther towards the tip, the black patches on the vent are less developed. These peculiarities probably caused our erroneously recording Platen's bird as *M. bicolor*.

100. **Columba albertisii exsul** subsp. nov.

Mr. Waterstradt sent three specimens, one marked "♂," the other two marked "♀,"* of a Pigeon most closely allied to *Columba albertisii*,† but evidently with a slate-coloured instead of dark chestnut upper throat, darker slate-coloured crown and hindneck, longer wing, and perhaps darker breast. Unfortunately all three examples from Batjan are perhaps *females* or immature and more or less in moult,

* It is, however, probable that all three are *females*, and I believe that adult *females* of *C. albertisii* resemble the young.

† *Gymnophaps albertisii* Salvad., *Ann. Mus. Civ. Gen.* vi. p. 86 (1874: New Guinea); *Gymnophaps albertisii* auct.; *Columba albertisii* Rothsch. & Hart., Nov. Zool. 1901. p. 117.

and the young typical *albertisii* (? and *females*) having a slaty throat and being darker and clouded with grey underneath, these Batjan specimens closely resemble young typical *albertisii*. The young *C. albertisii albertisii*, however, have a rufous forehead, which is only to be seen in one of the Batjan specimens. Nevertheless, the fresh sprouting feathers on the upper throat being dark slate, I am convinced that they are always, throughout all ages, slate-coloured. The wings also are very long, though partly in moult, and the crown and hindneck to the interscapulium are conspicuously darker. Wings 216—220 mm. The greater size is the more remarkable, as we have probably no adult *male* yet from Batjan, and *females* of typical *albertisii* are smaller than *males*.

One of the Batjan examples is marked as having been shot 3000 ft. above the sea. The others have no elevation marked on the labels, and should therefore, if the labelling is done with care, have come from the lowlands.

The island of Batjan is, of course, quite out of the range of *Columba* (*Gymnophaps*) *albertisii*, which is only known from New Guinea (Papua) itself. Therefore (unless we believe that it has been introduced by Malays) the entirely new habitat alone should suggest that the Batjan race is different. In view of the occurrence of *Columba mada* Hart. on Buru (cf. *Bull. B. O. Club* viii. p. 33 and Nov. Zool. 1900. p. 241), the existence of another *Columba* still nearer *albertisii* on the Moluccas is not quite so surprising.

Type of *Columba albertisii exsul*: "♀" Batjan, June 1902, 3000 ft., No. B. 231, Waterstradt coll., in Mus. Rothschild, Tring.

101. **Columba halmaheira** (Bp.).

Janthaenas albigularis (nomen nudum, descr. nulla!) Bonaparte, *Compt. Rend.* xxxix. p. 1105, 1854.
Janthaenas halmaheira Bonaparte, *Consp. Av.* ii. p. 44 (1854: Gilolo, Ceram. Typical locality therefore Gilolo = Halmahera).

(It is incomprehensible to me that the name *albigularis*, published without an attempt at a description, could become generally accepted for this pigeon. In the *Consp. Av.* p. 44, Bonaparte names this bird *J. halmaheira*, and gives a sufficient diagnosis, mentioning that it is the *Carpophaga albigularis* Temm. *nec* Gray (*sic*) in Mus. Lugdun.)

Dr. Platen obtained this species on Batjan, where it seems to be rare (Nehrkorn, *J.f. O.* 1894. p. 160).

102. **Reinwardtoena reinwardtsi** (Temm.).

(Cf. Nov. Zool. 1900. p. 241, 1901. p. 126).

Batjan: Wallace, Bernstein, Powell & Guillemard, Platen, Waterstradt.

103. **Macropygia amboinensis batchianensis** Wall.

(Cf. Nov. Zool. 1901. p. 124).

Batjan: Wallace, Bernstein, Beccari, Platen, Doherty (4000 ft.), Waterstradt.

104. **Chalcophaps indica** (L.).

Batjan: Wallace, Bernstein, Platen, Doherty, Waterstradt.

105. **Caloenas nicobarica** (L).

Batjan: Wallace, Platen.

106. **Megapodius freycinet** Quoy et Gaim.

Batjan: Wallace, Bernstein, Guillemard, Kükenthal, Platen, Doherty, Waterstradt.

107. **Eulipoa wallacei** (Gray).

Megapodius wallacei G. R. Gray, *P. Z. S.* 1860. p. 362 (E. Gilolo).

Batjan: Finsch, Rosenberg.

108. **Rallina fasciata** (Raffl.).

Batjan: Platen (Nehrkorn, *J. f. O.* 1894. p. 160).

109. **Gymnocrex plumbeiventris** (Gray).

Batjan: Platen (Nehrkorn, *J. f. O.* 1894. p. 160).

110. **Poliolimnas cinereus** (Vieill.).

Batjan: Platen (Nehrkorn, *J. f. O.* 1894. p. 160).

111. **Amaurornis moluccana** (Wall.).

Batjan: Platen, Kükenthal. A specimen in the Genoa Museum has only a dealer's (Frank's) locality, and might just as well have come from another island.

112. ? **Glareola orientalis** Leach.

Batjan: fide Finsch (*Neuguinea* p. 181). Dr. Finsch states that *G. orientalis* occurs on Ternate, Halmahera, Batjan, and Amboina, all islands where it has not been found by any collector I know of. It is therefore probable that there is some mistake about this statement.

113. **Strepsilas interpres** (L.).

Batjan: teste Finsch (*l.c.*). Although the occurrence on Batjan rests, I believe, only on Dr. Finsch's statement, it is almost sure to occur there, since it visits nearly every island in the Eastern archipelago.

114. **Charadrius fulvus** Gm.

Batjan: Bernstein, Platen.

115. **Aegialites geoffroyi** (Wagl.).

Batjan: Bernstein, Platen.

116. **Tringoides hypoleucos** (L.).

Batjan: Wallace, Bernstein, Beccari, Platen, Waterstradt.

117. **Heteractitis incana** (Gm.).

Batjan: Wallace, Bernstein.

118. **Numenius phaeopus variegatus** (Scop.).

Batjan: Bernstein, Beccari, Platen.

119. **Numenius minutus** Gould.

Batjan: teste Wallace.

120. **Neoscolopax rochussenii** (Schleg.).

This most interesting woodcock (or snipe) has hitherto only been known with certainty from Obi Major, but Mr. Waterstradt has sent a skin, marked " ♀ " on the label, from Batjan, where it was shot in August 1902. It agrees fully with our skin from Obi (ex Lucas), but is not such a fine skin, being much shot on the wings, flanks, and belly. It is not stated at what altitude it was obtained, but this bird must be a mountain bird, or it would be less rare in collections, and we know that most of Mr. Waterstradt's birds were taken in the mountains. (*Antea*, p. 17.)

121. **Gallinago megala** Swinh. (Migrant.)

Gallinago megala Swinhoe, *Ibis* 1861. p. 343 (Amoy).

Batjan : Wallace, Bernstein, Platen.

122. **Ardea sumatrana** Raffl.

Batjan : Wallace, Bernstein.

123. **Demiegretta sacra** (Gm.).

Batjan : teste Finsch.

124. **Bubulcus coromanda** (Bodd.).

Batjan : Wallace (Mus. Brit.).

125. **Butorides stagnatilis** (Gould).

Ardetta stagnatilis Gould, *P. Z. S.* 1847. p. 221 (Port Essington).

I have no doubt that the bird mentioned as found on Batjan by Platen under the name of *Butorides javanica* (Nehrkorn, *J. f. O.* 1894. p. 161) is *B. stagnatilis*, this being the form occurring on Halmahera, Obi, etc.

126. **Dupetor flavicollis gouldi** (Bp.) (?).

[*Ardea flavicollis* Latham, *Ind. Orn.* ii. p. 701 (1790: India).]
Ardetta gouldi Bonaparte, *Consp. Av.* ii. p. 132 (1857 : Australia).

Batjan : Wallace, Platen, Doherty, Waterstradt.

These *Dupetor* (or perhaps better *Xanthocnus* Sharpe) are very puzzling, and Dr. Sharpe's treatment (*Cat. B. Brit. Mus.* xxvi. pp. 246—251) is not quite satisfactory. One thing is certain : *D. flavicollis flavicollis* (India to China, etc.) has the upper throat always spotted with rufous (red), while the birds from Celebes, the Moluccas, New Guinea, and Australia have it spotted with blackish, deep brown or brown. Therefore at least one form must be separated from *flavicollis*, and the oldest name is *gouldi*, based on Australian specimens. Dr. Sharpe separates further a form which he calls *nesophilus* from Duke of York Island (and New Britain), while he calls all his examples from the Moluccas "*Dupetor melas*." This is, in my opinion, more or less incorrect. First of all, I am doubtful if the Australian form (with pale abdomen) is separable from that inhabiting Celebes, the Moluccas, New Guinea, and Duke of York Islands, which are doubtless all one and the same form—at least so far as we can make out from the material available in the British and Tring Museums. It is said that Australian examples have a paler abdomen, but it is, I believe, doubtful if this is not due to age or season. If Australian specimens differ constantly, then we have :

Dupetor flavicollis flavicollis, India to China and Malayan Islands.

Dupetor flavicollis nesophilus, Celebes, Moluccas, New Guinea and neighbouring islands.

Dupetor flavicollis gouldi, Australia.

The Batjan bird would in this case not be *D. f. gouldi*, but *D. f. nesophilus*. Dr. Sharpe wrongly includes Celebes in the range of typical *flavicollis*.

Then there is *D. melaena* * (Salvad.). This is possibly a melanistic aberration, or a different species. In no case, however, can it be correct to unite all Moluccan specimens under the name of *melaena*, as very few of them are all over black, while classing the Celebes (Sanghir) form with *flavicollis*, because not only are the (usual) Sanghir birds indistinguishable from those found on the Moluccas, but as the typical locality of *melaena* Sanghir must be taken.

The dark form (or species), *Dupetor melaena* (Salvad.), is known from Sanghir and the Moluccas. We have one collected by Dumas on Morty, and it will probably occur on Batjan as well.

127. **Nycticorax caledonica** (Gm.).

Ardea caledonica Gmelin, *Syst. Nat.* ii. p. 626 (1788: Nova Caledonia).

Batjan: fide Finsch, Platen.

128. **Dendrocygna guttulata** Wall.

Dendrocygna guttulata Wallace, *P. Z. S.* 1863. p. 36 (Buru, Ceram, Celebes—type: Buru, in Brit. Mus.).

Batjan: fide Finsch et Platen coll.

129. **Tadorna radjah** (Garn.).

Anas radjah Garnot, *Voy. Coq. Zool.* i. 2. p. 602. Pl. 49 (1826-28: Buru).

Batjan: Wallace, Platen, Waterstradt.

130. **Fregata ariel** (Gould).

Batjan: Bernstein, Platen. (Probably the recorded occurrence of *F. aquila* at Batjan should also be referred to *F. ariel* ?).

131. **Microcarbo sulcirostris** (Brandt).

Batjan: Wallace.

132. **Microcarbo melanoleucus** (Vieill.).

Batjan: Wallace.

133. **Sterna bergii** Licht.

Batjan: Wallace, Bernstein.

134. **Sterna melanauchen** Temm.

Batjan: fide Finsch.

135. **Podiceps tricolor** Gray.

Batjan: fide Finsch.

* *Ardetta melaena* Salvadori, *Atti R. Acad. Sci. Torino* xiii. p. 1187 (1878: Sanghir; Halmahera Typical locality Sanghir!).

NOTES ON PAPUAN BIRDS.

By the Hon. WALTER ROTHSCHILD, Ph.D., and ERNST HARTERT.

(*Continued from* Vol. VIII., 1901).

VII. PARADISEIDAE.

(Plate I.)

(For the localities mentioned in this article see "Introduction," Nov. Zool. 1901. pp. 55—61, and the maps, Pls. II. and III., in the same volume of our Journal.)

As by far the largest number of the *Paradiseidae* inhabit the Papuan Region, and as they are made a speciality, and in consequence are exceptionally well represented in the Tring Museum, we have thought it of interest to record the whole series of this family at present in our possession. Eighty-seven forms out of 96 recognised forms are represented in the collection by 1292 skins. It will be seen that in a few cases we have departed slightly from the nomenclature adopted in the *Tierreich*. These alterations were mostly necessitated by new knowledge gained through the numerous accessions to the collection since 1898. They affect the genera *Ailuroedus*, *Chlamydera*, *Manucodia*, *Phonygammus*, and *Lycocorax*.

The following forms were based on unique specimens, and no further skins have become known:

1.	*Chlamydera lauterbachi* Rchw.	Berlin Museum.
2.	*Parotia duivenbodei* Rothsch.	Tring „
3.	*Loborhamphus nobilis* Rothsch.	„ „
4.	*Janthothorax bensbachi* Bütt.	Leyden „
5.	*Janthothorax mirabilis* (Rchw.).	Tring „
6.	*Paryphephorus duivenbodei* (Mey.)	Dresden „
7.	*Drepanornis albertisi geisleri* (Mey.)	„ „
8.	*Falcinellus astrapioides* (Rothsch.)	Tring „
9.	*Cicinnurus lyogyrus* Currie.	U. S. National Museum.
10.	*Paradisea maria* Rchw.	Berlin Museum.

With the exception of Nos. 1, 5, 7, and 10, all these uniques are trade skins received from natives, like so many other of the finest *Paradiseidae*, such as *Falcinellus ellioti*, *Loboparadisea sericea*, *Pteridophora alberti*, *Parotia carolae*, *Amblyornis flavifrons*, *Astrapia splendidissima* and others; and it is therefore evident that the main stronghold of *Paradiseidae* in Dutch New Guinea is yet untrodden by Europeans.

1. **Ptilonorhynchus violaceus** (Vieill.)

We have one adult *male* and one young *male* from the Dandenong Range, Victoria, November 1874, A. von Hügel coll.; one young *male* without locality which differs from the one from the Dandenong Range in having the sides of the neck more uniform and the throat and foreneck with much smaller pale spots. Further: five adult *males* and four adult *females* without exact localities. This species, being restricted to Australia, does not, of course, occur in New Guinea.

2. **Ailuroedus viridis** (Lath.).

We have two *males* and two *females* without exact localities.

3. **Ailuroedus maculosus** Rams.

"♂" "♀," Cedar Bay, Queensland, 6. v. 1893. A. S. Meek coll.

♂, Bellenden Ker Range, 22. xi. 1899. "Iris red, feet slate-grey, bill bluish white." Olive coll.

♂♀, Mt. Sapphire, Cairns district, 24. 30. x. 1899. "Food fruit." Olive coll.

4. **Ailuroedus stonei** Sharpe.

3, British New Guinea, 1879. A. Goldie coll.

3, Brown River, British New Guinea, 1898. Emil Weiske coll.

1, Mt. Cameron, Owen Stanley Range. A. S. Anthony coll.

1, Mt. Cameron, 5000—6000 ft. A. S. Anthony coll.

1, Upper Brown River, British New Guinea, purchased in London.

5. **Ailuroedus buccoides buccoides** (Temm.)

1, Waigiu, from Bruijn's hunters.

1, near Dorey, Powell coll.

5 without exact locality, trade skins, probably from the Beran Peninsula, all with rather darker more or less olive-brown crowns, and therefore typical *buccoides*.

"♀," "Côte septentrion., long. 126° 30′—137° E.," ex Bruijn. This is an immature bird, with dark brown bill, an olive-brown crown with pale mesial stripe. It agrees well with typical *buccoides*.

"♂," "New Guinea, long. 139° E.," obtained by Guillemard from Bruijn's hunters. This specimen agrees best with *buccoides*.

6. **Ailuroedus buccoides geislerorum** Mey.

5 specimens, apparently from Bruijn's hunters, without definite locality, evidently not different from typical *geislerorum*.

"♂" ad., Côte septentrion., long. 136° 30′—137°, from Bruijn. This specimen is not distinguishable from typical *geislerorum*.

2 ♂ ad., Takar, October 1896. "Iris crimson, feet pale slate-grey, claws darker, bill dull bluish white." W. Doherty.

"♂," Takar, October 1896. Doherty coll. Apparently less adult, crown darker and tinged with green, the feathers being quite green towards the base.

2, Konstantinhafen, German New Guinea, February 1894. Capts. Cotton & Webster coll.

♂ ad., Butaneng, German New Guinea, October 1891. Geisler coll.

♂♀, Stephansort, German New Guinea, December 1898, January 1899. "Iris roth." E. Nyman coll.

2 ♂♂, Simbang, Huon Gulf, August and September 1899. "Iris roth." E. Nyman coll.

3, Simbang, February 1894. Capts. Cotton & Webster coll.

1 ♂, 2 ♀♀, Collingwood Bay, June 1897 and June 1899. "Iris ♂ bright red, ♀ chocolate-brown and bright red, feet pale slate-blue, bill pale slate-bluish (light stone-colour, ivory-white with bluish tip)." A. S. Meek coll.

The eastern form of *A. buccoides*, *A. b. geislerorum* Mey., is closely allied to *A. b. buccoides*, differing only in its lighter, more cinnamon-brown crown, and frequently (though not constantly) larger black spotting of the chest. No other differences seem to be constant. Young birds of both forms, recognisable by their blackish bills, have a darker, more olive crown, with a more or less marked, paler, irregular mesial line. While examples from the Berau Peninsula and Waigiu (typical *buccoides*) are easily distinguishable from typical *geislerorum* from Kaiser Wilhelm's Land and Collingwood Bay, those coming from the north coast of New Guinea, east of Geelvink Bay, are somewhat puzzling. The specimen from Takar (Doherty) cannot be separated from *geislerorum*, while those coming from Bruijn's hunters, said to be from the same neighbourhood, *i.e.* from the north coast between long. 136° and 137° E., agree partly better with *buccoides*, partly with *geislerorum*. It is not impossible that one or the other of these has the locality erroneously marked, but it is also possible that they all should be united with *geislerorum*, as those which are more like adult *buccoides* may be immature *geislerorum*.

7. **Ailuroedus melanotis melanotis** (Gray).

♂ ♀ ad., Maikor, Aru Islands, July 1897. Capt. Cayley Webster coll. "Iris red, feet and bill greyish."

♂ ♀, Trangan, Aru Islands, September 1900. "Iris brownish red (coffee-brown, feet greyish, bill horny white" Kühn coll.

♂, Kobroor, Aru, August 1900. H. Kühn coll.

♂ ♀, Wokan, Aru, October 1900. H. Kühn coll.

8. **Ailuroedus melanotis melanocephalus** Rams.

♀, Mailu district, British New Guinea, July 19, 1895. A. S. Anthony coll.
♀, Mt. Cameron, 6500 ft., July 31, 1896. " " "
2 ♂♂, Mt. Cameron, 5000—6000 ft., August 1896. " " "
1, Mt. Cameron, 5000—6000 ft. " " "
2, Mt. Victoria, 5000—7000 ft., April—June 1896. " " "
1, Mts. British New Guinea (A. S. Anthony coll., according to make).
4, Mts. British New Guinea. Emil Weiske coll.

9. **Ailuroedus melanotis arfakianus** Mey.

3 from Bruijn's hunters, no exact locality.

1 purchased from Mr. Dunstall in London, no exact locality.

1 purchased from Mr. van Duivenbode, no exact locality.

1 purchased from Mr. van Duivenbode, said to be from Jobi, which is most likely erroneous. Type of *A. jobiensis* Rothsch.

1 "♂," Mt. Moari, near Humboldt Bay, January 1899. "Iris dark brown." J. M. Dumas coll. This specimen differs from the other specimens by the spots on the head and hindneck being white instead of buff, and having the throat and chest very dark.

In the *Tierreich* (p. 7) one of us treated this form as specifically distinct from *A. melanotis*; but having examined so many more specimens, he is now convinced that it can only be treated as a subspecies, though being much more distinct from the two other forms of *A. melanotis* than they are from one another.

10. **Scenopoeetes dentirostris** Rams.

4, Russell River, Queensland, February 1895 and June 1891. Day coll.
(This species is only found from Cooktown to the Herbert River in Queensland).

11. **Chlamydera cerviniventris** Gould.

1 ♀, Cape York, N. Queensland, July 28th, 1898. A. S. Meek coll. "Iris brown, bill black, feet greenish slate."

1 ♂, Friedrich-Wilhelmshafen, German New Guinea. Biro coll. January 23rd, 1896.

1, German New Guinea.

2 ♂♂, 1 ♀, Mailu district, British New Guinea, July—August 1895. A. S. Anthony coll.

♂ ♀, Collingwood Bay, British New Guinea, June—July 1897. A. S. Meek coll.

♂ ♀, Naiabui, British New Guinea. D'Albertis coll.

♀, Milne Bay, S.E. New Guinea, 17. i. 1899. "Iris brown, feet light bluish slate, bill black." A. S. Meek coll.

12. **Chlamydera maculata** Gould.

♂, New South Wales. A. von Hügel coll., 1874.

2 ♂ ad., North Queensland. A. S. Meek coll.

3 ♂♂, without locality.

♂ from Zoological Gardens, London, received 26. v. 1899, died December 1899.

13. **Chlamydera guttata** Gould.

♂ ad. without locality, received from Mr. Le Souef.

14. **Chlamydera nuchalis nuchalis** (Jard. & Selby).

♂ ad., Brock's Creek, Northern Territory, Australia, 2. viii. 1902. "Iris and feet brown, bill black." J. F. Tunney coll.

♂ ♀ ad., Burundi, Northern Territory, Australia, 28. vii. 1902. J. F. Tunney coll.

♂ ♀, Negri River, Kimberley district, W. Australia, 23. v. 1902. J. F. Tunney coll.

♂, Mt. Anderson, W. Australia, 31. x. 1901. J. F. Tunney coll.

♂, Katherine River, North Australia. J. F. Tunney coll.

♂, Broome, W. Australia, February 1899. J. F. Tunney coll.

♀, Fitzroy River, Kimberley, W. Australia, August 1898. J. F. Tunney coll.

3 ♂ ad., ♀ pull., Derby, W. Australia. Hall coll. The pullus has a dull ashy grey head and neck, the upperside with subterminal white spots, the underside irregularly barred with dirty white.

15. **Chlamydera nuchalis orientalis** Gould.

♂, Port Denison, Queensland.

3 ♂♂, Cooktown, Queensland. Olive coll., June 1899. "Iris white, feet greenish slate, bill black."

2 ♀♀, without locality.

When one of us, in 1898, wrote the *Paradiseidae* of the *Tierreich*, he had seen

very few specimens, and relied more on the published differences between *C. nuchalis* and *C. orientalis* than on material, of which very little was available. These differences were then thought not to be reliable. However, as is seen above, we have since received a fine series of both forms, which, after all, prove to be well distinguishable subspecies. *C. nuchalis orientalis* differs from *C. nuchalis nuchalis* by its constantly smaller size, darker ground-colour on the upper surface, more mottled crown, total absence, in both sexes and all ages, of the dark crossbar in the white tips to the secondaries, and the white instead of brown iris. *C. nuchalis nuchalis* inhabits the western and northern parts of Australia, west of the Gulf of Carpentaria ; while *C. nuchalis orientalis* is only found in Queensland.

16. **Xanthomelus aurea** (L.)

We have no specimen with any data, but all our 14 examples are round skins of Malay make, and are doubtless all from Dutch New Guinea. They are as follows :

4 ♂ ad., 5 ♂ immat., 3 ♂ juv., and 2 *females*.

17. **Amblyornis inornatus** (Schleg.)

It still remains a mystery why for more than twenty years the full plumaged *male* remained unknown, while of *A. subalaris* the adult *male* was discovered before the *female*. We have a remarkably fine series of this species, namely :

18 from the Arfak region, 2 said to be from " Northern New Guinea " and 15 from British New Guinea. Of the 18 Arfak skins 10 are full-crested *males*, 1 a *male* without crest, 7 *females* ; both the birds from " Northern New Guinea " have full crests. The 15 from British New Guinea are as follows : 10 full-crested adult *males*, Mts. Victoria and Cameron, 5000—7000 ft., and the Eafa district, 5000—6000 ft., collected by Anthony, and from the Upper Aroa River, 5000 ft., Emil Weiske coll. ; 5 *males* without crests from the same localities.

18. **Amblyornis subalaris** Sharpe.

Only known from the mountains of British New Guinea. We have the following specimens :

11 full-crested adult *males*, 6 from the Eafa district (5000—6000 ft.), 1 from between the Laroki and Vanapa rivers, 2 from Mt. Cameron, 1 without exact locality, 1 abnormally dark specimen from Mt. Victoria, 8 uncrested *males* and *females* from the same localities (Anthony and Weiske colls.), and 1 from the Moroka district, 5000 ft., November 1885, H. O. Forbes coll.

19. **Amblyornis flavifrons** Rothsch.

The *female* of this species is not yet known, and our three adult *males* are the sole recorded specimens.

20. **Sericulus melinus** (Lath.).

1 ♂ ad., Richmond River, Queensland. Cockerell coll., 1874.
4 ♂ ad. without exact locality.
1 ♂ juv., N.S.W., 1 ♀ without locality.

21. **Prionodura newtoniana** De Vis.

5 ♂ ad., 1 ♂ juv., 3 ♀ ♀, Mt. Bartlefrere, Queensland, September and November 1891, March and July 1896. "Iris greyish yellow." Day coll.

1 ♂ juv., Bellenden-Ker Range, 5000 ft., 5. i. 1900. Olive coll. "Iris yellowish white, feet greenish slate, bill brown."

22. **Loboparadisea sericea** Rothsch.

The type and two similar specimens in the Tring Museum are still all that are known of this remarkable species. Its exact locality is not yet known.

23. **Cnemophilus macgregori** De Vis.

1 ♂ ad., 1 ♂ juv., 5 ♀, Mt. Owen Stanley, 3000—7000 ft. Mostly Anthony coll.

3 ♂ ad., 2 ♂ juv., 1 ♀, Mt. Knutsford, 11,000 ft., August 1898. Anthony coll. "Eye pale grey, bill and feet brown."

1 ♂ ad., between Mts. Musgrave and Scratchley, 5000—6000 ft.

3 ♂ ad., 1 ♀, Mt. Scratchley, up to 8000 ft.

24. **Loria loriae** Salvad.

1 ♂ ad., 1 ♂ juv., Mt. Owen Stanley, 5000—7000 ft. Anthony coll.

1 ♂ ad., Kaiari district, Owen Stanley Range. Native name "Kunuku-Paiva." "Iris brown, feet dark green, bill black." Anthony coll.

1 ♂ ad., Moroka district, 3000—6000 ft. Anthony coll.

3 ♂ ad., Aroa River, 5000 ft. Emil Weiske coll. "Iris schwarz, Füsse dunkelgrün, Schnabel schwarz, Schnabelhaut weiss." ("Schnabelhaut" is evidently intended for the fold-like wattle at the gape.)

1 ♀, Eafa district, 5000—6000 ft. Anthony coll.

5 ♂ ad., 1 ♂ juv., 6 ♀ ♀, Mt. Cameron, 7000 ft., Anthony coll.

3 ♂ ad., native-made skins, evidently from Dutch New Guinea, received from Mr. van Duivenbode.

Dr. Sharpe, in his "Monograph of the *Paradiseidae*," rather unwarrantably left the question of the identity of *Loria loriae* Salvadori and *Cnemophilus mariae* De Vis open. We consider that at the time when he wrote his "Monograph" he had access to a quite sufficient number of specimens to decide this question. However, we have since examined not only the 24 specimens in the Tring Museum, but quite a number of others as well. There can be no doubt that *Cnemophilus mariae* is the fully adult *male* and *female* of *Loria loriae*. The apparent presence or absence of the fold-like wattle at the gape is entirely due to the preparation of the skin, though Count Salvadori's bird, being apparently young, may have shown it slightly more than most of the skins that came afterwards.

25. **Paradigalla carunculata** Less.

3 ♂ ad., 2 ♂ juv., 2 ♀ ♀, Dutch New Guinea.

26. **Macgregoria pulchra** De Vis.

10 specimens from Mt. Scratchley, native coll., purchased from McIlwraith and McEacharn.

27. **Parotia sefilata** (Penn.).

3 ♂ ad., Arfak Mountains, from the Guillemard collection. A label in Powell's handwriting gives: "Bill black, iris blue, with a narrow inner ring of yellow."

2 ♂ ad., 9 ♂ immat., without exact localities.

1 ♂ imm., 2 ♀ ad., Hatam, Arfak Mts., Beccari coll., June and July 1875, specimens "m^4, n^4, k^5."

28. **Parotia lawesi** Rams.

8 full-plumaged adult ♂♂, Eafa district, 5000—6000 ft. Anthony coll. "Eye dark blue, feet and bill black." (By "eye" the pupil is apparently meant.)

2 *males* in moult, Eafa district, 5000—6000 ft. Anthony coll.

3 full-plumaged *males*, 1 ♂ in moult, 2 ♀ ad., Oriori district. Anthony coll.

1 ♂ immat., Mt. Owen Stanley. Anthony coll.

1 ♀, between rivers Laroki and Vanapa. E. Weiske coll.

1 ♂, 1 ♀, without exact locality.

3 full-plumaged *males*, Mt. Scratchley. Anthony coll.

10 full-plumaged adult *males*, 2 ♂ juv., 1 ♀, Mt. Cameron. Anthony coll. "Iris yellow, feet dark brown, bill black."

29. **Parotia helenae** De Vis.

One adult *male* from Mt. Scratchley, evidently one of Anthony's skins. It will require a series to determine the exact position of this bird, but we are inclined to think that it is a local aberration, only known from Mt. Scratchley.

The only difference from *P. lawesi* is the entirely dark forehead without any white, and the apparently greater breadth and fulness of the nasal crest.

30. **Parotia carolae** Meyer.

18 adult *males*, 7 immature *males*, and two *females*, from Dutch New Guinea, from Mr. van Duivenbode.

We believe that the statement is correct that this species comes from the mountains near the Ambernoh River. The late Mr. Doherty certainly ascertained that the *Pteridophora* came from there, and it is hardly a coincidence that *Parotia carolae* and *Pteridophora* always came together.

31. **Parotia berlepschi** Kleinschm.

This species can at once be distinguished from *P. carolae* by the coppery instead of black hindneck and interscapulium, the black chin and throat, and black edges to the front part of the crest.

We have only two immature *males*, which, however, show the differences clearly. The "make" of these skins differs entirely from that of all the *P. carolae* we have seen. The "make" of the *P. carolae* agrees remarkably with that of *Amblyornis inornata*, *Loboparadisea sericea*, and our three above-mentioned *Loria loriae*, while the *P. berlepschi* are much better skins, like the type of *P. duivenbodei*. These latter are of the familiar make of Bruijn's hunters, such as the late Ali and others.

32. **Parotia duivenbodei** Rothsch.

Parotia duivenbodei Rothschild, *Bull. B. O. Club* x. p. c (May 1900 : " Dutch New Guinea").

♂ ad. Pectoral shield more extended and of a different shape, structure, and colour to that of either *Parotia sefilata*, *P. lawesi*, or *P. helenae*. The shield, in fact, consists of a much larger number of rows of small and narrow feathers, and they are less smooth than in the other species of *Parotia*. The ruff on the sides of the neck does not extend so far across the throat, and in consequence the metallic feathers of the pectoral shield itself reach farther up on the throat, gradually diminishing in size and number. The black central shaft-patches on the lateral feathers of the shield are narrower and much less numerous. The colour of the pectoral shield is glittering metallic green ; a few of the feathers on the edges of the shield are margined with blue, whereas in the three allied species the shield is of a brilliant coppery greenish golden colour. There is no long erect tuft on the forehead, and the crest of feathers on the head is scarcely developed. The glittering occipital band of the other species of *Parotia* is replaced by a large triangular and somewhat wedge-shaped shield of metallic bluish green feathers, extending from between the eyes to the occiput. The colour of the head is of the same deep glossy purple as on the rest of the upper surface, **not** glossed with oily brown. The first and second primaries are less abruptly emarginate than in the allied species.

There is in the type-specimen only one thread-like long racketed plume on each side. We have not been able to find traces of any more, but further researches must show whether *P. duivenbodei* has the usual number of three such plumes on each side of the head, or only one. Wing 150 mm., tail 115, tarsus 38, culmen 34.

The unique specimen in the Tring Museum is a good skin, which came somewhere from the northern part of Dutch New Guinea. It was bought from Mr. van Renesse van Duivenbode, after whom it is named.

33. **Lophorina superba** (Penn.).

8 ♂ ad., 5 ♂ immat., 1 ♀, from the Arfak Mountains.

34. **Lophorina minor** Rams.

8 full-plumage adult *males*, 1 ♂ in moult, 2 ♂ juv., 3 ♀, Eafa district. Anthony coll.

3 full-plumaged adult *males*, 1 ♂ in moult, 1 ♂ juv., Oriori district. Anthony coll.

1 ♀ juv. without exact locality.

8 full-plumaged adult *males*, 4 ♂ juv., 4 ♀, Mt. Cameron. Anthony coll.

Perhaps better regarded as a subspecies of *superba*.

35. **Loborhamphus nobilis** Rothsch. (Plate I.).

Loborhamphus nobilis Rothsch., *Bull. B. O. Club* xii. p. 34 (December 1901).

In general appearance this remarkable bird resembles somewhat the genus *Lamprothorax*, but it has a long wedge-shaped tail, of the shape of the tail of an *Astrapia*, though shorter. Perhaps the most peculiar character is the presence of two light-coloured fleshy folds on the basal third of the bill, forming two short wattles on each side.

We find a very similar arrangement in *Loria loriae*. The pectoral shield is

MACGILLIVRAYORNIS NOBILIS Rothsch.

Mintern Bros. imp.

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shaped as in *Lamprothorax*, but the pectoral tufts are longer and somewhat curved, similar to those of *Falcinellus*, though smaller. Nuchal frill less developed than in *Lamprothorax*.

♂ ad. Crown purple; neck, back and rump velvety black, with a bronze gloss. Wings and tail black, with a purple sheen on the exposed webs. Sides of head and neck black, with a strong coppery bronze lustre. Chin and throat deep bronzy green. Pectoral shield shining purple, with violet reflections in certain lights; most of the feathers of the lateral tufts with shining metallic blue borders. Below the pectoral shield an ill-defined bronzy green band. Abdomen black with a purple wash. Bill and feet black. Wing 165 mm., tail 154, lateral pair of rectrices 105, bill from gape 37, culmen 32, rostrum from nostrils 21·5, tarsus 44.

The unique specimen in the Tring Museum is a perfect, good, somewhat flattened skin, bought from Duivenbode, who received it from Northern Dutch New Guinea.

36. **Pteridophora alberti** Mey.

The *female* of this wonderful bird is not yet known.

10 adult and 2 immature *males*, received direct or indirect through Mr. van Renesse van Duivenbode.

37. **Lamprothorax wilhelminae** Mey.

One adult *male*, without exact locality, purchased from Mr. van Renesse van Duivenbode in February 1898.

38. **Janthothorax mirabilis** (Rchw.).

1 adult *male* (type of the species), near Friedrich Wilhelmshafen, German New Guinea. (Cf. *Bull. B. O. Club*, January 1903.)

39. **Ptilorhis paradisea** Swains.

4 ♂ ad., 1 ♂ juv., 4 ♀♀, all without exact locality.

2 ♀♀, Richmond River, S. Queensland, 1874. Cockerell coll. (ex Baron von Hügel).

40. **Ptilorhis victoriae** Gould.

2 ♂ ad., 2 ♀♀, North Barnard Island, Queensland, October 1888. "Iris very dark hazel, feet and bill black." Barnard coll. (ex Meek).

1 ♂ ad., 1 ♀, 1 ♂ juv., without exact locality.

1 ♂ ad., Mt. Bartlefrere, 1. vi. 1900. Olive coll. "Iris brown, feet and bill black."

1 ♂ ad., 1 ♀ ad., received from A. S. Meek, marked "Cedar Bay," evidently Barnard's skins.

41. **Ptilorhis magnificus** (Vieillot).

1 ♂ ad., 1 ♂ juv., bought from natives at Waropen, Dutch New Guinea, by W. Doherty.

1 ♂ ad., Sarmi, opposite the Arimao Islands, north coast of Dutch New Guinea, bought from natives by W. Doherty.

1 ♂ ad., Triton Bay, 24. vii. 1896. Cayley Webster coll.
2 ♂ ad., Etna Bay, August 1896. Cayley Webster coll.
1 ♂ ad., 1 ♂ juv., 1 ♀, Dorey, bought from natives by W. Doherty.
1 ♂ ad. in moult, Kapaur, December 1896. W. Doherty coll.
2 ♀♀, Andai, Bruijn's hunters, 1874 (Nos. *g'* and *k' Orn. Pap.*).
1 ♂ immat., Mt. Moari, near Humboldt Bay, January 1899, Dumas coll.
3 ♂ ad., 5 ♂ juv., 4 ♀♀, without exact locality.
1 ♂ ad. without locality, with one white secondary and several white upper wing-coverts.

42. **Ptilorhis intercedens** Sharpe.

4 ♂ ad., 3 ♂ imm., 1 ♀, Simbang, German New Guinea. Capts. Cotton & Webster coll.
1 ♂ ad., Simbang, German New Guinea. Dr. E. Nyman coll.
2 ♂ ad., 1 ♂ juv., "Finisterre Mountains," German New Guinea. Capts. Cotton & Webster coll.
1 ♂ ad., 1 ♂ juv., 2 ♀♀, Mt. Cameron, 2000—6000 ft., October 1896. A. S. Anthony coll.
6 ♂ ad., Mailu district, July—August 1895. A. S. Anthony coll.
1 ♂ ad., Eafa district, 5000—6000 ft., October 1895. A. S. Anthony coll.
2 ♂ ad., Brown River, 1898. Emil Weiske coll.
1 ♂ ad., Nicura. Lix coll.
1 ♂ ad., "west of Port Moresby" 1896. A. S. Anthony coll.
2 ♂ juv., 2 ♀♀, Milne Bay, March 1899. A. S. Meek coll. "Iris brown, feet slate, bill black."

43. **Ptilorhis alberti** Ell.

1 ♂ juv., Cape York, collector unknown.
2 ♀♀, Cape York, July 1898. Eichhorn coll. (ex Meek).
1 ♀, Cape York. Cockerell coll., 1875 (ex von Hügel).
1 ♂ juv. without label.

44. **Ptilorhis mantoui** (Oust.).

This species varies in the amount of white on the flank plumes, under tail-coverts and crissum, the white colour being sometimes quite obsolete on either of these parts. We have the following specimens:
5 ♂ ad., round (Malayan make) skins.
2 ♂ ad., flat (Papuan) skins.

45. **Drepanornis albertisi albertisi** (Scl.)

4 ♂ ad., 1 ♀, without indication of locality.
1 ♂ ad., "Arfak Mts." (Ex coll. Guillemard.) On the label: "Iris violescent brown, bill black, feet lead-colour."
1 ♂ ad., bought at Wandammen, Dutch New Guinea, by W. Doherty.
1 ♂ juv., "Arfak" (? dealer's label).
(*Drepanornis albertisi geisleri* Mey. is not yet represented in the Tring Museum. It is still resting on a single specimen, from the Sattelberg in German New Guinea, in the Dresden Museum.)

46. **Drepanornis albertisi cervinicauda** Scl.

6 ♂ ad., 1 ♀, Eafa district, between Mts. Alexander and Bellamy, 5000—6000 ft., October 1895. A. S. Anthony coll.

♂ ad. in moult, ♂ immat., Oriori district, British New Guinea, January 1896. A. S. Anthony coll.

♀, 21. vii. 1895, Orangery Bay, British New Guinea. A. S. Anthony coll.

♀, 19. vii. 1895, Mailu district, British New Guinea. A. S. Anthony coll.

2 ♂ ad., 1 ♂ immat, 3 ♀♀, Mt. Cameron, Owen Stanley Range, 5000—6000 ft., August 1896. A. S. Anthony coll.

47. **Drepanornis bruijni** Oust.

6 ♂ ad., 7 ♂ immat. in various stages, 5 ♂♂ (and ♂ juv.), purchased from Mr. Renesse van Duivenbode and various dealers. These came, according to Mr. van Duivenbode, all from Tana Mera, a part of the north coast east of Geelvink Bay, towards the German frontier.

♀, Wanti, Waropen, brought from natives by W. Doherty.

2 ♂ ad., Sarmi, opposite the Arimao Islands, bought from natives by W. Doherty.

2 ♂ fere ad., Wensudu, north coast of New Guinea at 139° long., bought from natives by Doherty.

♂ ad., Witriwai River, north coast of New Guinea at 139° long., bought from natives by W. Doherty.

2 ♂ ad., 1 ♂ vix ad., Humboldt's Bay, North New Guinea, bought from natives by W. Doherty.

Though very different from *D. albertisi*, we prefer to keep *bruijni* in the same genus.

48. **Seleucides ignota** (Forst).

6 ♂ ad., 4 ♀♀, Port Chalmers (Riva River), British New Guinea, 60 miles inland, June 1896. A. S. Anthony coll.

1 ♂ ad, 3 ♀♀, Mt. Cameron, British New Guinea, 2000 ft. high. A. S. Anthony coll.

2 ♂ ad., 1 ♀, Nicura, British New Guinea. Lix coll.

1 ♀, Dora, British New Guinea. Lix coll.

♂ ad., Fly River, 4. viii. 1877. D'Albertis coll., No. 424.

♂ (moulting), Fly River, 19. ix. 1877. D'Albertis coll., No. 680.

♂ ad., Salwatty, ex coll. Guillemard.

2 ♂ juv. (in female's plumage), 1 ♀, Fly River, 1877. D'Albertis coll., Nos. 362, 364, 608.

♂ ad., Witriwai River, long. 139°, north coast of New Guinea, bought by W. Doherty.

♂ juv., bought by Doherty at Waropen, not far from Kurudu.

♀, Takar, November 1896. "Iris scarlet, feet reddish flesh-colour, claws pale grey, bill black." W. Doherty coll.

11 ♂ juv. in various stages, without localities.

49. **Falcinellus astrapioides** (Rothsch.).

1 ♂ ad., the type, in the Tring Museum, is all that is known of this species.

50. **Falcinellus striata** (Bodd.)

1 ♂ ad., "Arfak Mountains," ex Guillemard coll. On label: "Iris yellow, bill and feet black."

1 ♂ juv., 1 ♀, "Arfak," Bruijn coll. 1874, specimens *j* and *n* of the list in *Orn. Pap.* ii.

5 ♂ ad. without exact localities.

8 ♂ immat. in various stages, without localities.

1 ♂ juv. without locality.

5 ♀♀ without localities.

51. **Falcinellus meyeri** (Finsch).

7 ♂ ad., 2 ♂ immat., 1 ♂, juv., Mt. Cameron, about 7000 ft., August 1896. A. S. Anthony coll.

4 ♂ ad., 1 ♂ juv., Mt. Owen Stanley, 1895.

1 ♂ ad., 2 ♂ juv., Eafa district, Brit. New Guinea, 5000—6000 ft., October 1895. A. S. Anthony coll.

1 ♂ ad., 1 ♂ immat., Kaiari district, Brit. New Guinea, 6000 ft. A. S. Anthony coll. "Eye bright blue, feet grey, bill black" (Anthony).

1 ♂ ad., Oriori district, Brit. New Guinea. Anthony coll.

2 ♀♀, Oriori district, Brit. New Guinea, January 1896. A. S. Anthony coll. "Native name: Dadai" (Anthony).

3 ♀♀, Mt. Cameron, about 7000 ft. A. S. Anthony coll.

(26 specimens in all.)

52. **Astrapia nigra** (Gm.)

9 ♂ ad., 3 ♂ immat., 2 ♂ juv., 2 ♀♀, without exact localities.

♂ juv., ♀, "Arfak," Bruijn, specimens *x* and *j* of Salvadori's list in *Orn. Pap.* ii.

53. **Astrapia splendidissima** Rothsch.

♂ ad., type of the species (2 central rectrices shot off).

6 ♂ ad., 2 ♂ immat., 2 ♂ juv., 5 ♀♀.

We have no clue to the locality where this magnificent bird occurs, but it seems not to come from the Berau Peninsula, as we receive only *A. nigra* from there.

We do not accept Dr. Sharpe's "new genus" for this species.

54. **Astrapia stephaniae** (Finsch & Meyer).

1 ♂ ad., 4 ♀♀, Eafa district, Brit. New Guinea, 5000—6000 ft. A. S. Anthony coll., Oct.—December 1895. ♂♀, "Eye dark brown, feet dark grey, bill black."

1 ♂ ad., 1 ♀, Mt. Cameron, 7000 ft. A. S. Anthony coll.

1 ♂ ad., Kaiari district, Mts. British New Guinea.

1 ♂ immat., Mt. Owen Stanley, Brit. New Guinea. Anthony coll.

1 ♂ ad., 1 ♂ immat., Kotoi district, Mts. Brit. New Guinea. Anthony coll.

1 ♂ ad., 1 ♀, Oriori district, Mts. Brit. New Guinea, January 1896. A. S. Anthony coll. "Food: berries and insects."

2 ♂ ad., "east central dividing range," Brit. New Guinea, June 1893. Messrs. Guise and Armit coll.

55. **Schlegelia wilsoni** (Cass.).

♂ ad., Batanta, 2. ix. 1883. Powell coll. "Iris brown, tarsus dark cobalt-blue, bill black, naked skin on head bright cobalt-blue."

♀ ad., Batanta, 23. x. 1883. Powell coll. Naked parts as in ♂.

4 ♂ ad., 1 ♂ immat., 3 ♀ ♀ without exact locality.

56. **Cicinnurus regia regia** (L.).

7 ♂ ad., Simbang, German New Guinea, February 1894. Capts. Cotton & Webster coll.

1 ♂ ad., 1 ♀, Simbang, German New Guinea, July, September 1899. E. Nyman coll.

4 ♂ ad., Stephansort, German New Guinea, July 1899. E. Nyman coll.

1 ♂ ad., Stephansort, German New Guinea. Capts. Cotton & Webster coll.

7 ♂ ad., 2 ♀, Mailu district, Brit. New Guinea, July—August 1895. Anthony coll.

3 ♂ ad., Mt. Cameron, Brit. New Guinea, 1896. Anthony coll.

6 ♂ ad., 1 ♀, Brown River, Brit. New Guinea. 1898. Emil Weiske coll.

1 ♂ ad., 1 ♂ juv., 2 ♀ ♀, Nicura, Brit. New Guinea. Lix. coll.

1 ♂ ad., 4 ♀, Kapaur, Dutch New Guinea, Dec. 1896. Doherty coll.

2 ♂ ad., Milne Bay, 26. iv. 1899 ; 10. v. 1899. A. S. Meek coll.

1 ♂ ad., Ron Island, July 1897. Doherty coll.

2 ♂ ad., Waigamma, Mysol Island, November 1883. Guillemard coll. "Iris brown, bill light horn-colour, tarsus cobalt-blue. Inside of mouth bright yellowish green."

2 ♂ ad., Samatii, Salwatty Island, 17. xi. 1883. Guillemard & Powell coll.

3 ♂ ad., Mikroor, Aru Islands. Webster coll.

1 ♂ ad., Aru Islands, 6. xii. 1883. Powell coll.

2 ♂ ad., Trangan Island, Aru, September 1900. Heinrich Kühn coll. "Iris dark grey, feet bright ultramarine, bill pale orange."

2 ♂ ad., Wanambai Kabroor, Aru. Sept. 1900, H. Kühn coll.

1 ♂ ad., Wokan, Aru, 29. ix. 1900. H. Kühn coll.

3 ♂ immat., Papuan skins.

♂ juv., Wanambai, Aru. Webster coll.

1 ♀, Mansinam, Berau Peninsula, 30. v. 1876. (*d*[5], *Orn. Pap.* list.)

1 ♀, Sorong, 25. iv. 1875. (*i*, *Orn. Pap.* list.)

1 ♀ without locality (*i*[5], *Orn. Pap.* list).

1 ♀, Andai, 6. xi. 1883. Powell coll.

2 ♀ ♀, Waigamma, Mysol, November 1883. Guillemard coll.

1 ♀, Salwatty Island, 17. xi. 1883. Powell coll.

1 ♀, Mysol, 10. i. 1900. H. Kühn coll.

1 ♀, Wanambai, Aru, 1. ix. 1900. H. Kühn coll.

1 ♀, Trangan, Aru, 19. ix. 1900. H. Kühn coll.

2 ♀ ♀, Milne Bay, 10. v. 1899. A. S. Meek coll.

57. **Cicinnurus regia coccineifrons** Rothsch.

1 ♂ ad., Jobi Island, 11. xi. 1883. "Length 18 cm. Iris brown ; bill light horn-colour ; tarsus dark cobalt-blue." Ex coll. H. Guillemard. (Type of subspecies *coccineifrons*.)

2 ♀ ad. without locality, but perfectly similar to the type, and probably from Jobi.

1 ♂ ad., Ansus, Jobi, bought at Ansus by Doherty. (A very typical *coccineifrons*.)

5 ♂ ad., Takar, north coast, October — November 1896. "Iris dull grey-brown, feet bright blue with grey claws, bill yellow (lemon, rosy in the middle)." W. Doherty coll.

These specimens must certainly be placed with *C. r. coccineifrons*.

We have other instances of Jobi forms extending across the (shallow) sea of the north-eastern part of Geelvink Bay to the north coast of New Guinea, and we hope to discuss this fact later on.

♂ juv., Ansus, Jobi, May 1897. W. Doherty coll.

♂ juv., Marai, Jobi, May 1897. W. Doherty coll.

♀ Marai, Jobi, April 1897. W. Doherty coll.

These specimens seem to be a little darker above than typical *regia* are on an average.

58. **Diphyllodes magnifica** (Penn.).

Ornithologists are very uncertain about the various forms of *Diphyllodes*. Meyer, Salvadori and Sharpe went farthest in separating them. Sharpe, in his "Monograph of the *Paradiseidae*," ventures to recognise five different species. These he arranges in two groups, one with the head dull brownish and a deep claret-coloured upper back, the other with a reddish brown head and a deep crimson upper back. In the first section (with a dull brownish head) he places :—

1. *D. magnifica* with clay-coloured secondaries, inhabiting the Beran Peninsula.

2. *D. seleucides* with ochreous-orange secondaries, actual habitat unknown, but evidently from some parts of Dutch New Guinea.

3. *D. chrysoptera* with golden-orange secondaries, from Jobi.

In the second section (with reddish brown head) he places :—

4. *D. xanthoptera* with golden-yellow secondaries, from the Moroka district in the Owen Stanley Mountains.

5. *D. hunsteini* with golden-orange secondaries, British and German New Guinea.

Meyer separates the German New Guinea form as *septentrionalis*.

We both agree, not only that *hunsteini* and *septentrionalis* are quite the same, but that it is quite impossible to separate five species! Rothschild is inclined to unite all the forms under one name, provisionally, but is firmly convinced that, if it is ever convenient to separate various forms, they can only be looked upon as subspecies—and in this latter view we, of course, also agree. Hartert, while admitting the variability in a series of trade-skins,* all coming on the market at once, all of the same preparation and presumably from one place, is much impressed by the great similarity in series from German and British New Guinea, as well as from Jobi, and is inclined to—provisionally—recognise three distinct forms :

* Rothschild, moreover, is inclined to attribute the various shades of secondaries and the dull red back in the Dutch New Guinea skins to the effect of the smoke-drying process of the native collectors, and in consequence absolutely denies the validity of Sharpe's *D. seleucides*, but acknowledges the possibility that future material might prove the existence of two subspecies, one with a rufous head and one with a more earthy-brown head.

A. *D. m. magnifica* (= *scleucides*) with dull brown crown, wings clay-coloured to orange. Beran Peninsula (? etc.).

B. *D. m. chrysoptera* (= *jobiensis*) with dull brown crown and golden orange wings. Jobi, and probably north coast east of Geelvink Bay (? to Humboldt Bay).

C. *D. m. hunsteini* (= *septentrionalis*, *xanthoptera*) with reddish brown crown and orange to golden-orange wings. British and German New Guinea.

The *females* of the various supposed forms seem to be quite indistinguishable.

The colour of the secondaries is certainly most variable, and generally not of much consequence, but the Jobi, German and British New Guinea forms have always more or less brighter orange secondaries. The colour of the crown is always more reddish in the birds from German and British New Guinea, generally duller brown, not reddish in those from Jobi and Dutch New Guinea, but there are also variations in the same country. The colour of the upper back is a very variable character, but it is generally, not always, brighter, more red, in *D. m. hunsteini* than in *D. m. magnifica* and *D. m. chrysoptera*, though the latter varies also in this respect. What we require now is a good series from the various localities in Western (Dutch) New Guinea, well labelled and preserved, not trade-skins with uncertain localities.

We have, in the Tring Museum, the following specimens :—

A. Specimens from British and German New Guinea (♂ crown rufous-brown, upper back deep crimson, secondaries bright orange : *D. hunsteini* auct.).

10 ♂ ad. in full plumage, 1 ♂ in moult, 1 ♂ juv., 1 ♀, Mt. Cameron, British New Guinea, 1896. A. S. Anthony coll.

3 ♂ ad. from the mountains of British New Guinea, exact place not known. A. S. Anthony coll.

1 ♂ in moult, 2 ♀ ad., Eafa district, between Mts. Alexander and Bellamy, 5000—6000 ft., October 1895. A. S. Anthony coll.

1 ♂ ad. without exact locality.

1 ♂ ad. (with one curious spatulated elongated rectrix, one normal one), Kotoi district, Brit. New Guinea, August 1898. A. S. Anthony coll.

1 ♂ immat. in moult, Upper Brown River, "between Astrolabe and Mt. Owen Stanley ranges," purchased from McIlwraith & McEacharn.

1 ♀ between rivers Laroki and Vanapa. E. Weiske coll.

1 ♀, Nicura, Brit. New Guinea. Lix coll.

2 ♂ ad., 1 ♀, Finisterre Mts., German New Guinea. Cotton & Webster coll.

1 ♂ ad., Simbang, German New Guinea, February 1894.

1 ♂ ad., 1 ♀, Bongu, German New Guinea, 1899. E. Nyman coll.

1 ♂ ad., Sattelberg, German New Guinea, July 1892. Bruno Geisler coll.

(We cannot see any difference whatever between specimens from British and German New Guinea.)

B. Specimens from Jobi Island and the northern coast of New Guinea, east of Jobi : *D. chrysoptera* of Sharpe. Perfectly like the so-called *hunsteini*, but crown generally less rufous, more greyish brown, back often less reddish.

1 ♂ ad., Ansus, Jobi, ex coll. Guillemard. "Iris yellow, bill greyish blue, tarsus blue."

3 ♂ ad., Serui, Jobi, bought from natives by W. Doherty.

1 ♂ ad., Sarmi, opposite Arimao Islands, long. 139°, purchased by Doherty.

1 ♂ immat., Waropen, purchased by Doherty.

2 ♂ ad., Humboldt's Bay, bought by Doherty.

♂ juv., Tana Mera, October 1896. W. Doherty

C. Specimens from the Berau Peninsula and Kapaur (true *magnifica*):

♀, Mansinam, 27. v. 1875. Bruijn's hunters. (No. *x.* of *Orn. Pap.* list.)

♀, Kapaur, February 1897, W. Doherty coll.

D. Specimens without localities, but evidently all from Dutch New Guinea—very variable, especially in the colour of the secondaries, though of the same preparation and bought at the same time in London.

33 ♂ ad., 1 ♂ immat., 2 ♂ juv., 3 ♀, 1 ♂ ad. with bleached whitish secondaries, 1 ♂ ad. with two white primaries and several white wing-coverts, 2 ♂ ad. with four elongated thread-like rectrices!

59. **Diphyllodes gulielmitertii** Meyer.

7 ♂ ad. round skins, 1 ♂ ad. flat Papuan skin, with no exact locality.

1 ♂ ad. shot by a native between Bongu and Stephansort in German New Guinea, April 1899, received from E. Nyman.

60. **Semioptera wallacii wallacii** Gould.

♂ ad., Batjan, December 1883. Guillemard coll.

♂ in moult, Batjan, November 1883. Powell coll.

♀, Batjan, 12. x. 1883. Powell coll.

♀ juv., Batjan, 17. iv. 1894. W. Kükenthal coll.

6 ♂ ad., 4 ♂ juv., 7 ♀♀, Batjan, August—September 1897. W. Doherty coll.

61. **Semioptera wallacii halmaherae** Salvad.

5 ♂ ad., 1 ♂ immat., 1 ♂ juv., 2 ♀♀, trade-skins from Halmahera.

♂♀ trade-skins from Halmahera, cotypes of *Semioptera gouldi* Bonc.

♂ ad., Patani, Halmahera, from Doherty.

♀, Pajahe, Halmahera, Bruijn coll., specimen *t'* of the list in *Orn. Pap.* ii. p. 574.

62. **Paradisea apoda apoda** L.

3 ♂ ad., 2 ♂ juv., flat native skins, without labels.

2 ♂ ad., 2 ♂ juv., 1 ♀ ad., round skins, without labels.

1 ♀, Wanambai, Kobroor, 25. vi. 1896. Cayley Webster coll.

3 ♂ juv., 1 ♀, Kobroor, August—September 1900. H. Kühn coll. "Iris yellow, feet plumbeous, bill greyish blue."

1 ♀, Trangan, 20. ix. 1900. H. Kühn coll.

Only inhabiting the Aru Islands.

63. **Paradisea apoda novaeguineae** Alb. & Salvad.

1 ♂ ad., Fly River, 23. vii. 1877, collector's no. 355. D'Albertis coll.

1 ♂ juv., Fly River, 18. vii. 1877, collector's no. 335. D'Albertis coll.

64. **Paradisea minor minor** Shaw.

6 ♂ ad., Etna Bay, August 1896. Cayley Webster coll.

1 ♂ juv., Triton Bay, July 1896. Cayley Webster coll.

2 ♂ juv., 1 ♀ Kapaur, December 1896. W. Doherty coll.

2 ♂ juv., 1 ♀, Dorey, October 1896. W. Doherty coll.

1 ♂ ad., 2 ♂ juv., 4 ♀♀, Takar, October 1896. W. Doherty coll.

1 ♂ ad. " Iris yellow, feet lead-blue, bill pale slaty blue."

1 ♂ ad. without exact locality, ex Guillemard coll.

1 ♂ ad., 9 ♂ immat., without locality.

1 ♀, Arfak, 13. v. 1875, Bruijn coll. (Specimen *i'''* of the list in *Orn. Pap.* ii. p. 579.)

65. **Paradisea minor jobiensis** Rothsch.

1 ♂ ad., Jobi, 9. xi. 1883. Guillemard coll. " Iris lemon, bill lavender, tarsus blue-grey, length 392 mm." *Type of P. m. jobiensis !*

1 ♂ ad., Jobi, Guillemard coll.

1 ♂ ad., Jobi, 10. xi. 1883. Guillemard coll. " Length 402 mm."

1 ♂ ad., Jobi, 9. xi. 1883. Powell coll. " Length 372 mm."

1 ♂ immat., Ansus, Jobi, 7. iv. 1875. Beccari coll.

1 ♀, Ansus, Jobi, April 1874. Bruijn coll. (*x'''* of the list in *Orn. Pap.* ii.).

1 ♂ juv., Ansus, Jobi, April 1897. W. Doherty coll.

2 ♀♀, Marai and Maraguri, Jobi, April 1897. W. Doherty coll.

1 ♂ ad. without locality, Michigan University Museum, no. B. 226 *a*, ex Beal & Steere. *Type of P. minor* var. *albescens* Mussch., artefact (cf. *Tierreich*, *Paradiseidae*, p. 48).

1 ♂ ad., 1 ♂ immat., without locality.

66. **Paradisea minor finschi** Meyer.

3 ♂ ad., 1 ♀ ad., 1 ♂ imm., German New Guinea, Cotton & Webster coll., 1894.

3 ♂ ad., Konstantinhafen. Kubary coll.

3 ♂ ad., 2 ♂ juv., 2 ♀♀, Stephansort, January 1899. E. Nyman coll.

67. **Paradisea augustaevictoriae** Cab.

8 ♂ ad. in nuptial dress, 1 ♂ ad. without long plumes, Simbang, German New Guinea, February 1894. Cotton & Webster coll.

1 ♂ ad., Meming saun, 300 m. high, German New Guinea, June 1892. " Iris gelb." Bruno Geisler coll. (ex A. B. Meyer).

1 ♂ ad., " Huon Golf," German New Guinea, 3. x. 1890. Purchased from G. Schneider in Basel.

1 ♂ ad., Finschhafen, German New Guinea. C. Hunstein coll. Purchased from G. Schneider in Basel.

1 ♂ ad., 4 ♀♀, Simbang, German New Guinea, 1899. " Iris gelb." E. Nyman coll.

1 ♂, 1 ♀, Sattelberg, German New Guinea, June 1899. E. Nyman coll.

68. **Paradisea intermedia** Vis.

1 ♂ ad., Coomassie River, north-east coast of British New Guinea (no. T52), one of the cotypes, received in exchange.

4 ♂ ad., 1 ♂ imm., 3 ♂ juv., 1 ♀, inland of Holnicote Bay. Rohu coll.

1 ♂ ad., 1 ♂ imm., " North coast," British New Guinea, 4000 ft. Anthony coll. " Eye yellow, feet dark blue, bill light blue."

4 ♂ ad., 2 ♂ imm., 1 ♂ juv., 3 ♀♀, Collingwood Bay, June 1897. A. S. Meek coll. " Iris bright yellow, feet light chocolate, bill milky blue."

69. **Paradisea raggiana** Scl.

10 ♂ ad., 1 ♂ immat., Mailu district, British New Guinea, July—August 1895. A. S. Anthony coll.

1 ♂ ad., 1 ♂ immat., Brown River. Emil Weiske coll.

2 ♂ ad., 2 ♂ immat., 2 ♀ ♀, Nicura. Lix coll.

4 ♂ ad., Milne Bay, British New Guinea, Meek coll., Oct. 1898.

3 ♂ ad., Oriori district, January 1896. A. S. Anthony coll.

2 ♂ ad., Mt. Cameron. A. S. Anthony coll.

1 ♂ ad., Owen Stanley Range, 7000 ft. Bought from Schneider in Basel.

1 ♀, British New Guinea, 1879. A. Goldie coll.

1 ♀, Hall Bay, British New Guinea, 10. vii. 1875. D'Albertis & Tomasinelli coll. (No. 231), specimen j^2 of the list in *Orn. Pap.* ii.

We find all our specimens from the Mailu district, except one, have the yellow colour spread over the interscapulium, as also those from Milne Bay and Nicura, while those from Mt. Cameron and Brown River have the yellow colour sharply cut off on the hindneck ; two of the three from Oriori are somewhat intermediate in this respect, while the third resembles the Mt. Cameron specimens. These facts indicate the possibility of the existence of an eastern and western subspecies. On the Fly River, where *P. raggiana* occurs together with *P. a. novaeguineae*, Signor D'Albertis procured a number of evident hybrids, which display an almost complete intergradation of the characters of the two species. The Tring Museum has one of these hybrids:

1 ♂ ad., Fly River, 25. x. 1877. D'Albertis coll. (No. 763), specimen *h* of the list in *Orn. Pap.* ii. p. 621.

70. **Paradisea decora** Salv. & Godm.

1 ♂ ad., Normanby Island, D'Entrecasteaux group, 20. viii. 1899. "Iris bright yellow, feet light brown (should rather be bluish slaty ?), bill blue-slate." A. S. Meek coll, No. 2677.

2 ♂ ad., Fergusson Island, D'Entrecasteaux group, 19. 20. v. 1897. "Iris bright yellow, feet dark slate, bill milky bluish slate." A. S. Meek coll., Nos. 312, 316.

1 ♂ ad., Fergusson Island, December 1894. A. S. Meek coll.

1 ♂ ad., Fergusson Island, bought from the late H. Whitely.
1 ♂ immat., Fergusson Island, bought from the late H. Whitely. } Cotypes.

3 ♂ without decorative long side-plumes, but with fully developed thread-like central rectrices, chest lilac-grey, abdomen rusty brownish, with or without indications of bars, Fergusson Island, May 1897, Nos. 244, 315, 367, A. S. Meek coll.

1 ♂ in the same plumage, abdomen with some bars, Fergusson Island, 23. viii. 1899. A. S. Meek coll., No. 2681.

2 ♂ immat., with narrow spatulate central rectrices and barred chest and breast, Fergusson Island, September and December 1894. A. S. Meek coll.

1 ♂ immat. in the same plumage, Fergusson Island, 23. iii. 1897. A. S. Meek coll., No. 371.

1 ♂ juv. in *female's* plumage, Fergusson Island, cotype, purchased from H. Whitely.

1 ♂ juv. in *female's* plumage, Fergusson Island, 15. v. 1897. "Iris bright yellow, feet reddish slate, bill blue-slate." A. S. Meek coll., No. 265.

1 ♀ without label.

3 ♀♀, Fergusson Island, May 1897 and August 1899. "Iris bright yellow (greenish yellow), feet reddish slate (fleshy slate, light brownish), bill blue-slate (dark brownish slate)." A. S. Meek coll., Nos. 310, 372, 2680.

71. **Paradisea gulielmi** Cab.

4 ♂ ad., German New Guinea, Cotton & Webster coll., 1894.

1 ♂ ad., Nason, German New Guinea, ca. 1600 m., July 1892. "Iris braun." Bruno Geisler coll.

1 ♂ ad., Sattelberg, German New Guinea, July 1892. "Iris braun." Bruno Geisler coll.

1 ♂ ad., Sattelberg, 5. vi. 1899. E. Nyman coll. "Iris gelb."

2 ♂ juv. in *female's* plumage, Sattelberg, 26. vi., 9. ix. 1899. E. Nyman coll. "Iris gelb."

5 ♀♀, Sattelberg, June 1899. E. Nyman coll. "Iris gelb."

1 ♀, Simbang, 3. viii. 1899. E. Nyman coll. "Iris gelb."

2 ♀♀, Sattelberg, July 1892. Bruno Geisler coll. "Iris braun."

72. **Paradisea rudolphi** (Finsch).

2 ♂ ad., 4 ♀♀, Mt. Cameron, Owen Stanley Range, August—September 1896. "Iris dark brown (dark blue), feet light grey (dark grey), bill whitish blue (light bluish)." A. S. Anthony coll.

1 ♂ ad. (tail in moult), 1 ♀ in moult, Eafa district, 5000—6000 ft., between Mts Alexander and Bellamy, October 1895. A. S. Anthony coll.

1 ♂ ad., Kotoi district, August 1898. A. S. Anthony coll.

1 ♂, 1 ♀ (in moult), Oriori district, 3000—3500 ft., January 1896. "Food, insects and berries." A. S. Anthony coll.

2 ♂ ad., 1 ♀, Mt. Gaivara, near Mt. Victoria, 1898, 2000—9000 ft. (Collector unknown).

1 ♂ ad., "Owen Stanley Mts.," purchased.

73. **Paradisea rubra** Daud.

♂ ad., Waigiu, 15. xi. 1883. "Iris red-brown, bill greenish yellow, tarsus brownish green." H. Guillemard coll.

1, Waigiu Gulf, Waigiu, 26. x. 1883. H. Guillemard coll. (marked ♂, but apparently a *female* ; at least doubtless a *female* if the next specimen is a *female*.

♀, Momos, Waigiu, 26. x. 1883. "Length 340 mm. Iris brown, bill greenish yellow, tarsus brownish green." H. Guillemard coll.

♂ ad., Waigiu, October 1883. Powell coll.

♂ immat., Momos, Waigiu, 27. x. 1883. "Length 350 mm." H. Guillemard coll.

♂ immat., Chabrol Bay, Waigiu, 27. x. 1883. Powell coll.

♀, Waigiu, 25. vi. 1875. Bruijn coll. (Specimen *b'* of the list in *Orn. Pap.* ii. p. 625.)

1 ♂ ad., 3 ♂ juv., trade skins without locality.

1 ♂ ad., Waigiu, 1897 (bought by W. Doherty).

74. **Manucodia ater ater** (Less.)

A. Specimens from Arfak (typ. loc.), Western New Guinea, and Western Papuan Islands.

3 ♂♂, 2 ♀♀, Dorey, June, October, 1896, 1897. W. Doherty coll. "Iris pale orange-yellow." (Dorey is the typical locality for the species.) ♂, wing 170—172; "♀," 185, 165 mm.

1 ♂, Kapaur, December 1896. W. Doherty coll. Wing 187 mm.

2 ♂♂, 1 ♀, Takar, October, November 1896. W. Doherty coll. "Iris pale orange." ♂, wing 168; ♀, 160 mm.

1 ♂, Mansinam, 13. iv. 1897. Bruijn coll. (Specimen *m* of the list in *Orn. Pap.* ii. p. 505.)

1 Waropen, bought by W. Doherty from natives.

2 ♂♂, 1 ♀, Mysol, January 1909. H. Kühn coll., Nos. 1856, 1910, 1911. "Iris vermilion." ♂, wing 182, 188; ♀, 180 mm.

1 ♀, Batanta, July 1897. Bruijn coll. (Specimen *b"* in the list in *Orn. Pap.* ii. p. 506.)

4 ♂♂, 2 ♀♀, Waigiu, October, November 1883. Guillemard coll. "Iris dull orange."

B. Specimens from German New Guinea.

1, German New Guinea. Cotton & Webster coll. Wing 160 mm.

1, Konstantinhafen. Kubary coll. Wing 170 mm.

1 ♂, Sattelberg, June 1889. E. Nyman coll. "Iris red." Wing 171 mm.

These specimens belong decidedly to the smaller race, the typical *ater*, not to the larger south-eastern form.

75. **Manucodia ater altera** subsp. nov.

A. Specimens from Eastern (British) New Guinea and the Eastern Papuan Islands.

"♀" (?♂), Mailu district, British New Guinea, July—August 1895. A. S. Anthony coll. (Wing 193.)

1 ♂, "Mt. Victoria," 1896. Purchased in London. Wing 194 mm.

1 ♂, 1 ♀, Yule Island, October 1875. D'Albertis coll. (Nos. 670, 671.) (Specimens q''^{2} and r''^{4} of the list in *Orn. Pap.* ii. p. 507. (♂, wing 202; ♀, 186.)

3 ♂, 3 ♀, Sudest Island, April 1898. A. S. Meek coll. "Iris red, bill and feet black." (Nos. 1724, 1729, 1735, 1736, 1761, 1766.) (♂, wing 195, 206, 206; ♀, 194, 198, 198.)

B. Specimens from the Aru Islands.

2 ♂ ad., 1 ♀ imm., Trangan, Aru Islands, September 1900. H. Kühn coll., Nos. 2456, 2451, 2453. "Iris yellowish vermilion (yellowish brown), bill and feet black."

1 ♀ ad., Wanambai, Kobroor, Aru, September 1900. H. Kühn coll., No. 2452. "Iris yellow-orange."

1 ♀ ad., Vokan, Aru, October 1900. H. Kühn coll., No. 2455.

2 ♂ ad., Dobbo, Aru, 31. ii. 1897. "Iris vermilion." H. Kühn coll., Nos. 414, 415.

1 ♂, 1 ♀ ad., Dobbo, Aru, February 1897. W. Doherty coll.

4 ad., Dobbo, Aru, May—June 1896. Cayley Webster coll. (Nos. 150, 106, 186, one without no.).

(*Males*, wing 193, 197, 195, 200, 205 ; *females*, 180, 185, 180.)

Specimens from the south-eastern parts of New Guinea—namely, British New Guinea and the Louisiade Islands (Sudest)—are so much larger (wing in *males* 193—206 mm., bill about 40—44, against wing (♂) 168—188, bill 35—40 in typical *ater*) that we are obliged to separate them under a new subspecific name. The bill is altogether stronger (less slender) and higher, and generally longer, tail and wings longer. In adult birds the head is generally less greenish than in typical *ater*.

The Aru specimens are, as far as we can see, perfectly similar to those from Sudest Island and British New Guinea, while those we have been able to examine from German New Guinea belong decidedly to the smaller form. This is extraordinary, and not at all what we would have expected. In *Manucodia chalybata*, for example, we find that the specimens from German New Guinea go better with the race inhabiting British New Guinea (which in this case is the smaller one), and in the genus *Phonygammus* we find the form occupying the Aru Islands to be the same as that from Dutch New Guinea, while in British New Guinea occurs a rather different one.

Young birds of both races of *M. ater* are duller and much more greenish.

Type of *Manucodia ater altera* : ♂ ad., Sudest Island, Louisiade Islands, 16. iv. 1898. "Iris dark red, bill and feet black." No. 1735. A. S. Meek coll.

76. **Manucodia chalybata chalybata** (Penn.)

Larger race, with larger bills.

4 ♂♂, Kapaur, December 1896, February 1897. W. Doherty coll. "Iris orange ; trachea forming a single loop under the skin of the breast and abdomen." Wings : 171, 175, 176, 182 mm.

1 ♀ ad., 2 ♀ juv., Kapaur, December 1896. "Iris deep chestnut, bill and feet black (♀ juv.) ;" ♀ ad. : wing, 173 mm.

While we cannot recognise any constant differences in colour between *M. c. chalybata* and *M. c. orientalis*, we find that the bills of the latter are invariably smaller, being as a rule shorter and always much slenderer, and that the wings and tails are generally a little shorter, though the length of the wings is not a character to rely upon. The different structure of the feathers above the eye supposed to exist by Count Salvadori, and the colour differences do not hold good.

Young birds have the head dull blackish, with little metallic gloss, the feathers being smooth or little curly. The under surface, on which the purplish blue abdomen stands out in striking contrast to the green foreneck, is more uniform greenish, so that such birds somewhat resemble *M. jobiensis*.

77. **Manucodia chalybata orientalis** Salvad.

Manucodia orientalis Salvadori, *Ann. Mus. Civ. Genova* (2) xvi. p. 103 (1896 : Owen Stanley Mountains).

Smaller race, with considerably smaller bills.

2 (fere adult), Mt. Cameron, Owen Stanley Mountains, August 1896. A. S. Anthony coll. Wing of one 177 mm.

1 ♂, 1 ♀ (?), Oriori district, British New Guinea, January 1896. A. S. Anthony coll. Both with wings 170 mm., evidently both of the same sex.

1 ad., British New Guinea "low country," purchased from McIlwraith. Wing 172 mm.

1 ad., Brown River, British New Guinea, 1898. E. Weiske coll. Wing 172 mm.

1 ad., "near Port Moresby," purchased from McIlwraith. Wing 173 mm.

2 ♂ ad., 2 ♀ ♀ (1 ad.), Milne Bay, October 1888, February 1899. A. S. Meek coll. "Iris red." Wing ♂♂ 176, 176 ; ♀, 170 mm.

1 ♂ imm., 1 ♀, Collingwood Bay, June 1897. A. S. Meek coll. ♀, wing 170 mm.

2 ad., Konstantinhafen. Kubary coll. Wing 170, 180 mm.

1 ad., German New Guinea. Cotton & Webster coll. Wing 170 mm.

1 ♂, Stephansort, 1899. E. Nyman coll. Wing 170 mm.

78. **Manucodia jobiensis jobiensis** Salvad.

1 adult, sex unknown, bought from natives at Serui, Jobi, by W. Doherty. Wing 180 mm.

1 ♀ ad., Serui, Jobi, April 1897. W. Doherty coll. Wing 173 mm.

M. jobiensis is hardly more than a subspecies of *M. chalybata*. (Cf. Nov. Zool. 1898. p. 84 ; *Tierreich*, *Paradiseidae*, p. 45.)

79. **Manucodia jobiensis rubiensis** Meyer.

♂ ad., Takar, October 1896. W. Doherty coll. Wing 169 mm.

♀, Takar, October 1896. "Iris pale orange, bill and feet black." W. Doherty coll. Wing 159 mm.

1 juv., Wanti, Waropen, bought from natives by Doherty.

Only separable by a little smaller size and perhaps more greenish tinge, though the latter may be more or less due to immaturity.

80. **Manucodia comrii** Scl.

2 ad. without locality.

3 ad. said to be from New Ireland, but this is doubtless an error. (Collected by a missionary.)

3 ♂ ad., 2 ♀ ad, Fergusson Island, 1894 and 1895. A. S. Meek coll.

1 ♀ ad., Fergusson Island, June 1897. A. S. Meek coll., No. 555. (One white secondary in the left wing.)

2 ♂ ad., Normanby Island, D'Entrecasteaux group, August 1901. "Iris dark red, bill and feet black." A. S. Meek coll., Nos. 3600, 3601.

1 ♀ ad., Goodenough Island, May 1899. A. S. Meek coll., No. 2512. "Iris dark red."

A good adult *Manucodia comrii* is a truly magnificent bird.

The Genus *PHONYGAMMUS*.

So far we are acquainted with four different forms of the genus *Phonygammus*, or *Phonygama* of those authors who do not preserve the original spelling of names. Since one of us wrote the *Paradiseidae*, Lieferung 2. of the *Tierreich*, we have accumulated a much better material of the genus. We find that it is perfectly correct to separate four forms, but, in view of the coloration of the young and of the similarity of the old birds, together with the fact that they are geographical representatives, we prefer now to treat them merely as subspecies. Of three of the

forms—namely, of *keraudreni*, *jamesi*, and *hunsteini*—we have the birds in the first and transitional plumages, and our material shows that the first plumage of all (presumably also that of *Ph. gouldi*) is raven-black (black with a purplish tinge). Then follows as a rule a more or less greenish plumage, while the really old birds alone have the (more or less) beautiful steel-blue or purple colours, which are only absent in *P. gouldi*.

We have the following specimens :—

81. **Phonygammus keraudreni keraudreni** (Less. & Garnier).

1 ♂ ad., 2 ♀ ad., Dorey, Berau Peninsula, June 1897. W. Doherty coll. "Iris bright orange, bill and feet black."

The two *females* may be described as steel-blue with a greenish sheen, the wings glossed with purple, while the *male* is almost without a greenish sheen, more blue and almost purplish blue.

1 ♂, Kapaur, January 1897. "Iris orange, bill and feet black." W. Doherty coll. (Unfortunately half destroyed by *Dermestes*.) Apparently like the ♂ ad. from Dorey.

1 semi-ad. (moulting from the raven-black plumage to that of the adult birds before us), Malayan trade-skin, probably from Arfak.

1 juv., in raven-black plumage, good native-made skin, probably from the north coast, east of Geelvink Bay, judging from its preparation.

1 ad., Triton Bay, 25. vii. 1896, Capt. Cayley Webster coll. "Iris yellow, bill and feet black." (No. 281.)

1 ♂ ad., Trangan, Aru Islands, 14. ix. 1900. "Iris reddish yellow, bill and feet black." Upperside very strongly glossed with purple. H. Kühn coll. (no number).

3 ♂ ad., Wanambai, Kobroor Island, Aru Islands, 4. iii., 2. ix. 1900. "Iris bright yellow-red (orange)." H. Kühn coll. (Nos. 2498, 2499, 2500.)

♂ imm., Wanambai, Kobroor, 3. ix. 1900. "Iris bright brown, bill and feet black." Not so purplish and bluish as the fully adult one; wings and tail still in the first black plumage. H. Kühn coll., No. 2497.

We cannot separate the Aru specimens from those of Dutch New Guinea.

82. **Phonygammus keraudreni gouldi** (Gray).

Altogether steel-green, and never developing any pure blue or purple colours; the *female* still more greenish, somewhat oily in appearance.

1 ♂, 1 ♀, Cape York. (Probably coll. by Cockerell.)

1 "♂," Cape York (same skin), bought from H. Whitely.

1 ad., Australia, 1876. Ex coll. Walter Chamberlain.

1 ad., Cape York, Cockerell, 1874. Ex coll. A. von Hügel. (Same skin as the others from Cape York.)

This form is easily distinguishable from typical *keraudreni*.

83. **Phonygammus keraudreni jamesi** Sharpe.

The fully adult bird is very conspicuous by its splendid shining green and very long neck-feathers and occipital feathers, purplish blue back and reddish violet wings and tail. The less old birds closely resemble *keraudreni*, but the neck-feathers are much greener, while the raven-black young bird in first plumage is like that of *keraudreni*.

We have in the Tring Museum the following specimens :—

4 ad., Mt. Cameron, 6000 ft., August 1896. Anthony coll. "Eye yellow and black." (Evidently it is meant that the iris is yellow, the pupil black.)

1 ♂, 1 ♀ ad., Eafa district, between Mts. Alexander and Bellamy, 5000—6000 ft., October 1795. A. S. Anthony coll. "Eye red and blue."

2 "♂" (? 1 ♀), Oriori district. British New Guinea, 1896. "Eye dark yellow, black eyeball"; "Eye pink, light grey eyeball." A. S. Anthony coll.

2 ad., Owen Stanley Mountains, one evidently Anthony's skin.

1 imm., Mt. Victoria, Owen Stanley Mountains.

1 ad., "Richardson Range," 2000—4000 ft. (Doubtless one of Emil Weiske's skins. Bought from Gerrard.)

1 imm., between Rivers Laroki and Vanapa, E. Weiske coll.

2 imm., 1 young in blackish plumage, Brown River 1898, E. Weiske coll.

84. **Phonygammus keraudreni hunsteini** Sharpe.

The large size (long wing) and distinctly boat-shaped tail of adult birds, the latter not seen in any other form of the genus, easily distinguish this form from the rest. Head and neck dark green with an oily lustre, rest of plumage deep dark violet ; young raven-black as in the others.

2 ♂♂ ad., 1 ♀ ad., 2 ♀ juv., 1 ♂ juv., Fergusson Island, 1894. A. S. Meek coll.

1 ♂ ad., 1 ♂ juv., 1 ♀ juv., Fergusson Island, June 1897. "Iris red." A. S. Meek coll. (Nos. 554, 568, 581).

1 ♀ ad., Goodenough Island, 20. xii. 1896. "Iris bright red with a yellow inner ring."

Only known from Fergusson and Goodenough Islands. The alleged occurrence in New Guinea is evidently erroneous.

85. **Lycocorax pyrrhopterus pyrrhopterus** (Bp.).

8 ad., Halmahera, Bruijn coll., 1874. (Specimens *b*, *c*, *d*, *o*, *p*, *t*, *u*, *x* of the list in *Orn. Pap.* ii. p. 494.)

1 ad., Halmahera, Guillemard coll., erroneously labelled as coming from Obi !

1 ♂, Oba, Halmahera, 10. i. 1894. Kükenthal coll.

1 ♂, Gani, Halmahera, November 1896. W. Doherty coll. "Iris very dark brown, feet and bill black."

2 ♂♂, 5 ♀♀, Batjan, August 1897. W. Doherty coll. "Iris deep crimson" in adult birds.

86. **Lycocorax pyrrhopterus morotensis** Schleg.

3, Morty. Dumas coll.

1, "Morty," bought from Gerrard.

87. **Lycocorax pyrrhopterus obiensis** Bernst.

1 ♀, Obi Major, 12. x. 1883. Guillemard coll. "Length 440 mm."

1 ♀, Obi Major, 12. x. 1883. Powell coll. "Length 440 mm."

7 ♂♂, 6 ♀♀, Obi Major, September 1897. W. Doherty coll.

The following forms are still desiderata in the Tring Museum :—

1. *Chlamydera lauterbachi* Rchw., German New Guinea.
   Unique type in the Berlin Museum.
2. *Xanthomelus aurea ardens* D'Alb. & Salvad., Fly River.
   Only known from the two specimens in Genoa.
3. *Janthothorax bensbachi* Bütt., Dutch New Guinea.
   Unique in the Leyden Museum.
4. *Paryphephorus duivenbodei* (Mey.), Dutch New Guinea.
   Unique in the Dresden Museum.
5. *Ptilorhis alberti* Ell.*, N. Queensland.
   Adult males wanting!
6. *Drepanornis albertisi geisleri* Mey., German New Guinea.
   Only known from 1 ♀ in the Dresden Museum!
7. *Falcinellus ellioti* (Ward).
8. *Cicinnurus lyogyrus* Currie. (*Proc. U. S. Nat. Mus.* xxii. p. 497, 1900).
   Unique in the U. S. Nat. Museum in Washington.
9. *Paradisea maria* Rchw., German New Guinea.
   Only known from the type in the Berlin Museum. We are convinced that this is a hybrid between *Paradisea augustaevictoriae* and *gulielmi*.

The Tring Museum alone possesses—as far as we are aware—examples of *Amblyornis flavifrons* (3), *Loboparadisea sericea* (3), *Parotia duivenbodei* (1), *Loborhamphus nobilis* (1), *Janthothorax mirabilis* (1), and *Falcinellus astrapioides* (1).

VIII. CORVIDAE.

1. **Corvus orru orru** Bp.

Corvus orru Bonaparte, *Consp. Av.* i. p. 385 (1850: New Guinea, ex Müll. MS. in Mus. Ludg.).

Corvus orru has first been described by Bonaparte, *l.c.* The birds from Dutch New Guinea must be taken for the " typical " *orru*. Count Salvadori (*Orn. Pap.* ii. p. 486) questions the identity of some examples from Yule Island, South New Guinea, which he says are larger, and thinks that those from British New Guinea are the same. While we have no examples from Yule Island, we have several from British New Guinea and the Louisiade Islands, but we cannot detect any differences from specimens from Dutch New Guinea. The *female* differs from the *male* in being considerably smaller, but on our various *females* the iris is marked light (or bright) blue, as well as in the *males*, though Powell describes it as brown! It seems therefore that Salvadori's statement of the *females* having a blackish iris is not correct. We have the following Papuan specimens which we believe to be typical *orru* :—

1 ♀, Mysol, 4. xii. 1883. Powell coll.

1 ♀, Mysol, 12. i. 1900. " Irish bluish grey." H. Kühn coll.

1 ♀, Salwatti, 19. xi. 1883. " Iris brown."

1 ♀, Salwatti, 14. v. Bruijn coll.

1 ♂, Momos, Waigiu, 23. x. 1883. " Length 47·4 cm. Iris pearl-grey." Guillemard coll.

1 ♀, Ron Island, July 1897. " Iris pale blue." W. Doherty coll.

1 ♂ (jun.!), Dorey, 31. iii. 1875. Beccari coll. (Specimen *u* of the list in *Orn. Pap.* ii.)

* *P. intercedens* and *alberti* should be treated as subspecies of *magnifica*.

1 ♀ ad., Neosmapi I., Dorey, 13. xi. 1883. "Length 46·4 cm. Iris sky-blue." H. Guillemard coll.

1 ad., "Fly River." Purchased from H. Whitely.

1 ad., British New Guinea. A. Goldie, 1879.

1 ad., Nicura. Lix coll.

2 ♀♀, Goodenough Island, December 1896. "Iris bright blue, outer ring white." A. S. Meek coll, Nos. 18, 19.

1 ad., Fergusson Island. A. S. Meek coll.

1 ♀, Woodlark I., 19. iii. 1897. "Iris pale sky-blue." A. S. Meek coll., No. 139.

2 ♂♂, 1 ♀, Sudest Island, Louisiade group, March, April 1898. "Iris, ♂ light blue, ♀ sky-blue, with whiter outer circle." A. S. Meek coll., Nos. 1613, 1645, 1714.

1 ♂ ad., St. Aignan, Louisiade group, 20. viii. 1897. "Iris dirty white." A. S. Meek coll., No. 848.

The specimens from the Louisiades belong distinctly to the larger form, *C. orru orru*. Our specimen from Waigiu is smaller than typical *orru*, wing 305, but larger than those from New Britain.

2. **Corvus orru insularis** Heinroth.

Corvus insularis Heinroth, *J. f. O.* 1903, p. 69 (Typus: Gazelle-Halbinsel, Neu-Pommern = New Britain).

Dr. Heinroth has quite correctly separated the birds of New Britain from those of New Guinea. He states that they differ by their smaller size and blue iris of *females* and *males*. We find the smaller size the only difference, as the alleged brown iris of the *females* is not confirmed by our *females* collected by Meek, Doherty, and Kühn. The wings of our two examples from New Britain measure: 292 and about 290 mm. (much worn), and the bills and wings and feet are smaller than *C. o. orru*.

Dr. Heinroth unites the crows from Waigiu and North Celebes (!) with his *insularis*. It seems indeed that specimens from Waigiu are, as a rule, smaller than typical *orru*, but they have evidently larger bills and wings than *insularis*, and it is desirable to study more material before advancing a theory of such a peculiar distribution as "New Britain and Waigiu" for a subspecies—with the whole of Papua between the two localities inhabited by another form. "North Celebes" is even worse, being an absolute error. It is well known, and there is sufficient material in many museums (Tring, Dresden, London, for example) to show that the Celebesian crow is *Corvus enca*. It is true that *C. enca* is most similar to the small race of *C. orru*, Heinroth's *insularis*, having the same wing-measurements, but it has generally a smaller bill and a less deep blackish, less purplish glossy underside (breast), and both sexes have always a deep brown, not blue, iris. (Cf. Meyer & Wiglesworth, *B. of Celebes* ii.)

It would perhaps be correct to treat *C. orru* as a subspecies of *C. enca*, but in any case they are sufficiently distinct not to be confounded. The geographical distribution alone should have prevented Dr. Heinroth's uniting the Celebes crow with that from New Britain.

We have only two specimens :—

♂ ♀, New Britain, 10. vii. 1880, November 1880. Native name "Kott Kott." J. Kleinschmidt coll. (No. 15,574 Museum Godeffroy, Nos. 275, 621 Kleinschm. coll.)

3. **Macrocorax fuscicapillus** (Gray).

Corvus fuscicapillus G. R. Gray, *P. Z. S.* 1859. p. 157 (Aru).

1 juv., underside whitish with ashy-brown tips to the feathers, bill white with dusky tips. Without locality (? Aru).

1 med., dull dark ashy all over, bill white with dusky tip. Without locality (from Bruijn's hunters, according to make of skin).

1 ad., ? Waigiu (from Bruijn's hunters). Black all over, bill black.

1 ad., Dobbo, Aru, 1. vi. 1896. "Iris pale blue." Capt. Cayley Webster coll., No. 116.

1 ♂ ad., Trangan, Aru, 21. ix. 1900. "Iris bright ultramarine blue, feet shiny black, bill black." H. Kühn coll., No. 2464.

1 ♀ ad., Wokan, Aru, 30. ix. 1900. Iris, etc., the same. H. Kühn coll., No. 2755.

1 ♀ vix ad., Kobroor, Aru, 28. viii. 1900. "Iris and feet as above, bill black with white spots." H. Kühn coll., No. 2253.

The wonderfully high, arched bill alone would, for us, not be sufficient to separate this bird generically, but the curious development of the coloration from a more or less whitish young through an intermediate bluish grey state to the adult raven-black plumage, is some reason for separation from *Corvus* in which both young and old are blackish.

Gymnocorvus shows a somewhat similar case.

4. **Gymnocorvus senex** (Less.).

Corvus senex Lesson, *Voy. Coqu., Atlas* Pl. 24 (1826); *Voy. Coqu. Zool.* i. p. 651 (1828) (Dorey).

1 ♀ immat., Dorey, 14. iv. 1875. Bruijn coll. (Specimen *d* of the list in *Orn. Pap.* ii. p. 491, where it is given erroneously as from 14. iii. 1875.)

1 ♀ juv., Andai. Bruijn coll.

1 ♀ ad., Dorey Hum, 8. January. Bruijn coll.

1 ♀ ad., Kapaur, December 1896. W. Doherty coll.

1 ♀ ad., 1 ♂ juv., Ron Island, July 1897. ♂ juv.: "Iris pale blue, feet whitish, soles ochreous, claws partly grey, partly white; bill nearly white with a dark mark on upper jaw." ♀ ad.: "Iris chestnut, irregularly mixed with grey; feet nearly white, claws partly grey; bill pale slate-blue, tip blackish, cheeks flesh-colour." W. Doherty coll.

1 ♂ ad., Takar, October 1895. "Iris bluish white, feet dirty whitish, marked with grey, claws dark grey; bill pale slaty bluish, tip brown."

1 ♀ immat., Terfia Island, October 1896. "Iris bluish white, bill and upper jaw bluish, lower flesh-colour with dark spots." W. Doherty coll.

1 immat., Etna Bay, 8. viii. 1896. "Iris pale blue." C. Webster coll., No. 329.

1 ♂ juv., Jobi Island, April 1897. W. Doherty coll.

1 ad., 3 immat., 2 juv., Jobi Island. Bruijn coll.

1 immat., 1 juv., with Arabic labels, ? from Jobi. Bruijn coll.

1 ♂ vix ad., moulting, 1 remex mostly white, 1 rectrix partially, another entirely white. Jobi. Bruijn coll.

1 ♂, 1 ♀ immat., Sattelberg. E. Nyman coll.

1 ♂ immat., Konstantinhafen, 1887. Kubary coll.

1 ♂ juv., Stephansort, 1899. "Iris blue." E. Nyman coll.

1 ♂ juv., Mt. Cameron, 5000 ft., 5. ix. 1896. A. S. Anthony coll.

1 ♂ juv., Fergusson Island, 27. x. 1894. "Iris blue." A. S. Meek coll.

In the development of colours—the young whitish, then more or less dusky, the adult fuscous, or more or less slaty—this bird agrees somewhat with *Macrocorax*, but the bill is rather differently shaped, the sides of the head bare.

IX. LANIIDAE.

1. **Cracticus cassicus** (Bodd.).

We have a large series of this very common species :—

5 ♂ ad., 2 ♀ ad., Kapaur, December 1896, February 1897. "Iris very deep brown, feet black, bill bluish-white, tip black." W. Doherty coll.

1 ♂ ad., 1 ♂ immat. (most of the back black), Dorey. Bruijn coll. (Specimens *b'* and *g'* of Salvadori's list in *Orn. Pap.* ii. pp. 186, 187.)

1 ♂ ad., Dorey, 13. xi. 1883. Powell coll. "Iris brown."

4 ♂ ad., 1 ♀ ad., Dorey, October, November 1896. W. Doherty coll.

1 nestling, somewhere in Dutch New Guinea, bought from Duivenbode 1899.

1 ♂ ad., 2 ♀ ad., Biak, October 1896. W. Doherty. "Iris very deep chestnut."

1 ♂ ad., 1 ♂ immat., 1 ♀ juv., Mafor, May 1897. W. Doherty coll.

2 ♂♂, 1 ♀, Ron Island, July 1897. W. Doherty coll.

1 ♀ vix ad., Ramoi, New Guinea, 4. ii. 1875. Beccari coll. (Specimen *t''* of Salvadori's list, *l.c.*)

1 ♀ ad., Mansinam, 27. v. 1875. (Specimen *s'* of Salvadori's list, *l.c.*)

1 ♀ vix ad., "Côte septentrion. 136° 30'—137° long. E." Bruijn coll.

1 ♀ ad., Sorong, March 1884. Bruijn coll.

1 ♀ ad. (very white back), Ausus, Jobi. Bruijn coll.

1 ♀, Marai, Jobi, 1897. W. Doherty coll.

1 ♀ (back with much black), Batanta, 22. vi. 1875. Beccari coll. (Specimen *r'''* of Salvadori's list, *l.c.*)

1 juv., Salwatty, ex coll. Guillemard.

2 labelled "Waigiu, Wallace," ex coll. Bartlett, Nos. 5847 *a*, *b*.

2 ♂♂, 3 ♀♀, Mysol, January, February 1900. "Iris very dark coffee-brown." H. Kühn coll.

2 ♂♂, 2 ♀♀, Dobbo, Aru, August 1900. H. Kühn coll.

1 juv., Dobbo, Aru, 26. v. 1896. Capt. Cayley Webster coll.

1 ♀, Aru. Wallace coll.

1 ♂, 3 ♀♀, Simbang, German New Guinea, August 1899. E. Nyman coll.

2 ♂♂, 2 ♀♀, Stephansort, German New Guinea, 1899. E. Nyman coll.

2, Fergusson Island, 1894. A. S. Meek coll.

1 ♀ ad., Goodenough Island, 17. xii. 1896. "Iris very dark brown." A. S. Meek coll.

1 ♀ juv., Kiriwini, Trobriand Islands, 15. ii. 1895. "Iris hazel." A. S. Meek coll.

1 ♀ ad., Milne Bay, 1898. A. S. Meek coll.

2 ♀ ad., Nicura, British New Guinea. Lix coll.

2. **Cracticus quoyi** (Less.).

Barita quoyi Lesson, *Voy. Coqu., Atlas* Pl. 14 (1826) ; Lesson, in Férussac's *Bull. Sc. Nat.* x. p. 289 (1827) ; Lesson, *Voy. Coqu. Zool.* i. p. 639 (1828 : typus ex Dorey, New Guinea).

1 ♀ ad., Mysol, 4. xi. 1883. "Length 35·4 cm." Guillemard coll.

2 ♂ ad., Mysol, December 1883. "Length 361, 385 mm." Powell coll.

1 ♂ ad., Mysol, 17. i. 1900. H. Kühn coll., No. 1847. "Bill black, basal half milk-white."

1 ♀ ad., Salwatti, 17. xi. 1883. H. Guillemard coll.

1 ♂ ad., 1 ♀ ad., Kapaur, January 1897.

1 ad., Anday. Bruijn coll. (Specimen *b* of the list in *Orn. Pap.* ii. p. 190.)

1 ad., Arfak. Bruijn coll. (Specimen *c* of the list in *Orn. Pap.* ii. p. 190.)

1 juv., with Arabic characters on labels. Bruijn's hunters.

1 ♀ ad., Dorey, June 1897. W. Doherty coll.

2 ♂♂, 1 ♀ ad., Takar, October—November 1896. W. Doherty coll.

2 ad., Dobbo, Aru, June 1896. Capt. Cayley Webster coll., Nos. 139, 161.

1 ♀ ad., Wokan, Aru, 29. ix. 1900. H. Kühn coll., No. 2436.

1 ♀ ad., Maniom (?), Aru, 19. xi. 1897. H. Kühn coll., No. 331.

1 ♀ ad., Stephansort, 18. xii. 1898. "Iris roth." E. Nyman coll.

1, British New Guinea, 1879. A. Goldie coll.

1 vix ad., Mt. Victoria, Owen Stanley ranges, 5000—7000 ft., April—June 1896. Native coll.

1 ♀ ad., Nicura, August 1893. Lix coll.

3. **Cracticus louisiadensis** Tristr.

Cracticus louisiadensis Tristram, *Ibis* 1889, p. 555 (Sudest Island).

Strepera rosa-alba De Vis, in *Rep. on Brit. N. Guinea* 1889, *Birds*, p. 3. (Cf. Nov. Zool. 1898. p. 522.)

2 ♂ ad., 1 ♀ imm., Sudest I., March—April 1898. A. S. Meek coll.

4. **Pomareopsis bruijni** (Salvad.).

1 ♂ ad., Mts. British New Guinea. Anthony coll.

1 ♂ ad., Mailu district, 19. vii. 1895. Anthony coll. "Eye light grey, bill and feet light blue."

2 ♀ ad., Oriori district, January 1896. Anthony coll.

2 ♂♂, 1 ♀, Mt. Cameron, September 1896. Anthony coll.

We hardly think that this form should be among the *Laniidae*.

The Genus *PITOHUI*.*

5. **Pitohui uropygialis** (Gray).

Rectes uropygialis G. R. Gray, *P. Z. S.* 1861 pp. 430, 435 (Mysol).

1 ♂, 1 ♀, Mysol, November 1883. H. Guillemard coll.

1 ♂, Mysol, 29. xi. 1883. "Length 285 mm." Powell coll.

1 ♀, Mysol, 13. xii. 1883. (*Marchesa* expedition.)

Mr. Kühn, who made a good collection on Mysol in 1900, did not obtain specimens of this bird.

* *Pitohui* Lesson, *Tr. d'Orn.* p. 375, 1831—*Rectes* Reichenbach, *Syst. Av.* tab. 65, 1850—*Rhectes* auctorum.

6. **Pitohui aruensis** (Sharpe).*

1, Wanambai, Aru, 23. vi. 1896. Cayley Webster coll., No. 195. "Iris red, bill and feet black.

1 ♂ ad., Sg. Bark, Kobroor, Aru Islands, 19. viii. 1900. "Iris reddish brown." H. Kühn coll., No. 2345.

4 ♂♂, more or less adult, Sg. Bark, Kobroor, Aru, August 1900. H. Kühn coll., Nos. 2344, 2346, 2350, 2353.

1 ♂ ad. without any black on the breast and abdomen, Sg. Bark, Kobroor, Aru, 24. viii. 1900. H. Kühn coll., No. 2448.

2 ♀♀, Sg. Bark, Kobroor, Aru, August 1900. H. Kühn coll., Nos. 2437, 2349.

7. **Pitohui meridionalis** (Sharpe).

Rectes meridionalis Sharpe, *Ibis*, 1888, p. 437 (Astrolabe Mountains).

4 ♂♂, Chads Bay, British New Guinea, July 1899. "Iris dark red, feet slate, bill black." A. S. Meek coll., Nos. 2658, 2659, 2667, 2672.

Two of Meek's specimens have the upper tail-coverts pure black, the two others mixed with rufous-cinnamon. The latter are probably less adult.

1, Mt. Cameron, 5000—6000 ft., which agrees well with Meek's supposed younger specimens, but has the wings and tail a little shorter: wing 126, tail 113. Probably this is a *female*.

Pitohui meridionalis is nearest to *P. aruensis* Sharpe, but differs in its much larger size (wing 130—132, tail 116—120, bill 29—30 mm.), lighter under-surface and less deep, somewhat more yellowish rufous-cinnamon upperside, also the entire absence of black mixture on the breast and abdomen. The scapulars are rufous-cinnamon, not black.

The exact affinities between *P. aruensis*, *P. analogus*, *P. dichrous*, *P. uropygialis*, *P. decipiens*, *P. rubiensis*, *P. dohertyi* (see below), and *P. meridionalis* are not sufficiently clear to us to warrant our grouping them into subspecies, and therefore we prefer for the present to treat of them binomially.

8. **Pitohui dichrous** (Bp.).

2 ♂♂, 2 ♀♀, Hatam, Arfak, 1879. Bruijn coll.

2 ♀♀, Babinjai, Arfak, 1879. Bruijn coll.

2 ♂♂, 3 ♀♀, 2 (?), Arfak. Bruijn coll. 1874, 1875, 1888. (Specimens *b*, *g*, *h*, *m*, *n*, *s* of Salvadori's list in *Orn. Pap.* ii. p. 195.)

1 ♂, Mt. Maori, 3000 ft. (near Humboldt Bay), January 1899. J. M. Dumas coll.

1, Mt. Maori (near Humboldt Bay). J. M. Dumas coll.

2 ♂♂, 1 ♀, Sattelberg, German New Guinea, 7, 10. vi. 1899. E. Nyman coll.

1 ♂, 2 ♀♀, Simbang, German New Guinea, 6, 15, 19. viii. 1899. "Iris gelb." E. Nyman coll.

1, "Astrolabe Mountains." Goldie coll.

* Through the kindness of Geh. Hofrath Dr. A. B. Meyer, we have been able to examine one of the types of *Rhectes analogus* A. B. Meyer, *Zeitschr. f. Orn.* i. p. 284, and there is no doubt that it belongs to *R. aruensis*. Our series shows the complete intergradation between the supposed *analogus* and *aruensis*, the former name being given to young birds and adult females, *aruensis* in the first instance to adult males.

2 ♂♂, Collingwood Bay, 5, 9. vi. 1899. "Iris dark red, bill and feet black." A. S. Meek coll., Nos. 2566, 2591.

The specimen from the Astrolabe Mountains and No. 2591 of Meek's are slightly paler than the rest of the specimens.

9. **Pitohui dohertyi** sp. nov.

Similar to *P. dichrous* but much larger, with breast and abdomen lighter and more ochraceous, upperside darker chestnut-rufous in some individuals.

Hab. Ron Island in the Geelvink Bay.

Type: ♂, Ron, June 1897. W. Doherty coll., No. 769.

Mr. Doherty sent 3 ♂♂ and 2 ♀♀, June 1897. "Iris deep brown, feet and bill black."

7 ♂♂, 2 ♀♀, July 1897.

Measurements: wing 127—130, tail 115—123, bill 25—28, tarsus 36—38 mm.

P. dichrous measures: wing 103—112, tail 103—105, bill 23—25 mm.

10. **Pitohui decipiens** Salvad.

6 ♂♂, 4 ♀♀, Kapaur, December 1896. "Iris very deep chocolate, bill and feet blackish." W. Doherty coll.

The head and foreneck of the *females* is much lighter, more grey, than that of the *males*, but the tail is also black.

These birds are evidently true *decipiens*, not *rubiensis* of Meyer. Through the kindness of the author we have been able to examine the types, *male* and *female*, of his *rubiensis*. We find that the *male* differs from the *males* of *decipiens* in the lighter, more cinnamon, less chestnut back, while the supposed *female* is indistinguishable from *P. kirhocephalus*, in which the sexes are similar. *P. rubiensis* is evidently a form of *P. decipiens*, the *male* having a blackish tail, the supposed *female* a greyish slaty one.

11. **Pitohui kirhocephalus** (Less.).

Lanius kirhocephalus Lesson, *Voy. Coqu., Atlas* pl. 11 (1826).
Vanga kirhocephalus, Lesson, *Voy. Coqu., Zool.* i. 2. p. 633 (1828: Dorey).

1, Etna Bay, 3. viii. 1896. "Iris blue, feet and bill grey." Capt. Cayley Webster coll., No. 297.

2 ♀♀, Dorey, 4, 5. vi. 1875. Bruijn coll. (Specimens *j*, *m* of Salvadori's list in *Orn. Pap.* ii. p. 199.)

1, Dorey. Bruijn coll. (Specimen *b*, *Orn. Pap.* ii. p. 199.)

2 ♂♂, 1 ♀, Anday, April—May 1875. Bruijn coll. (Specimens *a'*, *b'*, *c'* of the list, *Orn. Pap.* ii. p. 199.)

1 ♀, Anday, April 1875. Bruijn coll. (Specimen *z* of the above list.)

1, Anday. Bruijn coll. (Specimen *s* of the above list.)

1 ♂, Mansinam, Arfak, May 1875. Bruijn. (Specimen *l'* of the above list.)

2 ♀♀, Anday. Bruijn coll. 1879.

1 ♂, 1 ♀, Wamari, Arfak, 1879. Bruijn coll.

1 ♀, Mt. Maori, near Humboldt Bay, 3000 ft., January 1899. J. M. Dumas coll.

2 ♂♂, 1 ♀, Dorey, October 1896, June 1897. "Iris chestnut, feet pale grey, bill pale brown (greyish brown)." W. Doherty coll.

12. **Pitohui brunneiceps** (D'Alb. & Salvad.).

Rectes brunneiceps D'Alb. & Salvadori, *Ann. Mus. Civ. Gen.* xiv. p. 70 (1879: Fiume Fly).

We have no specimens of this very distinct form, but have examined a specimen in the British Museum. There we have also seen the type of *Rhectes phaeocephalus* Rchw., which appears to be a very closely allied subspecies of *P. brunneiceps.**

13. **Pitohui meyeri** sp. nov.

Rostro pallide olivaceo-brunnescente, capite, gula, colloque pallide olivaceo-brunneis, interscapulio, alarum tectricibus superioribus, tergo, uropygio, subcaudalibus russatis, uropygio subcaudalibusque rufescentioribus. Pectore, abdomine, subcaudalibus, subalaribus, tibiisque ochraceis. Cauda brunneo-castanea; remigibus fuscis, pogoniis externis cinnamomeo-brunneis. Al. 105—113, caud. 110—112, tars. 27—28, rostr. 23—25 mm.

Hab. In Nova Guinea septentr., prope Takar, Tana Mera.

Type: ♂ Takar, October 1896. W. Doherty coll., No. 1011.

This perfectly new species has apparently no very close ally. Its head, throat and neck are pale olive-brown, or a kind of "wood-brown," not sharply divided from, but rather merging into the russet upperside, where the rump and upper tail-coverts are somewhat brighter and more rufous. In some specimens the head is very little different from the back, in others much more different. The remiges are blackish brown, with the outer webs cinnamon-brown, the inner webs pale cinnamon towards the base. Tail dark chestnut-brown. Entire under surface from the end of the fore-neck ochraceous. Under wing-coverts and thighs ochraceous.

We have the following specimens of this species:

1 ♂, 2 ♀♀, Takar, October—November 1896. "Iris dark (deep) brown, feet steel-grey, bill pale greyish brown (pale brownish)." W. Doherty coll.

1 ♀, Tana Mera, October 1896. W. Doherty coll.

1, N.E. Coast (Tana Mera) of Dutch New Guinea. Collected by J. M. Dumas, purchased from von Renesse van Duivenbode.

This species is named in honour of Hofrath Dr. A. B. Meyer, who has described several forms of the genus *Pitohui*, and to whom we are obliged for lending us some material for comparison.

We have no specimens of his *brunneicauda*, which is evidently a good species.

14. **Pitohui cerviniventris** (Gray).

Rectes cerviniventris G. R. Gray, *P. Z. S.* 1861. p. 430 ("Gagie"—errore: type from Waigiu in British Museum).

4 without locality.

Salvadori (*Orn. Pap.* ii. p. 201) says that Waigiu specimens have the underside brighter. If this is constant three of our birds would be from Batanta, one from Waigiu, but the specimens in the British Museum (it correctly labelled) do not bear out this statement.

* We may here call attention to two recently described birds, which were erroneously supposed to be new:—

Merula melanaria Madarász (*Orn. Monatsber.* 1900. p. 23) is the same as *Merula papuensis* De Vis, *Report Brit. New Guinea* 1889, *Birds* p. 4 (1890).

Graucalus cornix Rchw. (*Orn. Monatsber.* 1900. p. 187) is the same as *Graucalus longicauda* De Vis, *Report Brit. New Guinea* 1889, *Birds* p. 3 (1890).

15. **Pitohui jobiensis** (Meyer).

1 ♂, 2 ♀♀, Ansus, Jobi, May 1875, April 1874. Bruijn coll. (Specimens *b, h, j* of the list in *Orn. Pap.* ii. p. 201.)

1 ♂, Ansus, Jobi, 1897. Bruijn coll.

1 ♂, Ansus, Jobi, 10. xi. 1883. Powell coll. 276 mm. "Iris brown, tarsus greyish brown, bill horn-colour."

1 ♂, Asua, Jobi, May 1897. W. Doherty coll.

2 ♂♂, 1 ♀, Marai, Jobi, April 1897. W. Doherty coll. "Iris dark crimson, feet dull grey, bill whitish, tinged with red."

1 ♀, Ansus, Jobi, April 1897. W. Doherty coll.

1 ♀, Kurudu, east of Jobi, October 1896. W. Doherty coll. "Iris very deep chestnut, feet iron grey with ochraceous soles, bill pale brown."

3 without exact locality.

16. **Pitohui ferrugineus ferrugineus** (Bp.).

2 ♀♀, Mansinam, Arfak. Bruijn coll. (Specimens *p, r* of the list in *Orn. Pap.* ii. p. 204.)

1, Ramoi, 3. ii. 1875. Beccari coll. (Specimens *h, r* of the list in *Orn. Pap.* ii. p. 204.)

1 ♂, Anday, 2. vi. 1875. Bruijn coll. (Specimen *o* of the list in *Orn. Pap.* ii. p. 204.)

2 ♂♂, 2 ♀♀, Dorey, October 1896, June 1897. "Iris pale pink, feet iron-grey, bill black." W. Doherty coll.

5 ♂♂, (1 sex ?), Kapaur, December 1896, February 1897. "Iris grey-brown, feet pale bluish grey, bill nearly black." W. Doherty coll.

4 ♂♂, 3 ♀♀, Mysol, January 1900. "Iris bright ochreous (pale bright brown), bill black, feet plumbeous grey." H. Kühn coll., Nos. 1942, 1943, 1944, 1945, 1972, 1860.

2 ♂♂, Salwatty. Bruijn coll. (Specimens *c', d'* of the list in *Orn. Pap.* ii. p. 204.)

1 ♂, Sorong, 25. iv. 1875. Bruijn coll. (Specimen *d* of the list in *Orn. Pap.* ii. p. 204.)

17. **Pitohui ferrugineus holerythrus** (Salvad.).

Differs from *P. f. ferrugineus* in its deeper and brighter rufous coloration above and below.

2 ♂♂, 2 ♀♀, Ansus, Marai, Jobi, April 1897. W. Doherty coll. "Iris pale salmon, feet bluish grey, bill black."

18. **Pitohui ferrugineus brevipennis** (Hart.).

Rhectes ferrugineus brevipennis Hartert, Nov. Zool., 1896. p. 354 (Aru).

Differs from *P. f. ferrugineus* principally by its smaller size, and apparently different colour of iris.

1, Wanambai, Aru, 25. vi. 1896. "Iris white, bill and feet grey." Capt. Cayley Webster coll., No. 217. (Type of *brevipennis*.)

1 ♂, 2 ♀♀, Sg. Bark, Kobroor, August 1900. "Iris brownish white, feet ash-grey, bill black." H. Kühn coll., Nos. 2207, 2208, 2209.

1, Mikroor, Aru, 10. vii. 1896. C. Webster coll., No. 254 (from spirits).

19. **Pitohui ferrugineus clarus** (Meyer).

Rhectes ferrugineus clarus A. B. Meyer, *J. f. O.* 1894. p. 91 ("Nova Guinea orientata").

Paler than *P. f. ferrugineus*, especially on the underside.

1 ♂, Stephansort, 9. i. 1897. E. Nyman coll. "Iris brown."

2 ♂♂, 1 (sex ?), Mt. Cameron, 2000 ft., September 1896. A. S. Anthony coll.

1, between rivers Laroki and Vanapa, 1897. E. Weiske coll.

3, near Port Moresby (?).

2 ♂♂, 2 ♀♀, Milne Bay, March—April 1899. "Iris pale yellow (light yellowish grey, light grey, light brown (!)), feet pale bluish slate, bill slaty black." A. Meek coll., Nos. 2193, 2233, 2419, 2445.

1 ad., Muinkaira, S.E. New Guinea. O. C. Stone coll.

1 ♂, Hall Bay, South New Guinea, 13. vii. 1875. D'Albertis coll. (Specimen *x* of the list in *Orn. Pap.* ii. p. 204.)

20. **Pitohui leucorhynchus** (Gray).

Rectes leucorhynchus G. R. Gray, *P. Z. S.* 1861 ("Gagie"—errore : type Waigiu).*

1 ♀, Batanta, July 1875. Bruijn coll. (Specimen *g* of the list in *Orn. Pap.* ii. p. 206.)

1 ♂ ad., Momos, Waigiu, 25. x. 1883. "Iris light yellow, tarsus pale grey, bill light yellow." Powell coll.

3 without locality.

21. **Pitohui cristata** (Salvad.).

Rectes cristata Salvadori, *Ann. Mus. Civic. Gen.* vii. p. 930 (1875 : Mt. Morait, W. New Guinea).

6 Mt. Cameron, Owen Stanley Range, 5000—6000 ft., autumn 1896. A. S. Anthony coll.

1, Mts., British New Guinea. Anthony coll.

1 (? near Port Moresby). E. Weiske coll.

1 without locality. Differs from the rest in having the crest cinnamon-rufous, not brown, the bill pale. Probably immature, hardly another form.

22. **Pitohui nigrescens nigrescens** (Schleg.).

1 ♂, Mori, Arfak, 1. v. 1875. Beccari coll. (Specimen *i* of the list in *Orn. Pap.* ii. p. 207.)

1 ♂, Arfak, July 1874. Bruijn coll. (Specimen *h* of the above list.)

2 ♂♂, 1 ♀, Arfak. Bruijn coll.

2 ♂♂, without locality.

23. **Pitohui nigrescens schistaceus** (Rchw.).

Rhectes nigrescens schistaceus Reichenow, *Orn. Monatsbr.* 1900. p. 187 (Aroa-fluss, Weiske coll.).

1 ♀, Eafa District, 5000—6000 ft., October 1895. Anthony coll. "Eye dark grey, feet brown, bill black."

* One of us has several times before called attention to some cases of uncertainty regarding localities of birds collected by the immortal Wallace. It is evident that the birds were not all labelled in the field, as should be done, but that they were labelled in London, probably having only numbers or preliminary labels before. It seems that the species described by Gray from "Gagie" were really all taken on Waigiu.

3 ♂♂, 2 ♀♀, Mt. Cameron, 5000—7000 ft., August—September 1896. Anthony coll.

1 ♂, Owen Stanley Mts., 5000—7000 ft., 1896.

1 ♂, " British New Guinea." E. Weiske coll.

The *males* of this subspecies are a little more slaty, less deep brownish black than those of typical *nigrescens*.

Both subspecies of *P. nigrescens* have a most peculiar musky smell, not noticed in any true *Pitohui*. *P. nigrescens* has some rights to be separated generically from *Pitohui*.

24. **Colluricincla brunnea** Gould.

Colluricincla brunnea Gould, *P. Z. S.* 1840. p. 164 (N.W. Australia).

We cannot see that there are any reliable differences between Australian and Papuan specimens. With regard to the Australian forms we believe that *C. pallidirostris* Sharpe and *superciliosa* Masters are synonyms of *C. brunnea*, being probably based on immature examples, but, though we have a good series from N.W. Australia (Derby) and Queensland, we do not yet venture to speak authoritatively on this question.

We have the following Papuan specimens:

1, " Port Moresby," purchased from Gerrard, jun., probably one of Goldie's specimens (stained with black on head and throat).

2 ♂♂, 2 ♀♀, Milne Bay, January, April, May 1899. " Iris dark brown, feet bluish slate (slate), bill black, in one example (No. 2186), light bluish slate with a violet tint." A. S. Meek coll., Nos. 2186, 2456, 2484, 2519.

25. **Pinarolestes megarhyncha megarhyncha** (Quoy & Gaim.).

Muscicapa megarhyncha Quoy & Gaimard, *Astrol. Zool.* i. p. 172. Pl. III. fig. 1 (1830: Dorey, New Guinea).

1 ♂, Batanta, 26. vii. 1875. Beccari coll. (Specimen *z'* of Salvadori's list in *Orn. Pap.* ii. p. 212.)

1 ♂, 2 ♀♀, Batanta, Bruijn coll. (Specimen *u'*, *o'*, *v'* of Salvadori's list.)

1, Batanta, 20. x. 1883. Powell coll.

1 ♂, 1 ♀, Batanta, 20. x. 1883. From the *Marchesa's* voyages.

1 ♂, Warbusi, 24. iii. 1875. Beccari coll. (Specimen *y* of Salvadori's list).

1, Anday. Bruijn's hunters.

1 ♂, 1 ♀, Mansinam, May 1875. Bruijn coll. (Specimens *k*, *l* of Salvadori's list.)

1 ♂, Arfak, 28. iv. 1875. Bruijn coll. (Specimen *r* of Salvadori's list.)

5 ♂♂, 2 ♀♀, Dorey, Arfak, October 1896, June 1897. W. Doherty coll. " Iris deep brown, feet slaty-grey (grey-brown; slaty, ochreous below), bill (dark) brown, under mandible whitish."

2 ♂♂, 2 ♀♀, Kapaur, December 1896. W. Doherty coll.

1 ♂, 1 ♀, Ron Island, Geelvink Bay, July 1897. W. Doherty coll.

1 ♀, Mt. Moari, near Humboldt Bay, January 1899, 3000 ft. high.

5 ♂♂, 2 ♀♀, Mysol, January 1900. H. Kühn coll., Nos. 1778—1783, 1934. " Iris brown, bill pale brown, feet ashy greyish."

These Mysol specimens are all somewhat paler underneath and somewhat more olive, less rufous brownish above, than most *megarhyncha* from New Guinea, but some specimens from the latter island agree perfectly with the Mysol specimens.

26. **Pinarolestes megarhyncha aruensis** (Gray).

Myiolestes aruensis Gray, *P. Z. S.* 1858. pp. 180, 193 (Aru Islands).

2 ♂♂, 1 ♂, Wokan, Aru Islands, September—October 1900. H. Kühn coll.
1 ♂, Wanambai, Kobroor, Aru, 4. iii. 1900. H. Kühn coll.
1 ♀, Sg. Bark, Kobroor, Aru, 23. viii. 1900. H. Kühn coll., No. 2296.
1 ♂, Trangan, 13. ix. 1900. H. Kühn coll., No. 2706.
2 Wanambai, 1 Dobbo, Aru Islands, from spirits. Cayley Webster coll.

Very similar to typical *megarhyncha*, but the under surface is more dull cinnamon-brownish, more rufous, less yellowish.

27. **Pinarolestes megarhyncha tappenbecki** (Rchw.).

Collaricincla tappenbecki Reichenow, *J. f. O.* 1899. p. 118 (January, 1899 : Friedrich-Wilhelmshafen, German New Guinea).
Pinarolestes dissimilis Madarász, Reichenow's *Orn. Monatsber.* 1900. p. 2 (Erima, close by Friedrich-Wilhelmshafen).

1 ♀, Friedrich-Wilhelmshafen, 29. i. 1898. Tappenbeck coll., No. 66 (one of the types).

We have also, through the courtesy of Dr. von Madarász, been able to examine the two types of *P. dissimilis*, *both* from Erima. They are perfectly similar and in no way distinguishable from *tappenbecki*. The existence of the latter name has probably escaped Dr. v. Madarász, because its author placed it with *Collaricincla*, which is quite a distinct genus. *P. m. tappenbecki* is so closely allied to typical *megarhyncha*, that it is quite possible that a series may show that it is not separable, but we think its paler abdomen and maybe generally lighter throat may justify its separation. The throat feathers are not "am Ende weiss," as described by Reichenow, but white, crossed by a faint white bar. Professor Reichenow, in his original description, compared his bird with *rufogaster*, but it is very much nearer to *megarhyncha*. Dr. von Madarász compared it with *megarhyncha*, but he probably used for comparison only or principally the darker form which we call *madaraszi*.

28. **Pinarolestes megarhyncha madaraszi** subsp. nov.

Differs from typical *megarhyncha* in its deeper cinnamon underside and blackish bill.

Type : Sattelberg, 17. iv. 1899. Biró coll. (No. 2554/i in the National Hungarian Museum, Budapest.)

The deeper under surface of these birds—we have only seen the two, a *male* and a *female*, collected by Biro on the Sattelberg—makes them conspicuous in a series of *megarhyncha*, and the two specimens are perfectly similar to each other. The bills appear blackish with whitish cutting-edges, while in all our thirty-four specimens of typical *megarhyncha* not one has a blackish bill, they being all more or less pale brownish. Named in honour of Dr. Julius von Madarász.

29. **Pinarolestes megarhyncha despectus** subsp. nov.

Differs at a glance from *P. meg. megarhyncha* by its much paler, less rufous underside and lighter throat. The throat-feathers have narrow darker shaft-lines and whitish, often very faint cross-bars in the middle, the feathers of the breast have

darker brown shaft-lines. The upper surface is generally a shade more olive, less rufous, the tail and wings distinctly more olivaceous, less rufous brown.

This form has, by Salvadori, Sharpe, Meyer, Finsch, and other authorities, been united with *P. meg. rufogaster* of Australia, but the Australian form has always a much paler, generally more greyish upperside, lighter and more uniform light buff throat and apparently paler bill. It resembles superficially somewhat *P. megarhyncha affinis* of Waigiu, but is much less olivaceous on the under surface.

Type of *Pinarolestes megarhyncha despectus*: ♂ ad., Milne Bay, British New Guinea, 14. ii. 1899. A. S. Meek coll., No. 2323. "Iris brown, feet and bill ligh bluish slate."

2 ♂♂, 2 ♀♀, Milne Bay, February and April 1899. A. S. Meek coll., Nos. 2227, 2323, 2434, 2465.

4, Mt. Cameron, Owen Stanley Range, August—September 1896. A. S. Anthony coll.

1 ♂, Mailu district, British New Guinea, 30. vii. 1895. A. S. Anthony coll.

2 ?, "low country near Port Moresby." Weiske coll. Bought from McIlwraith & McEacharn in London. (Probably from the Brown River.)

2, Eafa district. Purchased from McIlwraith & McEacharn in London.

1, between Rivers Laroki and Vanapa. Weiske coll.

1, British New Guinea. Goldie coll.

1, Sogere, 25. xi. 1885, 2000 ft. high. H. O. Forbes coll.

30. **Pinarolestes megarhyncha rufogaster** (Gould).

Colluricincla rufogaster Gould, *P. Z. S.* 1845. p. 80 (Port Essington, Australia).

This form is restricted to Australia. We have a good series from Queensland and N.W. Australia, but it is possible that there are also several forms in Australia.

31. **Pinarolestes megarhyncha affinis** (Gray).

Myiolestes affinis Gray, *P. Z. S.* 1861. p. 431 ("Gagi"—probably erroneous statement, as with all birds described by Gray from Gagi. Typical locality Waigiu—type in British Museum labelled Waigiu).

This is the most distinct one of the various forms of Papuan *Pinarolestes*, differing from the others in its distinctly olivaceous underside. It is only known from Waigiu, and does not occur on the Mysol, though one of Wallace's specimens in the British Museum is erroneously labelled "Mysol."

We have so far only three specimens:

2, Momos, Waigiu, 25—27. x. 1883. "Length 18·5 cm. "Iris greyish-brown, bill horn-colour, tarsus brownish (brownish black)." H. Guillemard coll.

1, without original label, but evidently from Bruijn's hunters.

32. **Pachycephala dahli** Rchw.*

Pachycephala melanura dahli Reichenow, *Orn. Monatsber.* 1897. p. 178 (Credner Inseln and Raluan).

♂, outer edges of primaries grey.

Prof. Reichenow described this bird in the first instance as different, under the notion that the birds from New Britain (Neu Pommern) were typical *melanura*.

* It is hardly possible to say if *P. citreogaster* Rams. (1877) or *P. merula* Lesson (1828) refer to this form or to *finschi*, as both were described from *females*, the former from "New Britain and adjacent islands," *i.e.* without exact locality, the latter from New Ireland. Further researches are necessary to clear up these nomenclatorial questions.

Informed by Dr. Finsch that this was not the case, he named the latter *P. finschi*, relegating *dahli* to the synonyms of *melanura*. This, however, was also incorrect. The *males* from the Credner Islands differ from typical *males* of *P. melanura* of Australia in their larger size, stronger and longer bill, longer wing and apparently also slightly more golden underside and more yellowish back. The *females*, however, are quite different, being brownish or olive-green above and having a deep yellow abdomen and deep yellow under tail-coverts, while those of typical *melanura* are grey above, have a buffy white abdomen and pale sulphur-yellow under tail-coverts.

It is not certain if *dahli* can be treated as a subspecies of *melanura*, but we are inclined to think that all these yellow Thickheads must be geographical forms of *P. melanura*.

We have a *male*, collected by Kleinschmidt on the Credner Islands near New Britain in 1880, and we saw others from Palikuru in the British Museum. We are further obliged to Dr. Heinroth, who most kindly lent us some specimens collected by him in the Bismarck archipelago. He obtained *dahli* on Vulkaninsel, Credner Islands, N. New Ireland, and a small island near Nakung.

33. **Pachycephala finschi** Rchw.

Pachycephala finschi Reichenow, *Orn. Monatsber.* 1899. p. 8 (Ralum, New Britain).

Differs from *P. m. dahli* in having the outer edges of the primaries yellowish olive-green, not grey! The upperside seems to be a shade darker, but the black pectoral crescent is not wider. The *female* is like that of *P. m. dahli*, but the throat is uniform, while it is said to be always faintly barred with grey in *P. m. dahli*.

New Britain (Ralum) and, according to Heinroth (*J. f. O.* 1903. p. 68), also Northern New Ireland and Blanche Bay. If it is true that the two forms, *dahli* and *finschi*, occur together, they would have to be treated as two species, but probably *P. dahli* strays only exceptionally into the area inhabited by *finschi*. The distribution, however, as it is known at present, is most strange, and wonders of distribution seldom hold good, if more intricate explorations and studies are made.

We have three *males* and two *females* collected by Captain Cayley Webster on New Hanover, which Dr. Finsch compared with the types of *P. finschi*, sent for his inspection to Leyden, and declared them to be perfectly similar; and we saw the *male* obtained by Heinroth.

34. **Pachycephala aurea** Rchw.

Pachycephala aurea Reichenow, *Orn. Monatsber.* 1899. p. 131 (Ramufluss in Kaiser-Wilhelms-Land, Tappenbeck coll.).

2 ♂ ad., "Kone district," British New Guinea, June 1898. "Eye dark brown, bill dark blackish grey, feet dark grey." A. S. Anthony coll.

This fine *Pachycephala* seems to be only known from the male. The top and sides of the head, chin, and wide pectoral crescent are black; throat white, some of the upper feathers with narrow blackish tips. Back, rump, and scapulars golden-yellow, irregularly tinged with olive in one of our examples. Tail and wings black, the remiges ashy-whitish, slightly tinged with yellow, on the basal portion of the inner webs. Upper wing-coverts black, the lesser series with yellow tips. Upper tail-coverts black. Breast, abdomen, and under tail-coverts golden-yellow. Under wing-coverts whitish, tinged with sulphur-yellow. Wing 85—88, tail 63—67 mm.

35. **Pachycephala soror** Scl.

Pachycephala soror Scl., *P. Z. S.* 1873. p. 692 (Arfak).

2 ♂♂, 1 ♀, Arfak. Bruijn coll.

2, ♂ ♀, Hatam, 1875. Bruijn coll. (Specimens *m* and *y* of Salvadori's list in *Orn. Pap.* ii. p. 223.)

1 ♂ ad., Hatam, 27. vi. 1875. Beccari coll. (Specimen *i* of the list, p. 222.)

1 ♂ ad., "Matang," 26. vi. 1875. (Specimen *f* of the list on p. 222, where given as "Hatam.")

3, ♂♂ ♀, Arfak. Bruijn coll. (Specimens *d*, *e*, *s*, of the list on pp. 222, 223.)

2 ♀, ad., juv., Aroa River. Emil Weiske coll.

2, ♂ ♀, between Rivers Laroki and Vanapa. Emil Weiske coll.

4 ♂♂, 4 ♀♀, Mt. Cameron, Owen Stanley Range, 6500 ft. A. Anthony coll.

1 ♂ ad., Kotoi district, 4000 ft., 13. viii. 1898. A. Anthony coll.

1 ♂ ad., Moroka, 1885. H. O. Forbes coll.

36. **Pachycephala schlegelii schlegelii** Schleg.

Pachycephala schlegelii Schlegel (ex Rosenberg, in litt.), *Ned. Tijdschr. Dierk.* iv. p. 43 (1871: "de l'intérieur de la Nouvelle Guinée").

3 ♂♂, 1 ♀, Arfak. Bruijn coll. (Specimens *c*, *b*, *f*, *g* of Salvadori's list in *Orn. Pap.* ii. p. 224.)

1 ♂ ad., Arfak, e Museo H. Guillemard (probably ex Bruijn).

4 ♂♂, 3 ♀♀, Arfak. Bruijn coll.

1 ♂, 3 ♀♀, Hatam, June 1875. Beccari coll. (Specimens *m*, *r*, *s*, *x*, of Salvadori's list, p. 224.)

1 ♀ juv., Arfak. Bruijn coll. (With some cinnamon feathers on head, neck, and chest.)

37. **Pachycephala schlegelii obscurior** Hart.

Pachycephala schlegeli obscurior Hartert, Nov. Zool. 1896. p. 15 (Eafa district).
Pachycephala sororcula De Vis, *Ibis* 1897. p. 380 (British New Guinea).

1 ♂ ad., Eafa district, between Mts. Alexander and Bellamy, 5000—6000 ft., October 1895. (Type of *Pachycephala schlegelii obscurior*.)

1 ♂, "Moroka district." Purchased in London.

3 ♂♂, 3 ♀ ad., 1 ♀ juv., Kotoi district, 4000 and "11000" ft., August 1893. Anthony coll.

1 ♂, 1 ♀, Mt. Scratchley. Anthony coll.

3 ♂♂, 1 ♀, Owen Stanley Mountains. Anthony coll.

2 ♂♂, 1 ♀, Mt. Cameron, 7000 ft. Anthony coll. "Iris brown."

2 juv., Aroa River. E. Weiske coll.

2, Mts. of British New Guinea, no exact locality.

The male of this southern subspecies differs in the darker shade and greater extent of the rufous colour of the abdomen and the slightly darker olive-green back and mantle. The female differs in a stronger degree. The colour of the head is darker and more slaty-grey, the green of the back is darker, more greenish, the throat, instead of being whitish, is slate-grey with a narrow white bar across each feather, the upper chest is darker, slaty-grey instead of whitish drab.

The young of both *P. schlegelii schlegelii* and *P. schlegelii obscurior* are very

peculiar, and appear to be never described. They differ so much from the adult birds that several ornithologists who saw them declared them without hesitation to belong to an unknown species. As we have five, in different stages, from the mountains of British New Guinea, and one from Arfak, and as there are several from Arfak in Leyden, we were always inclined to consider them the young of some species. Some moulting specimens have now shown us that these birds are without any doubt whatever the young females of *P. s. schlegelii* and *P. schlegelii obscurior*. In the first plumage these birds seem to be uniform cinnamon, with the exception of the wings and tail, which are blackish with olive-greenish or rufous-tinged edges. The olive-green feathers of the adult birds appear first on the back, and the abdomen becomes (through moult) rich yellow. Only the head, chest, and some patches on the back and upper wing-coverts are then cinnamon, and such birds give to the casual observer the idea of a very fine unknown species of *Pachycephala*. The specimens that moult into the plumage of the adult are evidently females, the crown becoming ashy-grey, the throat greyish with white bars, the chest olivaceous-greenish. We cannot yet tell if the young male is quite similar to the young female or not.

38. **Pachycephala rufinucha rufinucha** Scl.

Pachycephala rufinucha Sclater, *P. Z. S.* 1873. p. 692 (Hatam).

1 ♂ ad., Hatam, September 1872. D'Albertis coll., No. 469. (Specimen *a* of Salvadori's list, *Orn. Pap.* ii. p. 225.)

Type of *P. rufinucha !*

2 ♂♂, Arfak. Bruijn coll. (Specimens *c*, *d* of Salvadori's list, *l.c.*)

1 ♀, April 1877, Karons. Laglaize coll., No. 171.

1 ♂ ad., Hatam, apparently from the *Marchesa* expedition.

39. **Pachycephala rufinucha gamblei** Rothsch.

Pachycephala gamblei Rothsch., *Bull. B. O. Club* vii. p. xxii, Dec. 1897 (Mt. Cameron, 5000 ft., Anthony coll.).

" ♀ " ad. (probably ♂), Mt. Cameron, 5000 ft. A. S. Anthony coll. (Type of *P. gamblei*.)

" ♀ " jun., Mt. Cameron, 7000 ft., 11. viii. 1896. A. S. Anthony coll.

1 ♂, 1 ♀ ad., Kotoi district, Owen Stanley Range, 10,000—11,000 ft., August 1898. A. S. Anthony coll.

1 juv., " Eafa district." Purchased in London.

1 without exact locality. Weiske coll. Purchased in London.

2 ad., Aroa River. E. Weiske coll.

1, Upper Brown River, between Mts. Astrolabe and Owen Stanley. Purchased in London.

Pachycephala rufinucha gamblei is closely allied to *P. ruf. rufinucha*, from which it only differs in the following characters :

The feathers of the forehead are whitish with ashy centres, while in *P. r. rufinucha* they are uniform whitish grey, and this light colour extends farther in *P. r. rufinucha*, covering a space of nearly a centimetre, while in *P. r. gamblei* only extending over an area of about 6 mm. The chestnut nuchal patch is much larger in adult *P. r. gamblei*, there is a grey chin-patch in *P. r. gamblei* which is

not seen in *P. r. rufinucha*, the back is a shade deeper olive-green. The bills of the two subspecies are exactly of the same dimensions.

The young birds have no chestnut nape-patch and no distinct whitish patch on the forehead, the sides and flanks are not so deep olive-green, the chest is washed with cinnamon.

40. **Pachycephala griseiceps griseiceps** Gray.

Pachycephala griseiceps G. R. Gray, *P. Z. S.* 1858. pp. 178. 192 (Aru).

This form was first described from the Aru Islands. The following specimens do not differ from typical Aru birds :—

2 ♂♂, Wanambai, Kobroor, Aru Islands, viii., ix. 1900. "Iris brownish black (dark coffee-brown), feet plumbeous, bill black." H. Kühn coll., Nos. 2303, 2305.

1 ♂, 1 ♀, Sg. Bark, Kobroor, Aru Islands, viii. 1900. H. Kühn coll., Nos. 2301, 2304.

1 ♂, 1 ♀, Trangan, Aru Islands, viii., ix. 1900. H. Kühn coll., Nos. 2639, 2640.

1 ♀, Dobbo, Aru Islands, February 1897. W. Doherty coll.

6, ♂♀, Kapaur, December 1896. W. Doherty coll.

4 ♂♂, 1 ♀, Mysol, January—February 1900. H. Kühn coll., Nos. 1777, 1935, 1981, 1982, 2008.

1 ♀, Mt. Arfak, 1879. Bruijn coll.

1 ♂, Sorong, New Guinea, 9. i. 1865. Dr. Bernstein coll. (Exchange from the Leyden Museum.)

2 ♀♀, Naiabui, British New Guinea. D'Albertis & Tomasinelli coll. (Specimens *b* and *d* of Salvadori's list in *Orn. Pap.* ii. p. 226.)

2, Kotoi district, August 1898. Anthony coll.

1, "Ambernoh River" (?). Dumas coll. (Received from Van Renesse van Duivenbode.)

41. **Pachycephala griseiceps jobiensis** Mey.

Pachycephala var. *jobiensis* A. B. Meyer, *Sitzungsber. k. Ak. d. Wissensch. zu Wien* lxix. p. 394 (1874).

Specimens from Jobi differ conspicuously in their brighter yellow abdomen and under tail-coverts, and in the brownish area across the chest being quite absent or ill-defined, never well developed, the chest being yellow with an olive tinge, instead of pale brownish. The specimens from Takar, to the east of the Ambernoh River, are perfectly similar to the typical Jobi form, and so is the one shot by Dumas near Humboldt Bay. The last specimen, and those from Takar, make it almost certain that the specimen said to be from the Ambernoh, is not from there.

1 ad., Jobi, April 1869. Von Rosenberg coll. (Exchange from the Leyden Museum.)

3 ♂♂, 4 ♀♀, Marai and Ansus, Jobi, April—May 1879. W. Doherty coll.

6, ♂♀, Takar, October—November 1896. W. Doherty coll.

1 near Humboldt Bay. Dumas coll.

This last specimen belongs distinctly to typical *griseiceps*, having the abdomen and under tail-coverts very pale yellowish, and a distinctly brownish chest. In view of the fact that Takar examples belong to *P. griseiceps jobiensis*, we think that this latter form should also occur on the Ambernoh River, and the explanation may perhaps lie in the uncertainty of the locality. The birds said to come from the

Ambernoh River were not labelled, and Mr. van Duivenbode only told us where they came from. It is therefore quite probable that Dumas, not being a naturalist and probably unaware of the importance of localities, sent specimens from various places in the same box with the Ambernoh River specimens.

A specimen from the little island of Gagi, west of Waigiu, collected by Dr. Bernstein, which we received in exchange from the Leyden Museum, agrees perfectly with *P. g. jobiensis* in colour, but the wings are longer, measuring 90 mm. One from Waigiu, in the British Museum, collected by A. R. Wallace, does not differ from *P. g. jobiensis* in any respect. More material from Waigiu and Gagi must be studied in order to decide if it be possible to separate the birds from these islands from *jobiensis*. We have no examples from Miosnom, where they agree with *jobiensis* in colour, but are larger. (*Pachycephala miosnomensis* Salvad., *Ann. Mus. Civ. Gen.* xv. p. 46, 1879.)

42. **Pachycephala dubia** Rams.

Pachycephala dubia Ramsay, *Proc. Linn. Soc. N. S. W.* iv. p. 99 (1879, River Laloki, British New Guinea).

1 ♂ ad., Fergusson Island, 12. xii. 1894. A. S. Meek coll.

1 ♂ ad., 1 ♀ ad., 1 ♂ juv., Fergusson Island, May—June, 1897, A. S. Meek coll.

(In adult birds the iris is dark brown, feet fleshy slate-colour, bill black. In the young bird the iris and feet are the same, but the bill fleshy, tinged with brown. The young birds are more rufous brown above, and the secondaries have wide rufous cinnamon outer edges.)

1 ♂ ad., Goodenough Island, 10. xii. 1896. A. S. Meek coll.

2 ♀ ad., Sogere, Owen Stanley Mts., 1885. H. O. Forbes coll.

2 ad., said to be from Mt. Gayata, Richardson Range, 2000—4000 ft., Emil Weiske coll. (purchased from McIlwraith and McEacharn in London).

1 ♂ ad., Collingwood Bay, 28. v. 1899. A. S. Meek coll.

2 ♂ ad., 1 ♀ ad., 1 ♂ fere ad., Milne Bay, January—March. A. S. Meek coll.

1 ♂ juv., 1 ♀ juv., 1 ♀ vix ad., Simbang, 25, 30. viii. 1899. E. Nyman coll.

43. **Pachycephala phaionotus** (Bp.)

1 ♂, 2 ♀♀, 1 ?, Pulo Babi, Aru Islands, 23. ix. 1900. "Iris smoky grey, feet pale flesh-colour, bill black."

Doherty did not come across this species on Mafor in the Geelvink Bay, where it has been found by former collectors. Specimens from Banda (typical locality), Tifore, Dammer in the Moluccas, and from the South-East Islands and Key group seem to be indistinguishable.

44. **Pachycephala moroka** sp. nov.

Supra olivaceo-brunneo, loris, pileo nuchaque cinereo-schistaceis, auricularibus brunneis, plumarum scapis pallidioribus. Remigibus fuscis, pogoniis externis brunneo-olivaceo, internis albido marginatis. Subtus alba, pectore brunneo tincto. Subcaudalibus subalaribusque albis. Rectricibus fuscis, pogoniis externis olivascentibus, duabus mediis griseo tinctis. Rostro parvo. Long. tot. circa 145, al. 85, caud. 65, rostr. 10, tars. 32 mm.

Typus et specimen unicum : Moroka district, British New Guinea. (No. 1204.)

This bird was bought in London from McIlwraith and McEacharn.

45. **Pachycephala hyperythra hyperythra** Salvad.

Pachycephala hyperythra Salvad., *Ann. Mus. Civ. Gen.* vii. p. 932 (1875) (Loc. typ. Arfak).

1 ♀ ad., Kapaur, December 1896. "Iris deep chestnut, feet pale purplish, bill black, commissure pale.

2 "♂," 5 adult, unsexed birds, Mt. Maori near Humboldt Bay, 3000 ft. high, J. M. Dumas coll.

This form is evidently confined to Western, or Dutch New Guinea. The sexes are apparently alike.

46. **Pachycephala hyperythra salvadorii** Rothsch.

Pachycephala sharpei Salvad. (*non* Meyer, 1884), *Ann. Mus. Civ.* xxxvi. p. 88 (1896, Moroka).
Pachycephala salvadorii Rothsch., *Bull. B. O. C.* vii. p. xxii. (Dec. 1897).

(The literature referring to specimens from British New Guinea pertains to this form, which is the representative of typical *hyperythra* in the eastern parts of New Guinea.) Differs from *P. h. hyperythra* as follows :

The mantle and rump are duller, much less bright, not so yellowish, more brownish. The ear-coverts, which are more or less ochraceous, contrasting with the crown, are ashy-slate, like the crown, or only very slightly tinged with ochraceous, not in sharp contrast with the crown. The breast and abdomen are much paler and duller, not so bright ochraceous, but more brownish buff. Dimensions similar.

1 ♂, Sogere, 2000 ft. H. O. Forbes coll.

1 ♂, 1 (sex ?), "Mt. Gayata, Richardson Range, 2000—4000 ft." (Purchased from McIlwraith and McEacharn, locality according to information received by them ; the unmistakable preparation and a label marked "M." (*male*) in Weiske's writing, proves them to be collected by Emil Weiske).

1 ♂, Mt. Cameron, 13. viii. 1896. A. S. Anthony coll.

1 ♂, Sattelberg, German New Guinea, 800 m., 3. vii. 1899. E. Nyman coll. (This specimen is darker and richer below, though not like typical *hyperythra*—more rufous—and the ear-coverts are very blackish. A series from Kaiser Wilhelm's Land might show this form to belong to a third subspecies.

47. **Pachycephala leucostigma** Salvad.

Pachycephala leucostigma Salvadori, *Ann. Mus. Civ. Gen.* vii. p. 933 (1875 : Arfak).

♀, Arfak, 13. vii. Bruijn coll.

1, Arfak, Bruijn coll.

1, Dutch New Guinea, with label in Arabic characters.

48. **Pachycephala hattamensis** Mey.

Pachycephala hattamensis A. B. Meyer, *Sitz. k. Ak. Wiss. Wien* lxix. p. 391 (1874 : Hatam, Arfak).

3 ♂♂, Arfak, June 1874, Bruijn coll. (Specimens *b, c, j* of Salvadori's list in *Orn. Pap.* ii. pp. 236, 237.)

1, Arfak, ex Guillemard coll.

49. **Pachycephala fortis fortis** Gadow.

Pachycephala fortis Gadow, *Cat. B. Brit. Mus.* viii. p. 369 (1883 : "Astrolabe Mountains").

3 ♂♂, 1 ♀, Fergusson Island, May, June 1897. "Iris dark brown, feet slaty (light chalky blue, dark slate, bluish slate), bill black, in adults. Iris brown, feet

salmon slate), bill brown in the younger bird." A. S. Meek coll., Nos. 336, 550, 621, 625.

2 ♂♂, 2 ♀♀, Fergusson Island, September, October 1894. A. S. Meek coll.

1 ♀, Goodenough Island, 21. xii. 1896. A. S. Meek coll., No. 94.

We have not been able to see a specimen from the mainland of New Guinea, though the types, collected by Goldie, were said to have come from the Astrolabe Mountains. As Goldie's birds were not well labelled, and errors in localities have been made with specimens collected by that gentleman, we are inclined to think that *P. fortis* might possibly not inhabit New Guinea, and that it might only be found on the smaller islands east of New Guinea, the true *fortis* coming from the d'Entrecasteaux Islands.

The wings measure 90—98 mm., the small specimens being *females*. Young birds have cinnamon edges to the wing coverts and remiges and a less developed grey cap.

50. **Pachycephala fortis trobriandi** Hart.

Pachycephala fortis trobriandi Hartert, Nov. Zool. 1896. p. 236.

♂ ad., Trobriand Island, Kiriwini Group, 16. iii. 1895. A. S. Meek coll., No. 7 (Type of *P. f. trobriandi*). Wing 102½ mm.

♀ ad., Trobriand Island, 11. iii. 1895. A. S. Meek coll. Wing 97 mm.

This form differs in its larger dimensions from typical *fortis*.

51. **Pachycephala fortis discolor** (De Vis).

Colluricincla discolor De Vis, *Report on New Guinea*, 1889. *Birds* p. 3 (Sudest Island, Louisiade group).

Pachycephala fortis ? subsp. Hartert, Nov. Zool. 1898. p. 522. (Differences from typical *fortis* mentioned, opinion expressed that *C. discolor* referred to this bird, but for want of sufficient material of typical *fortis* not finally recognised.)

We have seen enough examples of *P. fortis* from the d'Entrecasteaux group to state with confidence, that the Sudest Island birds must be separated from *P. fortis fortis*, and the description of "*Colluricincla discolor*" refers doubtless to this bird.

Pachycephala fortis discolor differs from *P. f. fortis* as follows : The crown is not so slaty-greyish, more ashy-brown ; the throat is whiter, with very distinct blackish shafts to the feathers, the breast and abdomen are lighter, the sides of the abdomen and the belly are less tinged with yellowish brown or light olive-brown, the under tail-coverts paler. The wings of the *females* measure 92—94, those of the *males* 100—101 mm. We have 3 ♂♂, 3 ♀♀, Sudest Island, April 1898. A. S. Meek coll., Nos. 1590, 1636, 1669, 1679, 1716, 1773. "Iris brown, feet bluish slate, bill black."

The younger birds have cinnamon borders to the remiges and upper wing-coverts.

52. **Pachycare flavogrisea** (Mey.)

Pachycephala flavogrisea A. B. Meyer, *Sitzb. k. Ak. Wiss. Wien* lxix. p. 495 (1874 : Arfak).

2, Arfak, Bruijn coll. (Specimens *a*, *j* of Salvadori's list in *Orn. Pap.* ii. p. 238.)

5, Arfak, Bruijn coll., 1879.

4, Mt. Cameron, Owen Stanley Range, 7000 ft. A. S. Anthony coll.

2, said to have been obtained between the rivers Laroki and Vanapa. Emil Weiske coll.

According to Count Salvadori the specimens with uniform yellow sides of the head are adult ones, those with a large auricular patch of olive young, but we are inclined (in spite of some contradictory sex-marks put on labels by more or less unreliable collectors) to think that the latter are the *females*. They show no sign of immaturity, their wing is always shorter, the yellow on the forehead narrower, the black band above the latter not well developed.

This bird is probably quite incorrectly placed among the *Laniidae*.

X. DICRURIDAE.

1. **Dicrurus carbonarius** (Sharpe).

Dicrurus carbonarius Bonaparte, *Consp. Av.* i. p. 352 (1850: Nov. Guinea—descr. nulla !).*
Chibia carbonaria Sharpe, *Cat. B.* iii. p. 238 (1877: Papuan group of islands. Descr. princeps).

2 ♂♂, Mysol, February 1900. "Iris scarlet, bill and feet black." H. Kühn coll., Nos. 2050, 2051.

1, Mysol, 29. xi. 1883. Powell coll.

1, Momos, Waigiu, 26. xi. 1883. *Marchesa* expedition.

1 ♀, Batanta, 19. x. 1883. Guillemard coll.

1 ♂, Batanta, July 1875. Bruijn coll. (Specimen *m''* of Salvadori's list.)

2 ♂♂, Sorong, New Guinea, 23, 25. vi. 1875. Bruijn coll. (Specimens *i'* and *o'* of Salvadori's list.)

2 ♂♂, Dorey, 1. iv., 5. vi. 1875. Bruijn coll. (Specimens *d* and *j* of Salvadori's list.)

1 ♂, June 1897. W. Doherty coll.

1 ♂, Andai, June 1874. Bruijn coll. (Specimen *l* of Salvadori's list.)

1 ♀, Ansus, Jobi, May 1897. W. Doherty coll.

2 ♂♂, 1 ♀, Mafor, May 1897. W. Doherty coll.

1 ♂, Biak, October 1896. W. Doherty coll.

1 ♀, Korido, 14. v. 1875. Beccari coll. (Specimen *d''* of Salvadori's list.)

1 ♀, Korido, 1879. Bruijn coll.

2 ♂♂, Takar, October, November 1896. W. Doherty coll.

1 ♂, 3 ♀♀, "Côte septentrionale," 136°—137°, 1879. Bruijn coll.

2 ♂♂, 2 ♀♀, Kapaur, December 1896, June 1897. W. Doherty coll.

1 ♂, Konstantinhafen, 27. v. 1889. Kubary coll.

1 ♂, Stephansort, 16. xii. 1898. E. Nyman coll.

1 ♂, 1 ♀, Sattelberg, 3, 9. vi. 1899. E. Nyman coll.

1 ♀, Simbang, 25. viii. 1899. E. Nyman coll.

2 ♂♂, Nicura, July 1893. Lix coll.

1 Mt. Cameron, 8. ix. 1896. A. S. Anthony coll.

Count Salvadori records the Australian *bracteata* from the Fly River. It is very strange that *carbonaria* should occur in all other parts of New Guinea, and true *bracteata* on the Fly River

Count Salvadori also unites the Aru form with *carbonaria*, but its much smaller size alone would justify its separation.

* There is no description, unless the word "Medius" is meant for one.

2. **Dicrurus meeki** sp. nov.

Differs from *D. carbonarius*, *D. laemostictus*, *D. assimilis* and allies in the less forked tail, the lateral feathers of which are not twisted at their tips, and the very small spangles to the feathers of the foreneck and chest, which are obsolete in the centre of the chest and foreneck. The wing measures 154 and 155, the tail 134 and 141, culmen from forehead 34½ and 37 mm. "Iris dark red, bill and feet black."

Two specimens, both marked "male," Guadalcanar, Solomon Islands, 8. v. 1901, and 24. v. 1901. A. S. Meek coll., Nos. 3110, 3188.

Type: No. 3188, Guadalcanar, 24. v. 1901.

3. **Dicrurus laemostictus** Scl.

1 ♂, New Britain, 24. xi. 1880. No. 584 of collector, Th. Kleinschmidt coll. (No. 16836 of Mus. Godeffroy.)

2 ♂♂, 1 juv., Fergusson Island, October 1896. A. S. Meek coll.

1 ♀, Goodenough Island, 10. xii. 1896. A. S. Meek coll. "Iris bright red."

4 said to be from New Ireland. (?)

D. laemostictus is said to differ from *carbonarius* by the much larger metallic spangles on the breast and larger bill. We are not able to fully appreciate these differences, and Rothschild would unite the two forms.

4. **Dicrurus assimilis** Gray.

Dicrurus assimilis Gray, *P. Z. S.* 1858. pp. 179. 193 (Aru).

2, ♂♀, Sungi Barkai, W. Aru Islands, 20. viii. 1900. "Iris blood-red, bill and feet black." H. Kühn coll., Nos. 2248, 2249.

2, ♂♀, Sungi Bark, Kobroor, Aru Islands, 24, 26. viii. 1900. "Iris vermilion." H. Kühn coll., Nos. 2250, 2252.

1 ♀, Dobbo, Aru Islands, 14. viii. 1900. "Iris scarlet. H. Kühn coll., No. 2246.

1, Dobbo, Aru Islands, 29. v. 1896. C. Webster coll., No. 105.

1 ♂ juv., Dobbo, Aru Islands, February 1897. W. Doherty coll.

D. assimilis, *laemostictus* (if separable) and *meeki* are evidently subspecies of one species.

5. **Dicranostreptus megarhynchus** (Quoy et Gaim.)

8 from New Ireland (missionary), 1892.

6. **Chaetorhynchus papuensis** Meyer.

Chaetorhynchus papuensis, Meyer, *Sitzungsber. k. Akad. Wissensch. zu Wien* lxix. p. 493 (1874: Arfak).

1 ♀, Arfak, 14. v. 1875. Bruijn coll. (Specimen *g* of Salvadori's list in *Orn. Pap.* ii. p. 183.)

1 ♀, Mansinam, 26. v. 1875. Bruijn coll.

1 ♀, Hatam (Arfak) 1879. Bruijn coll.
1 ♀, Mt. Arfak (Gouwi) 1879. Bruijn coll.
1 ♀, Sattelberg, 14. vii. 1899. "Iris dunkel." E. Nyman coll.
2, bought from dealers, Weiske coll., British New Guinea.
2, ♂ ♀, "Mt. Gayata, Richardson Range, 2000—4000 ft." E. Weiske coll.
1 ♀, Mt. Cameron, 7000 ft., 11. viii. 1896. A. S. Anthony coll.
2, Mt. Cameron. A. S. Anthony coll.

XI. ORIOLIDAE.

1. **Oriolus striatus** Quoy et Gaim.

2 ♂♂, 1 ♀, Salwatti, March, May 1875. Bruijn coll. (Specimens *x*, *a' b'* of the list in *Orn. Pap.* ii. p. 474.)

4 ♀♀ (1 juv.), Mysol, January, February 1900. H. Kühn coll. "Iris dark blood-red (adult), dark coffee-brown (juv.), bill red-brown (adult), brownish black (juv.), feet plumbeous or ash-grey."

1 ♂, 2 ♀♀, Kapaur, December 1896. W. Doherty coll.
2 ♂♂, 3 ♀♀, Dorey, October 1896, June 1897. W. Doherty coll.
1 ♀, Dorey, Bruijn coll. (Specimen *b* of the list.)
3 ♂♂, 3 ♀♀, Takar, October 1896. W. Doherty coll.
1 ♂, Anday, 1879. Bruijn coll.
1 ♀, Sorong, 30. iv. 1875. Bruijn coll. (Specimen *t* of the list.)
1 ♀, Mansinam, 26. v. 1875. Bruijn coll. (Specimen *g* of the list.)
1 ♂, "Côte septentr." 136°—137°. Bruijn coll.
1 ♂, Stephansort, 16. xii. 1898. E. Nyman coll.
1 ♀, Hall Bay, 12. vii. 1875. D'Albertis coll.
2 ♂♂, 1 ♀, Mailu district, July—August 1895. A. Anthony coll.
1 juv. (black bill), British New Guinea, no exact locality.
1 ♂, 1 ♀, Milne Bay, February, March 1899. A. S. Meek coll., Nos. 2333, 2393.

2. **Oriolus flavocinctus mülleri** (Bp.).

[*Mimetes flavocinctus* King, *Survey Intertrop. Coasts Australia* ii. p. 419 (182—? : N. Australia).]
Mimeta mülleri Bonaparte, *Consp. Av.* i. p. 346 (1850 : New Guinea, typus in Mus. Lugd.).

3 ad. Dobbo, Aru Islands, May, June 1896. Cayley Webster coll. "Iris red."

1 ♂ ad., Trangan, Aru Islands, 13. ix. 1900. H. Kühn coll. "Iris bright red, feet plumbeous, bill pale reddish-brown."

1 ♀ ad., Wanambai, Kobroor, Aru Islands, 2. ix. 1900. H. Kühn coll.

1 ♂ juv., Dobbo, Aru Islands, 11. viii. 1900. H. Kühn coll. "Iris dirty coffee-brown, bill black, feet plumbeous."

This subspecies differs very little from the typical *flavocinctus* of Australia. The sole constant characters we can find are the rather smaller alar speculum and the generally smaller yellow tips to the rectrices.

XII. ARTAMIDAE.

1. **Artamus leucorhynchus leucopygialis** Gould.

This form (type Australia!) differs from typical *leucorhynchus* (loc. typ. Philippines!) only in its smaller size, chiefly bill.

1 ♂, Tana Mera, October 1896. Doherty coll. "Iris dark brown, feet blackish, bill bluish white, tip black."

2, ♂ ♀, Collingwood Bay, 29. vi. 1897. A. S. Meek coll., Nos. 678, 679.

1 ♂, Milne Bay, 12. xii. 1898. A. S. Meek coll., No. 2175.

1 ♂, 2 ♀♀, Mariri, Aru Islands, November 1897. H. Kühn coll., Nos. 342, 349, 356.

1 ♀, Wokan, Aru, 30. v. 1873. Beccari coll., No. 442. (Specimen *c'* of Salvadori's list.)

1 ♂, Wokan, Aru, 17. viii. 1900. H. Kühn coll.

2, Dobbo, Aru, June 1896. Cayley Webster coll.

1 ♂, Wangel, Aru, July 1873. Beccari coll. (Specimen *d'* of the list in *Orn. Pap.* ii. p. 170.)

1 ♀, Salwatty, 5. vii. 1875. Bruijn coll. (Specimen *n* of the list.)

1 ♂, Waigiu, 10. xi. 1883. *Marchesa* expedition.

5, Cape York, N. Queensland; 2, "Australia."

Andaman specimens (5) seem indistinguishable from *leucopygialis*.

2. **Artamus maximus** Meyer.

Artamus maximus Meyer, *Sitzungsber. R. Akad. Wiss. Wien* lxix. p. 203 (1874: Arfak).

1, Arfak, Guillemard coll. (From Bruijn's hunters.)

3 without locality.

1 ♂, Kotoi district, 4000 ft., 12. viii. 1898. "Eye dark grey, bill pale blue, feet pale grey." A. S. Anthony coll.

1 ♀, Mt. Cameron, 5000 ft., 2. ix. 1896. A. S. Anthony coll.

XIII. STURNIDAE.

1. **Melanopyrrhus anais anais** (Less.)

Sericulus Anaïs Lesson, *Rev. Zool.* 1839. p. 44. (The name dates from 1839, not 1845 as given *Cat. B.* xii., nor 1844 as quoted *Orn. Pap.* ii., and the page is 44, not 441 as stated *P. Z. S.* 1857. p. 6.)

1 ad., Sorong, iii. 1884. Bruijn coll.

1 ♂ ad., Salwatty, 31. iii. 1875. Bruijn coll. (Specimen *f* of Salvadori's list.)

1 ♂ jun., Salwatty, 19. vii. 1875. Beccari coll. (Specimen *k* of the list.)

1 ♂ jun., "Côte septentrion. 136° 30'—137° long. 1879." Bruijn coll.

1 ♂ jun. without label,

1 ♂ juv. without label, the black crown much mixed with yellow.

2. **Melanopyrrhus anais orientalis** (Schleg.).

[*Sericulus Anaïs* Lesson, *Rev. Zool.* 1839. p. 44 (Les terres de la Papouasie. In coll. Bourcier).]
Gracula anais orientalis Schleg., *Ned. Tijdschr. Dierkunde* iv. p. 52 (1871 : Bondey).

3 ♂♂, "Doktiur" (?), New Guinea. Bruijn coll.

1, Bruijn coll., no locality.

1 ♂, 2 ♀♀, Kapaur. December 1896. W. Doherty coll. "Iris ochreous, feet orange-ochreous, bill dull canary-yellow."

1, German New Guinea. C. Webster coll.

1, "Serui, Jobi," bought from natives by Doherty.

1 ♂, Stephansort, December, 1898. E. Nyman coll.

1 ♂, Dora, S. New Guinea, x. 1893. Lix coll.

2, Nicura, S. New Guinea, July 1893. Lix coll.

2, Brown River, 1898. E. Weiske coll.

It appears to be certain that the fully adult of this subspecies has the whole crown orange, or with only a small black patch on the nape, while in *M. anais anais* the head of the adult is entirely black. Nevertheless they are clearly not more than subspecies. Our specimens from Kapaur have so much black on the hinder crown and sides of the head that they can be called intermediate, while one of our black-headed *anais* shows some yellow feathers in the crown. Unfortunately the latter has no locality. The distribution of these two forms cannot be said to be clearly understood.

3. **Mino dumontii** Less.

Mino dumontii Lesson, *Voy. Coqu., Atlas* Pl. 25 (1826); id., *Férussac Bull. Sc. Nat.* x. p. 159 (1827); id., *Voy. Coqu. Zool.* i. p. 652 (1828: Dorey, New Guinea).

Of this very common bird we have a large series from the following places:—

2 ♂♂, 1 ♀, Waigiu, October 1883. Powell & Guillemard coll.

1 ♀, Batanta, October 1883. Powell coll.

1, Salwatti, March 1874. Bruijn coll. (Specimen *o'* of the list in *Orn. Pap.* ii. p. 468.)

1 ♂, 1 ♀, Sorong, April 1875, March 1884. Bruijn coll.

1 ad., Mariati (near Sorong), 25. vi. 1875. Ex Beccari coll. (Specimen *f'* of the list on p. 468, where given as "♂.") (Probably ex Bruijn coll.)

1 ♂, Mariati, 24. vi. 1875. Bruijn coll. (Specimen *g'* of the above list.)

1 ♂, Anday, 8. iv. 1875. Bruijn coll. (Specimen *k* of the above list.)

1 ♂, Dorey, 26. v. 1875. Bruijn coll. (Specimen *e* of the list.)

1 ♀, Dorey, 5. xi. 1883. Guillemard coll.

2 ♂♂, 1 ♀, Dorey, June, October 1897. W. Doherty coll.

1 ♀, Ron Island, May 1876. Bruijn coll.

1 ♂, Ron Island, July 1897. W. Doherty coll.

1, Wunti, Waropen, bought from natives by Doherty.

1 ♂, 1 ♀, Takar, October 1896. W. Doherty coll.

3 ♂♂, Kapaur, November, December 1896. W. Doherty coll.

1 ♂, Ansus, Jobi, April 1897. W. Doherty coll.

1 ♀, Mailu district, British New Guinea, 30. vi. 1895. Anthony coll.

2, Brown River, British New Guinea. E. Weiske coll.

1, Mt. Cameron, Owen Stanley Range, 1896. Anthony coll.

1 ♀, Naiabui, July 1875. D'Albertis coll. (Specimen *k''* of the list in *Orn. Pap.* ii. p. 468.)

1, Nicura, British New Guinea. Lix coll.

1 ♂, 3 ♀ ad., Milne Bay, November 11th, 1898, March 1899. Meek coll. "Iris yellow, with small black dots, bill and feet orange." (Nos. 2099, 2138, 2154, 2379.)

1 ♂, 1 ♀, Cape Vogel, N.E. coast of British New Guinea, 4. vii. 1897. Meek coll., Nos. 707, 708.

2 ♂♂, Collingwood Bay, 30. vi. 1897. A. S. Meek coll., Nos. 687, 688.

1, German New Guinea. Cotton and Webster coll.

2 ♂♂, 2 ♀♀, Friedrich Wilhelms Haten, October 1899. E. Nyman coll.

1 ♀, Bongu, 4. xi. 1899. E. Nyman coll.

1 ♂, 1 ♀, Stephansort, December 1898, January 1898. E. Nyman coll.

1 ♂, 1 ♀, Simbang, August 1899. E. Nyman coll.

2, Dobbo, Aru, May 1896. Capt. C. Webster coll.

2, Wanambai, Aru, June 1896. Capt. C. Webster coll.

1 ♂, Wanambai, 5. ix. 1900. H. Kühn coll. "Iris dark brown."

1 ♀, Kobroor, 22. viii. 1900. H. Kühn coll. "Iris golden brown with yellow spots." (No. 2405.)

The alleged occurrence of this species on Bougainville is doubtless erroneous, as all the species said to have been obtained by Count Festetich are from the mainland of New Guinea.

4. **Mino kreffti** (Scl.)

Gracula kreffti Sclater, *P. Z. S.* 1869. pp. 120. 124. 126. Pl. IX. (Solomon Islands).

1 ♀, New Britain, 4. vii. 1886. Kubary coll., No. 79.

5 ad., New Hanover, February, March 1897. Capt. C. Webster coll.

22 specimens from the Shortlands, Guadalcanar, Treasury, Isabel, Kulambangra, and Florida Islands, Solomons group.

5. **Calornis metallicus** (Temm.)

Lamprotornis metallicus Temm., *Pl. Col.* 266 (1824 : Amboina).

3 ♀ ad., Batanta, June, July 1875. Bruijn coll. (Nos. *b''*, *g''*, *k''*, of list in *Orn. Pap.* ii. p. 449.)

2 ♂♂, 1 ♀, Mysol, November 1883. Powell coll.*

1 ♂, Mysol, November 1883. Guillemard coll.

1 ♂, Mysol, December 1883. From the *Marchesa* expedition.

1 ♂, Mysol, January 1900. "Iris vermilion, bill and feet black." H. Kühn coll., No. 1947.

1 ♂, Dorey, Bruijn coll. (Specimen *t* of the list in *Orn. Pap.* ii. p. 449.)

1 ♂ ad., 1 ♀ juv., Mansinam, 12. iv., 5. vi. 1875. Bruijn coll. (Specimens *z* and b^4 of the above list.)

2 ♂♂, 1 ♀ ad., Kapaur, November, December 1896. W. Doherty coll.

* Mysol specimens (*gularis* of Gray) are indistinguishable from *metallicus*, and are not identical with the Tenimber form (*circumscripta* Meyer). (Cf. *Nov. Zool.* viii. p. 173.)

1 ♂, 2 ♀ ad., Asua, Jobi, May 1897. W. Doherty coll.
1 ♂ juv., Marai, Jobi. May 1897. W. Doherty coll. ("Iris pale orange.")
7 ♂, 2 ♀ ad., 5 juv., July 1897. W. Doherty coll.
2 ♂ ad., 1 ♀ ad., 1 ♂ juv., 3 ♀ juv., Friedrich Wilhelmshafen 1899. E. Nyman coll.
2, ♂♀ ad., Duke of York Island. Th. Kleinschmidt coll.
1 ♂ (?) ad., New Britain, 20. v. 1886. Kubary coll.
2, ♂♀ ad., Woodlark Island, March 1897. A. S. Meek coll., Nos. 118, 171.
1 juv., Goodenough Island, 13. xii. 1896. A. S. Meek coll.
1 ♂, 1 ♀ ad., Fergusson Island, September and December 1894. A. S. Meek coll.
1 "♀" ad., Mailu district, July—August 1895. Anthony coll.
1 ♂ ad., Milne Bay, S.E. New Guinea, 10. xii. 1898. A. S. Meek coll.
1 ♂ ad., Mt. Cameron, 2000 ft., 20. viii. 1896. Anthony coll., No. 2167.
1 ♂ ad., Yule Island. D'Albertis and Tomasinelli coll., No. 183. (Specimen *f'''* of Salvadori's list.)
1 ♂ juv., 1 ♀ ad., Wammer, Aru, 7, 8. xii. 1883. "Length 266 and 236 mm." Powell coll.
1 ♂ ad., Wokan Island, Aru, 5. xii. 1883. "Length 253 mm." Powell coll.
1 ♂ ad., Dobbo, Aru, 14. xii. 1883. "Length 262 mm." Guillemard coll.
1 ♀ ad., Trangan, Aru, 19. ix. 1900. H. Kühn coll., No. 2631.
Besides these we have from other localities :—
12 ad., 3 juv., from the Louisiades (Rossel, Sudest, St. Aignan) ; 14 ad. from the Solomon Islands ; 6 ad., 9 juv., from the Moluccan Islands (Amboina, Buru, Obi, Batjan, Ternate, Saparua, Morty) ; and 7 ad. and 2 juv. from North Queensland.

6. **Calornis metallicus inornata** Salvad.

Calornis inornata Salvad., *Ann. Mus. Civ. Gen.* xvi. p. 194. no. 4 (1880 : Korido, Misory).

1 ♂ ad., 1 ♀ juv., Biak, October 1896. W. Doherty coll. "Iris scarlet (ad.), orange (juv.)"
1 ♀ ad., Korido, 1879. Bruijn coll.

7. **Calornis cantoroides** Gray.

Calornis cantoroides G. R. Gray, *P. Z. S.* 1861. pp. 431. 436 (Mysol).

2 ♀ ad., Mysol, November 1883. Guillemard coll. ("Length 200, 206.")
1 ♂ ad., Mysol, 9. xii. 1883. From the *Marchesa* expedition.
1 ♂, 1 ♀ ad., Mysol } January—February 1900. "Iris (ad. and juv.) yellowish vermilion." H. Kühn coll., Nos. 1774, 1859, 1963, 1964.
2 ♂♂, 2 ♀ juv., Mysol }
1 ♂, 2 ♀ ad., 1 ♂ juv., Yamna Island, off Takar, October—November 1896. "Iris scarlet (ad.), dull lemon (juv.)." W. Doherty coll.
3 ♀ ad., Yamna Island, 1879. Bruijn coll.
1 ♂, 1 ♀ ad., Milne Bay, 11. xii. 1888. "Iris bright cadmium." A. S. Meek coll., Nos. 2170, 2171.

2 ♂♂, 2 ♀ ad., } St. Aignan (and small island near), September 1897. A. S.
2 ♀ juv., } Meek coll., Nos. 992, 974, 975, 1160, 1161, 1165.

1 ♂ juv., Sudest Island. A. S. Meek coll., No. 1626.

1 ♀ ad., Nicura, 18. vii. 1893. Lix coll.

1 ♂ ad., Guadalcanar, 25. iv. 1901. A. Meek coll.

1, Munia, Solomon Islands, 12. ix. 1893. Wahnes & Ribbe coll.

5 ♂♂, 2 ♀♀, Naiabui. D'Albertis coll. (Specimens *f*, *k*, *n*, *s*, *j*, *g*, *h* of Salvadori's list in *Orn. Pap.* ii. p. 457; Nos. 257, 389, 517, 256, 261, 258, 259 of D'Albertis.)

2 ♂♂, 1 ♀ ad., Mariri Island, Aru Islands, November 1897. H. Kühn coll., Nos. 337, 341, 355.

1 ♀ ad., Maniem Island, Aru Islands, 19. xi. 1897. H. Kühn coll., No. 339.

Evidently this species does not inhabit the main islands of the Aru group, as Kühn found it only on two of the little outlying islets.

8. **Macruropsar magnus** (Schleg.).

Lamprotornis magnus Schlegel, *Ned. Tijdschr. Dierk.* iv. p. 18 (1871 : Misori).

3 ♂♂, 2 ♀ ad., Korido, Misori, May 1875. Beccari coll. (Specimens *d*, *e*, *i*, *r*, *r*. of the list in *Orn. Pap.* ii. p. 459.)

1 ♀ ad., Sowek, Misori, May 1875. Beccari coll. (Specimen *z* of the above list.)

3 ♂♂, 2 ♀♀, Korido, 1879. Bruijn coll.

1 ♂ ad., Korido, October 1896. "Iris dark brown." W. Doherty coll.

1 ♂ ad., Biak, October 1896. W. Doherty coll.

5 ♂♂, 2 ♀ ad., Mefor, May—June 1897. W. Doherty coll.

ON A REMARKABLE NEW OLIGOMYODIAN GENUS AND SPECIES FROM ECUADOR.

By ERNST HARTERT.

Sapayoa gen. nov. Pipridarum.

Passeris domestici magnitudine. Rostro lato, depresso, culmine carinato, apice adunco, vibrissis rictalibus fortibus. Naribus rotundatis. Corporis plumis copiosis, mollibus, in capite summo paullum elongatis, itaque pileo fere subcristato. Cauda aequali, paullum emarginata. Remige exteriore secundariarum longitudine, quarta longissima. Pedibus parvis, invalidis, metatarsis ocreatis, dimidio summo plumatis. Digitis metatarsi fere longitudine, basi syndactilis.

Typus generis species unica cognita:

Sapayoa aenigma sp. nov.

♀ ad. Olivaceo-viridis, fere unicolor, subtus laetior, flavescentior. Remigibus fuscis, pogoniis externis supra olivaceo-viridi, internis pallide virescenti-luteo marginatis. Rectricibus fuscis, supra olivaceo-viridi marginatis. Subalaribus tibiisque olivaceo-viridibus. Long. tot. circa 150, al. 85, caud. 60, metatars. 16, dig. med. cum ungue 14, hall. 11, culm. a basi 17, rostri lat. ad basin 11 mm.

Hab. In Ecuadoria occidentali septentrionali, ad flumen Sapayo dictum.

This remarkable new genus, for which I propose the name *Sapayoa*, is difficult to place in the system. After a careful comparison, however, I have come to the conclusion, that it is best placed among the *Pipridae*, not far from the genus *Scotothorus* (*Heteropelma*, *Cat. B.* xiv. p. 318), and my friend Count Berlepsch, to whom I sent the bird before describing it, is of the same opinion. In the uniform coloration and general structure of plumage this bird agrees most with *Scotothorus*, but the very weak and small feet remind one of *Neopelma*. The metatarsus may be called ocreate, the scales being so fused as to show hardly any divisions. About the upper half of the metatarsus is feathered, a very strange character among the *Pipridae*, though we find it among the *Cotingidae* in a somewhat different way in *Phoenicocercus*. The toes are connected at their base, the outer and middle toe for quite half their length. The hallux is large and free. The claws are strong, the under surface of the toes is rough, being covered with separate small roundish scutes, as in *Scotothorus*. This suggests most surely essentially arboreal habits. Wings and tail much as in *Scotothorus*. In the wing the first functional primary is of the length of the secondaries, the fourth is the longest, the third and fifth are nearly equal. The longest secondaries are 14 mm. shorter than the longest primary. The tail may be called square, though the central pair is really 3 mm. shorter than the lateral ones.

The bill is most extraordinary, differing from the bills of all known *Pipridae*

and *Cotingidae*. Though laterally seen, it looks somewhat like the bill of *Scotothorus*, on account of the well developed ridge on the culmen, its great width and strong rictal bristles make it resemble the bills of certain *Tyrannidae*. The nostrils appear to be quite round. The feathers of the lores are directed forward, and the feathers of the crown are somewhat elongated, suggesting a slight crest. The plumage generally is rich, soft, and loose. The distal halves of the outer webs of the outer primaries have the tips of the barbs slightly recurved or hooked, but not stiffened.

The single specimen, marked ♀, is above uniform olive-green. The quills are blackish brown, outer webs margined with olive-green above, inner webs margined with pale greenish buff towards the base. Tail blackish brown, widely margined with the colour of the back. Underside olive-green, but much lighter and more yellowish than the upper surface. The bases of all the feathers are light grey. These bases are more extended and show through on the sides of the body, but this may be partially due to the somewhat abraded tips. Thighs and under wing-coverts olive-green.

A single example, No. 141, marked ♀, evidently fully adult, was obtained on the Rio Sapayo in N.W. Ecuador, November 2nd, 1901, by Mr. Miketta, one of Mr. F. W. H. Rosenberg's correspondents in South America, who has discovered several other fine novelties in Ecuador. The iris is said to be reddish brown, feet grey, bill black, grey underneath. The total length is about 150, wing 85, tail 60, metatarsus 16, the middle toe 14, hind toe 11, the culmen from base 17, from end of feathering about 12, nostrils to tip 10, width at base 11 mm.

On the label the collector states, that the bird had two eggs, but unfortunately they were not sent.

Whether the *male* will be of the same colour as the *female* is of course impossible to say.

DESCRIPTION OF A NEW SPECIES OF GIGANTIC LAND TORTOISE FROM INDEFATIGABLE ISLAND.

By the Hon. WALTER ROTHSCHILD, Ph D.

CAPTAIN DAVID PORTER, in his *Journal of a Cruise made in the Pacific Ocean*, was the first man to draw attention to the differences between the tortoises of the various islands of the Galápagos group. On page 176 of the 1815 edition he states that Mr. Adams (the surgeon of the *Essex*) reported that the tortoises of "Porter's Island," *i.e.* Indefatigable Island, were of extraordinary size and very thick. Since that time no one has found tortoises on Indefatigable, and it was supposed they had been exterminated. In 1901 R. H. Beck found a very young tortoise near the shore, and I specially urged him on his next trip in 1902 to leave no stone unturned to obtain specimens of an age fit to compare specifically. He, after a long and wearisome hunt, collected seven specimens, two alive and five dead, the latter including a very old *male* of gigantic size. However, the latter from old age had so rubbed and worn the edges of the carapace that I am forced to make the next largest the type of the description.

Testudo porteri sp. nov.

Nearest allied to *Testudo nigrita* Dum. & Bib., but at once distinguished from all other Galápagos species by its almost circular outline, the great convexity of its carapace, and the apparent shortness in a straight line, it being nearly as wide as it is long. A distinctive character also is the very large size of the marginal scutes. The circular outline and great convexity of the carapace give the latter the appearance of an irregular sphere cut in half. Total length over curve of carapace 51½ in., total width 56 in.; height of carapace 25 in.; first marginal scute, width 7¼ in., length 4¼ in.; caudal scute, width 12 in., length 7¼ in.; supracaudal vertebral scute, width 15 in., length 9¼ in.; prenuchal vertebral scute, width 14 in., length 9 in.; first costal scute, width 13 inches, length 9¾ in.; second costal scute, width 16 in., length 8 in.; third costal scute, length 13 in., width 7½ in.; fourth costal scute, length 10½ in., width 7½ in.

The carapace of the type has the scutes very deeply striated, and the areolae very small. The large *male* measures over curve of carapace, length 58 in., width 64 in.

Hab. Indefatigable Island, Galápagos group.

Named in honour of Captain David Porter, of the U.S.A. frigate *Essex*, who first mentioned this species.

At the present time there are known to me eleven species of Gigantic Land-Tortoise from the Galápagos Archipelago, one not yet described, and the ten following: *Testudo elephantopus*, *T. nigrita*, *T. vicina*, *T. wallacei*, *T. porteri*, *T. microphyes*, *T. galapagoensis*, *T. ephippium*, *T. becki*, and *T. abingdoni*.

Since describing *Testudo becki* I have received, collected by R. H. Beck, five more specimens, and these show, not only that the species is really distinct from *T. ephippium*, but that it belongs to a different section, as it has the third cervical vertebra biconvex as in *T. galapagoensis*, not the fourth as in the rest of the Galápagan races.

NEW MOTHS FROM BRITISH NEW GUINEA.

By W. WARREN, M.A., F.E.S.

The insects described in this paper were collected by his Excellency the Governor of British New Guinea, Mr. G. R. Le Hunte, who presented the types to the Tring Museum.

LYMANTRIIDAE.

1. **Euproctis huntei** sp. nov.

♀. *Forewings:* dull deep yellow, suffused with rufous brown scales, the only unsuffused area being along the hindmargin, into which paler area the brown suffused field projects between veins 3 and 5, and slight patches of the same tint lie along the margin between the veins; costa and veins beyond middle pale yellow; a pale whitish yellow patch immediately beyond the discocellular; fringe rufous brown.

Hindwings: uniform pale orange, deeper tinged along submedian fold; fringe yellow.

Underside dull yellow, deeper in forewings. Head, antennae, and thorax yellowish, with a brownish tinge; abdomen fuscous brown, with the segmental rings narrowly pale; anal hairs greyish brown, anal segment snow-white.

Expanse of wings: 52 mm.

One ♀ from British New Guinea.

Nearest to *Euproctis edwardsi* Newm. from Australia, the ♂ of which species has the dorsum nearly black and the anal segment yellow.

NOTODONTIDAE.

2. **Turnaca subcarnea** sp. nov.

Forewings: hoary whitish, thickly strewn with dull flesh-coloured and brown scales, the unsuffused portions forming two diffusely margined streaks reaching hindmargin, one from cell to below apex, the other from below cell running between veins 3 and 4; a postmedian strongly curved line of dark dots on veins from five-sixths of costa to above middle of inner margin; fringe whitish, with brown and flesh-coloured patches of scales at the ends of veins.

Hindwings: uniform dull rosy; the fringe white, chequered with rosy.

Underside of forewings rosy like the upperside of hindwings; of hindwings whitish, faintly flushed with rosy. Head and thorax like forewings; abdomen tinged above with the rosy of hindwings; palpi externally brown.

Expanse of wings: 52 mm.

One ♀ from British New Guinea.

GEOMETRIDAE.

Iridobapta gen. nov.

Closely allied to *Bapta*, but distinguished by the neuration of the forewings: in these veins 11, 7, 10, 8, 9, are all stalked from some distance before end of cell, rising in the order named, 11 being connected with 12 by a bar.

Type : *Iridobapta penumbrata* sp. nov.

The species described by me as *Leucetaera subfuscata*, from Bouru (Nov. Zool. VI. p. 342) must be referred to this genus.

3. **Iridobapta huntei** sp. nov.

Forewings: iridescent bluish white, with a few scattered dark scales; costa brown near base, becoming ochreous in apical half; inner line at one-fourth, ochreous, curved, very obscure; outer line at two-thirds, parallel to hindmargin, lunulate outwards and brownish on the veins; cellspot black, formed of raised scales, ringed with yellowish; a fuscous brown marginal shade from below apex, thinning off to a point at anal angle, the fringe also fuscous brown.

Hindwings: without first line and marginal shade; the fringe yellowish.

Underside dull pinkish tinged; the marginal brown shade on forewings diffuse. Face and palpi dark brown; thorax and abdomen white.

Expanse of wings: 30 mm.

One ♀ from British New Guinea.

The hindmargin of hindwings is protuberant at the middle.

4. **Sarcinodes subfulvida** ab. **derufata** nov.

Of three examples of a *Sarcinodes* from British New Guinea, all ♀♀, two agree well with typical *subfulvida* Warr., described from Kiriwini, Trobriand Islands; the third, of the same size, shape, and markings as the other two, differs in the coloration both above and below. The rufous tints of the upperside of the type, as well as its paler tints below, are quite absent, the ground-colour above being liver-brown, dusted with whitish scales before the outer oblique line, and forming an oblique hoary fascia between it and the central shade; marginal space beyond the line broader than in the type and deep liver-coloured, the teeth of the submarginal line indicated by whitish scales; the oblique line itself double with a white central thread forming spots at the veins; the white spots and dashes on costa more prominent. In the hindwings the white thread of the line, which is decidedly antemedian, is continuous, not interrupted between the veins, and touching its inner arm are three white hyaline blotches, one round and large in the cell, a smaller one below vein 2, and a dot between veins 2 and 3.

Underside of both wings wholly dull purplish brown, with darker suffusion in places; the lines obscurely indicated and marked by white vein-dashes; the three white blotches of the hindwings surrounded with red and yellow scales; the fringes in both wings rich chocolate. Front of collar snow-white.

NOCTUIDAE.

5. **Heterormista fulvitaenia** sp. nov.

Forewings: greyish fawn-colour, speckled with darker grey; the lines fuscous grey, obscure; antemedian, median, and postmedian, all parallel and at even distances apart, outwardly oblique from costa, bent on subcostal vein, then waved and more or less parallel to hindmargin; the inner is preceded and the outer followed by a similar fainter line; submarginal line more distinct, formed of blackish lunular patches between the veins; fringe concolorous, with the base ochreous beyond a series of thin black dashes between the veins.

Hindwings : with blackish median and postmedian waved lines ; submarginal shade formed of distinct lunules of blackish scales, disconnected, preceded by a distinct curved fulvous band.

Underside of the forewings speckled with darker, of the hindwings paler ; both wings with three waved darker diffuse lines. Head and thorax like wings ; abdomen rather paler.

Expanse of wings : 30 mm.

One ♀ from British New Guinea.

The scales of this species are pale at base with dark tips, and are regularly arranged so as to form alternate pale and dark, slightly shining ripples. There is a ♂ unnamed in the British Museum collection from Queensland.

Pterocyclophora huntei sp. nov.

Forewings : pale wood-brown, sparsely black-speckled, and with some dull green shades in places ; base of wing at inner margin with some brown and black scales, and a small snow-white tooth at their edge ; a minute whitish dot in cell, and a diffuse pale spot on discocellular ; median and postmedian brownish diffuse lines distinct only in upper half of wing ; the former from middle of costa obliquely curved outwards and subcrenulate to the median vein, then strongly incurved dentate-lunulate to beyond middle of inner margin ; the latter from two-thirds of costa parallel to the median, the lunules more strongly marked between the veins and followed by a pale greenish shade which alone is continued to inner margin, a straight double brown line from anal angle into apex, the outer area thickened with blackish scales ; a fine, paler, internally black-edged line close before margin, marked between the veins with double white spots also internally black-edged ; marginal space beyond the double line darker brown than rest of wing, the fringe also darker and with a blackish spot beyond veins ; costa finely whitish in basal half, brown with two white dashes towards apex.

Hindwings : deep yellow ; the outer fourth only wood-brown, with the double brown line emphasised, and lost in upper half of wing in a large black blotch ; the apex itself white ; traces of two or three inner brown lines on inner margin only ; marginal line as in forewings ; teeth of the hindmargin, especially that at vein 4, much produced and scale-fringed.

Underside pale stone-colour, speckled with grey and black ; inner half of forewing for two-thirds from base yellow ; a pale discocellular blotch resting on a broad outwardly oblique black bar running from upper margin of cell to submedian fold ; lower half of the inner arm of the double line blackish, preceded by a diffuse black cloudy blotch, which here appears to run continuous with the upper half of a postmedian line, not corresponding with that of the upperside ; these black marks are represented above by dull green shades ; fringe wood-brown, preceded by black submarginal dots between the veins corresponding to the white dots of the upper surface ; hindwings with distinct crenulate curved dark median and dotted, less curved, postmedian line, a zigzag obscure submarginal shade, partially double ; a black dot at end of cell, followed by a similar one. Head, thorax, and tuft on basal segment of abdomen brown and black ; abdomen concolorous with forewings ; abdomen beneath, pectus, and legs whitish ; lateral streaks of abdomen, and tarsi brown.

Expanse of wings : 78 mm.

One ♀ from British New Guinea.

7. **Trigonodes isosceles** sp. nov.

Forewings: fuscous grey along costal region, paler grey with a lilac tinge along hindmargin; from the base of cell start two ochreous white lines; the lower broad, oblique, and quite straight to above inner margin at four-fifths where it is somewhat thinner; the upper slightly curved, narrow at origin but widening outwards, ending below vein 6 at an equal distance from hindmargin; the extremities of the two united by fine curved pale line; the whole included space as well as that between lower line and inner margin dark chocolate-brown; the fuscous costal area is edged from apex, where it is deepest, by an oblique line which below vein 6 curves parallel to the pale line, leaving the marginal space paler before the fuscous fringe.

Hindwings: dark fuscous; fringe fuscous.

Underside dull fuscous; hindwings with inner half paler and a dark cellspot. Head, thorax, and abdomen dark fuscous.

Expanse of wings: 34 mm.

One ♀ from British New Guinea.

There are examples from Fiji in the British Museum collection unnamed.

8. **Thyrsoscelis huntei** sp. nov.

Forewings: purplish grey with chestnut-brown suffusion at base and along inner margin, on both sides of the outer line, and more slightly before hindmargin; first line brown, somewhat indistinct, from one-fourth of costa to one-third of inner margin, slightly indented in cell; outer line straight, dull lilac-grey, from middle of costa to anal angle, the chestnut suffusion on each side of it mixed with black scales close to the line; a very indistinct, irregularly waved subterminal line from five-sixths of costa to anal angle; fringe chestnut-brown.

Hindwings: deep fuscous brown, paler towards base and inner margin, the long hairs along submedian fold iron-grey.

Underside of forewings olive-brown, a costal streak and the apical region dull brick-red; hindwings bright brick-red, speckled with fuscous towards apex, and with some fuscous shading at the margin of the submedian interspace; a long tuft of red hairs below the submedian fold; the hairy fringe of abdominal margin paler. Face and palpi externally dark fuscous brown; vertex, shoulders, and patagia rich chestnut-brown; thorax rubbed; abdomen dark fuscous grey; inside of palpi, pectus, legs, and abdomen beneath pale brick red, foretarsi fuscous.

Expanse of wings: 44 mm.

One ♂ from British New Guinea, Tamata, August—September 1899.

This insect evidently belongs to Meyrick's genus *Thyrsoscelis*; but the antennae are quite simple, not ciliated; the hindwings have a deep indentation on hindmargin at the end of the submedian fold; the costa of forewings is bulged in the basal third, and the inner margin is likewise somewhat protuberant near base.

9. **Capnodes albisigillata** sp. nov.

Forewings: fawn-colour, with a reddish tinge, and finely dusted with black; the markings velvety brown; a line close to base marked by a brown spot on costa and median vein; second line slightly curved, waved, at one-third, dark brown on costa and inner margin; immediately followed by a brown band of which the outer

edge is fairly straight, touching in the cell a slender vermiform snow-white streak preceded by a white dot in the band, and followed between vein 2 and the submedian fold by a blackish lunular blotch ; outer line from just beyond middle of costa, irregularly crenulate, oblique outwards to vein 6, then curving inwards and becoming obsolete before inner margin, followed on costa by a large triangular velvety black-brown blotch, with three pale dots in it on the costal edge ; submarginal line parallel to margin, indicated by a slightly darker tint following it and forming dark spots beyond cell and on submedian fold ; a series of minute dark marginal dots ; fringe rufous.

Hindwings : with slightly paler crenulate postmedian and submarginal lines, the latter with a blackish spot between veins 2 and 3 ; fringe darker rufous.

Underside bright brick-red, more coarsely black speckled ; the cell-spots, outer lines, and row of marginal dots black : hindmarginal area of both wings greyer ; inner margin of forewings dark grey. Head, thorax, and abdomen like wings, the last tinged on dorsum with reddish. All the tarsi blackish.

Expanse of wings : 40 mm.

One ♀ from British New Guinea.

Easily distinguished by the dark antemedian band and subapical costal blotch.

10. **Capnodes finipalpis trimaculata** subsp. nov.

In all the examples of *C. finipalpis* Wlk. (= *maculicosta* Wlk.) in the British Museum collection from various localities the basal white spot is a small dot only, and the other two costal spots, present in the form *maculicosta* (in the type from *finipalpis* there are no costal spots), reach well below the subcostal vein. In the form *trimaculata* the basal spot is the largest of the three, and none of them reach below the costal vein ; the spots, especially the exterior one, being flattened and lengthened horizontally, instead of vertically as in the typical form. In the hindwings at bottom of the discocellular is a black spot in a pale ring. One example, from St. Aignan's, in the British Museum collection, has the basal spot slightly larger than usual, but the other two are of normal shape and size.

One ♀ from British New Guinea.

11. **Avitta alternans** sp. nov.

Forewings : pale mouse-grey, crossed by three vertical diffuse olive-brown clouds, basal, median, and postmedian, and three fine waved lines of the same tint in the pale intervals, the outer one before the hindmargin curved ; fringe concolorous.

Hindwings : dark fuscous grey, the marginal third deeper in tint, and with a dark obscure cell-spot.

Underside dull mouse-colour, both wings darker in marginal third and with dark cell-spots, that of the hindwings distinct ; the tuft of hairs below the retinaculum of the ♀ ochreous. Head, thorax, and abdomen concolorous ; pectus and inside of palpi paler, somewhat ochreous tinged.

Expanse of wings : 40 mm.

Two ♀♀ from British New Guinea.

12. **Labanda huntei** sp. nov.

Forewings: dull green, suffused and speckled with black, as in *L. chloromela* Wlk. from India, but the markings very obscure and confused; an oblique green line from near base of costa to one-fourth of inner margin; a waved vertical green line at one-third; a dentate green space beyond the darker central fascia becoming whitish towards inner margin, another submarginal, and a fine green line before apex; fringe iron-grey, with distinct pale basal line.

Hindwings: orange fulvous, with fuscous hindmargin which is broader at apex; fringe fuscous, with fulvous basal line.

Underside of forewings fuscous-cinereous without markings; of hindwings as upperside. Head and thorax dark fuscous grey with green scales intermixed; abdomen paler grey, the basal two-thirds mixed with dull fulvous scales, tuft on basal segment dark; underside of abdomen, pectus, legs, and inside of palpi pale ochreous.

Expanse of wings: 35 mm.

One ♀ from British New Guinea, Tamata, August—September 1899.

All the other species of the genus have dark hindwings; *ceylusalis* Wlk. from Borneo alone has the apex of hindwings yellowish.

13. **Zethes megaspila** sp. nov.

Forewings: lilac-grey, finely black-speckled; lines obscure, irregularly waved, starting from obscure darker costal patches; first near base, second a little before middle, third postmedian, more distinct, outcurved round cell, crenulate between veins and followed by a brown shade, preceded at end of cell by a large round dark chestnut blotch; submarginal line more waved, indented beyond cell and on submedian fold and followed by slightly darker scales; a row of minute dark dots before margin; fringe concolorous.

Hindwings: with the two outer lines only, both indistinct, the submarginal marked by a double blackish spot on inner margin.

Underside without the lilac tinge; the two outer lines and cell-spots darker; marginal dots more or less obsolete on hindwings; extreme apex of forewings whitish. Head, thorax, and abdomen like wings; collar slightly ferruginous; palpi with the terminal joint pale, with darker tips; tarsi dark fuscous, marked with whitish at the joints.

Expanse of wings: 38 mm.

One ♀ from British New Guinea.

Occurs also in the Malay Peninsula, from which there is an example unnamed in the British Museum collection.

14. **Zethes subapicata** sp. nov.

Forewings: purplish grey, with browner grey suffusion; first and second lines very indistinct, the second bluntly angled in cell and oblique to inner margin; outer line thick, blackish, oblique from two-thirds of inner margin, retracted and faint towards costa, closely followed by a thick black shade which is produced to costa before apex and there widened; costal region between second line and this outer shade paler grey, but not forming a distinct costal blotch; the apex also paler;

submarginal line marked by black spots on the veins, those below costa being preceded by white scales ; fringe darker than marginal area.

Hindwings : with the dark line single and central, the basal area within it much darker than the marginal half ; submarginal line less distinct.

Underside of forewings more uniform greyish brown with the lines indistinct, the oblique outer line whitish and straight, followed by a dark shade ; a large brown-black apical blotch ; hindwings paler, with three distinct lines and a dark cell-spot. Head, thorax, and abdomen purplish grey.

Expanse of wings : 36 mm.

One ♀ from British New Guinea.

15. **Zethes distorta** sp. nov.

♀. *Forewings :* purplish grey, or brownish fawn-colour, the lines brown ; first near base curved and slightly indented in cell ; the median curved outwards round cell and thicker below costa, then oblique to inner margin ; the outer fine, bluntly rounded below costa, then nearly straight ; submarginal line represented by blackish dots on veins, those below costa slightly marked with paler internally, preceded on costa by a darker shade ; costal space between lines pale ; orbicular and veniform stigmata round and pale with ferruginous centres ; fringe darker than ground-colour.

Hindwings : with brown antemedian and median lines, the latter with pale external edge and slightly indented beyond cell ; submarginal line as in forewings, but often indistinct ; a dark cell-mark.

Underside purplish or brownish grey ; the outer lines and stigmata edged with paler ; costal area and apex pale lilac-grey. Head, thorax, and abdomen concolorous with wings ; all the tarsi with the joints snow-white.

In the ♂ the ground-colour is rufous brown, and the two stigmata are edged with pale ochreous-yellow, and with brighter ferruginous centres.

Expanse of wings : ♂, 30 mm. ; ♀, 34 mm.

Seven ♀♀, four ♂♂ from British New Guinea, Tamata, August—September 1899.

The forewings of the ♂ of this species have the inner margin strongly lobed, the submedian vein being strongly and abruptly bent upwards round a slightly contorted area ; and the costa of forewings is subtruncate, with two slight indentations before the apex. In both sexes the apex is produced and the hindmargin between it and the middle angle decidedly concave.

SOME NEW AFRICAN *ANTHRIBIDAE*.

By K. JORDAN, Ph.D.

1. **Phloeotragus longicollis** sp. nov.

♂. In structure closely allied to *P. gigas*, but in colour similar to *heros*. Second segment of antenna and the tarsi as short as in *gigas*; end-segment of antenna strongly tapering from basal fourth, acute. Prothorax much narrower than in *gigas*, longer, with the sides more strongly granulose. Elytra narrower and longer, with stronger punctate stripes. Metasternum brown in middle. Abdomen with two rows of spots in middle and a row of triangular spots on the sides.

♀. Differs like ♂, but the prothorax is not so long. Grooves of rostrum deeper than in *gigas*, especially the dorso-lateral one; segment 8 of antenna shorter, barely longer than broad.

Hab. Barikiwa, German East Africa, iv.—vi. '99 (Reimer).

Three pairs.

2. **Decataphanes posticatus** sp. nov.

♂♀. Essentially different from the other species of *Decataphanes* in the antennae. These have in *both* sexes ten segments, of which the last two are about equal in length and form an obvious club; they are little prolonged in the ♂, not reaching the middle of the elytrum. The eyes are more oblique than in the other species, and therefore the frons narrows anteriorly.

Black, with a yellowish grey tomentum, which is deepest in tint on head and pronotum. A double spot on the occiput, an interrupted side-band on the pronotum, three spots on the disc of the latter, of which the anterior one is mesial and is the largest, and two basal dots black; an interrupted pale mesial line rather obvious. Elytra: humeral angle, a large spot close to the scutellum, numerous dots in the basal half, larger spots in middle merged together to a band, and other dots before the apex, black; a broad grey band situated just in front of the apical declivity without black dots.

Underside not spotted. Femora with a black spot behind middle; a spot at the base of the tibiae, apex of the latter and of the second and last tarsal segments, and the whole third segment, black.

Pronotum flattened in front and behind, punctured, almost reticulate, widest in middle, longer than in the other species. Elytra slenderer than in *pictus*. Abdomen flattened in middle, slightly impressed in ♂; last segment of ♀ longer than in *pictus*, *fuliginosus*, etc.

Length (head excl.): 10—13 mm.

Hab. Benito, French Congo.

3 ♂♂, 1 ♀.

3. **Mecocerus clathratus** sp. nov.

♂♀. In structure similar to *inornatus* (1895), Jordan, *Stett. Ent. Zeit.* lv. p. 376; the middle groove of the rostrum distinct beyond the eyes, very deep and widened anteriorly on frons. Upper- and underside black, densely covered with a pale

clayish tomentum, except on sharply defined black spots. Rostrum and legs with a white tomentum, legs marked as in *inornatus*; head with a white superciliary stripe, which becomes yellowish behind.

Pronotum: a large triangular basal mesial patch which reaches to middle, irregular, confluent lateral markings, and two converging dorsal apical lines ending each in a dot in middle of pronotum, pale clay-colour. The black spots of the elytra almost regularly distributed, of unequal size, partly confluent. Breast with black lateral spots. Abdominal segments brownish black basally, the dark tomentum more extended laterally than in middle.

Length (head excl.): $8\frac{1}{2}$ mm.

Hab. Benito, French Congo.

One ♂, received from Mons. H. Donckier, who has sent me also the other species described here from Benito.

Aulodina gen. nov.

♂ ♀. Similar to *Aulodes* and *Anaulodes* in the long cylindrical shape of the body, connecting these genera with *Phloeobius* by the peculiar position of the antennal groove and the shape of the eye.

Mandible long and slender. Rostrum very short, shallowly sinuate, the angles rounded, upperside nearly flat, slightly impressed transversely at the base. Frons broad, without grooves. Eye deeply sinuate, the upper portion narrower than the lower. Antennal groove lateral. Antenna (♂) reaching middle of elytrum, or (♀) only base; gradually incrassate to end in ♂, without abrupt club, segments 2=3=4, segment 5 a little shorter, 6 to 8 of equal length, 9=4, 10 a little shorter, 11 somewhat longer; in ♀ with a broad abrupt club, formed by segments 9. 10. 11, segments 2=3=5, 4 a little longer and 6=7=8 shorter than those, 9 longer than 10. Pronotum somewhat longer than broad, convex, apex suddenly narrowed, the sides therefore almost projecting in a dorsal view; carina rectangular, reaching middle of sides. Elytrum not striped, only the sutural stripe being vestigial; sutural angle somewhat rounded, not dentiform. Third tarsal segment broad.

Type: *A. unicolor*.

4. **Aulodina unicolor** sp. nov.

♂ ♀. Black, densely and uniformly covered with a bluish grey tomentum, only the three last segments of the antenna brownish black. Upperside densely reticulate with punctures, the elytrum besides with indistinctly seriated larger punctures. Pygidium rounded-truncate.

Length (head excl.): ♂, $4\frac{1}{2}$ mm.; ♀, $5\frac{2}{3}$ mm.

Hab. South Batoka, Zambesi, February 1896 (Major Gibbons).

One pair.

5. **Rawasia grisescens** sp. nov.

♂ ♀. Black, thinly covered with a grey tomentum, marked with dispersed grey dots. Segments 3 to 7 of antenna at apex, and the whole eighth, grey. Tibiae with a narrow basal and a broader apical grey ring; tarsi grey. Rostrum longer than broad in ♂, as broad as long in ♀, somewhat flattened at base, without carina in ♂, with trace of it in ♀ near apex; frons irregularly striate. Antennal groove more open than in Indian *Rawasia*. Antenna reaching in ♂ middle, in ♀ base of elytrum; segment 8 shorter than in typical *Rawasia*. Pronotum coarsely punctured, longer

than broad, flattened behind, mesial line elevate, smooth before middle ; angle of carina less strongly rounded than in Indian *Rawasia*. Elytra more than double as long as broad, very coarsely punctate-striate ; the grey dots somewhat enlarged behind middle. Tarsal segment 2 as in *R. ritsemae* and *annulipes*, but 3 not so large as in these species.

Length (head excl.) : 10 mm.

Hab. Benito, French Congo.

Two pairs.

6. **Rawasia fulvescens** sp. nov.

♂ ♀. Differs from the preceding as follows :

Stouter ; tomentum dense, dirty clay-colour ; antenna much shorter, especially in ♂, not ringed with grey, with the eighth segment (♂ and ♀), or also the ninth (only ♂) very much shorter than in *grisescens* ; rostrum more deeply impressed basally, and mesial line of pronotum not elevate.

Length (head excl.) : 7½—10 mm.

Hab. Benito, French Congo.

One ♂, two ♀ ♀.

Derographium gen. nov.

♂. Rostrum similar to that of *Tophoderes* and *Rawasia*, not narrowed towards end, slightly bisinuate at apex, the corners with a small excision, base shallowly concave, no carinae or grooves. Frons broad. Eye lateral, slightly oblique, sinuate. Antennal groove large, covered by the enlarged lateral edge of the rostrum, not continued on the underside. Antenna reaching beyond base of elytrum ; segment 1 incrassate, 2 small, the following ones thinner, 3=4=1+2, 5 and 6 and 7 shorter than those, 7 slightly dilated, 8 to 11 forming a broad club, 8 trapeziform, longer than broad, 9 and 10 broader than long, 9 longer than 10, 11 rounded, not so broad as 10, 6 to 10 beneath rather densely and long hairy. Pronotum convex, much broader than long, with large penicillate mesial tubercle ; sides converging in front, sinuate behind ; carina rather close to base, almost reaching apex laterally, angle almost 90°, with the tip rounded. Elytra short, with penicillate tubercles. Prosternum short. Intercoxal process of mesosternum almost vertical, sinuate, broader than long. Tarsi shorter than tibiae, segment 1=2+3, 3 rather broad.

Type : *D. fulvum.*

Differs from *Tophoderes* essentially in the antenna, eye, antennal groove, etc. ; from *Gynandrocerus* in the position of the pronotal carina and in the short body ; from *Rawasia* in the shape of the tarsi and in the sinuate eye.

7. **Derographium fulvum** sp. nov.

♂. Brown, densely covered with a yellowish brown tomentum, indistinctly spotted grey. Antenna black, with the exception of segments 1 and 2. Tibiae with brown middle spot and blackish tip. Upperside finely chagreened. Elytrum without punctate stripes ; a large basal convexity which bears two brushes of stiff hairs ; two small penicillate tubercles, one in and the other behind the middle ; traces of tubercles towards the sides ; apex rounded. Pygidium somewhat shorter than broad, rounded. Last abdominal segment a little impressed, slightly sinuate.

Length (head excl.), 8½ mm. ; breadth, 4¾ mm.

Hab. Sierra Leone.

One ♂.

8. **Litocerus benitensis** sp. nov.

♂. Black, with grey tomentum. Spotted with clay-colour as follows: pronotum with three spots at each side, namely, one on disc and two laterally; spots of elytra merged together to five irregular transverse bands. Cheek, femora, a submedian ring on tibiae, and the greater part of the first tarsal segment white. Sides of breast and of abdomen clay-colour, slightly spotted.

Rostrum with five carinae, the mesial one strong, continued on frons, flattened towards apex and finely grooved; the next carina separated into small folds at base and apex; the third nearly reaching eye. Eyes large, close together, the interspace not as wide as the second antennal segment is long. This as long as segment 8. Pronotum much broader than long, narrowing from middle to apex, not punctured, very minutely chagreened; carina almost straight above, faintly concave in middle, laterally reaching middle, angle rounded. Elytra strongly convex, gradually rounded-angustate behind, punctate-striate. Foretarsus longer than tibia.

Length (head excl.): 7 mm.

Hab. Benito, French Congo.

Three ♂♂.

Similar in structure to *L. olivaceus* (1894); perhaps only an aberration.

9. **Litocerus granulatus** sp. nov.

♀. Similar in colour to the preceding, but the first yellow band of the elytra is basal, not subbasal, the dark spot on the middle of the suture is large, ovate, and the abdomen bears laterally large dark spots, which are only distinct in an anal view. Very different in structure: rostrum much feebler rugate-punctate, almost smooth at base, the second carina distinct and sharp, reaching close to eye, slightly bent mesiad at base; frons as broad as the fourth antennal segment is long; antenna strong, segment 2 about half as long again as broad, $6 = 7 = 8 > 10$, 8 white; pronotum gradually narrowed towards apex, dispersely granulate-punctate; carina very feebly concave above, gradually curved frontad laterally, the lateral portion very short.

Hab. Benito, French Congo.

One ♀.

10. **Gulamentus fasciatus** sp. nov.

♂. Black, tomentum whitish grey, that of legs rather dense. Blackish parts of upperside and the antennal club with brown tomentum. Apical edge of pronotum narrowly, basal edge broadly reddish, and clothed with a yellow tomentum; a small humeral spot, a straight antemedian band—which becomes greyish laterally, where it is forked—and the apex of the elytra as well as the pygidium of the same reddish colour. Pygidium shaped as in *cylindricus* (1895). Similar in structure to that species; antennal segments 9 and 10 shorter; first tarsal segment shorter than the others together.

Length (head excl.): 6½ mm.

Hab. Benito, French Congo.

One ♂.

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AFRICAN CERAMBYCIDAE.

By Dr. KARL JORDAN.

Subfamily CERAMBYCINAE.

IN 1894 I published the definition of a new genus, *Saphanidus*, containing at that time one new metallic green species, *S. viridescens*, which did not fit in the allied genera *Metallyra* (1864) Thoms. and *Metopotylus* (1882) Qued., according to the descriptions. Since then we have received several species of this relationship, two of which agree well with the descriptions of *Metallyra stenochioides* (1864) Thoms. and *Metopotylus femoratus* (1882) Qued. If my identification is correct, the genera *Saphanidus*, *Metallyra* and *Metopotylus* can be distinguished as follows:

Metopotylus (1882) Qued., *Berl. Ent. Zeit.* xxi. p. 326 (type: *M. femoratus*).

Upper lobes of eyes very short, very widely separated. Antennal segment 3 = 5. Prothorax without lateral tubercle. Intercoxal process of prosternum narrow, but reaching nearly to mesosternum.

One species.

Metallyra (1864) Thoms., *Syst. Ceramb.* p. 334 (type: *stenochioides*).

Eyes close together above. Antennal segment 3 = 5. Prothorax without lateral tubercle. Intercoxal process of prosternum short, triangular.

One species.

This genus has been omitted by Lacordaire.

Saphanidus (1894) Jord., Nov. Zool. i. p. 145 (type: *viridescens*).

Third segment of antenna longer than fifth. Prothorax with lateral tubercle or spine. Intercoxal process of prosternum short, triangular, or as long as in *Metopotylus*.

Four species, inclusive of the three new ones described below.

The three genera differ from *Hypoeschrus* in the basally truncate pronotum.

1. **Saphanidus aeneus** spec. nov.

♀. Elongate. Underside and antenna black-brown, first two segments of antenna and part of legs (in *type* the femora and part of tibiae, in the second specimen only part of tibiae) rufous; head and pronotum dark blue-green, elytra bluish green, metallic, glossy; scutellum black. Upperside densely punctured, the punctures becoming more dispersed posteriorly on elytra. Third segment of antenna, which extends very little beyond end of elytra, one-third longer than fourth. Prothorax a little longer than basally broad; slightly uneven above; mesial line a little raised and smooth in middle and before scutellum; sides with

an acute conical spine just behind middle, and before this spine a prominent callosity. Elytra slightly widening behind, obliquely rounded at apex, sutural angle not produced into a spine; seven costae on each, the first close to suture, but curving away from it at basal fourth. Prothorax beneath granulose at sides, plicated and sparsely granulated mesially; intercoxal process arched, narrow, reaching nearly to hinder side of coxae. Mesosternum granulose in middle; intercoxal process about half the width of the coxa. Metasternum rough with transverse granules, except the episternum, which is nearly smooth.

Length, 15 mm.; elytra, 11 mm.; breadth, 4 mm.

Hab. Benito, French Congo.

Two ♀♀.

The long thorax bearing a rounded tubercle in front of the side-spine, the longer prosternal process and the broader mesosternal one, as well as the non-dentate apex of the elytra, distinguish this species abundantly from *viridescens*.

We received this species, and all the others from Benito as well as Batanga, from Monsieur H. Donckier, Paris.

2. **Saphanidus dubius** spec. nov.

♂. A connecting link between *Saphanidus* and *Allogaster*. Underside of body, front of head, antenna and legs dark rufous brown; occiput, pronotum and elytra metallic green-blue, not strongly glossy. Head densely punctured; upper lobes of eyes nearly as widely distant from one another as in *Allogaster geniculata*. Antenna only as long as the body; scape very densely rugate-punctate; third segment twice the length of fourth, this a very little **longer** than fifth, eighth to tenth subdentate. Prothorax with obtuse lateral tubercle as in *Allogaster geniculata*, subnodose above, very densely punctured, a small smooth mesial space behind middle. Scutellum pitchy black, rounded. Elytra rounded together at apex, not spined at sutural angle, costate, with the first, third and fifth costae alone rather prominent, densely and coarsely punctate from base to apex. Prosternum transversely plicate and punctured; intercoxal process triangular, reaching close to the mesosternum without touching it. Mesosternal process also triangular. Abdominal segments 1 to 4 with a woolly patch each, 5 truncate, 6 sinuate. Legs densely and rugosely punctured.

Length, 15 mm.; elytra, 11 mm.; breadth, 4½ mm.

Hab. Batanga, Cameroons.

One ♂.

3. **Saphanidus fulvus** spec. nov.

♀. Tawny, clothed with a clayish yellowish pubescence; antenna, femora and abdomen luteous, extreme tips of femora and uppersides of tibiae blackish.

Front of head punctured, occiput rugate-granulate. Eye as large as in *viridescens*. Scape of antenna paler than the other segments, and less pubescent. Prothorax flattened and rounded as in *viridescens*, a little longer than in that species, with a minute lateral tubercle, minutely granulose all over. Elytra very densely and minutely punctured all over, slightly rugose at apex, with faint traces of two discal carinae; apex of each elytrum obliquely rounded. Both the pro- and midcoxae contiguous, the intercoxal processes very short, obtusely triangular. Prosternum transversely wrinkled; metasternum densely punctate-granulate at

sides. Femora not clavate ; posterior one reaching to base of fourth abdominal segment.

Length, 17 mm. ; elytra, 12 mm. ; breadth, 5 mm.

Hab. German East Africa.

One ♀, without more precise locality.

Oxycaula gen. nov.

Resembling *Hypomares*, but anterior coxal cavity open. Scape of antenna a little shorter than third segment, with a prominent, sharp, transverse, apical keel ; the following segments somewhat incrassate at tip as in *Paroeme* ; third and fourth compressed, thicker than the following, third half as long again as fourth, a little shorter than fifth, all fringed beneath, especially the proximal ones. Prothorax without side-spine, tuberculate above. Elytra flattened, tuberculose, widened just before apex. Anterior coxal cavity not strongly angulate laterally, open behind ; prosternal process narrow, reaching to hinder side of coxa ; mesosternal process as wide in middle as the fourth antennal segment, slightly convex, sulcate. Femora clavate.

Type : *O. verruca* spec. nov.

4. **Oxycaula verruca** spec. nov.

Glossy ; deep chestnut ; antenna, legs and abdomen very pale buff-yellow ; a small spot on disc of elytrum in middle, a larger one at outer margin in front of apical dilatation, rounded on discal side, and a triangular spot occupying apex, all a little paler than legs.

Head punctate, the puncturation dense only laterally on occiput ; frons subvertical ; antennal tubercles rather prominent, a short and shallow sulcus between them ; distance between upper lobes of eyes equal to diameter of scape before apex. Antenna one-fourth longer than the body ; scape longitudinally impressed at base, dispersedly punctured. Prothorax longer than broad, truncate at base, slightly widened frontad above at apex, feebly dilated at sides behind apex and more in middle, coarsely and rather densely punctured all over ; disc with an elevate mesial line from near apex to basal constriction, the line raised into an elongate tubercle behind, at each side of mesial line before middle a high conical tubercle (pale at tip), and an elongate callosity before basal constriction. Scutellum longer than broad, rounded, grey. Elytra truncate at base, densely punctured in basal half, the punctures becoming scarce in apical half, with numerous, dispersed, subseriate callosities ; straight in basal fourth, then widening ; outer margin very oblique behind subapical dilatation ; tip rounded. Underside rather densely and coarsely punctured ; middle of first abdominal segment, greater portion of second, and the entire following segments, with few or no punctures. Femora smooth.

Length, 14 mm. ; elytra, 10 mm. ; breadth (shoulder), 3½ mm. ; (before apex), 5 mm.

Hab. Benito, French Congo.

One specimen, probably a ♀.

Paroeme (1886) Auriv.

♂♀. Antennal segments 3 to 5 incrassate at tip, 6 to 11 sulcate, dentate at end. Prosternal process reaching hinder side of coxae, mesosternal one broad : anterior coxal cavity open.

Paroeme semifemorata (1856) Chevr.

The elytra of this species terminate in a spine. The insect stands under *Anisogaster* in the *Munich Catalogue* (p. 2836), and is the same as *P. bispina* (1886) Auriv.

5. **Paroeme inermis** spec. nov.

♀. Very close to *semifemorata* and *annulipes*; scape of antenna rather shorter than in either; prothorax evenly convex above, somewhat flattened, with just a trace of the callosities of the other species, sides rounded, not tubercled; pronotum and elytra densely and finely granulose as in *semifemorata*; elytra rounded together at apex, not dentate at suture, with dispersed short hairs in apical half.

Length, 14—18 mm.

Hab. Warri, Niger, September 1897 (Dr. Roth).

Several specimens.

6. **Paroeme similis** spec. nov.

♂. Similar to *inermis*. Head without sharply marked mesial sulcus between antennae; scape of antenna longer, segments 3 and 4 less incrassate at tip, prothorax also longer, less dilated in middle; elytra shorter and more rounded at shoulders, without erect hairs. Apical half of femora brown.

Length, 13 mm.

Hab. Lindi, German East Africa, December 1896 (Reimer).

One ♂.

Leptoeme gen. nov.

Similar to *Allogaster* and *Paroeme* in appearance, differing from both in the pro- and mesosternal processes being very short, the prosternal one not protruding in between the coxae; nearest to *Hypoeschrus*. Eye as in *Paroeme*. Antenna similar to those of *Allogaster* and *Hypoeschrus*; segment 3 half as long again as, or one-third longer than, 4. Prothorax somewhat uneven above, not tuberculate at sides, base slightly bisinuate. Scutellum rounded. Elytra as in *Allogaster*. Femora not clubbed, posterior one reaching to base of fourth abdominal segment. Abdomen of ♀ not villose.

Type: *L. xantha* spec. nov.

7. **Leptoeme xantha** spec. nov.

♂. Pale ochraceous, pubescent; tip of mandible, antenna (except basal two-thirds of scape), tibiae and apices of femora black or brown; tarsi brown.

Head punctured, with mesial sulcus between antenna. Prothorax almost cylindrical, a little wider at apex than at base, densely granulose; mesial line somewhat raised before base. Elytra parallel, depressed, very densely punctured, subgranulose at base, with two feeble raised lines on disc; apex rounded together, sutural angle again rounded off, and segment 4 of antenna shorter than 5.

Length, 12—15 mm.; elytra, 8—11 mm.; breadth, $2\frac{2}{3}$—$3\frac{1}{2}$ mm.

Hab. Benito, French Congo.

One ♂, two ♀♀.

8. **Leptoeme acme** spec. nov.

♀. Like *xantha*, but the antenna (except tip of scape), base of tibiae and the tarsi luteous ; apex of femora also more restricted black.

Fourth segment of antenna a little longer than fifth. Prothorax very densely granulated, rounded at sides, broader than long. Elytra densely punctured, but the anterior edges of the punctures not elevate in basal half ; apex produced into a short spine.

Length, ♀, 12 mm.

Hab. Lolodorf, Cameroons.

One ♀.

9. **Xystrocera pulchra** spec. nov.

♀. Head and prothorax glossy magenta-purple ; antenna black ; legs and abdomen ferruginous ; meso-metasternum black, more or less tawny at sides, clothed with a yellowish grey silky pubescence like sides of abdomen ; scutellum and elytra bluish green, the latter velvety at suture and outer margin. Front of head coarsely and densely granulate. Pronotum granulose at sides and behind apical margin, smooth in middle, at base, and laterally in apical depression. Scutellum with very few granules. Granulation of elytra very dense at suture and sides from near base to near apex, the granules rounded. Hindtibia slightly and quite gradually widened from base to apex.

Length, 23 mm.

Hab. Benito, French Congo.

One ♀.

10. **Margites sulcifrons** spec. nov.

♀. Pitchy black, legs and antenna rufescent ; pubescence short, grey, slightly buffish on the elytra ; palpi luteous.

A deep mesial sulcus between antennal tubercles and upper lobes of eyes, abruptly terminating. Antenna a little longer than the body ; third segment nearly twice the length of the second and as long as fifth. Prothorax rounded-dilated at sides in middle, and again before middle ; no subbasal and subapical transverse sulci above, no transverse wrinkles, the notum being densely granulate-rugulate, the thin mesial wrinkles longitudinal ; a smooth mesial groove behind middle. Elytra with a feebly raised mesial line and a trace of a second raised line between it and suture ; apex rounded singly, faintly truncate. Prosternum rugulose ; intercoxal process broad, not tuberculate behind. Mesosternal process very broad, being wider than the coxa. Metasternum and abdomen minutely and densely punctate-rugulate. First segment of hindtarsus longer than in *M. humilis* and *lineatus*.

Length, 18 mm. ; elytra, 13 mm. ; breadth, 4½ mm.

Hab. Angola (Penrice).

One ♀.

11. **Derolus dilatatus** (1856) Chevr.

Chevrolat described this species from the ♂ only.

♀. Pitchy black, antenna and legs brick-red ; elytra pale brick-red, with a limbal and an abbreviated sutural vitta black, the latter dilated behind ; pubescence silky, grey below, yellow above, forming two vittae on pronotum, dense on occiput.

Head punctured at anterior margin ; mesial sulcus narrow between antennal tubercles, not deeply impressed, no distinct sulcus on occiput ; distance between upper lobes of eyes equalling diameter of base of third antennal segment. Antenna a little longer than the body, third segment a very little longer than fifth. Prothorax half as long again as broad, irregularly plicate, the wrinkles more or less longitudinal in middle, forming anteriorly a kind of irregular double carina. Scutellum triangular, black. Elytra rather densely punctured at base, the puncturation becoming sparser behind and disappearing before apex ; the latter rounded, subtruncate, sutural angle obtuse, not dentate. Prosternal process sulcate, arched, apex somewhat convex, but not tuberculate. Metasternum very finely and densely punctured. Carinae of femora distinct ; hindfemur reaching to apex of third abdominal segment.

We have two ♀♀ from the Johann Albrechts Höhe, North Cameroons (L. Conradt), and a ♂ and a ♀ from Benito, French Congo. In this ♂ the elytra are not so distinctly dilated before the apex as in the type.

12. **Derolus cinctus** spec. nov.

♀. Similar to *dilatatus*, but differs obviously in the following points : pubescence grey and sparse above and below, pronotum practically naked ; antenna shorter than the body ; prothorax nodose at sides just behind middle, here not plicate or punctured, the nodosity limited above by a sharply marked longitudinal groove, wrinkles of disc not prominent, obsolescent in front, two oblique discal grooves converging behind, reminding one of *arciferus* ; elytra shorter than in *dilatatus*, with a broad, ill-defined, black postmedian band, which is produced forward at suture and at lateral margin ; process of prosternum raised into a tubercle behind ; metasternum and abdomen smooth, glossy, with dispersed punctures, sides of abdomen more densely punctured, first and second segments black, the others red like breast, the black belt corresponding to the band of the elytra ; legs stouter than in *dilatatus*.

Length, 13 mm. ; elytra, 8 mm. ; breadth, 3½ mm.

Hab. Benito, French Congo.

One ♀.

13. **Derolus kraatzi** spec. nov.

Pitchy black, antenna, mandible and legs brick-red, femora brown, except base; pubescence silky, grey, slightly yellowish, dense on scutellum and metasternal episternum, and forming two narrow, transverse bands on elytra, the first before middle, irregular, produced frontad at suture, the second before declivous apex.

Frons short ; interantennal sulcus narrow and not deep, extended on to occiput, where it is very thin. Antenna a little longer than the body ; third segment not quite half as long again as fourth, and a little longer than fifth. Prothorax about as long as broad, strongly and evenly rounded at sides from basal to apical constriction, not plicate, except posteriorly in middle where there are traces of folds, a sharply marked sulcus on each side of disc parallel with the lateral outline of the thorax ; mesial line slightly raised behind. Elytra punctured from base to near apex ; the latter rounded, sutural angle obtuse. Prosternal process narrow, sulcate, almost horizontal, not tubercled. Metasternum and abdomen very densely and minutely punctured. Carinae of femora distinct ; hindfemur reaching to base of fifth abdominal segment.

Length, 8½ mm.

Hab. Johann Albrechts Höhe, North Cameroons (L. Conradt).

One specimen, presumably a ♂.

Named in honour of Dr. G. Kraatz, from whom we received this and the other new species described in this paper from the Johann Albrechts Höhe.

14. **Derolus spurius** spec. nov.

♂. Black, legs and antenna brownish brick-red ; head and prothorax maculated with a golden pubescence ; base of antenna also with yellow pubescence ; rest of body pubescent grey, the pubescence silky, with a yellowish tint, changing in patches from brown to grey according to light.

Head and antenna essentially as in *femorellus*, the antenna longer and a little thinner. Prothorax longer than in that species, differently sculptured ; subapical sulcus deep, curved backwards in middle ; close behind it there begins a mesial groove which soon divides in two branches, which are connected again by the subbasal sulcus, thus encircling an elongate ovate area ; the grooves irregular ; the lateral portions of the thorax also divided by a deep, obliquely longitudinal, and a transverse groove ; besides these grooves there is the ordinary plication, which is very irregular. Elytra punctured in basal half, smooth in apical half ; apex truncate, with both angles dentate, but the outer tooth broad and obtuse. Pro- and mesosternum as in *femorellus*.

Length, 19 mm. ; elytra, 12 mm. ; breadth, 4½ mm.

Hab. Johann Albrechts Höhe, North Cameroons (L. Conradt).

One ♂.

15. **Derolus parus** spec. nov.

♀. Black ; pubescence of head and prothorax yellowish, sparse, of rest of body and legs olive-grey.

Depressed anterior part of frons almost smooth, with very few punctures ; no longitudinal sulcus between antennae, mesial line somewhat raised on occiput ; antennal tubercles margined ; upper lobes of eyes nearly as close together as in *femorellus*. Antenna as long as body ; scape very short, not narrowed towards base, rugate-punctate ; segments 3 and 5 longer than in *femorellus*. Prothorax longer than in *spurius*, with a similar divided groove on disc, but the plication more regularly transverse. Scutellum semicircular, shorter than in either *spurius* or *femorellus*. Elytra evenly olive-grey, punctured all over, the punctures very shallow in apical half, apices rounded together, not truncate, sutural angle not dentate. Prosternal process truncate-tuberculate, slightly convex along middle. Carinae of femora obsolescent.

Length, 18 mm. ; elytra, 11 mm. ; breadth, 4 mm.

Hab. Benito, French Congo.

One ♀.

16. **Derolus fulvus** spec. nov.

♂♀. Dark brick-red, thorax blackish ; pubescence of underside silky grey, of upperside golden-tawny, with dark reflections on elytra. Head finely punctured ; mesial callosity of frons rounded-ovate, smooth ; sulcus between antennae deep and broad ; interspace between upper lobes of eyes narrower than the third antennal

segment is broad at base. Antenna a little longer than the body ; scape short, finely and densely punctate, slightly rugate ; segment 3 as long as 4 and 5 together, 3 about half the length of 4. Prothorax half as long again as broad in ♂, broader in ♀ than in ♂, heavily and irregularly plicate transversely, two longitudinal grooves on disc uniting in front, distinct in ♂, indistinct in ♀. Elytra with small dispersed punctures in basal half, besides the extremely minute and dense puncturation ; apices obliquely truncate, outer angle more projecting, acuminate sutural angle dentate. Prosternal process arched, longitudinally grooved, with a small tubercle behind. Carinae of femora distinct ; hindfemur reaching to base of fifth abdominal segment.

Length, 21—27 mm. ; elytra, 13—17 mm. ; breadth, 4⅔—6 mm.

Hab. Benito, French Congo.

Two ♂♂, one ♀.

17. **Cordylomera vittata** spec. nov.

♂. Ochraceous tawny, clothed with a grey pubescence ; prosternum (except apex) and head brownish ; legs luteous ; incrassate parts of femora (except a spot on upperside), apices of tibiae and of antennal segments 3 to 11, antennal segments 1 and 2, a mesial and a lateral vitta on prothorax, interrupted in middle, scutellum, lateral margin of elytra, base of suture, and a vitta from base near shoulder to apex of suture, brown-black. Antenna twice the length of the body, spines directed distad, segment 7 without spine, 4 a little shorter than 3, this shorter than 5. Prothorax depressed above, widest behind middle, scarcely longer than broad at the widest point, no distinct puncturation ; mesial line slightly raised in front and behind. Elytra coarsely punctate all over, somewhat rugate ; apical spine short.

Length, 14 mm.

Hab. Mpuapua, German East Africa.

One ♂.

Close to *C. schoenherri* (1871) Fahrs., but elytra different in pattern.

Synonymical note :—

Stenomalus ocellatus (1883) Qued. is the same as *Allophyton biloculare* (1878) Thoms.

Ceresida (1894) Jord. is a synonym of *Alloeme* (1893) Lameere, *C. antennalis* being the same as *A. murrayi*.

Antennica (1894) Jord. is the same as *Pseuderes* (1893) Lameere ; but in the two species described by me the fourth segment of the antenna is shorter than the third, while the two are of equal length in *exul*, of which the type is in the Tring Museum (ex coll. Allnaud). In *exul* the pronotum has a black mesial spot, while in *lutea* and *nigripes* there is a black line extending from occiput to scutellum.

18. **Obriaccum gazella** spec. nov.

Similar to *O. elegans* (1887) Fairm. Larger. Elytra minutely and dispersedly punctate, the punctures subseriate ; a broad antemedian polished band posteriorly bordered by a narrow, raised buff line which is transverse at suture, curving soon abruptly at an obtuse angle obliquely backwards towards lateral margin ; halfway

between this line and apex a narrow, evenly curved, ill-defined white band extending from side to side.

Length, 15 mm.

Hab. Mpuapua, German East Africa.

One ♂.

19. **Lygrus bicinctus** spec. nov.

♂. Very pale buff-yellow, glossy; head and prothorax deeper in tint, tip of mandibles black; antenna brown, last two segments cream-colour; two broad bands across the elytra brown, the first median, convex in front, joined along outer margin to second, which stands at apical fifth and is produced laterally to tip of elytra. Occiput very densely punctured behind. Scape of antenna densely rugate-punctate; segment 3 more than twice the length of the scape and a very little shorter than 4; segments 6 to 10 gradually shortened, 11 a little longer than 10, less than half the length of 3. Prothorax half as long again as broad in middle, subcylindrical, slightly uneven, feebly rounded at sides, dispersedly punctured, scarcely any punctures in mesial line. Elytra very densely and coarsely punctured, the punctures especially large and close together in middle; a feeble mesial carina, abbreviated in front and behind.

Length, 8 mm.

Hab. Johann Albrechts Höhe, North Cameroons (L. Conradt).

One ♂.

The eye is sinuate, having a distinct but rather short upper lobe.

Idiocalla gen. nov.

♂ ♀. Head broad, interspace between upper lobes of eyes about half the width of the thorax and twice the height of the frons; the latter more than twice as broad as high; antennal tubercles widely separate; a mesial sulcus between them. Antenna a little longer (♂) or shorter (♀) than the body, filiform, segments 3 to 7 almost the same length; scape with subapical, transverse, curved carina, the half-moon-shaped space (cicatrix) encircled by it with another carina. Prothorax broader in middle than long, irregular above, sides obtusely nodose, not dentate. Scutellum longer than broad, rounded at end and minutely incised. Elytra broader than thorax, truncate-sinuate at base, the rounded shoulders projecting a little, flat (as in *Callidium*), sides parallel, apex of each rounded. Prosternal process narrow, reaching beyond coxae, coxal cavity open; mesosternal process triangular, obtuse. Femora club-shaped. First abdominal segment of ♂ three times, of ♀ four times, the length of the second; a large cavity on third to fifth in ♀, fringed with hairs.

Type: *Idiocalla ferrugineus* (1894) Jord., described as a *Semanotus*.

A cicatrix-like structure occurs also in some of the species allied to *Psebium*, with which *Idiocalla* has much in common, though the body is not long-hairy and the elytra are not abbreviated.

20. **Idiocalla postica** spec. nov.

♀. Similar to *C. ferrugineus* (1894) Jord., deeper ferruginous; femora with red ring; elytra black at apex, the black area about 2 mm. wide; prothorax more strongly dilated laterally in middle and less obviously nodose above, and elytra wider at base, than in *ferrugineus*.

Length, 16 mm.; elytra, 11 mm.; breadth, 5 mm.

Hab. Nguelo, Usambara.

One ♀.

Callidium cupreovirens (1884) Qued. is doubtless the same as *Callidium angolense* (1843) Erichs., and belongs most likely to *Zamium*.

21. **Syndere leptis** spec. nov.

♀. Black, without gloss; under surface with a silky white pubescence, which is dense at the sides, the white area being on prothorax just visible in dorsal view; a tawny discal vitta on each elytrum, extending from scutellum to shoulder and reaching to apical fourth, posteriorly approaching suture.

Frons densely shagreened, mesially sulcate. Scape of antenna coarsely rugate on upperside. Prothorax half as long again as broad, narrowest at base, a little wider in middle than at apex, faintly raised transversely in middle, densely punctate-reticulate above. Elytra also densely punctate-reticulate above; humeral angle smooth. Metasternum densely sculptured with umbilicate punctures. Upper and inner surface of hindleg coarsely punctate.

Length, 5½ mm.

Hab. Johann Albrechts Höhe, North Cameroons (L. Conradt).

One ♀.

Allied to *bicolor* (1894) Kolbe, differing in pattern and in the elytra not being subcarinate.

22. **Syndere lagria** spec. nov.

♂ ♀. Head, prothorax, sterna, scutellum, antenna and legs black; elytra tawny-ochraceous; abdomen ochraceous rufous.

Frons with few punctures. Occiput and pronotum grossly punctured, the punctures less dense in middle. Scape of antenna coarsely punctate-rugate; third segment half as long again as fourth. Pronotum strongly convex laterally on disc. Elytra granulate-punctate; somewhat coriaceous. Sterna and femora coarsely rugate-punctate; prosternum transversely striate.

Length, 8½—9 mm.

Hab. Mpuapua, German East Africa.

Three ♂♂, one ♀.

Allied to *apicalis* (1902) Gahan, in which the elytra are black at the apex.

23. **Apiogaster collare** spec. nov.

♂. Glossy, covered with long whitish hairs. Prothorax and under surface of body brick-red, much deeper in tint than the prothorax of the two following species; elytra blue, lateral edge brick-red basally; edges of prothorax and the tibiae brownish black; head, antenna and legs metallic black.

Interantennal groove of head very deep, extending to near clypeus; head coarsely punctured. Prothorax widest beyond middle, transversely wrinkled at apical margin, with widely dispersed minute punctures, almost smooth; a mesial carina from near apical edge to basal constriction. Scutellum broad, bilobate. Elytra punctured all over, except shoulder angle; apex slightly truncate, sutural angles with a very small tooth, external angles not toothed. Puncturation of underside sparse, a little denser on the minutely wrinkled prosternum.

Length, 10½ mm.

Hab. Uitenhage, Natal.

One ♂.

Clostrocera tricolor (1840) Guér., *Rev. Zool.* p. 108 (Senegal), is an *Apiogaster* and closely allied to *rufiventris* (1855) Perr.

24. **Apiogaster posticum** spec. nov.

♂ ♀. Black, glossy, with long pale hairs all over ; prothorax (except apical and basal edges), incrassate portion of femora, foretibia and in ♀ middle of midtibia, rufous red ; elytra ochraceous, apical fifth or sixth and extreme basal edge black.

Depression between antennal tubercles deep, extending to middle of frons; occiput reticulate behind ; frons not sulcate in middle. Prothorax much longer than broad in middle, strongly convex above, especially before basal constriction ; punctures umbilicate (with raised anterior edges), smaller than the interspaces, sides almost impunctate. Elytra shaped as in the other species of the genus ; coarsely punctured, the punctures, however, not very close together laterally, shoulder and apex almost smooth ; apex of each sinuate, bidentate. Prosternum minutely wrinkled transversely ; meso-metasternum punctate ; abdomen with widely dispersed punctures.

Length, 8½—11 mm.

Hab. Mpuapua, German East Africa.

One pair.

Differs from *A. similis* (1902) Gahan in the prothorax being black only at the basal and apical edges, in the elytra being ochraceous for the greater part, and in the scape of the antenna not bearing a subapical transverse carina.

25. **Apiogaster opacum** spec. nov.

Similar to the preceding in size and colour. Black, with very little gloss ; covered with a short grey pubescence, which is rather dense on the under surface ; prothorax rufous red, except basal and apical edges and two discal dots, which are black ; incrassate portion of anterior femur rather paler than prothorax ; proximal four-fifths of elytra ochraceous rufous ; incrassate portion of middle femur brownish black, glossy like the corresponding portions of the other femora.

Puncturation dense all over the upperside and sterna; abdomen very densely shagreened ; prosternum transversely wrinkled. Front of head with an anteriorly abbreviated mesial sulcus ; antennal tubercles higher than in *posticum*. Pronotum densely reticulate ; very strongly convex in middle before basal constriction. Scutellum black, more strongly bilobate than in the previous. Elytra densely punctured to the very end ; a trace of a mesial costa ; apex sinuate, bidentate.

Length, 9 mm.

Hab. Abyssinia.

Two specimens in the British Museum, one without locality in the Tring Museum.

The African *Cerambycinae* allied to *Clytus* (auct.) and variously described as *Clytus*, *Clytanthus*, etc., may provisionally be grouped as follows :—

A. **Calanthemis** (1864) Thoms. (type : *myops*).

Pedoclytus (1893) Kolbe, *Stett. Ent. Zeit.* p. 25 (type : *conradti*).

Front of head not separated from occiput, without carinae, or the carinae short and feebly raised.

Here belong, of the species known to me, the following :

Calanthemis myops (1864) Thoms.

We have this species from Natal.

Calanthemis subcruciatus (1855) White.

A series of specimens from Delagoa Bay in the Tring Museum.

Calanthemis saltator (1893) Kolbe.

We possess a few specimens from Usambara.

Calanthemis viridipennis (1893) Lameere.

We have the *type* of this peculiar species, distinguished by its long prothorax and green elytra.

Calanthemis mocquerysi (1894) Jord.

In the Tring Museum from the Kuilu River and the Cameroons.

Calanthemis x-maculatus (1894) Jord.

I believe this to be the same as *Clytus gabonicus* (1858) Thoms.

26. **Calanthemis tenuis** spec. nov.

♂ ♀. Similar in markings to *C. subcruciatus* ; less than half the size ; underside black, with a sparse white pubescence, apical edges of meso-metasternum and of the two proximal abdominal segments laterally white ; front of head with trace of a mesial carina ; pronotum much longer than in *subcruciatus*, much less rounded, widest behind middle, a mesial spot and part of base denuded ; base of elytra not luteous as in *subcruciatus*, except at suture, anterior oblique line not recurved laterally.

Length, 7—9 mm.

Hab. Durban, Natal.

One pair.

27. **Calanthemis temera** spec. nov.

♂ ♀. Close to *tenuis* in size and colour ; femora black, tibiae and coxae brown, tarsi luteous ; front of head narrower than in *tenuis* ; prothorax more globose, grey in basal area ; suture not luteous at base ; proximal oblique line of elytra not reaching scutellum, a grey transverse median band, broad at suture, gradually narrowing laterally, concave behind ; apical angles only with traces of teeth.

Hab. Johann Albrechts Höhe, North Cameroons (L. Conradt).

Two ♂♂, one ♀.

28. **Calanthemis spiloderes** spec. nov.

♀. Brown-black, clothed with a thin grey pubescence on head, base of elytra, legs and underside of body ; a rather large transverse lateral spot behind apex of

prothorax, a spot at basal edge, another above forecoxa produced upwards behind, a spot each at apex of meso- and metasternal episterna, a lateral spot at apex of metathorax, three lateral apical transverse spots on three proximal segments of abdomen, edges of scutellum, and the spots of the elytra, sulphur-yellow ; a thin sutural stripe widening at apex, a longitudinal line beginning at suture behind base and turning gradually towards disc, about as long as the elytrum is broad at apical third, a spot a little farther back near lateral margin, a very short line behind middle projecting from sutural line, halfway between tip of this projection and outer margin another spot. Antenna, edges of elytra, bases of femora and the tibiae and tarsi rufous.

Head with distinct carina between antennae, disappearing before reaching clypeus. Prothorax a little longer than mesially broad, granulose. Elytra more elongate than in *saltator* and *subcruciatus*, which are about the same size. Legs coarsely sculptured ; hindfemur reaching end of elytra.

Length, 13 mm.

Hab. Usambara, German East Africa.

One ♀.

Calanthemis conradti (1893) Kolbe.

We have one specimen from Tanga.

B. Gen. nov.?

Frons not separated from occiput, with distinct mesial carina and feeble lateral one ; the lateral carina not a prolongation of the raised edge of the antennal groove; hindfemur short. Here belong *Clytus semirufa* (1882) Qued., *reichenowi* (1883) Qued., and probably also *thomsoni* (1880) Harold.

C. **Xylotrechus** (1860) Chevr. (type : *sartorii*).

The African species are not typical *Xylotrechus*.

Front of head and occiput not separated, with three high carinae, the mesial one sometimes double (*oculicollis*), the lateral one continuous with the raised edge of the antennal groove. Here belong :

Xylotrechus socius (1894) Jord.

From the Kuilu River and the Cameroons in the Tring Museum.

Xylotrechus angulifer (1894) Jord.

In the Tring Museum from the Kuilu River and Benito.

Xylotrechus gahani (1891) Duviv.

From the Kuilu River in the Tring Museum.

Xylotrechus oculicollis (1887) Fairm.

From Lindi and Mpuapua in the Tring Museum.

29. **Xylotrechus fragilis** spec. nov.

♂. Black ; pubescent grey beneath, the pubescence denser at apices of episterna and abdominal segments ; pubescence of pronotum greenish grey, a dot at side and an elongate mesial ring from base to beyond middle black. Scutellum

creamy white. Elytra with the following markings : extreme base and sides below shoulder, thinly grey ; a sutural elongate-ovate spot from scutellum to basal fourth, connected posteriorly with a discal line, which is directed obliquely forward from near suture, where it is broadest, to near declivous side, an elongate longitudinal sublateral spot outside the oblique line, and a line from suture before middle to apical third of outer margin, widened on disc and angulate, pale buff ; apical fourth of elytra greyish olive-buff, the area convex in front.

Lateral carinae of front of head high, mesial one disappearing between antennae. Prothorax longer than broad, wider at apex than at base, densely granulose.

Length, 8 mm.

Hab. Johann Albrechts Höhe, North Cameroons (L. Conradt).

One ♂.

D. **Clytanthus** (1864) Thoms. (type : *tricolor*).

Antennal tubercles elevate, separating frons from occiput. The African species are not typical *Clytanthus*.

Clytanthus capensis (1841) Lap. & Gory.

In the Tring Museum from Natal and Cape Colony. The *Xylothrecus caffer* (1872) Fahrs. is apparently a similar insect.

Clytanthus deterrens (1862) Pascoe.

In the British Museum (*type*).

30. **Clytanthus basispilus** spec. nov.

♀. Black, clothed with a grey pubescence ; pronotum rufous red, except basal and apical edges ; distal segments of antenna and claw-segments brown. Scutellum, episterna of meso-metasternum, a large transverse apical lateral patch on first and second abdominal segments, and the following markings of the elytra creamy white : a short line near suture behind scutellum, a longer one near shoulder, oblique, a triangular spot behind shoulder, and an obliquely transverse ovate-triangular spot in middle of disc behind these basal markings ; a larger, transverse, elongate-ovate spot behind middle, widest above, neither reaching suture nor outer margin, and an apical spot extending from suture to outer margin.

Antenna nearly filiform. Prothorax longer than broad, regularly rounded at sides, widest just behind middle, densely granulated above. Scutellum half as broad again as long, strongly rounded. Legs finely shagreened, no carinae on femora.

Length, 11 mm.

Hab. Mpuapua, German East Africa.

One ♀.

Differs from *deterrens* (1862) Pasc. especially in the presence of basal markings on the elytra.

31. **Clytanthus ancora** spec. nov.

♀. Black, covered with a grey pubescence, giving the insect a slaty grey appearance. Segments 5 to 11 of antenna brown or black. A transverse middle band on prothorax mesially and laterally constricted, an elongate-triangular

space on the elytra reaching from scutellum to near middle, widened behind to lateral margin and here extending forward and backward, and a transverse, slightly curved, band of even width at apical fourth, black ; within the black proximal area of the elytra there is on each a yellowish white angle-shaped mark, beginning at suture at basal fourth or fifth, slightly and gradually widening behind, and turning at an obtuse angle towards the side before reaching the hinder edge of the black area, the transverse branch stopping in middle of disc ; before and laterally of the tip of the transverse branch there is a linear oblique spot ; the black area itself posteriorly edged with yellowish white ; a spot on coxae, a spot above anterior coxa, meso- and metasternal episterna, and a transverse, apical, lateral spot on first and second abdominal segments, creamy white. Prothorax longer than mesially broad, reticulate as in *Plagionotulus*, elytra elongate ; hindfemur nearly reaching apex of elytra ; legs coarsely rugate ; no carinae on femora.

Length, 16—18 mm. ; elytra, 11—12 mm. ; breadth, 3½—4 mm.

Hab. Mpuapua, German East Africa.

Two ♀♀.

E. **Plagionotulus** (1894) Jord. (type : *lyricen*).

Antennal groove large, open ; frons separated from occiput. Prothorax globular. Femora carinate.

Plagionotulus lyricen (1894) Jord.

I am not certain that *lyricen* is distinct from *Clytanthus dimidiatus* (1882) Qued., and from *Clytus contractifrons* (1890) Bates, the descriptions of which fit very well the present species.

Plagionotulus senegalensis (1841) Lap. & Gory.

In the British Museum from Senegambia. Closely resembling the preceding.

Plagionotulus westringi (1872) Fahrs.

Syn. : *Pl. cinereus* (1894) Jord.

I have no longer any doubt that the two names apply to the same insect.

F. **Denticerus** (1894) Jord. (type : *reticulatus*).

Like *Plagionotulus*, but antennal segment 3 and following produced into an acute tooth at apex on innerside.

It is possible, judging from the description, that *Clostrocera* (1834) Serv. is the same as *Denticerus*.

The second species described as *Clostrocera*, namely *tricolor* (1840) Guérin, is doubtless an *Apiogaster* (see above, sub No. 23).

Subfamily LAMIINAE.

32. **Monochamus laevis** spec. nov.

♂. Resembling *basalis*, *griseoplagiatus* and *gabonicus* ; elytra clayish grey, except a broad brown band which extends obliquely to suture, where it is

somewhat produced anad, the band extending laterally from near shoulder to apical third, and being posteriorly rather better defined than anteriorly ; base of elytra **not** brown.

Frons smooth, only with a row of punctures at the eye. Scape of antenna shorter than in the species mentioned before, without large punctures ; apices of segments more or less brown. Eye smaller than in the species mentioned. Prothorax longer than it is broad at base, without distinct subapical sulcus, with a very few punctures anteriorly and posteriorly on disc, and a few more on upperside of spine ; disc mesially shallowly impressed, the impression bordered laterally by a very feeble elongate tubercle, mesial antebasal tubercle distinct, not sulcate. Elytra punctured all over, the punctures in almost regular rows above at base, largest behind shoulder, the basal ones with slightly granuliform anterior edges ; a series of two or three more prominent granules on the mesial basal convexity ; only four rows of punctures between this series and the suture ; apex of each elytrum obliquely rounded-truncate, the sutural angle being very obtuse. No large punctures on femora.

Length, 18 mm. ; elytra, 11½ mm. ; breadth, 5½ mm.

Hab. Benito (type) and Kuilu, French Congo.

Two ♂♂.

33. **Monochamus borussus** spec. nov.

♂. Exactly like *farinosa* (1884) Bates, *Ent. Mo. Mag.* xxi. p. 16 (Gabun) (*Melanopolia*), except in the third segment of the antenna not being clubbed, in segments 3 to 11 being conspicuously white at base, and in the apex of the elytrum being slightly sinuate.

Hab. Congo.

One ♂.

We have four specimens of *farinosa* three ♂♂, one ♀ from Lolodorf, Cameroons, and from Benito, French Congo. In all four specimens the suture of the elytra is more or less white. The antennal segments 5 to 11 are brown, not ringed with grey. The figure of *farinosa* in Waterhouse, *Aid* t. 170. f. 5, is not very good, the base of the elytra and the scutellum erroneously being represented as quite black and the two vittae of the pronotum as almost parallel.

34. **Monochamus omias** spec. nov.

♂ ♀. Brown-black ; pubescence of underside and legs olive-grey, with a silky yellow gloss in side-light ; upperside variegated with clayish olive and black ; an ill-defined patch on occiput at each side, an elongate patch or abbreviated vitta at each side of pronotum, extending from base to beyond middle, a rounded basal patch on each elytrum close to scutellum, a large mesial area not reaching lateral margin, rounded in front on each elytrum, concave or straight behind, touching suture, and a large ovate discal ante-apical spot, velvety black ; elytra, moreover, dotted and marmorated with black and olive. Antenna brown, thrice (♂) or (♀) not quite twice the length, of the body, segments 3 to 7 grey at base, especially in ♀. Scutellum bordered with bright buff. Head with large punctures all over ; smooth mesial line extremely fine. Scape long, regularly conical, smooth in appearance, with a few punctures. Lower lobe of eye small, diameter two-thirds that of cheek. Prothorax as long as it is broad at base, with very long and acute side-spine ; rather densely punctured in front ; depressed before middle, without distinct

transverse subapical sulcus; globosities ill defined, except the mesial one. Scutellum rounded. Elytra quite straight at base, with the shoulders acute, prominent, but not projecting forward; almost gradually narrowing from shoulders to near apex, punctured from base to near apex, shoulders granulose; an inconspicuous short basal submesial carina ending in a tooth-like tubercle; apex rounded. Femora without large punctures. Hairs at end of abdomen and at apices of tibiae ochraceous.

Length, 19 mm.; elytra, 13 mm.; breadth, 8½ mm.

Hab. Batanga, Cameroons (*type*), and Benito, French Congo.

One pair.

35. **Monochamus melaleuca** spec. nov.

♂. Closely allied to *omias*, but very different in pattern and in the structure of the head and prothorax.

Black. Frons, cheek, a mesial vitta on occiput, a broader one on pronotum, sides of thorax (excepting spine and a patch below it), scutellum, numerous more or less confluent spots on elytra, and sides of under surface, white; legs and scape of antenna grey, being thinly pubescent.

Head and pronotum scarcely with any punctures. Frons slightly convex, mesial line thin but distinct; lower lobe of eye little over half the width of the cheek. Antenna three times the length of the body; scape thicker than in *omias*, rather finely punctured. Pronotum without distinct dorsal tubercles and grooves; lateral spine very broad at base, but short. Scutellum rounded. Elytra as in *omias*, the punctures more regularly seriate near suture. Femora without punctures.

Length, 15 mm.; elytra, 10 mm.; breadth, 5 mm.

Hab. Benito, French Congo.

Two ♂♂.

The hind femora reach to near end of abdomen in *omias* and *melaleuca*, and the apices of the elytra are almost rounded together.

36. **Monochamus distigma** spec. nov.

♂♀. Brown-black, tibiae, abdomen and antenna rufescent in some specimens; underside evenly pubescent, clayish olive; upperside tawny-olive, indistinctly irrorated with brown, the tawny-olive pubescence interrupted by the large punctures. Scutellum buff. A velvety black discal postmedian spot on each elytrum, irregularly transverse or ovate, seldom only vestigial.

Head punctured all over, the punctures large and deep, but not very close together; frons with faintly raised mesial line. Lower lobe of eye not so wide as cheek. Antenna of ♂ three times the length of the body, of ♀ half as long again as the body; scape short, with small punctures; segments 3 to 11 grey at bases in ♀. Prothorax with large punctures all over the upperside, except the feeble discal callosities, and also on the underside beneath the side-spine; as long as basally broad; no distinct subapical sulcus above, no distinctly limited mesial impression; antebasal mesial callosity feebly impressed. Elytra with rectangular, very slightly receding shoulders, coarsely punctured from base to apex, conspicuously granulate at base, the granules highest on the somewhat raised mesial part of base; apex truncate, with the angles rounded. Mesosternal episternum with some large punctures. Femora not punctured.

Length, 13—15 mm.; elytra, 9—11 mm.; breadth, 4—5 mm.
Hab. Benito, French Congo.
Two ♂♂, four ♀♀.

37. **Monochamus isochrous** spec. nov.

♂♀. Brown, covered with a very dense tomentum of an olivaceous raw-umber colour, which is rather paler below and at sides of prothorax than above; longer pubescence of tibiae and the soles silky ochraceous; a thin basal mesial line on pronotum and the scutellum cream-colour; the scutellum especially conspicuous; no other markings.

Head with a very deep mesial sulcus from clypeus to pronotum; frons irregular, bearing an additional longitudinal groove between middle and eye, no puncturation; antennal tubercles large, somewhat rugose, with a longitudinal groove at base on inner surface, the interantennal depression not appearing triangular but quadrangular, which is especially obvious in a view from behind; on occiput an oblique submesial groove behind upper lobe of eye, no punctures except a few on the fold limited by this groove. Antenna of ♂ half as long again as, of ♀ a little longer than, the body; third segment as long as, or shorter than, prothorax. The latter broader than long; side-spine large and acute; subapical transverse groove deep, curving backwards in middle; immediately behind it a trapezoidal depression, bordered laterally by a flat tubercle, which is sharply limited behind by a groove that extends indistinctly to basal constriction; a few small punctures on side-spine and posteriorly at sides of disc. Scutellum evenly rounded. Elytra irregularly depressed in several places, each rounded at apex, minutely and dispersedly punctured from base to beyond middle, then smooth, feebly but distinctly granulose behind shoulders. Underside not punctured except at apices of tibiae; short flat grey hairs, which are longer than the hairs composing the bright umber-brown pubescence, dispersed over legs and underside of body; intercoxal processes of pro- and mesosternum sulcate.

Length, 28 mm.; elytra, 19 mm.; breadth, 9 mm.
Hab. Abetifi, Ashanti (*type*), and Portuguese Congo.
One ♂, two ♀♀.
The structure of the frons and antennal tubercles distinguishes this species from all the other African *Monochamus*.

38. **Monochamus homoeus** spec. nov.

♂♀. Close to the preceding, but head normal. Pubescence slightly brighter, especially at sides of prothorax and on underside; bristles at apices of tibiae more or less tawny; scutellum centrally of the ground-colour, marginally ochraceous.

Frons with thin mesial groove, no lateral grooves, antennal tubercles normal, smooth, but the basal grooves found in *isochrous* indicated behind in *homoeus*. Third antennal segment slightly longer, and subapical sulcus of pronotum not so deep mesially; elytra more even, less undulate, dispersedly punctured from base to apex, the punctures minute behind, larger than in *isochrous* at base, their anterior edges not raised to distinct granules laterally behind shoulder.

Antenna one-fifth (♂) or very little (♀) longer than the body. Prosternal process very feebly sulcate.

Length, 23—27 mm.; elytra, 16—19 mm.; breadth, 7—9 mm.

Hab. Benito, French Congo (*type*), Leopoldville and Upoto, Congo.

Two ♂♂, three ♀♀.

The evenly coloured body, the smooth frons of the head, the non-granulose and apically rounded elytra, and the yellow-margined scutellum, will be sufficiently trenchant characters by which to recognise the species.

39. **Monochamus cribellum** spec. nov.

♂. Rufous brown, covered with a clayish buff tomentum, which is greyish beneath. Head, prothorax above and below, elytra and sides of meso-metasternum very densely and very coarsely punctured all over, the punctures black and brown, giving the body an irrorated appearance. Lower lobe of eye vertical, small, not so wide as cheek. Antenna not quite twice the length of the body, distal segments black, scape very short, twice as long as broad (measured from basal constriction to apex), third segment twice the length of the scape and a third longer than fourth. Prothorax without sharply marked subapical sulcus above; side-spine before middle, acute; a rather high mesial postmedian tubercle. Scutellum buff, rounded. Elytra parallel, rather strongly convex before apex, somewhat granulated at base, obliquely rounded at apex, non-truncate, punctures large and close together from the base to the very apex, each bearing a very short stiff hair. Femora smooth. Mesosternal process narrow, declivous.

Length, 7 mm.

Hab. Batanga, Cameroons.

One ♂.

More coarsely punctured than *cribrosus* (1893) Lameere, of which the type is in the Tring Museum. *M. cribellum* is a much slenderer insect than *cribrosus*, and can easily be distinguished by the small eye, the punctured sides of the mesometasternum, the non-seriated punctures of the elytra, etc.

40. **Monochamus aurigutta** spec. nov.

♂♀. Brown-black, tibiae and antenna (scape excepted) more rufous brown; uniformly covered with a very short slaty-grey pubescence. Pronotum with a conspicuous golden-yellow spot at each side of base. Elytra marked each with a single, postmedian, discal, transversely rounded, velvety-black spot. Bases of antennal segments grey.

Head and pronotum densely punctured, excepting the three dorsal thoracical callosities, which are feebly raised. Mesial line of frons feebly impressed; eye about as wide as cheek. Antenna two and a half times (♂) or twice (♀) as long as the body; scape long, finely punctured. Prothorax as long as broad; mesial callosity grooved behind; side-spine large. Elytra truncate at base, not rounded at shoulder, somewhat impressed behind base, gradually narrowed from shoulder to near apex, strongly convex behind, punctured from base to apex, the punctures large in basal half, gradually becoming smaller behind, but remaining distinct to the very end, subseriate, especially at base; four series of punctures between suture and basal callosity, which bears granules that are as prominent as those on and behind the shoulder; the anterior edges of all the punctures of basal half more or less elevate; apices of elytra rounded together, the sutural angles distinct. Femora smooth, without punctures.

Length, 12—14 mm.; elytra, 8—10 mm.; breadth, 4—5 mm.

Hab. Lolodorf, North Cameroons (L. Conradt).

One ♂, two ♀♀.

The species can easily be recognised by the yellow basal spots of the pronotum.

41. **Oxyhammus derolius** spec. nov.

♂. Brown-black, covered with a very short clayish olive tomentum, which gives the insect a dark slaty-grey appearance; antennal segments 4 to 11 grey at base; scutellum cream-colour, conspicuous; a thin basal mesial line on pronotum also creamy; no other markings. Frons paler pubescent at sides than in middle.

Head and thorax without any punctures, except three or four at prothoracical spine. Lower lobe of eye vertical, a little wider vertically than cheek. Antenna three times the length of the body; scape smooth, three times as long as apically broad (apart from the narrow basal portion); third segment a little more than twice as long as scape, a third longer than segment 4. Prothorax a little longer than basally broad; apical and subapical transverse sulci distinct and regular, but obsolete above in middle; no tubercles on disc; side-spine conical, rather short. Scutellum rounded. Elytra depressed, truncate at base and apex, with the shoulders and sutural angles rounded, and the outer angle produced into a short spine; coarsely punctate-striate, the punctures distinct to apex, but here much smaller than at base and not seriated; base granulose. Mesosternal process slightly convex, not tuberculate, but also not grooved.

Length, 12 mm.; elytra, 7½ mm.; breadth, 3⅔ mm.

Hab. Benito, French Congo.

Two ♂♂.

In appearance similar to *Oxyhammus scutellaris* (1893) Kolbe, but with a simple mesosternum, and a shorter apical spine and no basal tubercle to the elytra. Besides, the scape of *derolius* is shorter, the elytra are more coarsely punctured, and the subapical sulcus of the pronotum is obsolete above in middle. In the shape of the mesosternal process *derolius* stands intermediate between ordinary *Monochamus* and the species described by me as *M. fulvaster* (1894), Nov. Zool. i. p. 194. n. 152 (Kuilu). This *fulvaster* has a strongly convex, anteriorly vertical mesosternal process, and truncate and externally acuminate elytra, and belongs to *Oxyhammus*. Since the relationship of *derolius* and *scutellaris* cannot be doubted, the only character by which to distinguish *Monochamus* and *Oxyhammus* would be the tooth at the end of the elytra.

42. **Oxyhammus** (?) **cinctus** spec. nov.

♂. Black; underside, head, antenna and legs greyish white, the pubescence short and not very dense, on prothorax extending upwards to disc, forming in dorsal view a sinuous lateral vitta. A thin interrupted mesial line on pronotum, scutellum, a large humeral patch on elytra extending obliquely towards suture, a transverse, slightly sinuous band across the elytra just behind middle, broadest at lateral margin, where it is connected with the humeral patch, produced frontad at suture, an apical band, and the tips and extreme bases of the antennal segments, white; the postmedian band of the elytra slightly buffish.

Head, thorax and femora impunctate, excepting a few punctures at the base of the prothoracical spine. Lower lobe of eye not wider than cheek. Antennal tubercles short, the depression between them more obtuse than in the previous species. Antenna of ♂ a little longer, of ♀ a little shorter than the body; scape

smooth, reaching to middle of prothorax ; segment 3 half as long again as 4, a little longer than scape, 10 little over twice (♀) or not quite thrice (♂) as long as broad, 5 to 10 gradually shortening, 11 as long as segment 6 or 7. Prothorax as broad at base as long ; side-spine acute, curving backwards ; apical and subapical sulci as strongly and sharply impressed as the basal ones, the subapical one imperceptibly curved backwards in middle. Scutellum rounded-triangular. Elytra truncate at base, with the shoulder-angles rounded, but the shoulders not receding ; punctate-striate, the punctures large everywhere, not seriate at the apex ; the edges of the most basal punctures of the four or five rows nearest to scutellum raised to granules ; no granules behind shoulder ; apex sinuate as in *Tomolamia irrorata*, with both angles acuminate, but the exterior tooth longer than the sutural one. Intercoxal process of prosternum evenly arched, sulcate ; that of mesosternum vertical in front, compressed, tuberculate.

Length, 12 mm.; elytra, 8½ mm.; breadth, 4 mm.

Hab. Victoria, Cameroons (Voss), *type*, and Benito, French Congo.

One pair.

The species does not fit well in either *Oxyhammus*, *Tomolamia*, or *Prodomitia*.

Melanopolia (1884) Bates, *Ent. Mo. Mag.* xxi. p. 15 (type : *frenata*).

Syn. : *Griphammus* (1894) Jord., Nov. Zool. i. p. 195 (type : *ligatus* = *frenata*).

This genus resembles *Tragocephala* and *Sternotomis* in the lobate bases of the prothorax and of the elytra, in the broad, square mesosternal process, and in the horizontal apex of the scutellum ; but the cicatrix is as in *Monochamus*. The species described by Bates, *l.c.*, as *Melanopolia farinosa* and *convexa* belong to *Monochamus*, though they resemble *Melanopolia* very much in colour, and have even the clubbed third antennal segment found in the species described below. They are close to *Monochamus griphus* (1894) Jord., *l.c.*, and to *melaleuca* and *omias* described above.

Melanopolia frenata (1884) Bates, *l.c.* (♂, **not** ♀.)

Syn. : *Griphammus ligatus* (1894) Jord., *l.c.* (♂ ♀).

Bates described as *frenata* the sexes of two species, his ♀ being the insect characterised hereafter.

We have both sexes of each.

43. **Melanopolia cincta** spec. nov.

♂ ♀. Closely resembling *frenata*, but differing in the third antennal segment being clubbed and the incrassate part hairy, in the antennal segments 5 to 11 not being white at bases (being here only greyish, or being all brown), and in the oblique vitta extending from shoulder to suture of elytrum being separated into more or less confluent spots and therefore being much less conspicuous.

Hab. Benito, French Congo, *type*, and N'Doro, Upper Ogowé River.

Five ♂♂, six ♀♀.

It is a most curious fact that *Melanopolia cincta* and *frenata* differ in the same way as *Monochamus borussus* and *farinosa* ; and that among the likewise white and black species of *Acridocephala* there are two species which differ also essentially in the one having segments 5 to 11 of the antenna white-ringed and the other having them simply brown.

44. **Melanopolia catori** spec. nov.

♀. Black and white like the others. Third segment of antenna not clubbed, segments 4 to 10 slightly grey at base, not distinctly white as in *frenata*. Vittae of pronotum parallel, not continuous with the belt of the head. Elytra sparsely marked with white; a few spots at and behind shoulder, on disc at basal fourth, along suture, and at apex, a larger patch at apical third touching lateral margin.

Scape of antenna much longer than in the other species, reaching beyond middle of prothorax, as long as the third segment. Elytra more minutely punctured behind, rounded together at apex, each being very feebly and obliquely truncate.

Length, 18 mm.; elytra, 12 mm.; breadth, 6 mm.

Hab. Sierra Leone (D. Cator).

One ♀.

45. **Bixadus aparus** spec. nov.

♀. Black; pubescence clayish grey on frons and underside, whitish grey above; a mesial patch on frons, a divided spot between antennal tubercles, middle of scape and apices of the other antennal segments, pronotal callosities, and the greater part of the legs, fuscous; scutellum ochraceous; bristles at apices and incisions of tibiae also yellowish; a lateral spot on occiput, a C-shaped mark at base of each elytrum, a patch before each apex including dots of grey pubescence, and numerous dots dispersed over the elytra, black; tarsi black above, thinly grey pubescent.

Frons broader than high, with a few punctures in centre and at eyes, a patch of punctures between antennal tubercles; these tubercles shorter and more oblique than in *sierricola*. Lower lobe of eye transverse; cheek very narrow; upper lobes wider apart than in *sierricola*. Scape of antenna short, two and a half times as long as apically broad; third segment half as long again as fourth. Prothorax shorter than in *sierricola*, irregularly punctured all over, the punctures seriate here and there, none in and near middle line; subapical sulcus not sharply impressed; a mesial depression bordered at each side by a transverse callosity; mesially impressed at basal constriction, the impression black; side-spine larger than in *sierricola* and a little more frontal in position. Elytra parallel from shoulder to apical declivity, each rounded at apex, a little less flattened at suture than in *sierricola*; rather finely punctured from base to near apex; base granulated from scutellum to shoulder. Metasternum and abdomen with black punctures at sides.

Length, 22 mm.; elytra, 16 mm.; breadth, 7 mm.

Hab. Victoria, Cameroons (Voss).

One ♀.

Pascoe (*Proc. Ent. Soc. Lond.* 1868. p. 12) separated *Bixadus sierricola* from *Monochamus* on account of the short legs, the incrassate femora, the declivous pro- and mesosternum, the large eye, and on account of the third and fourth antennal segments being equal in length. The new species agrees with Pascoe's diagnosis except in the third segment of the antenna being much longer than the fourth.

Acridocephala (1855) Chevr.

I know five species of this genus. They are all closely allied except the last, but can easily be distinguished as follows :—

Acridocephala nicoleti (1858) Thoms.

♂ ♀. Vittae of upper- and underside cream-colour ; that of elytra uninterrupted from base to apex. Puncturation of elytra fine. Antenna black ; first, second, and base of third segment grey.

We have this species from Benito and Bata, Congo.

46. **Acridocephala seriata** spec. nov.

♂ ♀. Close to the previous ; markings white. Elytra with four series of spots, the first and fourth consisting of small and dispersed ones, while the spots of the two median rows are larger, with small ones in between. Antenna black ; first, second, and base of fourth segment grey. Elytra slightly stronger punctured than in *nicoleti*.

Hab. Batanga and Lolodorf, Cameroons.

Two pairs.

Acridocephala bistriata (1855) Chevr.

♂ ♀. Pronotal (grey) vittae broader and less sharply defined than in the previous ; subapical transverse sulcus strongly marked above. Elytra much more strongly punctured and dotted all over with grey. Antenna black or brown ; scape greyish.

We have this species from Old Calabar and Mt. Cameroon.

Acridocephala spec.

♂ ♀. Like the preceding one in the pattern of the elytra. Antennal segments 4 to 11 conspicuously ringed with white at bases. Vittae of pronotum less sharply defined, sides of disc more obviously punctured.

We possess a series from the Kuilu River and Loanda. I identified it in 1894 as *variegata* (1886) Auriv., but have now doubts about the correctness of the identification.

47. **Acridocephala pardalis** spec. nov.

♂ ♀. This is not a typical *Acridocephala*. The frons is not trapezoidal, except in upper third, and is without the oblique naked stripes of the other species ; the antennal tubercles are farther apart ; the prothorax is as broad at apex as at base, has a basally broad but short postmedian side-spine, and is not transversely wrinkled on disc.

Black, densely pubescent greyish white ; antenna black-brown, not ringed with white ; a mesial and a lateral vitta on pronotum, both abbreviated in front and behind, and numerous confluent, ill-defined spots on elytra naked, black.

Head and thorax impunctate, apart from a very few lateral punctures on pronotum. Frons convex. Antenna of ♂ half as long again as body, of ♀ a little longer than body. Scape and third segment comparatively shorter than in the other species ; scape with very few large punctures. Prothorax a little shorter than basally broad ; subapical and subbasal sulci curving discad above ; disc slightly flattened, not impressed, convex laterally. Scutellum rounded, white. Elytra truncate at end, with the external angle more strongly dentate than the inner one ; shoulder much more prominent than in the other species, the middle of the base less projecting forward ; punctured all over, the punctures subseriate near suture.

Prosternal process evenly arched. Tubercle of mesosternum more obtuse than in the other species.

Length, 11½—13 mm. ; elytra, 8—9 mm. ; breadth, 3½—4 mm.

Hab. Benito, French Congo.

One ♂, four ♀♀.

Resembling in appearance *Eumimetes jaguarita* (1855) Chevr.

Cnemolia gen. nov.

♂♀. Near *Lasiopezus*. Eye sinuate, lower lobe large, its vertical diameter much longer than that of cheek. Antenna fringed beneath ; scape elongate, slenderer than in *Lasiopezus* and longer, coarsely punctate-rugate at end ; third segment longer than fourth. Metasternum distinctly elevate sublaterally at apex, carinate in ♂. Midtibia **without** incision ; foretarsus as in *Lasiopezus*.

Typus : *Cnemolia mima* spec. nov.

The absence of an incision from the midtibia would remove this genus to the neighbourhood of *Mesosa* according to Lacordaire's classification. But it is undoubtedly a close ally of *Lasiopezus*. In *Idactus* the midtibial groove is either small or also absent. *Idactus* can be distinguished from *Cnemolia* by the smaller eye and the strongly tuberculated or crested pronotum and elytra. The antennae of *Cnemolia* are twice the length of the body in ♂, as long as the body in ♀.

48. **Cnemolia mima** spec. nov.

♂. Black, covered with a grey pubescence, irregularly variegated with tawny and, on the elytra, dotted with black ; all the markings indistinct ; middle of sides of elytra somewhat whitish ; a line above lateral spine of pronotum grey, a mesial one tawny, a line on elytrum extending obliquely from shoulder to disc tawny, dotted with black ; these lines quite indistinct. Bases of antennal segments grey. Legs variegated with grey, clay, and brown.

Frons granulose. Vertical diameter of lower lobe of eye more than three times as long as that of cheek. Prothorax broader than long, side-spine conical, broad at base ; notum granulose, with two feeble convexities behind the subapical transverse sulcus. Elytra flattened, much less convex before apex than in *Lasiopezus*, less narrowing posticad than in *Latisternum* ; dispersedly punctured, more coarsely at base, granulose at shoulders, irregularly depressed, the pubescence slightly raised on the feeble wrinkles ; a basal, mesial, elongate, broad but not high tubercle ; between it and shoulder a depression which extends obliquely to disc.

Length, 12 mm. ; elytra, 8½ mm. ; breadth, 4¼ mm.

Hab. Leopoldville, Congo.

One ♂.

In appearance somewhat similar to *Lasiopezus variegator* (1792) Fabr.

49. **Cnemolia guttata** spec. nov.

♀. Black ; densely covered with a buffish grey pubescence; dotted with black, especially on the elytra ; variegated with ochreous on occiput, above pronotal side-spine, at base and in and beyond middle of elytrum. Apices of antennal segments 3 and 4, and apical two-thirds of the following segments, a large apical patch on upperside of tibiae, apices of tarsal segments and the whole third segment, black.

Frons broader than long, with dispersed granules laterally. Lower lobe of eye

about twice as wide vertically as cheek ; upper lobes widely separate, the distance of eye from mesial sulcus being equal to the diameter of the scape before middle. Side-spine of the broad prothorax large ; two black, rounded, very obtuse tubercles on disc behind subapical sulcus ; dispersed punctures and some granules above and below, no punctures or granules between the two dorsal tubercles. Scutellum truncate-rotundate. Elytra flattened, shaped as in the preceding species, granulose at base, especially at the prominent shoulders and the basal, crest-like tubercle ; puncturation very coarse in basal half behind shoulder, finer towards suture and apex

Length, 17 mm. ; elytra, 12 mm. ; breadth, 7 mm.

Hab. Cameroons.

One ♀.

Latisternum (1894) Jord., Nov. Zool. i. p. 231 (type : *pulchrum*).

I proposed this generic name for a species of which I knew at that time only a mutilated ♀, erroneously considering it to be a close ally of *Acmocera*. On receipt of perfect specimens (from Mons. H. Donckier) I became at once aware of the close relationship of *Latisternum* with *Lasiopezus* and *Ancylonotus*. The essential distinguishing characters of *Latisternum* are as follows :—

Head very broad. Eye small, divided. Antennal tubercles very short, widely separate ; scape elongate, slender ; segments 3 to 5 or 6 incrassate at tip, more or less curved. Pronotal side-spine large, horizontal. Elytra narrowing apicad. Mesosternal process broad. Legs long, hindfemur reaching at least to end of elytra.

Here belong, besides the type species and the insect described below, *Lasiopezus onca* (1882) Qued., *Berl. Ent. Zeit.* p. 340, and *Lasiopezus ambiguus* (1900) Kolbe, *ibid.* p. 306.

Latisternum pulchrum (1894) Jord., *l.c.* (Loanda).

We have from Benito, French Congo, two pairs of this species, which agree well with the type specimen. The antennal segment 3 is much longer than 4, and this much longer than 5 ; 3 to 5 are incrassate at tip, 4 and 5 strongly (♂) or moderately (♀) curved. The legs are much prolonged in the ♂, the anterior femur of our larger ♂ being longer than the elytra ; the first segment of the foretarsus has no long fringe, and is as long as the other segments together in this specimen, rather shorter in the other ♂.

50. **Latisternum macropus** spec. nov.

♂. Similar to *L. onca* (1882) Qued., larger, the markings of the upperside olive, not black, much larger, those of the elytra occupying a larger proportion of the surface than the grey interspaces. Legs very long, the hindfemur reaching far beyond the apex of the body ; the first segment of the foretarsus longer than 2 to 4 together, curved, without long fringe. Antennal segments 3 to 6 incrassate at the very end, curved, 6 strongly hooked and provided with a tuft at the apex on the innerside ; in *onca* segment 6 is normal, only 3 to 5 being clubbed.

Length, 15—18 mm. ; elytra, 11—12 mm. ; breadth, 7—8 mm.

Hab. Leopoldville, Congo.

Three ♂♂.

Oeax (1864) Pasc., *Journ. Ent.* ii. p. 273 (type : *triangularis*).

Syn. : *Trachytus* (1893) Kolbe, *Stett. Ent. Zeit.* p. 64 (type : *denticulatus=lichenea*).

Differs from *Idactus* especially in the third segment of the antenna not being obviously longer than the fourth, in the lateral spine of the pronotum being small, the elytra being shorter and more obviously narrowed apicad, and in the metasternum being mesially much depressed.

I know five species, namely :—

Oeax lichenea.

Oeax lichenea (1891) Duviv., *C. R. Soc. Ent. Belg.* p. 420.
Syn.: *Trachytus denticulatus* (1893) Kolbe, *l.c.*

Pronotum green, brown in middle, with three distinct tubercles, besides traces of two smaller ones. The height of the tubercules variable. We have this species from the Gold Coast (Kumassi), Cameroons, Benito and Kuilu.

Oeax pygmaeus (1893) Kolbe, *l.c.* p. 263.

Pronotum ♀ buff : mesial tubercle very high, the others vestigial. We have one specimen from German East Africa.

Oeax triangularis (1858) White.

Similar to *pygmaeus*, but perhaps distinct. More material is necessary to decide the question.

51. Oeax collaris spec. nov.

♂ ♀. Similar to *O. pygmaeus* ; differs in the scape of the antenna being shorter, in the prothorax having no black lateral vitta, and in having a very short obtuse side-tubercle, and in the scutellum being uniformly grey or clay.

The black occipital M of *pygmaeus* replaced in *collaris* by an olive spot.

Hab. Leopoldville, Congo, *type* ; Johann Albrechts Höhe, N. Cameroons (L. Conradt).

One pair.

This is perhaps the West African form of *pygmaeus*.

52. Oeax lateralis spec. nov.

♀. Narrower than the other species, more uniform in colour, wood-brown ; antenna, legs, underside of body, an indistinct oblique area on elytrum extending from shoulder to middle of suture, grey, disc of pronotum also marked with grey, the wood-brown and grey colour contrasting but little. Apices of tibiae, tarsi, and broad infero-lateral vitta from eye to shoulder, continued as a thin lateral stripe to near middle of elytra, a postmedian, oblique, subsutural dash, and an interrupted lateral anteapical line, black.

Eye less deeply sinuate than in *collaris* and *pygmaeus*. Pronotum punctured ; mesial tubercle black, smaller than in the other species, the two other discal tubercles vestigial ; sides of thorax strongly rounded between anterior and posterior constriction, with a short spine. Scutellum unicolorous, grey. Elytra less coarsely punctured than in the other species, not obviously granulose at shoulders ; apex

acuminate, being obliquely truncate at suture ; basal mesial crest blackish, consisting of a small and three large tubercles ; the carina between it and shoulder also blackish at base.

Length, 11 mm.

Hab. Benito, French Congo.

One ♀.

Paroeax gen. nov.

♂♀. Similar to *Oeax*. Eye divided, lower lobe half the width of the cheek. Scape about three times as long as broad, grossly punctured above, with a short cicatrix ; third antennal segment twice as long as fourth. ♂ with horn at anterior edge of frons, and prolonged foreleg.

Type : *nasicornis* (1871) Pasc.

We have a series of *Paroeax nasicornis* from Cameroons and Benito.

Phloeus gen. nov.

♀. In appearance similar to *Oeax*. Short. Eye small, divided, upper lobes very widely separate (as in *Latisternum*), the distance from one to the other equalling nearly the length of the scape. Frons broader than long. Antennal tubercles short, widely distant. Antenna a little longer than the body ; scape rough with punctures above, a little longer than the fourth segment, this longer than third ; fringe vestigial, consisting of short stiff hairs. Prothorax with two dorsal tubercles ; side-spine very small. Prosternum arched, almost truncate behind ; mesosternum nearly vertical, with rounded, compressed tubercle. Incision of midtibia small.

Type : *Phloeus brevis* spec. nov.

Differs from all the allies of *Ancylonotus* and *Lasiopezus* in the tuberculated mesosternum.

53. **Phloeus brevis** spec. nov.

♀. Black, densely clothed with a greenish grey pubescence ; upper part of frons, middle of occiput and pronotum, a large rounded-triangular basal area on elytra (common to both), interrupted at outerside of basal carina, and on each elytrum another large area, beginning laterally before middle and extending to apex, but not reaching suture, irregular behind, oblique in front, dark clay-colour, these areas more or less edged with black. Apex of proximal segments of antennae, and more than the apical half of the distal ones, a patch at each side of base of pronotum, and a spot or irregular ring before apex of tibiae black.

Occiput impressed in front, punctured laterally, with a slight tubercle at each side of middle line. Pronotum broader than long, side-spine vestigial ; no subapical transverse groove above ; two large compressed tubercles close to apex ; mesial line between them slightly impressed ; disc with large punctures at the sides and behind the tubercles. Elytra truncate at base, coarsely punctured all over ; shoulder prominent, somewhat granulated ; a high crest in middle of base ; a trace of a mesial carina behind middle ; declivous part of elytrum somewhat impressed ; suture dotted with brown in and behind middle. Femora and tibiae subcarinate, with single large punctures.

Length, 13 mm. ; elytra, 8½ mm. ; breadth, 6 mm.

Hab. Sierra Leone ; two ♀♀.

In colour similar to *Oeax lichenea*.

54. **Prosopocera fulva** spec. nov.

♂ ♀. Similar to *P. punctulata* (1894) Jord., Nov. Zool. i. p. 198, but differs conspicuously in the following details : tomentum of body entirely tawny ; frons more densely granulate ; antenna of ♂ very long, scape of both sexes very densely granulose, at least half as long again as in *punctulata*, reaching somewhat beyond the antemedian sulcus of the pronotum ; cicatrix very prominent ; disc of pronotum more smooth ; black dots of elytra more dispersed and larger, sutural angle rounded off in both sexes ; metasternum with two, each abdominal segment with one small black lateral spot.

Hab. Benito, French Congo.

One pair.

55. **Prosopocera cretacea** spec. nov.

♀ Apparently closely allied to *P. nivosus* (1897) Fairm., *Ann. Soc. Ent. Fr.* p. 152 (*Galactesthes*), and like this entirely white, excepting a few black dots ; skeleton of antenna and legs black ; scape of antenna shorter than third segment, while it is longer than the second and third together in *nivosus*, according to Fairmaire (error ?) ; prothoracical tubercle, a few punctures behind it, granules on shoulder and a small lateral dot behind shoulder, as well as a small lateral spot on each abdominal segment, black.

Cicatrix very strong, almost closed ; the scape widening apicad, appearing angulate at end, the following segments thin.

Length, 24 mm. ; elytra, 18 mm. ; breadth, 8 mm.

Hab. Fort Johnstone, Nyassaland (Dr. Percy Rendall).

One ♀.

Since the division of the species of *Prosopocera* into two genera according to the presence or absence of a frontal armature in the ♂♂ is quite unnatural, I do not see any reason for separating generically the present insect and *nivosus* from the species of *Prosopocera*. The carina of the cicatrix is certainly heavier in *cretacea* than in the allies of *myops*, but several South African species have the carina nearly as prominent.

Prosopocera lameeri (1892) Duviv.

This species has been described by Duvivier from a ♂ as *Anybostetha lameeri*.

♀. Frons, antenna, legs and underside of body buffish clay-colour, sides of metasternal sternum and the whole upper surface of a beautiful whitish green. Scape of antenna reaching antemedian groove of prothorax, more than half the length of the third segment and scarcely shorter than the fourth ; antemedian groove of pronotum slightly bent backwards in the middle ; disc smooth, not tuberculate, slightly raised mesially before base, with a few punctures on each side in front of the basal constriction ; lateral spine small, black at tip. Scutellum yellowish.

Elytra as long as broad at the shoulders, somewhat narrowing apicad, punctured from base to near apex, the punctures becoming finer behind, largest at and near the shoulders, where the anterior edges are raised to granules, densest laterally in middle ; a trace of a brown posthumeral lateral spot and of an antemedian discal one ; apex rounded ; extreme lateral and apical edges like underside.

Hab. Kumassi, Gold Coast (Newberry).

One ♀.

This species together with *P. aliena* and "*Sternotomis*" *bicolor* are distinguished from the other species of *Prosopocera* by the peculiar whitish green tomentum of the upperside. In both *aliena* and *bicolor* the head and thorax have the clayish colour of the under surface, while in *lameeri* the occiput and pronotum are coloured like the elytra. *P. aliena* differs, besides, in having the sutural angle of the elytra dentate and possessing very small prothoracical spines, which are barely traceable in our ♂ from Lolodorf, Cameroons ; whereas *bicolor* can be distinguished from the other two species by the scape of the antenna just reaching the prothorax.

56. **Prosopocera insignis** spec. nov.

♂ ♀. Variegated with a brown, black, and greenish white tomentum ; a double spot on occiput, a spot behind the side-spine of the prothorax, another, transverse, on each side of the disc before middle, and a less distinct one in front of the scutellum, the usual lateral posthumeral spot of the elytra and the discal antemedian one, velvety black, more or less encircled with greenish white ; this latter tomentum especially conspicuous on the prothorax in front of and below the spine, on the elytra round the black spots and behind middle, on the sterna and abdomen as spots and patches, and on the legs as rings ; the punctures of the prothorax and elytra black.

Frons unarmed in ♂, with dispersed punctures near eye, an anterior mesial patch greenish white. Antenna three to four times the length of the body in ♂, one-fourth longer than the body in ♀ ; scape reaching just beyond the antemedian sulcus of the pronotum, with dispersed coarse punctures ; third segment at least half as long again as the scape, reaching in ♂ to black posthumeral spot of elytra. Disc of pronotum punctured in front and at the sides; antemedian transverse groove deep, bent backwards in middle ; mesial callosity in front of basal constriction and lateral discal callosities distinct but not prominent; side-spine very prominent, broad at base. Elytra gradually narrowing behind, dispersedly punctured all over, the punctures rather denser near the shoulders on upperside, and their anterior edges here raised to granules.

Length, 23—30 mm. ; elytra, 16—20 mm. ; breadth, 9—12 mm.

Hab. Benito, French Congo.

Three ♂♂, four ♀♀.

Anoplostetha (1850) Reiche.

There does not seem to be anything constant in structure which separates *Anoplostetha lactator* from *Prosopocera*. Two of the geographical forms of *lactator* have indeed been described as *Prosopocera*. There are at least four or five subspecies of this species, connected by intergradations, namely :—

(*a*) *P. lactator meridionalis* subsp. nov.

♂ ♀. White frontal patch generally large ; head white behind eye; dorsal patches of prothorax reaching to antemedian groove ; basal patch of elytrum triangular ; granulation of base extended to near suture in both sexes ; breast white, excepting between and in front of coxae, the white tomentum covering the metasternum anteriorly ; abdomen in ♂ with a single white mesial stripe or this stripe divided, in ♀ entirely white or with small brown mesial and lateral marginal

spots as a rule. Mesosternum almost evenly rounded in ♂, obtusely tuberculate in ♀.

Hab. Cape Colony to Delagoa Bay and Transvaal.

Type from Transvaal.

(*b*) *P. lactator plagiatrix* (1893) Kolbe, *Stett. Ent. Zeit.* p. 264 (Usambara).

♂ ♀. Frontal patch reduced; no large white patch behind eye; granulation of elytra more restricted than in the preceding, especially in ♂, lateral posthumeral puncturation heavier; underside with a white lateral stripe which remains lateral on abdomen and is in ♂ abbreviated; the greater part of the metasternum brown; mesosternum strongly tuberculate in both sexes.

Hab. German and British East Africa.

A ♂ specimen from Lauderdale, Nyassaland, is rather more elongate, reminding one of the form *poggei*.

(*c*) *P. lactator mashuna* (1899) Péring., *Ann. S. Afr. Mus.* i. p. 324. t. 7. f. 5. (Zambesia).

Similar to *poggei*, but frons with white quadrate area. Not known to me.

Hab. "Zambesia."

(*d*) *P. lactator poggei* (1878) Harold, *Mitth. Münch. Ent. Ver.* p. 110 (Interior of Angola).

♂ ♀. Elongate; frons without spot; pronotal patches small or absent; basal and subapical patches of elytra reduced, granulation restricted; underside with white side-stripe from head to end of metasternum in both sexes; mesosternum evenly rounded or obtusely tuberculate. Scutellum slightly sinuate.

Hab. Angola.

(*e*) *P. lactator lactator* (1802) Fabr., *Syst. Eleuth.* p. 283 (Guinea).

Syn.: *Lamia radiata* (1835) Gory, *Ann. Soc. Ent. France* p. 141. t. 2. A. f. 2 (Abyssinia).

♂ ♀. Scape of antenna not shorter than third segment in ♀. Frontal patch square or absent; patch behind eye large; pronotal patches abbreviated; basal patch of elytra also abbreviated, middle and subapical patches reduced, granulation restricted to shoulder; white stripe of underside remaining lateral on abdomen and reaching last segment (♂ o r stopping at apex of metasternum; mesosternum slightly tuberculated.

Hab. West Africa and Abyssinia.

57. **Alphitopola lutea** spec. nov.

♂. Of the same pale colour as *pallida*, differing like this obviously from *bipunctata* in the pale rufous antenna and legs. Eye obviously smaller than in either species, the cheek being higher at the narrowest point than the scape of the antenna is broad at end. Frons armed with horn, which is almost as long as the scape; the horn is horizontal, curving slightly upwards, concave on upperside, roundedly and deeply sinuate at end, with the two lobes pointed. Antenna about three times the length of the body; third segment nearly thrice as long as the scape, and not quite twice the length of the fourth. Prothorax as in *bipunctata*, anterior groove almost straight above; lateral tubercle vestigial, black; base not darker than disc. Scutellum very short, truncate, angles rounded. Elytra:

puncturation denser than in *bipunctata*, especially near suture, apex without distinct punctures, shoulder without granules ; a lateral and a discal black spot as in *bipunctata*, besides a basal elongate spot which is situated in the depression near the shoulder. Underside uniformly pubescent as in *pallida* ; process of mesosternum as in *bipunctata*.

Length, 14 mm. ; elytra, 10 mm. ; breadth, 4½ mm.

Hab. Benito, French Congo.

One ♂.

The ♂ of *bipunctata* possesses a short, divided frontal horn. The fourth and fifth antennal segments appear slightly incrassate, especially in a lateral view, reminding me of *Prosopocera freyi*, in which the incrassation takes place, however, in the third and fourth segments. In *bipunctata* there is an inconspicuous naked dorsal line on the fourth segment running from near the base to near the apex, turning laterad apically ; a similar but shorter line appears on the fifth segment.

58. **Alphitopola clara** spec. nov.

♂. Similar to *A. lactea*, but much larger. Tomentum of head and underside clayish, of pronotum and elytra yellowish white ; chitin of breast slightly blackish. Eye smaller than in *lactea*. Prothorax with small but distinct lateral tubercle ; antebasal groove somewhat angulate in middle ; a few granules on disc, and some punctures lateral before basal constriction. Elytra with dispersed conspicuous black granules at base, and with large black naked punctures, which are very sparse near suture and outer margin and rather denser on disc, besides numerous inconspicuous fine punctures, covered by the tomentum. Mesosternum with small tubercle.

Length, 18 mm. ; elytra, 13 mm. ; breadth, 6 mm.

Hab. Limbe, Cameroons.

One ♂.

Alphitopola sulphurea (1897) Auriv., *Ent. Tidskr.* p. 248. t. 3. f. 3 (Gabun) is the same as *A. flava* (1894) Jord., Nov. Zool. i. p. 201 (Kuilu).

59. **Alphitopola pylodes** spec. nov.

♂. Deep brown, antenna and legs almost black ; densely covered with a yellowish clay pubescence, except antenna and legs, of which the pubescence is grey and not dense ; no markings. Cheek strongly narrowing frontad ; frons as broad as in the ♀ of *A. bipunctata*. Antenna little longer than the body ; cicatrix almost closed ; scape nearly as long as the third segment, this about a quarter longer than fourth. Prothorax not much broader than long, anterior groove shallow above, lateral tubercle barely vestigial. Scutellum longer than broad, rounded. Elytra as in *bipunctata*, but apex of each rounded ; punctures coarse. Prosternal process very narrow in middle ; mesosternal process as in *pallida*.

Length, 15 mm. ; elytra, 11 mm. ; breadth, 5 mm.

Hab. Warri, Niger (Dr. Felix Roth).

One ♂.

I do not know where *Alphitopola* begins and *Prosopocera* ends ; the two supposed genera seem to me to intergrade completely. It would perhaps be wisest for the present to keep the small species, in which the diameter of the lower lobe of the eye does not exceed the height of the cheek, separate under a new generic term, and unite all the others under *Prosopocera*.

60. **Alphitopola pylas** spec. nov.

♀. Black ; antenna, legs and underside of body covered with a thin bluish grey pubescence ; rest of body clothed with a dense pubescence of a yellowish clay-colour as in *pylodes*. Cheek frontally little wider than the scape of the antenna is broad at the apex. Third antennal segment half as long again as fourth. Prothorax with a minute black tubercle at the side; anterior transverse groove distinct but shallow ; no punctures visible ; basal edge and scutellum blackish. Elytra essentially as in *pylodes*, but there are three black markings—an elongate spot at base close to shoulder, a round dot at lateral margin behind shoulder, and a similar dot on disc at basal fourth. Mesosternal tubercle conical, strongly projecting ventrad, almost vertical, with the tip obtuse.

Length, 16 mm.; elytra, 11 mm. ; breadth, 5 mm.

Hab. German East Africa (no special locality given).

One ♀, received from Messrs. Staudinger and Bang-Haas.

Bangalaia quedenfeldti (1892) Duviv.

♂♀. Described as an *Anybostetha*. In appearance nearly exactly the same as *B. variegata* ; pronotum with greenish grey mesial vitta, and elytra with large greenish grey basal area, which is posteriorly rather well defined, except at suture. Lower lobe of eye much smaller than in *variegata*, its vertical diameter being shorter than the distance of the eye from the genal edge. Scape of antenna shorter than in *variegata*. Side-spine of prothorax vestigial, while it is prominent in *variegata*.

We have a series of this species from Benito, French Congo.

61. **Bangalaia soror** spec. nov.

♀. Eye and scape of antenna as in *variegata* ; prothoracical side-spine vestigial. Sides of prothorax, a sharply marked antemedian patch on each elytrum including a brown spot, and a very few widely separated dots in apical fourth, greenish white ; sides of prosternum covered with the same tomentum, marked with a brown dot ; rest of underside much more sparsely pubescent than in *variegata* and *quedenfeldti*.

Hab. Benito, French Congo.

One ♀.

62. **Bangalaia molitor** spec. nov.

♀. Black, densely covered with a white tomentum, which assumes a bluish grey tint where it is not dense, namely on frons, antenna and legs. Frons as broad as high, anterior edge white. Eye coarsely granulate, lower lobe large, its vertical diameter longer than the brown cheek is high ; occiput with an anteriorly divided blackish brown mesial triangular patch. Scape of antenna about twice as long as broad ; cicatrix very prominent. Thorax without spine at side, the subapical and the two basal transverse grooves strongly impressed, a black dot in place of the spine, and a few black punctures laterally on disc before basal constriction. Scutellum large. Elytra distinctly broader than the prothorax, shoulders prominent, the base being impressed close to the shoulders ; two black bands, both irregular in outline, being partly composed of confluent black dots, neither reaching the suture, one at basal fourth, laterally curving to base, including the shoulder

angle, connected by black dots near the suture with a small, irregular basal patch surrounding the scutellum ; the second band postmedian, somewhat oblique ; numerous black dots along the suture, and several between second band and apex ; of these, some merged together to a subapical lateral patch.

Prosternal process evenly curved, not as high as the coxae ; mesosternum very obtusely tuberculate. Tibiae **not** carinate.

Length, 24 mm. ; elytra, 17 mm. ; breadth, 8 mm.

Hab. Western side of Lake Nyassa.

One ♀.

In colour almost the same as *Rhaphidopsis melaleuca*, from which it is separated by the granulose frons, short and granulose scape, large cicatrix, and the 8-shaped hairy groove on the fifth abdominal segment, in which characters it agrees with the species of *Bangalaia*. The non-carinate tibiae remove *molitor* from the other species of *Bangalaia*, with which it may, however, be left associated for the present on account of the close agreement in the other characters.

63. **Bangalaia chaerila** spec. nov.

♂ ♀. Frons, cheek, three belts round prothorax, scutellum, an oblique post-basal discal spot on each elytrum, and underside, pale green ; tarsi pale blue ; elytra vermiculated with pale green ; a transverse belt on occiput behind interantennal groove, a transverse dorso-lateral spot on the pronotum situated in the middle belt, three spots on each elytrum, the first basal, transverse, the second of about the same size, median, also transverse, slightly oblique, the third at apical fifth, smaller, all pale pinkish buff ; a large lateral spot on meso-, another on metasternum, ochraceous buff.

Head and proximal segments of antenna densely granulose ; mesial line of frons not conspicuous. Eye finely granulose, lower lobe somewhat transverse, its vertical diameter shorter than that of the cheek ; occiput smooth behind. Scape of antenna barely half as long again as broad. Antenna without fringe. Prothorax a little broader than long, smooth, with a very few punctures laterally before the basal constriction. Disc transversely impressed laterally in middle, this impression occupied by the buffish spot ; side-spine very short ; base of pronotum somewhat dilated above and sinuate at the sides. Elytra evenly convex, obliquely rounded at apex, punctured all over, the punctures smallest behind and near suture, coarsest laterally behind shoulder ; this projecting, the base being excised. Prosternum truncate in front, but not vertical, more or less obviously bituberculate ; mesosternal process vertical in front, not projecting, the angle rounded off.

Length, 17 mm. ; elytra, 11 mm. ; breadth, 5½ mm.

Hab. Benito, French Congo.

One ♂ and two ♀ ♀.

64. **Bangalaia compta** spec. nov.

♂ ♀. In facies like *chaerila* ; eye, and bases of prothorax and elytra the same in structure. Impressed mesial line of frons distinct ; occiput and pronotum punctured all over. Prothorax much shorter than in *chaerila*, with stronger lateral spine. Elytra more densely and coarsely punctured, and longer. Prosternal process subvertical in front, with one transverse prominent tubercle. Antenna without fringe, very long in ♂.

Tomentum more greyish green than in *chaerila*. Frons ochraceous buff at

anterior edge; cheeks, partly, and subapical and basal belts of pronotum the same colour. Greyish green tomentum of elytra here and there dotted with ochraceous buff; three conspicuous spots of this colour on each elytrum—one at basal fifth, the second larger, median, obliquely transverse, the third at apical fifth, longitudinal and generally accompanied laterally by a fourth spot, with which it is often fused together; the third spot constricted in middle. Sides of sterna and large lateral spots of abdominal segments 1 to 4 ochraceous buff.

Length, 18—22 mm.; elytra, 12—15 mm.; breadth, 5½—8 mm.

Hab. Benito, French Congo (*type*), and Lolodorf, Cameroons.

Four ♂♂ and three ♀♀.

65. **Bangalaia vittata** spec. nov.

♂. Black, tomentum greyish white, slightly yellow on underside. Cheek, a broad mesial vitta on occiput and pronotum, scutellum, a broad discal vitta on each elytrum extending from base to apex, ill-defined, and the under surface, except middle, greyish or yellowish white; frons and legs covered with a thin grey pubescence. Eye as in the two preceding species, but lower lobe more rounded. Scape of antenna less than half as long again as broad, fourth segment little shorter than third, segments 3 to 5 rather strongly fringed beneath. Occiput smooth, except some granules near interantennal groove. Pronotum without trace of side-spine, as long as broad, widest before basal constriction, smooth, with very few punctures laterally, sides almost straight, base mesially widened and laterally sinuate. Elytra narrow, convex, parallel from base to apical fourth, almost evenly punctured all over; shoulder peculiar, not projecting, but on the contrary slanting backwards, the angle being very obtuse; apex of elytrum rounded. Prosternal process curved, not tuberculate. Carinae of tibiae not so distinct as in the other species.

Length, 15—17 mm.; elytra, 10—11 mm.; breadth, 4—5 mm.

Hab. Benito, French Congo.

Two ♂♂.

In appearance similar to *Acridocephala nicoleti*.

66. **Pinacosterna mimica** spec. nov.

♂♀. In colour and markings almost exactly the same as green specimens of *Sternotomis regalis*. Narrower than this species, agreeing in shape and structure with the other three species of *Pinacosterna* (*mechowi*, *nachtigali*, *weymanni*), elytra less densely and more finely punctured. Pronotum with indistinct green transverse belts on the disc, and with a rather feeble but distinct transverse groove before middle; an ochraceous orange transverse ovate spot in front of the lateral tubercle. Elytra with three spots of the same colour placed as in *Sternotomis regalis*, but the shoulder spot smaller, rounded.

Length, 17 mm.; elytra, 12 mm.; breadth, 6½ mm.

Hab. Lolodorf, Cameroons.

One pair.

67. **Pinacosterna smithi** spec. nov.

♂. Like *mimica*, but prothorax without antemedian transverse groove, lateral spot much larger, extending to apical margin, not sharply defined; no humeral

basal spot on elytrum, antemedian spot of elytra and spot of metasternum larger.—Perhaps only a variety of the preceding.

Hab. Bopoto, Upper Congo.

One ♂, collected by Mr. Kenred Smith.

Sternotomis amoena (1841) Westw.

We have three ♂♂ and two ♀♀ from Benito, which differ from the first-described form of *amoena* in the antemedian discal patch and the posthumeral lateral spot being confluent, and the linear spot situated in apical fourth being also more or less completely merged together with the long side-patch.

68. **Sternotomis leucospila** spec. nov.

♂ ♀. Differs from *St. amoena* in the following details : postbasal sutural pair of spots of elytra and humeral spot comparatively larger ; the discal antemedian spot small, ovate, little larger than the posthumeral lateral spot ; the postmedian linear spot situated near suture standing a little farther back ; no linear spot along the long side-mark ; the latter beginning before middle, rectangularly widened when on a level with the linear sutural spot, then gently concave.

Hab. Ogowé R. (L. Gazengel), *type*, and Benito, French Congo.

One pair.

Mons. René Oberthür sent me the ♂ of this insect marked "spec. nov." I agree with him that it is neither *amoena* nor *murrayi*.

69. **Sternotomis polyspila grandis** subsp. nov.

♂. Larger than *polyspila* from West Africa, the spots nearly all shaded with tawny, the mesial vitta of the pronotum narrow ; the dorsal humeral spot of the elytra as well as the antemedian discal patch narrow, elongate, the lateral spots smaller than in the West African form, and the apical patch more regularly triangular, not extending so close to the outer margin. Pubescence of under surface buffish, ochraceous orange spots of breast large, abdominal side-patches shaded with ochraceous.

Hab. Ukami Mts., German E. Africa.

One ♂, received from Messrs. Staudinger and Bang-Haas.

70. **Sternotomis rex** spec. nov.

♂. Similar to *St. picta* (1886) Waterh. and *St. coronata* (1895) Jord.; shorter, the antenna thinner, the prosternal process broader at end, deeply sinuate, the front of the head and the lower lobe of the eye longer, the scutellum long, triangular, pointed. Colour of tomentum as in the two species mentioned, namely bright tawny-orange above, on frons and on sides of sterna, green on underside of antennal scape, behind eye, laterally at base of prothorax, on abdomen, except side-spots, and on legs. Prothorax as in *coronata*, subapical sulcus not very distinct in middle and here curved backwards, some oblique wrinkles laterally on disc and a slightly raised mesial carina ; two black discal lines converging frontally and uniting near apical margin, extending posteriorly to subbasal sulcus and sending out laterad a branch at subapical sulcus and another at subbasal one. Elytra with the following bright tawny-orange markings separated by narrow black interspaces :

an elongate-ovate patch obliquely from shoulder to near suture, a rounded-triangular patch behind shoulder from outer margin to disc; an irregular band just before middle widest on disc, convex behind, sinuate near suture behind and in front, with a rounded lobe projecting forward situated outside the sutural depression; an elongate-ovate postmedian spot near suture; an apical area extending laterally from behind middle of margin to apex, irregular and oblique above, with two incisions above which unite and thus separate a spot from the area; lateral edge entirely tawny-orange, uniting the patches. In *picta* the basal patch reaches suture and is produced frontad at suture, while in *coronata* the patch stands farther back than in *rex*, there being a dark basal triangular area in that species.

Length, 23 mm.; elytra, 16 mm.; breadth, 9 mm.

Hab. Benito, French Congo.

One ♂.

71. **Tragocephala grandis** spec. nov.

Similar in size to *T. ochreata* (1894) Fairm., *Ann. Soc. Ent. Belg.* xxxviii. p. 153, head rather wider at frontal margin, and pronotum without a distinct antemedian transverse groove above. Pubescence of upper- and underside clay-colour. Antenna black, the grey basal and apical rings of the segments not marked on the upperside, and visible below only on the proximal segments; the first and second segments all clayish grey beneath. Genae, pronotal side-spine, and a large discal pronotal area, divided by a mesial clayish vitta, black. Elytra with a large black antemedian band as in *ochreata*, but this band angulate laterally in front; humeral angle, a posthumeral marginal mark and an irregular one between scutellum and humeral angle also black; posterior two-fifths clay-colour, except a large, transverse, comma-shaped, subapical spot, a short sutural stripe, a longer stripe on the costa corresponding to the third interspace of other *Cerambycidae*, a sublateral Z-shaped spot and a smaller subrotundate one behind it, which are all black.

Mesosternal intercoxal process projecting; a small lateral spot on the prosternum, an elongate one on the mesosternal episternum, a streak on the epimerum, a shorter but broad lateral spot on the metasternum, and a transversal basal band on the abdominal segments black; the abdominal bands are widened at the sides and in the middle, the first and fifth excepted, the first being distinct only laterally, and the fifth being mesially divided.

Length, 35 mm.; breadth, 12 mm.

Hab. Diego Suarez, N. Madagascar.

Received from Mons. H. Donckier.

72. **Tragocephala crassicornis** spec. nov.

♂. Black, pubescence creamy white. Antenna somewhat longer than the elytra, heavy, annulated with greyish white, first segment beneath obviously pubescent only at the base. Base of mandibles, lower part of genae, frons (except a triangular mesial spot), a spot behind eye and another above it, as well as a thin mesial vitta on occiput, creamy white. Disc of pronotum black, except a transverse spot at basal margin, which spot is triangularly produced frontad; this projection preceded by two mesial dots, one subapical, the other nearly median; side-spine black. Scutellum creamy white. The creamy white patches and spots of the elytra are arranged as follows: a transverse subbasal area continued to the base and side-

margin laterally, surrounding the black humeral angle and a large black basal patch, which surrounds the scutellum and is trilobate, the sutural lobe being very short and acute, the side-lobes broad and rounded; the hinder edge of the area is straight at the suture and then sends out a short acute process. A median area extending to the lateral edge, and joined here to the subbasal one, projects backwards to the suture, and sends frontad a spur curving at the end towards the suture, and a shorter spur closer to the suture, the black sinus between the two spurs being almost evenly rounded; a lateral spot between the subbasal and median areas. A comma-shaped subapical spot pointing frontad with the subsutural narrow end, and often joining the median area; between this spot and the median area there are two spots, one lateral, the other discal. Apical edge also creamy white.

Underside all creamy white, except the following markings: a minute dot at the upper edge of the mesosternal episternum, a linear one on the epimerum, a small ovate spot posteriorly on the metasternum, and three rows of spots on the abdomen, one mesial and one on each side. The mesial spots of the abdomen are more or less covered with a pale pubescence, while the side-spots are very sharply defined and small; last segment black at apex. Tibiae, tarsi, and upper lip somewhat greenish grey.

♀. Differs from the ♂ in the thinner and shorter antenna, which reaches just beyond the middle of the elytra, in the creamy white lateral areas of the pronotum joining one another apically, and in the abdominal segments 2 to 5 possessing at each side of the middle a sharply marked, oblique, small spot.

Length, 28—32 mm.; breadth, 9—10 mm.

Hab. S.W. Madagascar (Last).

The antenna being very heavy in the ♂ and short in the ♀, the postantennal part of the head being black, with two creamy white spots on each side, the black-spotted abdomen, etc., distinguish this species from *oculicollis*, *variegata*, etc.

73. **Tragocephala morio** spec. nov.

♀. Head and thorax entirely black, without markings. Elytra with a patch behind shoulder, widest below, narrowing above, its upper end about 2½ mm. distant from suture; a transverse median band, extending to sutural carina, where it is truncate, the band slightly widening laterad, its anterior edge shallowly uni-, posterior edge biconcave; a large longitudinal apical patch, triangular, its outer edge parallel with and close to outer margin of elytrum, its sutural edge slightly biconcave; these markings dull cinnamon-rufous, thinly edged with buff. Under surface and legs clothed with a thin grey pubescence; abdominal segments 3 and 4 with a rather large round cinnamon-rufous lateral spot, segments 2 and 5 with a smaller spot.

Structure very different from that of all other species of *Tragocephala* known to me. Head and prothorax with dispersed, very thin, long white hairs. Head broad, deeply concave between the antennal tubercles. Vertical diameter of lower lobe of eye scarcely surpassing the height of the cheek. Prothorax deeply constricted in front of the lateral spine, the groove extending also over the disc, though it is here shallow; upperside depressed and very roughly vermiculate. Mesosternal process longer than broad (ventral surface), obviously narrowing to end, which is rounded-truncate and slightly sinuate.

Length, 30 mm.; breadth, 9½ mm.

Hab. Manow, German E. Africa.

One ♀, received from Messrs. Staudinger and Bang-Haas.

I thought at first that the peculiar structure of the pronotum was due to malformation ; but as the thorax is symmetrical and the insect deviates from the other *Tragocephala* also in possessing a comparatively very narrow mesosternal process, I believe the structure of the pronotum to be normal for this species, though abnormal for a *Tragocephala*.

The only other species without markings on head and prothorax is *T. carbonaria* (1892) Lameere.

74. **Tragocephala suturalis** spec. nov.

♂. Differs from all the species of *Tragocephala* in the elytra being ornamented with a sutural vitta. A large patch on frons not reaching anterior edge, rounded above, a spot behind eye, sides of prothorax, an elongate, mesial, basal, pronotal spot ; on elytra : an elongate marginal spot below shoulder, a small median lateral spot, a subapical rounded dot, a sutural vitta including scutellum, narrowing from base to middle, just reaching an oblong postmedian sutural patch, of which the two halves are separated by the black suture, yellow ; breast and sides of abdomen pale yellow, anterior part of frons, cheek, and legs with a thin yellowish grey pubescence, femora partly pale yellow.

Frons finely punctured. Lower lobe of eye higher than broad, cheek less wide at narrowest point than is the scape of the antenna at the base. Antenna reaching beyond end of elytra. Prothorax rather short, coarsely rugate-punctate above, basal lobe sinuate.

Length, 20 mm. ; breadth, 7 mm.

Hab. Benito, French Congo.

One ♂.

Poimenesperus (1875) Thoms., *Arch. Ent.* i. p. 35 (type : *voluptuosus*).

To this genus belong *Nyctopais thomsoni* (1869) Pascoe, and *Phryneta? velutina* (1858) White.

75. **Poimenesperus callimus** spec. nov.

♀. Similar to *P. laetus*. A thin mesial line on frons and a small ill-defined spot anteriorly on cheek yellowish grey. Antenna entirely black. Markings of upperside of thorax and elytra vinaceous cinnamon, namely : sides of thorax including spine, excepting a black spot occupying the underside and (above) the tip of the spine, the vinaceous cinnamon area widest at base and apex ; but the black area remaining both at base and apex at least half as wide as the thorax is there broad ; a transverse basal band on elytra, abbreviated at shoulder, a marginal spot beneath shoulder, an entire, straight band before middle connected with the basal one at suture, an apical patch, almost longitudinal, extending obliquely from outer margin to sutural angle, halfmoon-shaped, convex discally. Sides of breast a little paler than bands of elytra, middle of breast less densely (and more greyish) pubescent ; a black lateral spot on metasternal sternite. Abdomen yellowish grey, a series of large rounded lateral spots black, these confluent basally with a submedian spot on segments 3 and 4, fifth segment brownish black, with a yellowish grey triangular side-spot and a thin grey mesial line. Mid- and hindlegs irregularly and broadly annulated or spotted with black and yellowish grey. Mesosternal process very strongly projecting ventrad, compressed, conical.

Length, 17 mm.; elytra, 12 mm.; breadth, 6½ mm.
Hab. Benito, French Congo.
One ♀.

The species of *Poimenesperus*, which are all West African, can be distinguished from one another as follows:

a. Antenna pale tawny, except proximal segments . . . *b.*
„ black or olive-brown . . . . . *d.*

b. Disc of prothorax strongly rugate and grooved; prosternal process conical, long . . . . *P. phrynetoides* (1894) Jord., Nov. Zool. i. p. 211 (Kuilu).

Disc of the prothorax not rugate . . . . . *c.*

c. Third segment of antenna not obviously longer than fourth. Elytra densely marmorated with blue-grey; two transverse black bands, the first interrupted . . . . . *P. marmoratus* (1894) Jord., *l.c.* (Kuilu).

Third segment of antenna much longer than fourth, buff at base and top. Side-spine of pronotum longer than in *marmoratus*. Elytra with five undulating blue-grey bands, the second and third connected at suture, the last produced to apex at suture. Prosternal process higher than in *marmoratus*, upper edge straight; mesosternal process very high, arched, somewhat beak-like . . . . . *P. dobraci* (1886) Waterh., *Ann. Mag. N. H.* (5). vii. p. 409 (Gabun).

d. Upperside black and vinaceous cinnamon, or black and olive hazel-brown . . . . . *e.*

Upperside black and white or blue-grey . . . . . *h.*

e. Elytra irregularly marmorated . . . . . *f.*
„ with three sharply defined bands . . . . . *g.*

f. Pronotum with a transverse line at base and at apex. Process of prosternum not obviously higher than coxae, transversely cariniform, mesosternal process broad and projecting, edge rounded in view from anal side. Underside black and buff . . . . . *P. fulvomarmoratus* (1894) Jord. *l.c.* i. p. 210 (Congo).

Disc of prothorax marked with olive hazel-brown and black; underside of body black-brown, spotted with white. Prosternal process higher than coxae; mesosternal one very high, almost vertical, conical, pointed . . . . . *P. velutina* (1858) White, *Ann. Mag. N. H.* (3). ii. p. 271 (Congo).

g. Abdomen with sharply defined black side-patches, frons with narrow yellowish grey mesial line; elytra with almost longitudinal apical half-moon-shaped patch; mesosternal process high, conical *P. callimus* spec. nov.

Abdomen without sharply marked black spots; frons yellowish buff; elytra with irregular anteapical transverse band; process of mesosternum short, broad . . . . . *P. laetus* (1858) Thoms. *l.c.* ii. p. 173. t. 7. f. 2 (Gabun).

h. A line from head across prothoracical spine to suture of elytra white; a white curved line on elytra from outer margin to apex, interrupted before end. Prosternal process (♂) pointed, short, longitudinally grooved on hinder surface; mesosternal one horizontal, compressed, much projecting forward . . . . . *P. thomsoni* (1869) Pascoe, *Ann. Mag. N. H.* (4). iv. p. 209 (Gabun).

A white line on thorax and elytra as before, but elytra with transverse line at apical fourth; antenna ringed with white, segments 8 to 11 (except tip of last) white; prosternal process uni-tuberculate (♂); mesosternal one projecting, conical . . . . . *P. taeniatus* (1894) Jord., Nov. Zool. i. p. 209. t. 10. f. 5 (Kuilu; Ogowé).

Thorax with white belt at apex and at base, suture of elytra white in basal half, two oblique transverse lines in apical half, the first beginning laterally before middle, the second often abbreviated; two white rings on antenna occupying the apex and base respectively of the third and fourth and of the fifth and sixth segments. Prosternal process unituberculate in ♂, bituberculate in ♀; mesosternal process conical in ♂, broad and anteriorly concave in ♀ . . . . . *P. ligatus* (1894) id., *l.c.* p. 209. t. 10. f. 6 (Kuilu).

Upperside irregularly marmorated with greyish blue. Process of prosternum transversely cariniform, that of mesosternum projecting ventrad, conical. Tip of third and basal two-thirds of fourth antennal segment white . . . . *P. voluptuosus* (1857) Thoms., *Arch. Ent.* i. p. 36. t. 6. f. 6 ("Natal" ex errore?)

We have this species from Benito, French Congo.

I believe *P. incubus* (1858) Thoms., *l.c.* ii. p. 173 to be based on specimens of the same species.

76. **Nyctopais tripuncta** spec. nov.

♀. Structurally the same as *mysteriosus*. Frons and cheek bluish white. Antennal segments 3, 4, 8 and 9 in basal half, 10 almost entirely, and the whole of 11 bluish white, 6 and 7 with small bluish white basal spots. Prothorax with broad bluish white lateral vitta, which includes the pointed side-spine, the tip of which is black; a basal and an apical transverse bluish white belt above, and on disc three spots of the same colour, one mesial before middle, the others discal, standing farther

back, oblique, comma-shaped. Scutellum bluish white. Elytra with the following bluish white markings: a subbasal transverse band as in *mysteriosus*, but even broader than in *fasciatus*, widest at the suture, and here produced backwards to middle, where it joins a narrow transverse band composed of dots; suture behind this band also (but very narrowly) bluish white; apical half of elytra dotted with bluish white.

Hab. Victoria, Cameroons (Voss).

One ♀.

Nyctopais is easily distinguished from *Poimenesperus* by the strongly convex pronotum, which has no dorsal subapical sulcus. The cicatrix is very short, and stands close to the apex of the segment. Segments 3 to 7 of the antenna are thicker than 3 is in middle. The mesosternal process is broad, truncate, not projecting, with the edge obtuse.

77. **Plagiomus spilosus** spec. nov.

♀. Very similar to *multinotatus*; prothorax and elytra proportionally shorter. Frons almost entirely white. Lateral vitta of prothorax much broader, continued across the shoulder obliquely to the middle of the elytrum, fusing with the antemedian sutural and the median subsutural discal spot; no basal spot near scutellum, but suture and scutellum somewhat whitish; postmedian lateral curved spot (originating from two spots having become confluent) less oblique; anteapical spot more proximal, strongly angle-shaped; apex with larger spot than in *multinotatus*.

Hab. Limbe, Cameroons.

One ♀.

78. **Plagiomus leptis** spec. nov.

♂ ♀. Structurally the same as *multinotatus*, antennae shorter, prothorax and elytra proportionally narrower, the latter especially narrower at base, the former less rounded laterally before base.

Glossy black, with the following white markings: a mesial line on frons, anteriorly dilated to a transverse band, a thin frontal border to eye, a vitta beginning at lower edge of eye, running obliquely across cheek, and being continued over the sterna; another vitta commencing subdorsally behind eye, extending straight over the side of the prothorax to the shoulder, and then running dorsally of the shoulder-angle to the suture, which it reaches just before middle, being slightly bent outwards at extreme end; elytra, besides, with small sublateral median dot, a narrow transverse band at apical third, straight from lateral margin to middle of disc, then turning almost at a right angle backwards to the suture; another narrow, transverse, slightly curved band before apex; large lateral spots on abdomen. Femora near base and apex, tibiae near base, with greyish white spot; tarsi slightly whitish above. Extreme base of third and basal half of fourth antennal segment white.

Length, 12—15 mm.

Hab. Benito, French Congo.

One ♂, two ♀♀.

Anatragus (1897) Kolbe, *Käfer D. O. Afrikas* p. 312 (type: *ornatus*).

According to the definition of this genus, there belong to it the West African species described as :—

Lamia (*Tragocephala*) *pulchella* (1845) Westw., *Arc. Ent.* ii. p. 85. n. 4. t. 69. f. 4 (Sierra Leone); and

Rhaphidopsis virens (1894) Jord., Nov. Zool. i. p. 215 (Kuilu).

79. **Tragiscoschema venus** spec. nov.

♀. Black, clothed with a grey tomentum; antenna greenish in certain lights. Head orange, except a round spot in centre of frons, a mesial vitta on occiput, which does not reach frontad to the interantennal groove, and two lateral vittae, one behind antenna, the other behind eye, black. Prothorax shorter and more convex on disc and at sides than in *wahlbergi* and *amabilis*; side-spine short; basal lobe rounded; an oblique orange vitta at each side on disc as prolongation of the orange occipital vitta of head, narrowing in front, bordered with black. Scutellum brown at apex. Elytra rather short, less elongate than in *amabilis*, more distinctly narrowing apicad, with the shoulders more prominent; an oblique orange streak beginning at the base close to the scutellum and ending behind the shoulder, its end being on a level with the humeral angle, the vitta not reaching to the declivous side of the elytrum; it is bordered with black; an oblique orange transverse band beginning at lateral margin behind middle, where it is widest, and curving obliquely to suture, reaching this at apical third; the band has a narrow black anterior border and is rather suddenly dilated basad at outer margin; area from this band to apex black, including a white transverse anteapical spot. Prosternum with orange lateral vitta, intercoxal process subvertical in front, not transversely cariniform; mesosternum with small orange spot close to coxal groove; process as in *amabilis* and *wahlbergi*; a broad orange lateral stripe on metasternum; segments 1 to 4 of abdomen marked each with a sharply defined, apical, anteriorly rounded, lateral spot, which is orange and white.

Length, 9 mm.; breadth, 3 mm.

Hab. Luitpold Mts., near Skutha, British East Africa.

One ♀.

Tragiscoschema (1857) Thoms., *Arch. Ent.* i. p. 67 (type: *bertolonii*).

I unite under this generic term those species placed under *Rhaphidopsis* in the Munich Catalogue, p. 3052, in which the eye is completely divided, the connecting bar of the upper and lower lobes not being facetted as it is in *Rhaphidopsis melaleuca* and allies, and in which the pronotum is lobate at the base, the prosternal process truncate in front, the mesosternal one broad, horizontal and also truncate, and in which, further, the antennae have no cicatrix.

Here belong *welwitschi*, *nigropicta*, *wahlbergi*, *amabilis*, *bertolonii*, and some others.

Some of the species which have been described as *Rhaphidopsis* and *Tragiscoschema* differ obviously in the head, prothorax and mesosternum. For these I propose a new genus :—

Spilotragus gen. nov.

♂♀. Head less retractile than in *Tragiscoschema*, wider, more strongly narrowing at neck. Pronotum without distinct basal lobe; prosternum simply arched, not truncate in front, not so high as the coxae, very narrow in middle. Mesosternal process not projecting, declivous.

Type: *S. xanthus*.

Here belong, besides the type, the species described as:—

Rhaphidopsis guttata (1897) Jord., in Donaldson Smith, *Through Unkn. Countr. Afr.* p. 453 (Somaliland);

Tragiscoschema ornata (1898) Gahan, *Ann. Mag. N. H.* (7). ii. p. 52 (E. Afr.); and probably—

Tragiscoschema laetula (1899) Péring., *Ann. S. Afr. Mus.* i. p. 325 (Zambesi).

80. **Spilotragus xanthus** spec. nov.

♂♀. Black; pubescence of antenna, of legs and middle of underside grey. Frons and cheek sulphur-yellow, this pubescence extending beyond the interantennal groove, from where a sulphur-yellow vitta runs obliquely along the eye over the occiput, not reaching prothorax, antennal tubercle also yellow at upper edge of lower lobe of eye. Underside of antenna yellowish pubescent. Prothorax pale yellow; a rather ill-defined vitta below the short side-tubercle, an apical and a median lateral discal dot, a mesial apical dot and a mesial discal rounded patch covered with blackish brown pubescence. Elytra long, rather flattened above, the apex of each strongly rounded; rufous brown from base to beyond middle, this area gradually narrowing behind and extending at suture at least to apical fifth, covered with a brownish grey pubescence; a broad, very ill-defined short basal mesial vitta, the lateral margin below shoulder, a postmedian, elongate-triangular, posteriorly truncate, anteriorly pointed patch, which extends posteriorly from outer margin to the shallow sutural impression, and a narrow, straight, transverse, anteapical band, which nearly reaches suture, sulphur-yellow; apical area from triangular patch backwards black. Sterna with sulphur-yellow lateral stripe, continued to the apex of the fourth abdominal segment, but being yellowish grey on abdomen; the stripe dilated at the apices and narrowed at the bases of the abdominal segments, apical fringes of these yellowish grey.

Length, 10—14 mm.

Hab. Zomba, Nyassaland, x.—xii. 1895 (Dr. Percy Rendall).

A series.

81. **Charies thes affinis** spec. nov.

♀. Close to *Ch. antennata*, with the same triangular mesial groove in front of the basal constriction of the pronotum. Brown bands of prothorax rather wider; elytra differently spotted: basal discal spot as in *antennata*; a large sublateral spot just behind humeral angle, no median sutural spot, a kidney-shaped mesial spot a little before middle, no antemedian lateral spot, anterior part of C-shaped anteapical spot not curving so far laterad as in *antennata*, scarcely reaching middle of disc, within the black space limited at the sutural side by this greyish green C (which is pointed behind) there is a greyish green lateral spot.

Hab. Benito, French Congo.

One ♀.

We have *antennata* also from Benito.

Charicsthes nobilis (1894) Jord., Nov. Zool. i. p. 219. t. 10. f. 7 (Kuilu).

We have from Benito three specimens agreeing with the type, and two others in which the cream-colour of the elytra is very much reduced, the elytra being black with the following markings: a narrow irregular basal band, produced backwards at the suture, four sublateral dots at equal distances between shoulder and apex, first and fourth minute, a cordiform postmedian sutural spot, and a round dot near suture before apex.

82. **Graciella plena** spec. nov.

♀. Resembling *trivittata*. Differing from all the species of *Graciella* in the elytra being rounded at apex, not distinctly truncate. Entirely testaceous, spotted with white, only the segments 3 to 11 of the antenna being brownish, and the apex of the mandibles blackish. A mesial vitta on frons and a small mesial spot on occiput testaceous. Pronotum with three testaceous vittae, one mesial, the others lateral. Scutellum white. Elytra with a round white sutural antemedian spot common to both; besides, each with the following white spots: a large basal one, extending at basal edge from scutellum to shoulder, triangular, not reaching suture, with the apex rounded, an elongate one behind middle near the suture, followed by a similar one, which is joined to a small apical spot. On disc there are a small spot behind shoulder, a larger rounded one before and another behind middle, besides a small subapical lateral elongate spot.

Hab. Batanga, Cameroons.

One ♀.

The scape of the antenna is rough, as in the other species of *Graciella*.

83. **Graciella moea** spec. nov.

♂♀. Close to *G. compacta*, of which it may be only a geographical form. Differs as follows: slenderer, occipital spot not bilobate; basal patch of elytra broader basally, not circular, but triangular, truncate at sutural side, convex at outer side; sutural patch situated in middle, not behind, and there is no small sutural spot between it and scutellum; antemedian lateral spot small, one subapical spot near suture, no lateral one.

Hab. Johann Albrechts Höhe, Cameroons (L. Conradt).

One pair.

The insect described by Fairmaire as *Chariasthes apicalis* in *Ann. Soc. Ent. Belg.* 1894. p. 677 is a *Hapheniastus*. We have it from Lolodorf, Cameroons, and Benito. It is easily recognised by the two black dorsal vittae of the prothorax. The ochraceous and black species of *Hapheniastus* bear a close colour-resemblance to *Nupserha*.

84. **Hapheniastus donovani** spec. nov.

♀. Large, robust. Testaceous and black, the pale parts with an orange pubescence. Head with a black patch behind eye, an orange interantennal patch dividing on occiput, and cheek and anterior edge of frons likewise pubescent orange. Antenna black, not longer than the body, third and fourth segments testaceous in basal half or two-thirds, the following two or three segments brownish basally. Prothorax as in *H. apicalis* in shape, with a broad brownish black infra-lateral

vitta. Shoulder-angle more slanting backwards than in the allied species ; apical third of elytra black, this colour extending thinly along the suture. Pronotum with three pubescent orange vittae which are continued on the elytra, which have, besides, a lateral vitta. These vittae do not strongly contrast with the testaceous ground-colour.

Underside black, with black pubescence ; prosternum with pale yellow lateral vitta ; no markings on meso-metasternum and abdomen ; middle of pro- and mesosternum testaceous ; anterior femur except apex, and about basal two-thirds of middle femur also testaceous. Prosternum obliquely truncate in front.

Length, 16 mm. ; elytra, 12 mm. ; breadth, 6 mm.

Hab. Ashanti, March 1896 (Major Donovan).

One ♀. Another ♀, with rather more black on the antenna, elytra and femora, from Benito, French Congo.

85. **Hapheniastus discodes** spec. nov.

♂ ♀. Scape of antenna quite smooth, without trace of cicatrice or granules ; process of prosternum arched, not so high as coxa, of mesosternum convex, but declivous in front, not distinctly tuberculate.

Black ; proximal segments of antenna and the femora (apices of these excepted) testaceous. Antenna very long in both sexes. Upperside and sides of breast covered by a pale Naples-yellow pubescence. Prothorax with three round black spots, one on each side behind middle, and one in middle of disc ; antemedian transverse groove distinct, nearer middle than in the other species of this genus. Scutellum subtruncate. Elytra elongate, parallel at sides except in apical fifth ; pale Naples-yellow, a large area common to both extending from base to apical fourth, with nearly parallel sides, slightly narrowing frontad, rounded behind, testaceous brown, with a brownish pubescence ; an ill-defined lateral stripe from shoulder backwards black or brown ; apex of elytra black. Pubescence of abdomen greyish white.

Length, 6½—8 mm.

Hab. Benito, French Congo.

One pair.

This pretty species agrees structurally very well with *Hapheniastus*, but has quite a different " habitus."

86. **Phryneta crassa** spec. nov.

♀. Similar to *macularis* (1879) Harold, larger, more robust, being of the shape of *spinator*. The two mesial tubercles of the pronotum higher than in *macularis*, the posterior, submesial, oblique ridge angle-shaped, sending out a short but prominent spur from its hinder part forward along the sulcate mesial ridge ; the anterior portion of the large anterior lateral discal prominence more distinctly separated from the larger hinder portion of this prominence and less elevate than in *macularis*. Elytra much more strongly grooved at base, the grooves standing also closer together, there being near base five rows of large punctures between suture and basal discal ridge of tubercles, while there are only three or four in *macularis* ; the black postmedian patch is 3 mm. distant from the suture and somewhat narrowed laterally ; there is a black discal dot before middle and two anteapical ones, which are absent from *macularis*. A black patch at apex of episternum of metathorax and laterally on first abdominal segment.

Length, 31 mm. ; elytra, 21 mm. ; breadth, 13 mm.

Hab. Tumbo, Congo.

One ♀.

The upperside is clothed with long black hairs. The same covering is found in *nigrosignata* and *nigropilosa*, but since the hairs break off rather easily, one meets with individuals which are covered with very short hairs only.

Macrochia gen. nov.

♂♀. Allied to *Synhomelix* and *Coniesthes*, the midtibia being excised beyond middle as in these genera. Prosternum with a high conical tubercle ; mesosternum declivous, with an obtuse tubercle, or not tuberculate.

Typus : *texata* (1858) Chevr.

Here belong, besides *texata* and the new species, *decussata* and *ligata*.

87. **Macrochia lutosa** spec. nov.

♀. Close to *M. texata*, but the elytra decidedly longer, the scutellum short and truncate, and the pale pubescence deeper clay-colour and more extended. The black occipital patch of *texata* represented in *lutosa* by a small spot at eye and an irregular spot before pronotum. Scutellum all clay-colour. The black areas of the elytra reduced, the oblique band-like patch narrower and the basal black area obviously smaller than in *texata*.

Length, 26 mm. ; elytra, 18 mm. ; breadth, 8 mm.

Hab. Benito, French Congo.

One ♀.

Coniesthes (1893) Kolbe.

Here belong *Pachystola minica* (1890) Bates, and *P. tibialis* (1894) Jord. *Coniesthes nigrofasciata* (1893) Kolbe is the same as *Pachystola fallax* (1894) Lameere, of which the type is in the Tring Museum (ex coll. Alluaud), and also the same as *Tragocephala* (?) *signaticornis* (1855) Chevr., which is left in *Tragocephala* in the Munich Catalogue, and of which the type is in the British Museum.

Cyclotaenia gen. nov.

♀. Allied to *Synhomelix* and *Macrochia*. Frons broader than long. Antennal tubercles short and widely separate. Lower lobe of eye smaller than in the allied genera, not higher than broad. Distance of upper lobe from the mesial sulcus of the head twice the width of the upper lobe. Mandible smooth, punctured proximally, but not rugate. Labrum large, strongly rounded at sides and apex, sinuate in middle. Antenna as in the allies, scape shorter, stouter, and granulose at end. Prothorax with slender, acute, median side-tubercle ; two apical transverse sulci, the first not reaching upperside, the second indistinct only in middle ; no tubercles on disc. Elytra broad, evenly convex, coarsely granulate-foveolate at base. Prosternum evenly rounded, with a short conical tubercle in middle ; mesosternum declivous, with a higher conical tubercle. Midtibia grooved.

Typus : *C. discus* spec. nov.

88. **Cyclotaenia discus** spec. nov.

♀. Brown, covered with a clayish vinaceous buff pubescence. The following brownish black markings are present : a broad vitta on occiput behind eye ; on

prothorax a mesial vitta, dilated in front, a lateral one including the side-spine and being abbreviated in front and behind, and a line dorsally of this vitta ; on elytra a broad semicircular band common to both elytra, widest at suture, shoulder-angle, a subcircular, sutural patch just behind middle, divided at the suture, including anteriorly a vinaceous buff dot on each elytrum, an evenly curved band from side to side, crossing suture 3 mm. before apex, being convex behind; on underside, a lateral vitta on prothorax, a large lateral patch on metasternum, and a series of lateral patches on abdomen. A large lateral patch from middle of prosternum to apical edge of metasternum, and another, sublateral, bordered with brown, on third and fourth abdominal segments, chalky white.

Frons not punctured. A number of punctures on antennal tubercle above lower lobe of eye, and on occiput near eye. Disc of pronotum convex, about ten punctures posteriorly on each side. Scutellum rounded. Elytra very slightly narrowed behind, apex of each very feebly truncate ; basal fourth of disc coarsely foveolate, the grooves extending laterally to middle, becoming gradually smaller, almost regularly seriate ; puncturation extending to apex.

Length, 26 mm. ; elytra, 18 mm. ; breadth, 9 mm.

Hab. Gabun.

One ♀.

Hypsideres gen. nov.

♀. Close to *Cyclotaenia* ; lower lobe of eye higher than broad. Scape of antenna smooth, not granulose. Prothorax compressed, without lateral tubercles, strongly convex above. Prosternum with a vestige of a tubercle ; mesosternal tubercle prominent. Incision of midtibia small.

Typus : *H. curvinucha.*

89. **Hypsideres curvinucha** spec. nov.

♀. Blackish brown ; pubescence vinaceous buff, marked with black and white. A frontal vitta at eye, a lateral vitta on prothorax beneath, a large lateral patch extending from angle of coxal cavity of prosternum to end of metasternum, including a large, olive, irregular patch on metasternum, a lateral spot on first abdominal segment, a smaller one on second, a sharply defined sublateral patch on third and fourth segments, chalky white ; middle of sterna cinnamon ; middle of first and second abdominal segments and a band along apical edge of fifth grey. Frons cinnamon, excepting a triangular vinaceous mesial space which extends over occiput ; a narrow mesial vitta and oblique broad lateral one on occiput cinnamon, bordered with black. These lateral black border-lines continued over the pronotum, meeting before the base of the latter; two black lateral lines above the white vitta, curved like this. Elytra : a semicircular band of two black lines from side to side, crossing suture behind scutellum, narrowest at lateral margin where the lines are confluent ; a subcircular, somewhat transverse cinnamon area, the centre of which lies behind middle of suture, encircled by a black line ; within this area another black ring, somewhat longitudinal; this second line bordered with vinaceous grey in front, while the first line is bordered with grey laterally and, slightly, behind ; a continuous cinnamon and black transverse band before apex, concave anteriorly, reaching from side to side ; shoulder black beneath ; the vinaceous buff apical and posthumeral areas shaded with grey. Antenna brown, scape and second segment vinaceous buff above.

Antennal tubercle and occiput punctured near eye. Prothorax with a few punctures laterally before basal constriction ; apical sulci absent from middle. Scutellum rounded, impressed. Elytra somewhat flattened, with parallel sides and slightly truncate apex ; base foveolate, especially at sides ; apical third with scarcely any punctures.

Length, 19 mm. ; elytra, 13 mm. ; breadth, 6½ mm.

Hab. Abetifi, Ashanti.

One ♀.

90. **Frea cincta** spec. nov.

♀. Black, clothed with an ashy grey, slightly clayish, pubescence. Two large triangular spots on occiput black. Antenna ringed with grey, segment 3 nearly = 4 + 5, and = 9 + 10 + 11, 4 = 5 + 6, distal segments short. Pronotum with a sharply defined black band at apex and at base, a few punctures laterally on disc before basal groove ; side-spine rather narrow, similar to that of *Frea sparsilis*. Scutellum black like base of elytra. These long, reticulated with grey (except base), strongly rounded at apex, longitudinally impressed laterally on disc ; puncturation similar to that of *sparsilis*. Pubescence of underside (except middle) and of legs dense ; no spots.

Length, 17 mm. ; elytra, 13 mm. ; breadth, 6½ mm.

Hab. Ndoro, Upper Ogowé R.

One ♀.

91. **Acmocera anthriboides picta** subsp. nov.

♂♀. The East African form. Upperside variegated with white and tawny-olive, the colours contrasting much more than in the West African subspecies ; a sutural, antemedian dark patch on elytra and subapical transverse zigzag band conspicuous, seldom the elytra all grey, excepting shoulders and apex. Underside, legs and bases of antennal segments whitish grey. Pronotum deeper impressed mesially, the mesial antebasal tubercle higher than in *anthr. anthriboides*.

Hab. Dar-es-Salaam, German East Africa.

A series.

92. **Acridoschema atricollis** spec. nov.

♂♀. Allied to *A. apicalis* (1894) Jord., but differs in the following points : head, pronotum and underside very thinly pubescent, glossy black ; elytra less sharply carinate on shoulders, the sutural angle not rounded, and the pattern different ; grey ; shoulder, a sutural spot near scutellum, two small spots behind shoulder, varying in size, in our ♀ divided up into dots, a mesial patch on each elytrum, transversely ovate, a broad irregular band before the apical declivity, and a more or less indistinct irregular subapical spot, black ; tuft of third antennal segment vestigial.

Hab. Congo, no special locality given.

Two ♂♂, one ♀.

A. apicalis has a sharply defined black postmedian band on the elytra, no median patch and no subbasal and sutural spots, and the tuft of the third segment of the antenna is large. We have now specimens of *apicalis* from the Congo and Cameroons.

Acmocera and Acridoschema.

These two genera of Thompson's are put together in the Munich Catalogue. They are perfectly distinct, differing in all the species known to me (all that are described) as follows.

I. *Acmocera*. End-segment of antenna modified, short, glossy, curved, pointed. Spine of pronotum submedian. Femora clubbed, anterior femur angulate or dentate in ♂. Here belong :—

Acmocera olympiana (1858) Thoms.
Acmocera anthriboides (1858) Chevr.
Acmocera compressa (1782) Fabr.
Acmocera undulata (1882) Qued.
Acmocera inermis (1858) Thoms.
Acmocera bifasciata (1878) id.

I am not convinced of the distinctness of *compressa* and *anthriboides*.

II. *Acridoschema*. End-segment of antenna long. Spine of prothorax subbasal. Femora not obviously compressed, slenderer than in *Acmocera*, anterior femur of ♂ not angulate or dentate above. Third segment of antenna mostly tufted at end. Here belong :—

Acridoschema isidori (1858) Chevr.
Acridoschema capricornis (1858) Thoms.
Acridoschema convexa (1894) Jord.
Acridoschema apicalis (1894) id.
Acridoschema atricollis spec. nov.
Acridoschema unifasciata (1858) Thoms.
Acridoschema varians (1894) Jord.
Acridoschema aberrans (1894) id.

Acridoschema varians is so variable in the pattern of the elytra that it seems to me probable that *unifasciata* is also only a form of the same species (of which the name would be in this case *unifasciata*).

Acridoschema aberrans differs remarkably from the other species in the antenna not being tufted, in the spine of the prothorax being truncate, and in the carinae of the tibiae being vestigial.

93. **Discoceps griseus** spec. nov.

♂ ♀. Very close to *D. fasciatus*, differing only in the elytra being devoid of the clayish band and having instead a few minute white spots before middle. Anterior femur of ♂ angulate above before middle as in *fasciatus*.

Hab. Benito, French Congo.

A series.

94. **Discoceps spilotus** spec. nov.

♂ ♀. Structurally the same as the other two species, puncturation of elytra coarser. Upperside glossy black, spotted with greyish white, the spots very irregular and more or less confluent on the elytra ; those of the pronotum confluent, less distinct, olivaceous grey.

Length, 8—10 mm.

Hab. Benito, French Congo.

One ♂, two ♀♀.

The proportional length and the colour of the antennal segments is the same in all three species.

Acridocera gen. nov.

♀. Head as in *Discoceps*. Third segment of antenna three times as long as fourth, with large tuft at apex; end-segment acute, short and curved as in *Acmocera*. Pronotal spine large, situated just behind middle. Femora strongly incrassate.

Typus: *A. ziczac* spec. nov.

Differs from *Discoceps* in the spinelike end-segment of the antenna, the tufted third segment, and the submedian spine of the prothorax; from *Acmocera* in the tufted antenna and the strongly rounded head (frontal aspect); from *Acridoschema* also in the shape of the head, in the antennal end-segment, and in the submedian pronotal spine; and from all three in the very long third antennal segment.

95. **Acridocera ziczac** spec. nov.

♀. Brownish black. Palpi, the light-pubescent parts of the elytra, the trochanters, an apical patch on the upperside of the femora, the tibiae except apices, the tarsi, pygidium and a lateral apical spot on the fifth ventral segment rufous. Pubescence of frons, a spot behind eye, two short vittae on occiput, and four irregular ones on pronotum, clay-colour. Scutellum clayish grey. Elytra with irregular confluent spots in basal fifth, and two irregular, zigzag, transverse bands in apical third, besides an apical spot, rufous tawny; a broad area extending from side to side over both elytra situated in and before middle, black, with traces of grey markings. Pubescence of underside clayish grey.

Frons minutely granulate. Eye compressed. Antenna rufous brown; scape darker, granulose, shorter than in the species of *Discoceps*; segments 4, 6 and 8 on innerside (except apex), and 3 on underside before tuft distinctly pubescent white, the pubescence thinner on the other segments; tuft of third segment black. Prothorax as broad at apex as at base, smooth, subapical transverse groove very sharply impressed above. Elytra coarsely punctured, subgranulate at base, slightly narrowing behind; apex subtruncate.

Length, 7 mm.

Hab. Benito, French Congo.

One ♀.

Cubilia (1897) Jord., in Donaldson Smith, *Through Unkn. African Countr.* p. 453.

I described this genus from a single *male* specimen of a species which has (in the ♂ only?) a very peculiarly distorted frons, the anterior mesial portion of which is abruptly and deeply excavated, the cavity thus formed being partly covered by the lateral edges, which protrude downwards as long lobes. I now add three more species, each based on a single specimen. None of these specimens show a trace of the frontal cavity of *Cubilia smithi*; but have like this a short, robust, hairy body, a finely granulated and deeply sinuate eye, a short antenna which is distally incrassate, segments 4 to 11 being compressed, and of which the scape is short and the third segment is about as long as 4 + 5, while the distal segments are short,

a strong lateral spine close to the base of the prothorax, the sides of the latter gradually slanting from the tip of the spine to the apex, a very narrow prosternal process, the coxae touching each other, and also a narrow declivous mesosternal process, and apically horizontally sinuate mandibles. However, while the claws are divergent in three species, they are divaricate in the fourth. This difference is very remarkable, since it would separate the species widely according to Lacordaire's classification. The agreement in all other features is, however, so close that I do not believe the difference in the claws to be of much importance in this case. It is possibly sexual.

96. **Cubilia heathi** spec. nov.

♂. Upperside bluish green, metallic, elytra with purple reflections ; underside, legs and antenna, as well as frons, black ; hairs grey ; anal segment yellowish clay-colour. Head and thorax with large deep punctures. Third segment of antenna a little longer than 4 + 5, slightly curved. Elytra very densely covered with large punctures, appearing reticulate, the punctures smaller at apex ; sutural angle not rounded, slightly obtuse. Prothorax distinctly tuberculate at anterior edge laterally above the sternum.

Length, 11 mm. ; breadth, 5 mm.

Hab. Nengia, British Central Africa.

One ♂, named in honour of Dr. E. A. Heath, from whom we have received the specimen.

97. **Cubilia fulva** spec. nov.

♂. Head, antenna, legs and underside of body brownish black ; pronotum and elytra fulvous, the former darker in middle ; pubescence clayish grey. Puncturation more dispersed and less coarse than in the preceding ; base of pronotum more distinctly bisinuate ; elytra longer ; prothorax also tuberculate beneath at sides.

Length, 13 mm. ; breadth, 5½ mm.

Hab. Nyassaland.

One ♂, in the British Museum.

98. **Cubilia rubra** spec. nov.

♀. Lower lobe of eye higher than the cheek is frontally wide. Last segment of palpi somewhat incrassate. Prothorax not tuberculate at apex beneath, but the red tergite projecting farther frontad than the sternite. Antenna reaching basal third of elytra, scape short, third segment as long as 4 + 5 + 6 + 7, segments 4 to 11 forming an elongate club, 6 to 11 each shorter than broad. Elytrum strongly rounded at apex, sutural angle very obtuse. Claws **divaricate.** Fifth abdominal segment with very large and deep cavity. Brownish red, covered with a beautiful vermilion pubescence. Antenna black, third and base of fourth segment grey pubescent. Cheek whitish. Sterna brownish at sides, except metasternal episternum. Prothoracical tubercle white. Legs black, tibiae slightly whitish above at base. Middle of sterna also with thin white pubescence.

Puncturation of pronotum regular, dense ; the punctures of the elytra also evenly distributed, much smaller than their interspaces, becoming minute towards apex.

Length, 12 mm. ; breadth, 6 mm.

Hab. Batanga, Cameroons.

One ♀.

The divaricate claw, and the large fovea at the end of the abdomen, would bring this species near *Belodera* in Lacordaire's classification.

99. **Mallonia pauper** spec. nov.

♂. Head as in *australis* (1886) Péring. Tuft of third and fourth antennal segments occupying about two-thirds of the underside, segments 5 and 6 also rather densely fringed beneath, segment 4 = 5 + 6, segment 3 half as long again as 4. Prothorax with scattered punctures above, subapical transverse groove distinct as a linear channel, no tubercles on disc; an uninterrupted greyish white vitta above lateral spine, almost straight above, slightly rounded-dilated at base of spine, less white centrally, bordered above and below by blackish vittae; a brown, double, rather indistinct central vitta. Elytra almost evenly punctured from base to apex, subgranulate at base, with the following brownish black lines: one upon suture at base, two parallel ones beginning at base between scutellum and shoulder, the inner one abbreviated, the outer one curving towards suture, which it reaches in middle; another line, longitudinal, between suture and hinder part of inner basal line; a broad line below shoulder, including here two small pale spots and curving towards disc, becoming feeble above; interspace between this line and the outer basal one grey on disc; some more dark lines or linear spots in apical half. The chalky white markings of the other species are represented by the following greyish white spots: a trace of a spot near suture in middle, two very small linear spots laterally before middle, and two small subapical discal ones, of which the outer one is linear and the upper one arrowhead-shaped. Underside with dispersed large punctures. A greyish white lateral vitta on prosternum, continued as a faint stripe over the meso- to the metasternum. Abdomen with a series of white side-spots, the proximal spots minute, fifth triangular.

Length, 22 mm.; elytra, 15 mm.; breadth, 6½ mm.

Hab. Portuguese Congo.

One ♀.

Tetraulax gen. nov.

♀. No cicatrice; middle coxal cavity open; claws divaricate; midtibia excised before apex.

Mandible simple at end. Frons flat, broader than long. Antennal tubercles widely separate, not prominent; two short longitudinal sulci between them, united at beginning of occiput by a transverse depression and then continued along eyes. Eye sinuate, coarsely granulated, lower lobe higher than wide, vertical diameter surpassing that of cheek. Antenna as long as body; scape equalling segment 3 in length, this very little longer than 4, the following decreasing, 10 the shortest; short dispersed hairs beneath. Prothorax characteristic, cylindrical, without side-spine, the two pairs of transverse sulci (near base and apex) very sharply impressed, disc with a fifth sulcus consisting of two arched grooves which unite in middle of disc or remain separate. Elytra convex, subconical, narrowing rather strongly anad; apex of each obliquely rounded-truncate. Prosternal process evenly curved, remaining much below the level of the coxae; mesosternal process narrow, declivous; fifth abdominal segment as long as 2 to 4 together, depressed at apex, mesially canaliculate at base. Legs short, hindfemur reaching base of fourth abdominal segment; first tarsal segment about as long as third.

Type : *T. lateralis* spec. nov.

In this genus belongs also *Prosopocera pictiventris* (1857) Chevr.

The two insects belong to the "Omacanthides" according to Lacordaire's definition ; but I think they are more nearly related to *Mycerinicus*.

100. **Tetraulax lateralis** spec. nov.

♀. Similar to *A. pictiventris*, sides of meso-metasternum and abdomen chalky white, and the sides of the elytra washed with the same colour, the species resembling *pictiventris* in this respect almost exactly. The eye of the new species is much larger, the lower lobe being very little higher than broad, and four times as high as the cheek ; the two halves of the discal sulcus of the pronotum unite in middle of disc, and are far less strongly curved than in *pictiventris*, each representing in the latter species a semicircle. Head clay-colour like prothorax, the front of the head not being white as in *pictiventris*. Distal segments of antenna white at base, these white rings widest on the last segments.

Length, 17 mm. ; breadth, 6 mm.

Hab. Benito, French Congo.

One ♀.

Planodema (1860) Thoms.

This genus is based on *P. scorta* (1868). The two species known to me differ from *Theocris*, besides the rectangular frons, in the less slender body, much more convex elytra, and in the anterior transverse groove of the pronotum being very shallow above.

101. **Planodema unicolor** spec. nov.

♀. Olive-black, brownish beneath, covered with a short greyish pubescence which does not conceal the structure of the skeleton. No markings, except a thin line laterally behind the eye extended on to the pronotum, and a tiny grey lateral dot on the first four abdominal segments; hairs of anal groove ochreous ; pubescence of tibiae yellowish ; antennal segments 3 to 11 grey at base. Lateral tubercle of pronotum larger than in *scorta*, the side of the pronotum slanting from this spine to the anterior constriction. Elytra rather denser punctured at base, and more granulate than in *scorta*.

Length, 19 mm. ; elytra, 14 mm. ; breadth, 6½ mm.

Hab. Benito, French Congo.

One ♀.

Theocris (1858) Thoms.

The two species described below agree with the type-species (*sagra*) in the trapeziform frons, but they differ markedly in the prothorax. This has a small obtuse side-tubercle in *sagra*, the sides of the prothorax appearing almost parallel, while the two new species have a large side-spine, which stands less close to the basal constriction, the sides of the thorax converging from this tubercle to the subapical groove.

The abdomen of the ♀ of *Theocris sagra* has a hairy anal cavity like the ♀ ♀ of *Planodema* and *Docus*, but it is smaller. The ♂ ♂ of the two new species have the last (visible) abdominal tergite (7th segment) hairy and bilobate.

102. **Theocris haltica** spec. nov.

♂. Olive-black; tibiae and antennae slightly rufous; pubescence whitish grey, that of dark parts brown. Antennal segments 4 to 11 brown, except at base. Apex of tibiae also brown. Pronotum with traces of four brown spots on disc and two at base, separated by whitish grey pubescence. Elytra dotted with blackish brown, each with three brown patches: namely, one subbasal, oblique, extending from lateral margin to near suture, from which it remains about 1 mm. distant; the second postmedian, of about the same width as the first, strongly narrowed near suture, which it does not reach; the third subapical, more strongly constricted than the others, consisting of a large lateral and a small discal portion.

Eye large, lower lobe strongly rounded, larger than in *sagra*; cheek very short. Frons without punctures, except a few along eyes. Antenna one-fourth longer than the body; scape shorter than in *sagra*, being one-third shorter than segment 3. Disc of prothorax raised and, in middle, flattened again, with indication of a nodosity at each side of the mesial line behind the subapical groove; a few brown setiferous granules posteriorly on each side of the disc. Scutellum longer than broad, rounded. Elytra truncate at base, gradually narrowing from the rectangular shoulders backwards, strongly granulose at base, then punctured, the punctures becoming small behind; apex of each elytrum evenly rounded. Femora incrassate, posterior one reaching to end of abdomen.

Length, 20 mm.; elytra, 14 mm.; breadth, 7 mm.

Hab. Benito, French Congo.

One ♂.

103. **Theocris obliqua** spec. nov.

♂. Olive-black, pubescence ashy grey. Antenna brown, scape and bases of segments 3 to 11 grey. Apex of tibiae black. Elytra indistinctly dotted and marmorated with luteous, two greyish white narrow bands: the first beginning at basal fourth behind shoulder and running obliquely towards the suture, which it nearly reaches before middle, the second at apical third, transverse, neither reaching suture nor outer margin; the first band includes laterally a patch of the ground-colour.

Lower lobe of eye transverse, not larger than in *sagra*, in which it is vertical. Frons as in *haltica*, narrower before the antennal tubercles than in *sagra*. Third segment of antenna almost half as long again as scape. Prothorax as in *haltica*, but disc much more evenly convex. Scutellum about as long as it is broad at base. Elytra truncate at base, gradually narrowed to end, rectangular at shoulders (tip of angle rounded), coarsely and densely punctured, the punctures very large before middle, finer towards apex, base granulose, especially at shoulder; apex of each elytrum nearly evenly rounded, scarcely with an indication of a sutural angle. Femora less incrassate than in *haltica*; posterior one reaching end of fifth abdominal sternite.

Length, 16 mm.; elytra, 11 mm.; breadth, 5 mm.

Hab. Benito, French Congo.

One ♂.

Ischnia gen. nov.

♂. Frons rectangular. Eye coarsely granulose, sinuate, lower lobe very large, transverse, wider than frons. Mandible sinuate below tip. Antennal tubercles

prominent, as in *Temnoscelis*. Antenna not quite twice the length of the body, proximal segments ciliate beneath, scape slightly but distinctly constricted before end, not reaching to middle of thorax ; segment 3 **shorter** than 4, all the segments elongate, 11 longer than 10 and about one-third shorter than 4. Prothorax with long lateral spine in middle ; apical groove obsolete above, subapical one distinct ; disc tuberculate. Scutellum impressed, sides elevate, apex slightly sinuate. Elytra long, slightly convex above, truncate at base, with the shoulder subangulate ; apex truncate-sinuate, outer angle produced into a tooth. Pro- and mesosternal processes as in *Temnoscelis*. Fifth abdominal sternite emarginate. Legs long and slender ; tarsi little dilated ; first segment linear, almost twice the length of the second. Antecoxal part of prosternum equalling half the length of the sternum.

Typus : *I. picta* spec. nov.

Allied to *Temnoscelis* (1872) Lacord.

104. **Ischnia picta** spec. nov.

♂. Brownish black ; antenna and legs more or less rufous brown ; pubescence grey beneath, more clayish buff above. Pronotum with two not very distinct blackish vittae from base to discal tubercles, one at each side of middle line, the vittae diverging frontally. Scutellum creamy buff. Elytra with a number of pale creamy buff lines bordering brown patches : one curves in a semicircle from shoulder to shoulder ; another longitudinal, begins in middle of base, is slightly raised, curves towards scutellum at base, and extends just beyond the semicircle ; a third line, longitudinal, begins at shoulder, being first confluent with the semicircle, runs towards suture, reaching this at basal two-fifths, and extends along the sutural impressed stripe to apical fifth, turning there towards the disc ; with this line are connected two basal ones situated below the shoulder, the three including between themselves an elongate lateral and a shorter subdorsal brown spot ; the longitudinal line sends out in middle a branch which joins a transverse line which is very strongly zigzag ; two parallel, obliquely longitudinal lines before apex, the upper reaching suture behind, the two confluent anteriorly and then dividing into three indistinct lines, of which the two lateral ones are almost completely fused together ; apical and lateral edges of elytrum also creamy.

Frons coarsely punctured. Pronotum with some granules behind lateral spine and a very few punctures on disc ; a divided mesial tubercle before basal constriction, and a higher tubercle behind the subapical groove on each side, situate rather closer to the mesial line than to the lateral spine, the space between these tubercles slightly impressed ; minute transverse striations behind the antemedian tubercles. Elytra very slightly convex before apex, punctured, the punctures partly in rows, rather coarse at base, minute behind, apex smooth ; sides abrupt, subcarinate from shoulder to middle, a regular line of punctures above this carina. Underside smooth.

Length, 18 mm. ; elytra, 13 mm. ; breadth, 4½ mm.

Hab. Batanga, Cameroons.

One ♂.

Abaraeus gen. nov.

♂. Near *Temnoscelis* and *Baraeus*. Frons and tibiae simple. Third segment of antenna half as long again as fourth. Pro- and mesosternum with small tubercle. First segment of hindtarsus little widening apically.

Typus : *A. cuneatus* spec. nov.

105. **Abaraeus cuneatus** spec. nov.

♂. Blackish brown; pubescence of antenna, legs and underside of body olive-chocolate, tarsi and tip of tibiae clay-colour in certain lights, upperside greyish, mottled with brown and clay-colour; a brown lateral marginal patch on elytrum beyond middle, its anterior border blackish, oblique, forming a hook-shaped mark; a brownish subapical patch at suture. Proximal segments of antenna, legs and underside of body with dispersed short white hairs. Abdominal segments 1 to 4 with a creamy sublateral apical dot.

Frons with dispersed punctures. Antennal tubercles widely apart. Antennal segment 4 shorter than 5 + 6. Prothorax above without transverse sharply impressed sulci, with large dispersed punctures and two large tubercles above; these tubercles, one on each side of disc, are antemedian, pyramidal; a small, subdivided, mesial tubercle before basal constriction. Scutellum brown. Elytra flattened, rectangular at shoulders, gradually narrowing apicad, cuneiform, truncate-bisinuate at end, with the sutural and lateral angles very strongly rounded; a tubercle in middle of base, some large granules from shoulder to near middle; puncturation consisting of large and small punctures, densest at base, large punctures from base to apex. Underside smooth.

Length, 18 mm.; elytra, 13 mm.; breadth, 6 mm.

Hab. Batanga, Cameroons.

One ♂.

106. **Eunidia mimica** spec. nov.

♂. Similar to *E. divisa* (1864) Pasc. from Natal, described as *Syessita*. Head, prothorax, scutellum, basal three-fifths of elytra and midcoxa ochraceous, base of fourth segment of antenna and tip of eleventh and trochanters luteous. Antennal tubercles, an angle-shaped band connecting them, a lateral patch behind eye continued to base of prothorax, two vittae on occiput, uniting behind and continued as one to beyond middle of pronotum, antenna, apical two-fifths of elytra, legs and remainder of underside of body, black; femora brownish towards base.

Frons flat. Antenna one-third longer than the body; third segment shorter than in *divisa*. Elytra coarsely punctured, each with two distinct and two feeble raised lines; apex sharply truncate.

Length, 10 mm.

Hab. Benito, French Congo.

One ♂.

107. **Hippopsicon pleuricum** spec. nov.

♀. Robust, brownish black, pubescence of head yellowish, of antenna, legs and sterna olivaceous, of pronotum and elytra greyish white; a chalky white lateral vitta from apex of prosternum to base of fifth abdominal segment, gradually and slightly narrowing anad, sharply defined beneath, situated close along the edge of the elytra, which are nearly white laterally; anterior side of foreleg grey. No vittae on upperside. Frons granulose. Antenna one-third to one-half longer than the elytra; third segment half as long again as fourth. Prothorax transversely wrinkled above, with a few small setiferous punctures at the vertical sides and before base on disc. Elytra finely punctured, the punctures largest at base, but remaining also here smaller than the interspaces, somewhat seriated on disc in middle; apex obliquely truncate, outer angle not acute.

Length, 14—19 mm.; breadth, 4½—6 mm.

Hab. Benito, French Congo.

A series.

The absence of longitudinal lines from the upperside distinguishes this robust species at a glance from the others.

Hippopsicon virgatum (1871) Gerst. belongs to *Hyllisia*.

108. **Hyllisia loloa** spec. nov.

♂. Brownish black; pubescence clay-colour, forming the usual lines on pronotum and elytra, the five pronotal lines not very distinct on account of the clay pubescence covering the interspaces. Puncturation of head, pronotum, and elytra very coarse. Antenna blackish brown, distal segments not obviously more rufous than scape, third segment half as long again as fourth. Lower lobe of eye large, its vertical diameter surpassing that of cheek. Prothorax about one-fifth longer than broad, somewhat rugate in middle. Apex of elytra transversely truncate, very faintly sinuate.

Length, 10 mm.; breadth, 2½ mm.

Hab. Lolodorf, Cameroons.

One ♂.

Hyllisia imitans.

Hippopsis imitans (1892) Duviv., *Ann. Soc. Ent. Belg.* xxxvi. p. 364 (Congo).

We have two ♂♂ of this species, one from Assaba, Niger (Dr. Crosse), the other from the Ogowé R. The species differs from all the others known to me especially in the fine puncturation of the pronotum, the punctures being larger than the interspaces, in the acuminate elytra, the impunctate underside (apart from some large punctures situated behind the anterior coxa) and in the broad and sharply defined yellow infero-lateral vitta of the prothorax.

The lower lobe of the eye is vertical, its vertical diameter being longer than that of the cheek. This seems to be a male character in this genus, as is also the long antenna, of which the third and fourth segments are almost equal in length. The female antenna is much shorter, has a shorter end-segment, and the third about half as long again as the fourth.

109. **Polyrrhaphis africanus** spec. nov.

♂ ♀. Structurally very close to the species of this American genus, differing only in the elytra not being spinose at the truncate apex. Black, clothed with a whitish tomentum; a broad antemedian area on elytra, widest and most distinct laterally, and head fuscous; acute tubercles of elytra and a transverse band at apical fourth from disc to disc, interrupted at the suture, black.

Lower lobe of eye a little broader than high. Pronotum with large punctures in the depressions, a high discal tubercle on each side, a small one mesially before base; side-spine very long and acute. Elytra raised at suture, in middle of base and from humeral angle to black transverse band, armed with acute tubercles on these raised parts.

Length, 19—22 mm.; elytra, 11—15 mm.; breadth, 8—10½ mm.

Hab. Benito, French Congo.

One ♂, three ♀ ♀.

110. **Leiopus catops** spec. nov.

♂ ♀. Brown ; frons, except upper third, the basal halves of antennal segments 3 to 6, the extreme bases of segments 8 to 11, and the entire first and second segments, the thin (proximal) part of the femora, the basal two-thirds of the tibiae, the tarsi and the underside of the body, luteous. Markings of upperside of a luteous grey pubescence, namely, on prothorax : apical and basal margins, a mesial vitta and a broader lateral one ending at spine, and between the two a spot or an abbreviated vitta ; on elytra : longitudinal lines connected with one another, forming a network of longitudinal meshes, which is interrupted behind the middle by a broad transverse brown space, which is concave and sharply defined in front, irregular behind, and reaches across both elytra, but does not reach the lateral margins ; the basal portion of the net-like pattern is formed by a sutural line and four others, including between themselves two elongate basal spaces, followed by two smaller ones, an anteriorly forked humeral space, and a small infra-humeral space ; a sublateral line extends from the posterior connecting bar of the basal network almost parallel to outer margin—which is also luteous grey—to suture before apex, being widened behind, and forming there the posterior border of the subapical network.

Pronotum and elytra flattened, coarsely punctured ; pronotal spine small ; scutellum sinuate ; elytra obliquely truncate, sutural angle more obtuse than outer one. Anal segment of ♂ narrow, conical, almost twice the length of the fourth ; of ♀ prolonged, nearly as long as segments 1 to 4 are long laterally.

Length, 8 mm.

Hab. Johann Albrechts Höhe, North Cameroons (L. Conradt).

One ♂, two ♀♀.

111. **Leiopus fenestrella** spec. nov.

♂ ♀. Similar to *catops*, smaller ; frons brown, except a luteous spot between antennal tubercles ; pronotal spine very much larger, luteous grey ; this grey pubescence contiguous with a discal, lateral, anteriorly abbreviated, irregular vitta ; a short apical vitta, also not straight, lower down than the spine ; the netlike pattern of the elytra continuous from base to apex, being only laterally interrupted by a brown mesial patch ; apex of elytra sinuate-truncate, both angles being slightly produced, the outer one more than the sutural one. Anal segment shorter than in *catops* ; that o f♀ a little shorter than the three preceding segments together.

Length, 7 mm.

Hab. Johann Albrechts Höhe, North Cameroons (L. Conradt).

One pair.

112. **Leiopus paraphelis** spec. nov.

♀. Brownish black ; pubescent grey. Head uniformly grey, without punctures, except a few on cheek. Antenna brown, bases of segments 3 to 7 luteous, the luteous part very restricted on seventh and just indicated on eighth segment. Pronotum convex, grey, a broad brown space at each side on disc, including two more or less isolated grey spots ; large punctures at base, none or very few on disc ; lateral spine long, acute. Scutellum grey. Elytra convex, coarsely punctured, with feeble indications of two raised lines in middle of disc, grey, base and a broad transverse postmedian band, narrowed on each elytrum at the lateral margin, brown ; the grey parts dotted with brown, the dots situated before apex more or less

confluent ; short stiff bristles situated in large punctures dispersed all over the elytra ; the flattened lateral apical portion of the elytrum separated from the convex part by an oblique groove ; apex truncate. Underside and legs grey ; apex of tibiae brown. Anal segment conical, shorter than segments 2 to 4 together, tergite pointed.

Length, 7½ mm.

Hab. Benito, French Congo (*type*), and Johann Albrechts Höhe, North Cameroons (L. Conradt).

Two ♀♀.

Resembles the European *Leiopus nebulosus*.

113. **Exocentrus nitens** spec. nov.

♀. Shining black ; head, antenna and legs rufous brown ; bases of third and fourth antennal segments, apices of abdominal segments, and scutellum, white ; elytra with two irregular transverse white bands consisting of scale-like hairs, one close to base, the other at basal third, curving backwards near suture, the hairs composing them not close together anywhere.

Pronotum densely punctured, suddenly constricted at apex, the sides being dilated ; this dilated part bears posteriorly the side-spine, which is long, pointed, and directed obliquely backwards ; in front of the spine there are four stout, spine-like hairs, one behind the other. Elytra with similar stout hairs all over ; seriate-punctate, the puncturation disappearing before apex, seven rows between scutellum and shoulder.

Length, 3 mm.

Hab. Lolodorf, S.E. Cameroons (L. Conradt).

One ♀.

114. **Exocentrus seriatus** spec. nov.

♀. Dark brown ; antenna, tibiae, tarsi and trochanters rufescent. Bases of antennal segments, a thin mesial line on pronotum as well as a large triangular discal spot and a smaller one above lateral spine, suture of elytra and numerous short lines, grey ; head, underside and legs also pubescent grey ; some of the linear spots of the elytra confluent before the apex near the suture ; sides of elytra with smaller spots than disc. Elytra regularly punctate-striate from base to beyond middle, the puncturation becoming sparser farther back and disappearing altogether before end ; there are only four stripes of punctures between suture and shoulder, and these stripes remain quite regular to the very base.

Length, 4½ mm.

Hab. Johann Albrechts Höhe, North Cameroons (L. Conradt).

One ♀.

115. **Exocentrus strigosus** spec. nov.

♂. Dark brown, tibiae and tarsi rather paler. Stiff hairs longer and thinner than in the other African species known to me. Antennal segments grey at base. Elytra regularly punctate-striate from base to apex, the stripes close together, seven between scutellum and shoulder ; four grey transverse bands, all ill-defined, the first behind shoulder, the second a little farther back, reduced to a spot which stands close to the suture, the third before middle, widened at sides and at suture, including some black spots, the fourth at apical third.

Length, 4 mm.

Hab. Lolodorf, S.E. Cameroons (L. Conradt).

One ♂.

The sides of the prothorax are in this and the last species not straight from the tip of the spine to the apical constriction, but appear, in a dorsal view, suddenly narrowed before middle, the basal portion of the spine forming a kind of lateral carina to the prothorax.

116. **Glenea baia** spec. nov.

♀. Black; basal two-thirds of elytra, palpi, and anterior and median femora and tibiae cinnamon-rufous. A vitta at each side of frons, continued over the occiput, where it is more mesial, a spot behind eye and a large patch on the cheek clayish. Prothorax above with three clay-coloured vittae, the lateral ones appearing as prolongations of the postocular spots of the head. Punctures of head and prothorax large. Elytra regularly punctate-striate; external apical spine long.

Underside with a clayish grey lateral vitta on pro- and mesosternum, widened and less distinctly defined on metasternum, where it includes a large, long, black, halfmoon-shaped patch. Apices of abdominal segments grey, these bands more or less interrupted in middle, sinuated laterally, reduced on fifth segment to two spots.

Length, 13 mm.

Hab. Benito, French Congo.

One ♀.

116. **Glenea leucopsila** spec. nov.

♂♀. Similar to *gabonica* and *quinquelineata*; markings of head, prothorax, and underside, and the subapical transverse spot of the elytra white, not clayish; antemedian black patch of elytra not reaching laterally beyond the carina; puncturation similar to that of *quinquelineata*.

Hab. Sierra Leone (*type*); Ashanti.

A series.

117. **Glenea mira** spec. nov.

♂♀. Black; palpi, femora and tibiae rufous; tarsi brown. Two vittae on head, the occipital portions thinner and closer together, a subdorsal spot behind eye, a patch on cheek, a thin mesial and a broader dorso-lateral vitta on prothorax, scutellum (except base), and the following markings on the elytra, buff: an oblique, straight vitta from base to basal fourth, approaching suture behind, a short streak behind shoulder along the carina, an indistinct posthumeral streak below the carina, a transverse, somewhat curved median spot between suture and carina, and a smaller transverse subapical spot. Suture greyish. Underside with a broad white vitta, this pubescence occupying nearly the whole metasternum and abdomen, except middle: abdomen with black lateral spots, which are separate or form a continuous streak.

Length, 14—18 mm.

Hab. Benito, French Congo.

A series. Closest to *arcuata*.

118. **Glenea leptis** spec. nov.

♀. Blackish brown, legs, antenna and elytra chocolate. Head densely pubescent buff, a frontal, double, mesial vitta brown, diverging, reaching to end of

antennal tubercles, a spot behind eye and three vittae on occiput black. Prothorax also buff, with six black vittae, two on each side and two above, these much wider than the lateral ones. Scutellum sinuate. Elytra proportionately longer than in other African species ; two very distinct lateral carinae ; disc obviously impressed along suture and carina ; punctures rather fine in apical half, larger nearer base, no regular series on disc besides the row along the carina and another situated in basal fourth between carina and suture, but nearer the former ; a sutural vitta and four others (two above and two laterally between the upper carina and the lateral margin) grey, the discal one thinnest, obsolete from basal third to apex, but dilated in middle of elytrum to an elongate-ovate spot, which extends to the sutural vitta ; apex more or less grey ; outer spine prominent, sutural one short. Underside clayish grey, the pubescence rather denser laterally.

Length, 13 mm. ; elytra, 11 mm. ; breadth, 4 mm.

Hab. Kikuyu Escarpment, British East Africa (W. Doherty).

Two ♀ ♀.

119. **Nitocris morio** spec. nov.

♀. Black, shining ; head, apex of pronotum, prosternum except lateral posterior part, anterior and median femora, ochraceous ; a sutural spot before apex of elytra, a lateral spot at apex of second abdominal segment, and a larger one on fourth segment golden-pubescent ; antennal segments 4 to 11 and scutellum grey ; first abdominal segment and hindcoxa silky white laterally ; last abdominal segment brownish. Large punctures of frons dispersed. Scape of antenna with cicatrix, which is limited by an incomplete carina. Mesial, antebasal nodosity of pronotum prominent. Scutellum elongate-triangular. Elytra long and very narrow ; a carina from near shoulder to dilated apical part very prominent and quite smooth, glossy ; apex excised, both angles strongly dentate.

Length, 28 mm.* ; elytra, 20 mm. ; breadth, 5 mm.

Hab. Sierra Leone, October 27th, 1895.

One ♀.

120. **Nitocris peplus** spec. nov.

♀. Pale orange ; head as far down as lower margin of eyes, antenna, elytra, a transverse, halfmoon-shaped, basal patch on third abdominal segment, and tip of mandible, black ; base of elytra for 1 to 2 mm. of the colour of the pronotum, this reddish area sharply defined, produced backwards at suture and here covered with a golden pubescence ; disc of elytra with a greyish brown tint.

Frons with numerous large punctures ; depression between antennal tubercles deep ; occiput almost impunctate, except near eyes. Prothorax very strongly constricted behind apex, trinodose above, glossy, with a few punctures laterally on disc. Scutellum sinuate, pubescent. Elytra similar in shape to those of *pascoei*, but longer and rather more dilated behind, rounded together at apex, not sinuate, not dentate.

Length, 20 mm. ; elytra, 15 mm. ; breadth, 5 mm.

Hab. Nyassaland.

One ♀.

* From front of head to tip of abdomen.

SOME NEW *CERAMBYCIDAE* COLLECTED BY ALBERT MOCQUERYS ON THE ISLAND OF ST. THOMÉ, GULF OF GUINEA, WEST AFRICA.

By Dr. KARL JORDAN.

Subfamily CERAMBYCINAE.

Diaspila gen. nov.

♂♀. Differs from the allied African genera *Hypomares* and *Paroeme* in the fourth segment of the antenna being only one-fourth the length of the third, from the American *Ibidion* especially in the tibiae not being distinctly carinate.

End-segments of palpi rather broad. Eyes coarsely granulose, distant above. Antenna of ♂ one-third or half longer, of ♀ little longer, than the body, with long dispersed hairs underneath and at the apices of the segments, the hairs rather denser on the proximal segments ; scape roughly punctured, little longer than the distance between the upper lobes of the eyes ; third segment one-third or one-half longer than the scape ; fourth very short ; fifth and sixth little shorter than third. Pronotum longer than broad, sides rounded in middle. Elytra parallel, rather flat above, truncate at base, shoulders somewhat rounded. Fore- and midcoxae separate. Femora clubbed, especially in ♂, hind ones reaching to end of elytra in ♂, a little shorter in ♀. Cavity of anterior coxa open behind.

Type : *Diaspila bipunctatus.*

This species stands as *Cyrtomerus bipunctatus* in the *Munich Catalogue* ix. p. 2836. We have both sexes from Sierra Leone.

1. **Diaspila periscelis** spec. nov.

Differs from *bipunctatus* in the following points : antennal segments 2 to 6 black at extreme base ; pronotum much less roughly punctured, more deeply impressed in middle, the convexities on disc therefore more prominent, mesial line somewhat raised behind ; elytra more densely granulate-punctate at base, black spot larger, apex truncate-sinuate, with the outer angle acuminate. Knees black.

Length, 13 mm.

One ♀.

2. **Xystrocera interrupta** spec. nov.

♂. Allied to *senegalensis*, but differing in structure and in the pattern of the elytra. Prothorax broader than long, widest before basal constriction, sides almost straight in middle, here not rounded, but rather concave in dorsal aspect ; discal mark very narrow, horseshoe-shaped, the space encircled by it wider than in *senegalensis* and *marginalis*. Elytra slightly dilated beyond middle, and then slightly sinuate ; with three glabrous carinae, the first fading away behind, the second nearly reaching tip of wing, the third beginning below shoulder, shorter than the second, but longer than the third ; each elytrum, besides the blue edge, with a longitudinal vitta between first and second carina, beginning at basal fifth

and ending at apical fourth, curving anteriorly towards the second carina and joining here a short, but rather broad, oblique streak which extends from the shoulder backwards ; this streak is the anterior remnant of a second vitta, of which an elongate postmedian spot is the posterior remnant ; this latter is either contiguous with the first vitta or separate from it.

Length, 22 mm.

Two ♂♂.

3. **Callichroma rhodoscelis** spec. nov.

♂. A small species. Bluish green, purplish on occiput, at the base of the pronotum, and the lateral edge and apex of the elytra ; pubescence golden ; basal half of all femora, and the greater part of the fore- and midtibiae rufous. Head coarsely punctured, frons rather long and somewhat rugate, not regularly plicate. Scape of antenna rather dispersedly punctured. Prothorax as long as the elytra are broad at base, transversely plicate from apex to beyond middle, farther back the plication becoming feeble and disappearing at the sides ; the ridges are concentrical on disc before middle in two places, as in *C. afrum* ; lateral spine prominent, conical. Scutellum and suture of elytra more densely pubescent. Elytra rugosely punctured ; shoulders prominent, smooth, with single small punctures.

Underside of head irregularly plicate, transversely and densely punctured. Pubescence of breast and abdomen dense. Prosternum minutely and very densely shagreened, not distinctly plicate. Punctures of fore- and midfemora dispersed, very few large punctures on upperside ; carina of fore- and midtibiae prominent.

Length, 16 mm.

One ♂.

4. **Xylotrechus aedon** spec. nov.

♂. Rufous brown, legs paler ; pubescence pale golden, silky. Frons tricarinate. Prothorax rather wider than the elytra, granulose, longer than broad, widest before the basal constriction, on disc a mesial line and a broader lateral irregular vitta pubescent, indistinct. Elytra obviously narrowing behind, extreme base (incl. of scutellum) and suture yellow pubescent, the sutural vitta dilated in middle and at apex, indistinct ; apex obliquely truncate, external angle strongly, sutural angle slightly, dentate.

Underside thinly pubescent, sides of meso- and metasternum rather more densely. Hindfemur reaching barely 1 mm. beyond the end of the elytra.

Length, 11 mm.

One ♂.

Subfamily LAMIINAE.

5. **Monochamus thomensis** spec. nov.

♂ ♀. Similar to *M. fulvisparsus* (1888) Gahan, *Ann. Mag. N. H.* (6). ii. p. 394 (Congo), but occiput and pronotum more densely punctured, the puncturation of the occiput being very conspicuous. Mesosternal process not raised into a tubercle. Anterior tibia of ♂ with tooth, which is represented by a carina in small ♂♂ ; segments 1 and 2 of anterior tarsus of ♂ asymmetrical.

The clayish pubescence varies in density in the individuals ; it is densest on the scutellum and the sides of the sterna, and on the upperside denser in the ♀♀ than in the ♂♂.

Length, 17—31 mm.

Six ♂♂, four ♀♀.

6. **Pachystola tritubercula thomensis** spec. nov.

♀. Differs from the East African form in the following points : pubescence of occiput contiguous with eye, not forming a separate oblique line on each side ; scutellum entirely ochraceous except a blackish brown line along the side-edges ; basal carina of elytrum less elevate ; the four postmedian and median spots of the elytra of the same fulvous colour as the proximal ones, the last of these four spots of the same size as the first, the two lateral ones smaller.

One ♀.

7. **Frea puncticollis** spec. nov.

♂♀. Black ; tomentum of upperside thin, grey, forming small dots on the elytra ; tomentum of frons, cheek, disc of pronotum above lateral spines, and of underside, clay-colour and dense ; frons dispersedly but coarsely punctured Vertical diameter of eye little shorter than cheek. Antenna of ♂ a little longer, of ♀ a little shorter than the body, third segment longer than, fourth as long as the scape, fourth with a distinct subapical groove ; tomentum sparse, not forming white rings. Pronotum coarsely punctured ; side-spine prominent, curving backwards. Scutellum clay-colour. Elytra very densely and coarsely punctured, almost rugate at the base and shoulders ; the latter elevate, obliquely truncate, tuberculiform posteriorly.

Prosternal process arched behind, vertical in front, transversely carinate.

Legs uniformly clothed with a sparse grey pubescence.

Length, 15 mm. ; breadth (at shoulders), 7 mm.

One ♂, two ♀♀.

8. **Plectonarthron microps** spec. nov.

♀. Black ; tomentum greyish brown, markings of body ochraceous tawny. Occiput with two large black patches. Eye smaller than in the same sex of *diabolicum* and *subfasciatum*. Third segment of antenna longer than fourth, densely hairy beneath, like apical half of fourth. Pronotum broader than long, shorter than in *subfasciatum* ; three ill-defined, almost straight, ochraceous tawny vittae ; puncturation as in *subfasciatum*. Scutellum trapeziform. Elytra more convex before declivous end than in the other species, coarsely punctured ; sparse ochraceous tawny ill-defined spots—one basal, longitudinal, dorsally of the shoulder, an irregular transverse median band, and on each elytrum a large apical ring ; at the sides and on disc there are traces of some more spots. Sides of sterna ochraceous tawny, with brown spots.

Length, 10 mm.

One ♀.

9. **Acmocera lutosa** spec. nov.

♂♀. Similar in shape and structure to *A. anthriboides*, occiput and elytra more densely punctured. Tomentum clay-colour, forming a broad mesial vitta on the pronotum, and several markings on the elytra: namely, a narrow band from scutellum obliquely behind shoulder towards outer margin, a pentagonal sutural patch just before middle, an M-shaped anteapical band common to both elytra, and an angle-shaped marginal spot at the tip of each elytrum. Smaller than *A. anthriboides*, and the elytra rather more flat. End-segment of antenna tawny-brown.

Five ♀♀, one ♂.

Type: ♀.

10. **Acridoschema thomensis** spec. nov.

♂♀. In structure nearest to *A. aberrans* (1894) Jord., Nov. Zool. i. p. 230. Head and thorax finely shagreened, frons dispersedly punctured; a few punctures on occiput near eyes. Pronotum short, almost twice as broad as long (side-spine excl.), smooth, except a very few punctures at the base of the spine; transverse subapical groove deep and sharply impressed. Elytra conical; shoulders prominent, subcarinate; puncturation dense and coarse, except at apex, which is almost smooth. Tibiae not distinctly carinate. Antenna: in ♂ more than twice the length of, in ♀ one-third longer than, the body; scape long, slender, end-segment as long as third in ♂, gradually tapering, but not pointed, clothed with single long hairs, which are denser at apex; in ♀ half the length of the third or less, not awl-shaped.

Tomentum luteous grey, somewhat maculate, condensed beneath the eye and at the base of the pronotal spine. Pronotum with a clayish, irregular line on each side of disc, the lines merged together behind. Elytra marked with two transverse blackish bands, one subbasal, situated at the highest point of the elytra, bordered in front by condensed luteous tomentum, the other postmedian, irregular, zigzag, followed by a clayish apical area, which includes a brown N on each elytron.

Length, 9—13 mm.

One ♂, two ♀♀.

NOTES ON PAPUAN BIRDS.

By the Hon. WALTER ROTHSCHILD, Ph.D., and ERNST HARTERT.

(*Continued from Page* 116.)

[For the localities mentioned in this article see "Introduction," Nov. Zool. 1901. pp. 55—61, and the maps, Pls. II. and III., in the same volume of this Journal. The former portions of this series of articles on Papuan Birds are: Vol. VIII. pp. 55—88 ("Introduction," *Pittidae*, *Psittaci*), and pp. 102—162 (*Columbae*, *Megapodiidae*, *Rallidae*, *Limicolae*, *Alcedinidae*); anteà, pp. 65—116 (*Paradiseidae*, *Corvidae*, *Laniidae*, *Dicruridae*, *Oriolidae*, *Artamidae*, *Sturnidae*). We hope to continue the subject shortly.]

XIV. MEROPIDAE.

1. **Merops ornatus** Lath.

1 ♂, Mansinam, 1879. Bruijn coll.

1 ♀, Mansinam, 7. vi. 1875. Beccari coll. (Specimen *q* of Salvadori's list).

2 ♂♂, Sorong, 19. iv. 1875. Bruijn coll. (Specimens *c'* and *f''* of Salvadori's list).

1 ♂, 4 ♀♀, Dorey, 1874, 1875. Bruijn coll. (Specimens *d*, *e*, *f*, *l*, *i* of Salvadori's list).

1 ♀, Ansus, Jobi, 10. iv. 1875. Beccari coll. (Specimen m^2 of Salvadori's list).

2 ♂♂, 1 ♀, Marai, Jobi, April 1897. W. Doherty coll.

1 ♀, Mafor, May 1897. W. Doherty coll.

2 ♂♂, 2 ♀♀, 1 sex ?, Ron, July 1897. W. Doherty coll.

1 ♂, 1 ♀, "Côte septentrion., 136° 30'—137° long." 1879. Bruijn coll.

1 ♂, 1 ♀, Simbang, German New Guinea, 28. vii., 14. ix. 1899. E. Nyman coll.

1 ♂, Blanche Bay, New Britain, 9. vii. 1879. E. Richards coll.

5 ♂♂, Woodlark Island, 2. 16. 26. iv. 1897, 27. iii. 1897. A. S. Meek coll., Nos. 170, 174, 182, 222, 223.

4 ♂♂, 1 ♀, Sudest Island, Louisiades, 30. iii., 19. 14. 14. 20. iv. 1898. A. S. Meek coll., Nos. 1630, 1717, 1723, 1727, 1769.

2 ♂♂, 1 ♀, St. Aignan, Louisiades, 30. 30. viii., 10. ix. 1897. A. S. Meek coll., Nos. 930, 931, 1019.

1 ♀, Milne Bay, 19. iv. 1899. A. S. Meek coll., No. 2481.

3, Nicura, British New Guinea. Lix coll.

1 ♂, 1 ♀, Trangan, Aru Islands, 17. ix. 1900. "Iris bright blood-red, feet plumbeous, bill black." H. Kühn coll., Nos. 2579, 2585.

We have in addition sixty-two specimens from Australia, Alor, Sumba, Sumbawa, Timor, Savu, Lombok, Lomblen, Celebes, Batjan, Ternate, Obi.

XV. CORACIIDAE.

1. **Eurystomus orientalis australis** Swains.

1 ♂, 1 ♀, Salwatty, 16. 28. v. 1875. Bruijn coll. (Specimens *g'* and *i''* of Salvadori's list).

1 ♀, Batanta, July 1875. Bruijn coll. (Specimen *n'* of Salvadori's list).
1 ♂, 1 ♀, Ansus, Jobi, 1879. Bruijn coll.
1 ♂, Ansus, Jobi, April 1897. W. Doherty coll.
1 ♂, Marai, Jobi, May 1897. W. Doherty coll.
1 ♀, Mafor, May 1897. W. Doherty coll.
1 ♀, Sorong, 20. iv. 1875. Bruijn coll. (Specimen *z* of Salvadori's list).
1 ♂, Kafu, May 1884. Bruijn coll.
1 ♀, Dorey, 4. vi. 1875. Bruijn coll. (Specimen *h* of Salvadori's list).
1 ♀, Andai, 1879. Bruijn coll.
1 ♂, Andai. From Bruijn's hunters.
1, N.W. New Guinea. From Bruijn's hunters, ex coll. Guillemard.
1 ♀, Konstantinhafen, May 1887. Kubary coll.
1 ♂, 1 ♀, Simbang, 14. ix. 1899. E. Nyman coll.
4, Wanambai, Aru Islands, June 1896. C. Webster coll.
2, Dobbo, Aru Islands, May, June 1896. C. Webster coll.
1 ♂, Fergusson Island, October 1894. A. S. Meek coll.
1 ♂ juv., Fergusson Island, 14. v. 1897. A. S. Meek coll., No. 251. "Iris dark brown, bill black with a red streak on under mandible."

We have further 54 skins from Tenimber, Banda, Batjan, Halmahera, Ternate, Sumba, the Key Islands, Teoor, Goram and Tidore, Dammer, Kangean, Sumbawa, Lombok, Flores, Satonda Island, Alor, Australia, and New Zealand.

There can be no doubt that *E. australis* is only a subspecies of *E. orientalis*, to which it is indeed very closely allied, and *E. laetior* and *E. calonyx* must also be treated as subspecies of *orientalis*. It is quite certain, however, that, although they are very similar to *orientalis*, these forms should not "be relegated to the limbo of synonyms," as Mr. Dresser wishes to persuade us. We have adopted Swainson's name because we cannot accept a name which is diagnosed as belonging to a bird with a chestnut head and neck, and a black throat with white borders, for a species without any chestnut at all and with a blue throat without white borders. Mr. Dresser maintains that it would be pedantry to reject the name *pacificus* because the description was bad, the locality being one where the only Roller found is our present species. This is a very unsound argument, for in Latham's time the localities of zoological specimens were not considered of such importance as in our days, and even now it frequently happens that labels are lost or reversed, and this probably happened much more frequently a century ago. We therefore consider it always essential to reject names if the locality alone is supposed to indicate the identification, while the diagnosis is utterly inapplicable.

2. **Eurystomus crassirostris crassirostris** Scl.

Eurystomus crassirostris Sclater, *P. Z. S.* 1869. p. 121 ("Solomon Islands"—errore! We accept New Britain as the typical habitat! There are several species described and mentioned by Sclater as coming from the Solomons, which apparently never came from there, such as *Nasiterna pusio*, *Dicranostreptus megarhynchus*, *Lorius hypoenochrous*. Unfortunately we have not been able to see the type, but it appears to have had a black tip to the bill, although we have searched in vain for Count Salvadori's remark to that effect, quoted by Dr. Sharpe *P. Z. S.* 1890. p. 552).

1 ♂, Mysol, 11. ii. 1900. H. Kühn coll. "Iris warm brown, feet bright vermilion mixed with black, bill bright vermilion tipped black." No. 2055.
1 ♀, Mysol, 6. xii. 1883. Powell coll.

2, Bruijn coll. Marked "bought from a hunter who had collected in Waigiu and Salwatty."

1 ♀, Aimasi, Arfak, 1879. Bruijn coll.

1 ♂, Arfak, 6. v. 1875. Bruijn coll. (No. *n* of Salvadori's list).

1 ♀, Stephansort, December 1899. E. Nyman coll.

3 ♂♂, Nicura, August 1893. Lix coll.

1 ♂, 1 ♀, Mt. Cameron, 19. 20. ix. 1896. A. S. Anthony coll.

1 ♂, Goodenough Island, 14. xii. 1896. A. S. Meek coll.

2, Fergusson Island, 28. x. 1894. A. S. Meek coll.

3 ♂♂, 2 ♂♂, St. Aignan, Louisiades, 13. 18. 27. 27. 29. viii. 1897. A. S. Meek coll., Nos. 787, 801, 901, 902, 924.

1 ♂, Sudest Island, Louisiades, 7. iv. 1898. A. S. Meek coll., No. 1685.

3 ♂♂, 1 ♀, Rossel Island, Louisiades, 26. 27. i., 3. 4. iii. 1898. A. S. Meek coll., Nos. 1292, 1304, 1527, 1534.

3. **Eurystomus crassirostris solomonensis** Sharpe.

Eurystomus solomonensis Sharpe, *P. Z. S.* 1890. p. 552 (Solomon Islands: Type Ugi, Brenchley coll.).

This form is very closely allied to *E. c. crassirostris*, but the bill, which in the latter has nearly always a very distinct black tip, is quite red, and the blackish brown colour of the crown extends further on to the interscapulium.

1 ♂, 3 ♀♀, Isabel Island. A. S. Meek coll.

1, Alu. Woodford coll.

1, Fauro. Wahnes and Ribbe coll.

2, Guadalcanar. Woodford coll.

1 ♂, 1 ♀, Guadalcanar. A. S. Meek coll.

2 ♂♂, 1 ♀, Florida Island. A. S. Meek coll.

4. **Eurystomus crassirostris neohanoveranus** Hart.

Eurystomus neohanoveranus Hartert, Nov. Zool. 1901. p. 185, footnote (Expedition Bay, New Hanover, 22. iii. 1897).

1 (type), Expedition Bay, 22. iii. 1897. Capt. Webster coll., No. 511.

1, Expedition Bay, 26. ii. 1897. Capt. Webster coll., No. 446.

XVI. PODARGIDAE.

Podargus papuensis Quoy & Gaim.

1 ♂, 2 ♀♀, Mysol, 16. i., 4. 4. ii. 1900. H. Kühn coll. "Iris dark blood-red, feet and bill pale greyish brown." Nos. 1896, 2045, 2046.

1 ♀ ad., Momos, Waigiu, 23. x. 1883. Powell coll.

1 ♀ pull., Waigiu. From Bruijn's hunters.

1 ♂, 1 ♀, Marai, Jobi, May 1897. W. Doherty coll. (The ♀ very dark, but with some rufous on it).

1 ♂, 1 ♀, Jobi. Bruijn coll.

1 ♂, same preparation and exactly like the former, probably from Jobi.

The specimens from Jobi, as well as those from Aru, are rather small, but we do not consider our series sufficient to justify their separation.

1 ♂, 1 ♀, Ron Island, July 1897. W. Doherty coll.

1 ♂, Andai, August 1872. D'Albertis coll. (Extremely dark and mixed with rufous ; ? wrongly sexed.) (Specimen *e* of Salvadori's list, in *Orn. Pap.* i. p. 515).

1 ad., 1 pull., Dutch New Guinea preparation.

1 ad. (probably ♀), (said to be from Goldie's collection, but probably from Arfak).

2 ♂ ad., Konstantinhafen. Kubary coll.

1 pullus, inland from Holnicote Bay. Rohu coll.

1 ♂, 2 ♀♀, Collingwood Bay, 26. vi. 1897, 31. v., 14. vi. 1899. A. S. Meek coll., Nos. 648, 2539, 2601.

2 ♂♂, Milne Bay, 15. xi. 1898, 19. i. 1899. A. S. Meek coll., Nos. 2150, 2189.

1 ♀, Hall Bay, S. New Guinea, 12. vii. 1875. D'Albertis coll. (Specimen *l* of Salvadori's list in *Orn. Pap.* i. p. 516).

1 ♂ pull., Hall Bay, 1. v. 1875. D'Albertis coll. (Specimen *q* of the list).

1, South-East New Guinea. Goldie coll.

1 melanistic variety, almost quite black, cage-bird, said to have been caught in New Guinea.

2, Cape York.

2, Cooktown.

2. **Podargus intermedius** Hart.

Podargus intermedius Hartert, *Bull. B. O. C* (December 1895 : Kiriwina, Trobriand, type, and Fergusson I.).

1 ♂ ad., Kiriwina, Trobriand, May 18, 1895. "Iris hazel." A. S. Meek coll. (Type !)

2 ♀♀, Kiriwina, Trobriand, 5. iv., 18. v. 1895.

4 ♂♂, 3 ♀♀, Fergusson Island, 18. ix., 25. xi. 1894, 10. ix. 1895, 1. 1. 2. 5. vi. 1897. A. S. Meek coll., Nos. 482, 493, 498, 544, and three without numbers.

2 ♀♀, Goodenough Island, 2. 9. xii. 1896. A. S. Meek coll., Nos. 1, 23.

All the *females* are strongly rufous, the *males* greyish. There is, of course, a good deal of variation in the *females*, but the *males* are much more uniform.

3. **Podargus meeki** Hart.

Podargus meeki Hartert, *Bull. B. O. C.* (October 1898 : Sudest Island).

1 ♀ ad., Sudest Island, Louisiades, 9. iv. 1898. A. S. Meek coll. "Iris light hazel, feet yellowish horn, bill dark brown." No. 1701. (*Type !*).

2 ♂♂, 2 ♀♀, Sudest Island, 5. 5. 9. 9. iv. 1898. A. S. Meek coll., Nos. 1666, 1667, 1700, 1702.

In this curious species the sexes are less different than in the others. The *female* is lacking most of the rufous colour, but they are very much darker, more blotched with blackish brown.

4. **Podargus ocellatus ocellatus** Q. & G.

2 ♂♂, 2 ♀ ad., 2 ♂ pull., Mysol, 19. 20. 20. 24. 24. 26. i. 1900. H. Kühn coll. "Iris chocolate-red, feet and bill pale, yellowish brown." Nos. 1918, 1919, 1920, 1921, 1922, 1923.

3 without locality, but evidently Dutch New Guinea.

1 ♂, Arfak. Bruijn coll.

1 ♂, Arfak. Guillemard coll.

1 pullus, Andai, 7. xi. 1883. Guillemard coll.

1 ♀, Kapaur, December 1896. W. Doherty coll.

4 ♀ ad., Jobi Island, Bruijn coll.

1 ♀, Ansus, Jobi Island, 12. xi. 1883. Guillemard coll.

1 ♂, Ansus, Jobi Island, April 1897. W. Doherty coll.

1 ♀, Konstantinhafen. Kubary coll.

1 ♂, Finschhafen. Capts. Cotton & Webster coll.

1 ♂, Simbang, 25. viii. 1899. E. Nyman coll.

1 ♂, 1 ♀, Collingwood Bay, 9. 25. vi. 1899. A. S. Meek coll., Nos. 2587, 2646.

1 ♀, Milne Bay, 27. x. 1898. A. S. Meek coll., No. 2117.

1 ♂, Chads Bay, 17. ix. 1901. A. S. Meek coll., No. 3607.

1 ♀, "Between Rivers Laroki and Vanapa, 1897." Emil Weiske coll. (Purchased in London).

1 ♂, S. New Guinea. Goldie coll.

1 ♂, Wanambai, Aru Islands, 26. vi. 1896. C. Webster coll.

1 ♀, Wanambai, Aru Islands, 4. viii. 1900. H. Kühn coll., No. 2492.

1 ♂, S. Bark, Kobroor, Aru Islands, 24. v. 1900. H. Kühn coll., No. 2266.

5. **Aegotheles salvadorii** Hart.

Aegotheles salvadorii Hartert, *Cat. B. Brit. Mus.* xvi. p. 649 (1892: Moroka district, Brit. New Guinea).

Aegotheles rufescens Salvadori, *Ann. Mus. Gen.* xxxvi. p. 71 (1896: Moroka district, Brit. New Guinea).

1 ♂, 2 ♀♀, Mt. Cameron, 6000—7000 ft., August 1896. A. S. Anthony coll. (The ♂ and one of the supposed *females* in the brown, 1 ♀ in the rufous plumage).

1, Mt. Victoria 5000—7000 ft., April—June 1896. (Rufous plumage, sex?)

3, Mts. of British New Guinea. (1 dark brown, 1 rufous, 1 intermediate.)

1, said to have been shot between the rivers Laroki and Vanapa. (Brown plumage).

1, Mt. Gaivara 2000—9000 ft., 1898. (Very rufous plumage).

1, Moroka district, 3000—6000 ft. (Dark brown plumage).

1 ♂, 1 sex?, Aroa River, 4000 ft., August 1899. E. Weiske coll. (Both dark brown).

We are perfectly sure that the rufescent specimens (*Ae. rufescens* Salvadori) belong to the same species—*i.e. Ae. salvadorii* Hart. One of our specimens is actually intermediate between the *salvadorii* and *rufescens* plumages; they occur together, and have exactly the same dimensions; the light patches on the forehead vary in extent and shade of colour in the rufous as well as in the grey specimens. Probably the reddish examples are *females* and immature birds.

6. **Aegotheles bennetti** Salvad. et d'Alb.

Aegotheles bennetti Salvadori et d'Albertis, *Ann. Mus. Gen.* vii. p. 917 (1875: S.E. New Guinea).

1, inland from Holnicote Bay. Rohu coll.

1 ♀, Collingwood Bay, 20. vi. 1899. A. S. Meek coll., No. 2635.

2 ♂♂, 2 ♀♀, Milne Bay, 12. 24. xi. 1898, 2. 21. ii. 1899. A. S. Meek coll., Nos. 2142, 2157, 2240, 2356.

1, "Sogeri district," 2000—3500 ft., 1896. E. Weiske coll.
1, Brown River, 1898. E. Weiske coll.
1 ♀, Mt. Gayata, Richardson Range, 2000—4000 ft., 1898. E. Weiske coll.
3, British New Guinea. E. Weiske coll.

7. **Aegotheles bennetti** subsp. nov. ?

♂, Sattelberg, German New Guinea, 800 m., 4. vi. 1899. E. Nyman coll.
♀, Simbang, German New Guinea, 4. ix. 1899. E. Nyman coll.

These two specimens are either *Ae. bennetti* or a closely allied subspecies. The *male* does not differ materially from larger specimens of *Ae. bennetti*. The forehead and broad streaks above the eyes are somewhat rufescent brown, but in a few *bennetti* they are not much less so. The throat and chest is strongly washed with rufescent-brownish, but it looks as if this was partially soiled. The crescent on the hindneck is white. The *female* is larger than any of our *bennetti*, wing 138 mm. The streaks from the forehead over the eyes are rufous brown, the collar on the hindneck washed with pale rufous, throat and chest also with a rufescent brown wash. It seems thus, that the form from Kaiser-Wilhelm-land is larger (the *female* being larger than the *male*!) and more inclined to rufous on the head and throat and chest, but we would like to examine more specimens before separating it from *bennetti*. This doubtful form is evidently closely allied to *Ae. affinis*, but more undulated and vermiculated, not barred, above.

8. **Aegotheles plumifera** Rams.

Aegotheles plumifera **Ramsay**, *Proc. Linn. Soc. N. S. Wales* v. viii. p. 21 (1883 : S.E. New Guinea, exact place not given in particular).

1 ♂, Goodenough Island, 17. xii. 1896. "Iris light chocolate-brown, feet flesh-colour, washed with yellow, bill dark brown." A. S. Meek coll., No. 78.
1 pullus, Goodenough Island, 4. xii. 1898. A. S. Meek coll., No. 15.
2 ♀♀, Fergusson Island, 19. v. 1897. "Iris light chocolate-brown, feet light brownish flesh (light yellowish, tinged with pink), bill light fleshy brown, or brownish flesh-colour." A. S. Meek coll., Nos. 307, 308.

These birds are evidently Ramsay's *A. plumifera*, which has hitherto remained unknown in Europe. They have the upperside like *bennetti*, without the large light spots on wing-coverts and scapulars, but the light portions of the forehead are rufous, the middle of the throat is uniform pale rufescent, the underside tinged with rufous, the chest not so finely vermiculated with black. The pullus is above and below blackish brown, vermiculated with buffy white. It is quite possible that the type of *Ae. plumifera* came from Fergusson Island, where Hunstein and Goldie have collected. Their specimens were generally badly labelled, and the localities vaguely stated.

9. **Aegotheles wallacei** Gray.

Aegotheles wallacei **G. R. Gray**, *P. Z. S.* 1859. p. 154 (Dorey, Arfak).

1 ♂, Wanambai, Kabroor, Aru Islands, 2. ix. 1900. "Iris coffee-brown, feet pale brownish flesh-colour, bill blackish, gape brownish." H. Kühn coll., No. 2432.

10. **Aegotheles albertisii** Scl.

Aegotheles albertisii Sclater, *P. Z. S.* 1873. p. 696 (Hatam, Arfak).

1 ♂, Arfak. Bruijn coll., No. 7. (Specimen described in *Cat. B.* xvi. p. 648.)

11. **Aegotheles pulcher** Hart.

Aegotheles pulcher Hartert, *Bull. B. O. C.* for Oct. 1898.

1 (without sex), the type, Mts. of British New Guinea. E. Weiske coll.

1 ♀, Aroa River, 4000 ft., January 1900. E. Weiske coll. "Iris braun. Füsse weiss. Schnabel braun."

Like the type, but with fewer whitish spots on the larger wing-coverts and scapulars.

XVII. CAPRIMULGIDAE.

1. **Caprimulgus macrurus macrurus** Horsf.

1 ♂ (moulting), Andai, Dutch New Guinea, 1879. Bruijn coll.

1 ♀, Korrido, October 1896. W. Doherty coll.

1 (immat.), Mt. Moari, near Humboldt Bay, 3000 ft. J. M. Dumas coll.

3 ♂♂, 1 ♀, Milne Bay, October 1898—January 1899. A. S. Meek coll. Nos. 2098, 2164, 2219, 2222.

1 ♂, Samarai, 12. vii. 1897. A. S. Meek coll., No. 712.

1 ♂ ad., British New Guinea. Goldie coll., No. 124.

1 ♀ ad., "Mt. Gayata, 2000—4000 ft." Purchased from McIlwraith & McEacharn in London. (Doubtless coll. by Weiske, acc. to preparation.)

2 ♂♂, 2 ♀♀, Sudest Island, Louisiades, April 1898. A. S. Meek coll., Nos. 1650, 1786, 1787, 1793.

Of the typical *macrurus* we have further: 12 from the Moluccas, Key, Tenimber and Ceram-laut Islands; 2 from Cape York, Queensland; and 21 from Palawan and the Sunda Islands.

2. **Eurostopodus argus** Hart.

1 ♀ ad., Babi Island, Aru Islands, 23. ix. 1900. "Iris dark coffee-brown, feet pale brownish, bill blackish." H. Kühn coll., No. 2493. (7 specimens from Australia).

XVIII. CYPSELIDAE.

1. **Collocalia fuciphaga fuciphaga** (Thunb.).

2 ♀♀, Woodlark Island, 23. iii., 3. iv. 1897. A. S. Meek coll., Nos. 157, 185.

1 ♂, 1 ♀, Goodenough Island, 12. xii. 1896. A. S. Meek coll., Nos. 47, 48.

2, Trobriand Islands, 10. 26. iv. 1895. A. S. Meek coll.

1, Fergusson Island, 18. x. 1894. A. S. Meek coll.

4 ♂♂, 2 ♀♀, St. Aignan, Louisiades, 1. ix., 2. 4. xii. 1897. A. S. Meek coll., Nos. 938, 1080, 1097, 1103, 1109, 1111.

2 ♂♂, 2 ♀♀, Sudest Island, 28. iii., 5. 22. iv. 1898. A. S. Meek coll., Nos. 1618, 1619, 1663, 1780.

39 from Java, Kangean, Borneo, Sumatra, Luzon, Palawan, Cebu, Savu, Banda, Solomon Islands, Kilsoein, Key Islands, Guam and New Hebrides.

2. **Collocalia esculenta** (L.).

3 ♂♂, 2 ♀♀, Woodlark Island, August 11. 1895, Apr. 4. 1897. A. S. Meek coll., No. 186 ; four without numbers.

2 ♀♀, Kiriwina, Trobriand group, 5. iii., 10. iv. 1895. A. S. Meek coll.

4 ♂♂, 1 ♀, St. Aignau, 11. viii., 1. ix., 4. xii. 1897. A. S. Meek coll., Nos. 942, 943, 944, 989, 1098.

1, British New Guinea. E. Weiske coll.

1 ♀, Efbee, Mysol, 27. xi. 1883. Guillemard coll.

27 from Isabel (Solomon Islands), New Hebrides, Obi, Kilsoein in the Koer group, Amboina, Buru, ? New Ireland, Bonthain Peak on Celebes, Indrulaman near the Bonthain Peak, Kalao.

3. **Macropteryx mystaceus mystaceus** (Less.).

1 ♂, 2 ♀♀, Mysol, 8. 11. ii. 1900. H. Kühn coll. " Iris coffee-brown, bill and feet black." Nos. 2047, 2048, 2049.

1 ♀, Wokan, Aru Is., 4. x. 1900. H. Kühn coll., No. 2560.

1 ♀, Trangan, Aru Is., 20. ix. 1900. H. Kühn coll., No. 2559.

3, Wanambai, Aru Is., June 1896. Capt. C. Webster coll.

1 ♂, Mafor, May 1897. W. Doherty coll.

1 ♂, Andai, 1897. Bruijn coll.

1 ♂, Arfak. Bruijn coll. (Specimen *b* of Salvadori's list).

2 ♀♀, Mansinam, 3. v. 1875. Bruijn coll. (Specimen *a* of Salvadori's list).

1 ♀, Kafu, May 1884. Bruijn coll.

1 ♂, Waigiu. Bruijn coll. (Specimen *h* of Salvadori's list).

1 " ♂ ", Ansus, Jobi, 1879. Bruijn coll. (Is a *female* !)

1 ♂, 3 ♀♀, Takar, November 1896. W. Doherty coll.

3, Expedition Bay, New Hanover. C. Webster coll.

2 ♂♂, 2 ♀♀, Milne Bay, 24. x., 4. 5. xi. 1898, 9. iv. 1899. A. S. Meek coll., Nos. 2103, 2126, 2129, 2547.

1 ♂, 2 ♀♀, Mailu district, British New Guinea. A. S. Anthony. July, August 1895.

1, " Fly River " (?), purchased from the late H. Whitely.

13 from Buru, Amboina, Batjan, Halmahera, and Obi.

XIX. CAMPEPHAGIDAE.

1. **Graucalus caeruleogrisea** (Gray).

Campephaga caeruleogrisea G. R. Gray, *P. Z. S.* 1858. pp. 179. 193 (Aru).

2 ♂ ad., Wanambai, Aru Is., 26. 27. vi. 1896. Capt. C. Webster coll.

1 ♂, Hatam, Arfak, 28. vi. 1875. Beccari coll. (Specimen *e* of the list)

1 ♂, Arfak, Bruijn coll. (Specimen *b* of Salvadori's list).

1 ♀, Dorey. Powell coll.

1 ♀, Mansinam, November 1883. Guillemard coll.

1 ♂, Arfak. Bruijn coll.

1 ♂, Papuan preparation.

2 ♂♂, Mt. Maori, near Humboldt Bay, 3000 ft., January 1899. J. M. Dumas coll.

1 ♂, 1 ♀, Sattelberg, German New Guinea, 9. 25. vi. 1899. E. Nyman coll.

1 ♂, "Sogeri district, 2000—3000 ft.," bought from McIlwraith.
1 ♀, Kotoi district, 29. viii. 1898. Anthony coll.
1 ♂ ad., Mt. Cameron, 5000 ft., 7. ix. 1896. Anthony coll.
1 ♂, Brit. New Guinea, no exact locality.
1 ♂, between rivers Laroki and Vanapa, 1897. E. Weiske coll.
1 ♀, Milne Bay, 28. iii. 1899. A. S. Meek coll., No. 2417.

2. **Graucalus boyeri boyeri** (Gray).

Campephaga boyeri G. R. Gray, *Gen. B. I.* p. 283 (1846: ex Hombron et Jacqu., W. coast N. Guinea).

1 ♀, Mysol, November 1883. Guillemard coll.

1 ♂, 1 ♀, Marai, Jobi, April 1897. W. Doherty coll. "Iris deep brown, bill and feet black."

1 ♀, Konstantinhafen, German New Guinea. Kubary coll.

3. **Graucalus boyeri subalaris** Sharpe.

Graucalus subalaris Sharpe, *Mitth. Zool. Mus. Dresden* i. 3. pp. 364. 366 (1878: Fly River)

1 ♂ ad., 1 ♂ jun., Mullen's Harbour, S. coast Brit. New Guinea, 8. 10. ii. 1900. A. S. Meek coll., Nos. 3574, 3585.

2 ♂ ad., Milne Bay, 3. xi. 1898, 29. i. 1899. A. S. Meek coll., Nos. 2123, 2207.

1 ♀ Collingwood Bay, 5. vi. 1899. A. S. Meek coll., No. 2565.

This can hardly even rank as a subspecies, the only difference being a very slightly larger bill and a lighter shade of the cinnamon-rufous axillaries and under wing-coverts.

4. **Graucalus melanops** (Lath.).

Corvus melanops Latham, *Ind. Orn. Suppl.* ii. p. xxiv. (1801: "hab. in Nova Hollandia.")

1 ♀ jun., "Efbee," Mysol, 27. xi. 1883. Guillemard coll..

1 ad., Wanambai, Kobroor, Aru, 4. vii. 1896. Capt. C. Webster coll., No. 249.

2 ♀ ad., Wanambai, Kobroor, Aru, 1. 3. ix. 1900. H. Kühn coll., Nos. 2501, 2502.

2 ♀ ad., Wokan, Aru, 26. ix., 1. x. 1900. H. Kühn coll., Nos. 2503, 2504.

1 ♀ ad., 4 ♂ juv., St. Aignan, August 1897. A. S. Meek coll., Nos. 736, 738, 785, two without numbers.

1 ♂, 2 ♀ ad., Fergusson Island, 31. v., 14. vi. 1897. A. S. Meek coll., Nos. 479, 612, 616.

1 ♂, Nicura. Lix coll.

Besides these we have 4 specimens from the Key Islands, 1 from Sula Besi, 2 from Timor, 1 from New Zealand, and 14 from various parts of Australia.

5. **Graucalus longicauda** De Vis.

Graucalus longicauda De Vis, *Report New Guinea for* 1889. p. 59 (1890: Musgrave Range).
Graucalus cornix Reichenow, *Orn. Monatsber.* 1900. p. 187 (Aroa River, British New Guinea).

1 ♂ ad., Aroa River, 5000 ft., December 1899. E. Weiske coll.

1 ♂, 1 ♀ ad., Mt. Victoria, 11,000 ft., 23. viii. 1898. Anthony coll.

1 ad., Mt. Victoria, 5000—7000 ft., April—June 1896. Purchased from McIlwraith.

6. **Graucalus papuensis hypoleucus** Gould.

Graucalus hypoleucus Gould, *P. Z. S.* 1848. p. 38 (Port Essington, Australia).

1 from the Godeffroy Museum, perhaps Bowen, Australia (?).
1 ♀, Cooktown, 30. vi. 1899. Olive coll.
1 ♂, Cape York, 21. vi. 1898. Eichhorn coll. (Meek.)
1, Thursday Island. Purchased from Gerrard.
1, Port Moresby. Purchased from Gerrard.
1, Nicura, British New Guinea. Lix coll.
1, inland from Holnicote Bay. Rohu coll.
1 ♂, Dobbo (Wammer), Aru, 28. xi. 1897. H. Kühn coll.
1 ♂, Dobbo, Aru, February 1897. W. Doherty coll.
1, Dobbo, Aru, 10. vi. 1896. C. Webster coll. (From spirits.)
Inhabits Australia, Aru, and S.E. New Guinea.

7. **Graucalus papuensis elegans** Rams.

Graucalus elegans Ramsay, *Proc. Linn. Soc. N.S.W.* vii. p. 22 (1882 : Guadalcanar).

17 specimens from Guadalcanar, Florida, Isabel, Alu, Munia, and Rubiana Islands.

Inhabits the Solomon archipelago.

8. **Graucalus papuensis louisiadensis** Hart.

Graucalus papuensis louisiadensis Hartert, Nov. Zool. 1898. p. 524 (Sudest Island).

6 specimens from Sudest Island.

Inhabits the Louisiades, only known from Sudest.

9. **Graucalus papuensis papuensis** (Gm.).

Corvus papuensis Gmelin, *Syst. Nat.* i. p. 371 (ex Daubenton & Latham; "hab. in Nova Guinea").

7 from Halmahera, including specimens *m*, *n*, *p* of Salvadori's list in *Orn. Pap.* ii.

5 Obi, 5 Batjan, 2 Morty.
2, Salwatty, 1861. A. R. Wallace coll.
1 ♂, Mysol, November 1883. Guillemard coll.
4 ♂♂, Mysol, January—February 1900. H. Kühn coll.
1, Dorey, Bruijn coll. (Specimen *d* of Salvadori's list.)
1 ♂, Dorey, June 1897. W. Doherty coll.
1 ♂, Andai, 1879. Bruijn coll.
2, Kapaur, February 1897. W. Doherty coll.

Having carefully examined all this material, we have come to the conclusion that it is impossible to separate the Moluccan birds, which have been called *melanolora* by Gray, from the (typical) New Guinea form.

10. **Graucalus papuensis stephani** Mey.

Graucalus stephani A. B. Meyer, *Abh. Ber. k. Zool. Mus. Dresden* 1890-91. No. 4. p. 9 (1892 : Stephansort).

1 ad. skin, Konstantinhafen, German New Guinea. Kubary coll.

This form agrees with *G. p. papuensis* in coloration, but is much smaller, having the same dimensions as *G. p. hypoleucus*, from which it differs in the grey throat and breast. The chin and throat are not at all whiter than in *G. p. papuensis*.

11. **Graucalus papuensis sclateri** Salvad.

Graucalus sclateri Salvadori, *Ann. Mus. Civ. Gen.* xii. p. 325 (1878 : New Ireland).

1 ad., New Britain. Th. Kleinschmidt coll., No. 16845, Mus. Godeff.

6 specimens, said to be from New Ireland. Purchased in London.

1 ♂, 1 ♀, Expedition Bay, New Hanover, August 1897. C. Webster coll.

This may briefly be described as a gigantic *papuensis*, with somewhat whiter underside.

12. **Graucalus maforensis** (Mey.).

Campephaga maforensis A. B. Meyer, *Sitzber. k. Ak. Wiss. Wien* lxix. p. 386 (1874 : Mafor).

1 ♂ ad., Mafor, May 1897. W. Doherty coll. "Iris bright yellow, feet and bill black."

13. **Graucalus axillaris** Salvad.

Graucalus axillaris Salvadori, *Ann. Mus. Civ. Gen.* vii. p. 925 (1875 : "Mansema").

1 ♀, said to be from the Ambernoh River. J. M. Dumas coll.

1 ♀, Mt. Maori, 3000 ft., January 1899. J. M. Dumas coll.

2, ♂ ♀ ad., Aroa River, 3000—7000 ft., August—September 1899. E. Weiske coll.

1 ♂ ad., 1 ♂ juv., without exact locality. E. Weiske coll.

14. **Edoliisoma melas melas** (Less.).

Lanius melas Lesson, *Man. d'Orn.* i. p. 128 (1828 : "La Nouvelle-Guinée, au havre du Doréry" = Dorey). (There is no reason whatever for rejecting Lesson's name.)

5 ♂♂, 4 ♀♀, Kapaur, December 1896—February 1897. W. Doherty coll. ♂ ♀ : "Iris deep brown, bill and feet black."

3 ♂♂, Takar, October 1896. W. Doherty coll.

1 ♂, Andai, April 1874. Bruijn coll. (Specimen *b* of Salvadori's list in *Orn. Pap.* ii.)

1 ♀, Dorey, April 1874. Bruijn coll. (Specimen *v* of the list.)

3 ♂♂, Sorong, July 1875. Bruijn coll. (Specimens *h*, *i*, *k* of the list.)

1 ♀. ex Bartlett coll., said to have been taken in N. Guinea by Wallace.

1 ♂, Kobroor, Aru, 23. viii. 1900. H. Kühn coll., No. 2285.

1 ♀, Trangan, Aru, 21. ix. 1900. H. Kühn coll., No. 2572.

1 ♀, Chabrol Bay, Waigiu, 25. x. 1883. Powell coll.

The *female* from Trangan differs from the rest of our series, being very dark and somewhat small, but it would require a series to decide whether these differences are constant or not.

Our three Takar *males* (*females* not available) have remarkably small bills.

15. **Edoliisoma melas tommasonis** subsp. nov.

The *females* of this form are at once recognisable by their uniformly bright rufous coloration above, as opposed to the darker and much more brownish upperside of the Western New Guinean *melas*. The *males* are apparently perfectly similar to those of typical *melas*, except that the bill is generally a little wider.

Habitat: Jobi Island, in the Geelvink Bay ; type : ♀, Ansus, Jobi, 12. xi. 1883. Powell coll., No. J. 965.

We have the following specimens in addition to the type :—

1 ♂ ad., Ansus, Bruijn coll. (Specimen *m* of Salvadori's list on p. 145 in *Orn. Pap.* ii.)

3 ♂ ad., 2 ♂ imm., 1 ♀, Marai, Ansus, Marayari, Jobi, April—May 1897. W. Doherty coll.

This form is named in honour of the Conte Tommaso Salvadori, the celebrated authority on Papuan birds.

16. **Edoliisoma melas meeki** subsp. nov.

The *females* of this new form differ from those of *E. m. melas* by their paler upper surface and much lighter cinnamon-buff instead of pale rufous brown, underside. The *males* are quite similar, except that the bill is smaller than in most of the typical *melas*.

Habitat: British New Guinea and the Fly River. Type : ♀ ad., Milne Bay, 11. iv. 1899. A. S. Meek coll., No. 2458.

We have, in addition to the type, the following specimens : —

2 ♂ ad., 1 ♂ juv., Milne Bay, February and April 1899. A. S. Meek coll., Nos. 2350, 2301, 2472.

1 ♂ ad., Fly River, 11. ix. 1877. D'Albertis coll., No. 615. (Specimen *q* of Salvadori's list.)

1 ♂ ad., 1 ♂ imm., 1 ♀, said to be from the Fly River, bought of Whitely. (Appear to be D'Albertis skins.)

1 ♂ ad., 1 ♂ imm., 3 ♀♀. E. Weiske coll., no exact locality.

1 ♂ imm., Eafa district, 1000—3000 ft. Anthony coll.

1 ♂ ad., Oriori district, 4. i. 1896. Anthony coll.

1 ♂ ad., Mt. Cameron, 8. ix. 1896. Anthony coll.

17. **Edoliisoma montana** (Meyer).

Campephaga montana A. B. Meyer, *Sitzber. k. Ak. Wiss. Wien* lxix. p. 386 (1874 : Arfak).

1 ♂, Arfak, June 1874. Bruijn coll. (Specimen *a* of Salvadori's list in *Orn. Pap.* ii. p. 147).

1 ♂, Arfak, 1879. Bruijn coll.

2 without localities.

1 ♂, Matahitang in the Mts. of British New Guinea. H. O. Forbes coll., No. 10.

2 ♂♂, Matahitang, Mts. of British New Guinea, purchased from McIlwraith and McEacharn.

1 ♂ juv. (moulting), said to be from the Moroka district, purchased from McIlwraith and McEacharn.

3 ♂♂, 2 ♀ ad., Mt. Cameron. Owen Stanley Range, July and August 1896. A. S. Anthony coll.

Specimens from British New Guinea have as a rule shorter wings and shorter bills than those from the typical locality (Arfak), but there is much variation, and we require more material for naming the S.E. New Guinea form.

18. **Edoliisoma schisticeps schisticeps** (Gray).

Campephaga schisticeps G. R. Gray, *Gen. B.* i. p. 283 (1846: ex Hombron & Jacq. *Voy. Pôle Sud, Atlas*, Pl. X. fig. 1. Typical loc., W. coast of New Guinea).

2, ♂ ♀, Mysol, June 1867. Hoedt coll., Nos. 187, 188. (Exchanged from the Leyden Museum.)

2 ♂♂, 4 ♀♀, Mysol, January 1900. H. Kühn coll., Nos. 1814, 1819, 1820, 1883, 1885, 1915. "Iris deep brown (black), bill and feet black."

1 ♀, Kapaur, December 1896. W. Doherty coll.

19. **Edoliisoma schisticeps poliopse** Sharpe.

Edoliisoma poliopse Sharpe, *Journ. Linn. Soc. London, Zool.* xvi. p. 318 (1882: "Morocco" in Astrolabe Mts.).

1 ♀, Matahitang, Mts. Brit. N. Guinea. H. O. Forbes coll., No. 11.

1 ♀, 1 ♂ juv., Mt. Gayata, Richardson Range, 2000—4000 ft. Purchased from McIlwraith and McEacharn. (Apparently E. Weiske's skins.)

20. **Edoliisoma** spec. nov.?

We have one specimen, marked "*female*," collected by Mr. A. S. Meek on Fergusson Island, D'Entrecasteaux Group, May 16th, 1897, which agrees above with the *females* of *E. s. schisticeps* and *E. s. poliopse*, except that it is less bright rufous cinnamon, more brownish, but the underside is much paler and **barred with black**, each feather having two narrow black cross-bars, the lower abdomen only being uniform. This bird belongs most likely to an undescribed species; but it is desirable to have more material before describing it. The bird can hardly be the young of *E. s. poliopse*, because some sprouting feathers are also barred; moreover, we have a young *male* of *E. s. poliopse* from Mt. Gayata which is totally unbarred below, though evidently young, a few greyish-blue feathers (of the adult plumage) beginning to appear.

21. **Edoliisoma remotum** Sharpe.

Edoliisoma remotum Sharpe, *Mittheil. Zool. Mus. Dresden* i. 3. p. 369 (1878).

1 ♂, 2 ♀♀, Expedition Bay, New Hanover, March 1897. Capt. Cayley Webster coll.

22. **Edoliisoma amboinensis mülleri** Salvad.

3 ♂ ad., 1 ♂ vix ad., 2 ♀ ad., Woodlark Island, January, March, April, May 1897. A. S. Meek coll., Nos. 163, 169, 179, 180, 232, 234.

2 ♂♂, 1 ♀, Fergusson Island, September, October 1894. A. S. Meek coll.

3 ♂ ad., Fergusson Island, May and June 1897. A. S. Meek coll., Nos. 324, 563, 483.

1 ♂ ad., Milne Bay, 3. iv. 1899. "Iris dark brown, feet slaty black, bill black." A. S. Meek coll., No. 2439.

1 ♂ immat., Collingwood Bay, 5. vi. 1899. A. S. Meek coll., No. 2571.

2 ♂♂, Sattelberg, Kaiser Wilhelm's Land, 3. vi. 1899. E. Nyman coll.

1 ♂ ad., 1 ♂ juv., 1 ♀ juv., Simbang, August 1899. E. Nyman coll.

23. **Edoliisoma amboinensis aruensis** Sharpe.

Edoliisoma aruensis Sharpe, *Mitth. Zool. Mus. Dresden* i. 3. p. 369 (1878 : Lutor, Aru).

2, ♂ ♀, Dobbo, Aru Islands, 1896. Capt. Cayley Webster coll.
1 ♀, Dobbo, Aru Islands, 11. viii. 1900. H. Kühn coll., No. 2417.
1 ♂, 1 ♀, Sg. Wanambai, Kobroor, September 1900. H. Kühn coll., Nos. 2416, 2566.
1 ♀, Wokan, Aru Islands, 17. viii. 1900. H. Kühn coll., No. 2414.
1 ♀, Trangan, Aru Islands, 13. ix. 1900. H. Kühn coll., No. 2565.

Sharpe and Salvadori quote both *mülleri* and *aruensis* for the Aru Islands, but we are convinced that all Aru birds belong to *aruensis*. *E. a. aruensis* is merely the Aru form of *mülleri*, and differs only in its smaller size, especially smaller bill. The alleged differences of the browner back, more rufous underside, and less grey pileum, do not exist. Salvadori appears to have examined only *females* of the supposed *mülleri* from Aru, Sharpe none at all.

24. **Edoliisoma neglectum** Salvad.

Edoliisoma neglectum Salvad., *Ann. Mus. Civ. Gen.* xv. p. 36 (1879 : Mafor, Beccari coll.).

5 ♂ ad., 1 ♂ fere ad., 3 ♂ juv., 3 ♀ ♀, Mafor, May—June 1897. W. Doherty coll. "Iris dark brown."

A very interesting form, the *male* being very much like that of *mülleri*, the *female* much like that of *meyeri*, but larger.

25. **Edoliisoma meyeri meyeri** Salvad.

Edoliisoma meyeri Salvadori, *Ann. Mus. Civ. Gen.* xii. p. 327 (1878: Misori).

1 " ♂ " (juv.), Korido 1879. Bruijn coll.
1 " ♀," Korido 1879. Bruijn coll.

26. **Edoliisoma meyeri sharpei** subsp. nov.

One adult *male*, collected by J. M. Dumas on the north coast of Dutch New Guinea, in 1900, differs from *E. m. meyeri* by its smaller size, more bluish grey colour, wider black line from the eyes to the forehead, blacker throat, and less extended greyish white inner wing-linings.

Wing 115, tail 89, tarsus 22, bill 17·5 mm.

(Type : No. 975, Mus. Tring.)

27. **Campochaera sloetii flaviceps** Salvad.

[*Campephaga sloetii* Schlegel, *Ned. Tijdschr. Dierk.* iii. p. 253 (1866: typ. loc. Seleh, New Guinea).]
Campochaera flaviceps Salvad., *Ann. Mus. Civ. Gen.* xv. p. 38 (1879: Fly River, ♂, and Mt. Epa, ♀).

1 ♂ ad., British New Guinea, 1898.
1 ♂ ad. (from spirits), Mt. Victoria, Owen Stanley Range, 5000—7000 ft., April—June 1896.
1 ♀ ad., Mt. Victoria, Owen Stanley Range, 5000—7000 ft.

28. **Lalage leucoptera** (Schleg.)

Campephaga leucoptera Schlegel, *Ned. Tijdschr. Dierk.* iv. p. 45 (1871: Misori).

3 ♂♂, 1 ♀, Korido, 1879. Bruijn coll.

1 ♂ ad., Korido, October 1896. "Iris deep brown, feet grey with white soles, bill black." W. Doherty coll.

1 ♂ ad., Biak, October 1896. W. Doherty coll.

29. **Lalage atrovirens** Gray.

Campephaga (*Lalage*) *atrovirens* Gray, *P. Z. S.* 1861. p. 430 (typ. loc. Mysol).

1 ♂, 1 ♀, Mysol, July 1867. Hoedt coll. (Exchanged from the Leyden Museum), Nos. 212, 214.

4 ♂♂, 3 ♀♀, Mysol, January 1900. "Iris very dark brown, bill and feet black." H. Kühn coll., Nos. 1806, 1807, 1808, 1809, 1810, 1811, 1812.

2 ♂♂, 2 ♀♀, Ron Island, July 1897. W. Doherty coll.

30. **Lalage karu karu** (Less.)

Lanius karu Lesson, *Voy. Coqu., Ois. Atlas* Pl. XII. (1826: New Ireland).

1 ♂, New Britain, 8. vii. 1886. Kubary coll., No. 88.

1 ♀, New Britain, 23. v. 1886. Kubary coll., No. 42.

1 ♂, New Britain, 18. viii. 1880. Th. Kleinschmidt coll., No. 452.

1 ♂, Duke of York Island, 4. xi. 1880. Th. Kleinschmidt coll., No. 496.

1 ♀, Duke of York Island, October 1880. Th. Kleinschmidt coll., No. 487.

3 ♂♂, 3 ♀♀, Sudest Island, Louisiades, March—April 1898. A. S. Meek coll., Nos. 1607, 1696, 1632, 1637, 1707, 1737.

4 ♂♂, 2 ♀♀, St. Aignan, Louisiades, August 1897. A. S. Meek coll., Nos. 734, 782, 788, 803, 806, 807.

31. **Lalage karu polygrammica** (Gray).

Campephaga polygrammica G. R. Gray, *P. Z. S.* 1858. p. 179 (Aru).

1 ♂ ad., 1 ♀, Wokan, Aru, 29. 30. ix. 1900. H. Kühn coll., Nos. 23, 25. "Iris dark brown, feet plumbeous, bill black."

1 ♂ juv., Wanambai, Kobroor, Aru, 1. ix. 1900. H. Kühn coll., No. 2374.

1 ♂, Trangan, Aru, 18. ix. 1900. H. Kühn coll., No. 256.

2 ♂♂, Milne Bay, Brit. N. Guinea, February 1899. A. S. Meek coll., Nos. 2228, 2346.

1 ♀, Nicura, Brit. N. Guinea. Lix coll.

1 ♀, Matahitang, Brit. N. Guinea. H. O. Forbes coll.

1 ♀, Kotoi district, Brit. N. Guinea. A. S. Anthony coll.

2 ♂♂, Moroka district, Brit. N. Guinea. A. S. Anthony coll.

1 ♂, 1 ♀, Fergusson Island, 20. ix. 1894. A. S. Meek coll.

1 ♂ ad., Goodenough Island, 17. xii. 1896. A. S. Meek coll., No. 71.

XX. NECTARINIIDAE.

1. Cinnyris aspasia maforensis (A. B. Meyer).

Chalcostetha aspasia var. *maforensis* Meyer, *Sitzber. K. K. Akad. Wiss. Wien* lxx. p. 123 (1874 : Mafor).

10 ♂ ad., 4 ♀ ad., 4 ♂ juv., Mafor Island, June 1897. W. Doherty coll.
Crown brilliant golden, throat purple-blue.

2. Cinnyris aspasia mysorensis (A. B. Meyer).

Chalcostetha aspasia var. *mysorensis* Meyer, *Sitzber. K. K. Akad. Wiss. Wien* lxx. p. 124 (1874 : Misori.)

2 ♂♂, "Kordo," 1879. Bruijn coll.
1 ♂, 2 ♀ ♀, Korrido, October 1896. W. Doherty coll.
1 ♂ juv., Biak, October 1896. W. Doherty coll.
Crown bronzy steel-green ; throat purple.

3. Cinnyris aspasia aspasia Less.

Cnnyris aspasia Lesson, *Voy. Coqu. Zool.* i. p. 576. No. 100. Pl. XXX. fig. 4 (1826-28 : type from Dorey !).

1 ♂, Dorey, 3. vi. 1875. Bruijn coll. (Specimen *b* of Salvadori's list).
1 ♂, Dorey, June 1897. W. Doherty coll.
1 ♂, Sorong, 28. iv. 1875. Bruijn coll. (Specimen *l* of Salvadori's list).
2 ♂ juv., Takar, October—November 1896. W. Doherty coll.
1 ♂, Mansinam, 30. iii. 1875. Bruijn coll. (Specimen *f* of Salvadori's list).
1 ♂, Fly River, 18. vii. 1877. D'Albertis coll.
1 ♂, Kafu, May 1884. Bruijn coll.
6 ♂ ad., 5 ♀ ad., 2 ♂ juv. Ron Island, Geelvink Bay, November 1896, June—July 1897. W. Doherty coll.
2 ♂♂, 1 ♀, Ansus, Jobi Island, April—May 1897. W. Doherty coll.
1 ♂ Asua, Jobi Island, May 1897. W. Doherty coll.
1 ♂, Marai, Jobi Island, May 1897. W. Doherty coll.

The Jobi form has been separated by Meyer as a subspecies, under the name of *jobiensis*. We have carefully compared our examples with a large series of true *aspasia* from New Guinea, and cannot possibly confirm the alleged differences of the Jobi form.

1 ♂ ad., Terfia Island, October 1896. W. Doherty coll.
4 ♂ ad., 1 ♂ juv., 2 ♀ ad., Kapaur, December 1896. W. Doherty coll.
2 ♂ ad., 1 ♂ juv., 1 ♀ ad., said to be from the mouth of the Ambernoh River. J. Dumas coll.
1 ♂ ad., 2 ♂ juv., Mysol, l. 6. 8. ii. 1900. H. Kühn coll., Nos. 1984, 2017, 2020.

The adult *male* appears to have the throat very blue, and a series may prove the Mysol form to be a distinct subspecies.

1 ♂ ad., 2 ♀ ♀, Stephansort, January 1899. E. Nyman coll.
6 ♂ ad., 3 ♂ juv., 5 ♀ ♀. Friedrichwilhelmshafen, October 1899. E. Nyman coll.
3 ♂ ad., Mt. Cameron 3000—4000 ft., August 1896. A. S. Anthony coll.
3 ♂ ad., Kotoi district, 4000 ft., August 1898. A. S. Anthony coll.

♃ Cinnyris aspasia chlorocephala (Salvad.)

Chalcostetha chlorocephala Salvadori, *Ann. Mus. Civ. Gen.* vi. p. 78 (1874 : Wokan, Aru).

1 ♂ ad., Trangan Island, Aru, 14. ix. 1900. H. Kühn coll.

1 ♀, Dobbo, Aru, February 1897. W. Doherty coll.

This form differs from *C. a. aspasia* by the more steely-bluish gloss of the crown, and is somewhat large.

5. Cinnyris aspasia cornelia (Salvad.).

Hermotimia cornelia Salvadori, *Atti R. Acc. Sc. Torino* xiii. p. 319 (1878 : Taraway, D'Urville Islands).

1 ♂ ad., Taraway, May 1884. Bruijn coll., "No. 11."

2 without localities.

This form seems to differ by its somewhat larger size and more uniform splendid reddish purple throat. The two specimens without labels agree fully with the Taraway *male* except that they are still larger !

6. Cinnyris aspasia corinna (Salvad.).

Hermotimia corinna Salvadori, *Atti R. Acc. Soc. Torino* xiii. p. 532 (1878 : Duke of York Islands).

1 ♂ ad., Duke of York Islands, January 1881. Th. Kleinschmidt coll.

1 ♂ ad., Duke of York Islands. F. Hübner coll.

2 ♀♀, New Britain, 25. iv., 9. vii. 1886. Kubary coll.

4 ♂ ad., 2 ♂ juv., 2 ♀♀, New Ireland. Coll. by a missionary.

7. Cinnyris apasia christianae Tristr.

Cinnyris christianae Tristram, *Ibis* 1889. p. 555 (St. Aignan).

3 ♂ ad., 1 ♀ ad., 1 ♂ juv., 1 ♀ juv., St. Aignan, August, September 1897. A. S. Meek coll., Nos. 617, 687, 774, 778, 954, 1017, 1018.

3 ♂ ad., Sudest Island, March, April 1898. A. S. Meek coll., Nos. 1624, 1625, 1743.

6 ♂ ad., 2 ♂ juv., 4 ♀♀, Fergusson Island, September 1894—March 1895. A. S. Meek coll.

1 ♂ ad., Fergusson Island, 27. vi. 1897. A. S. Meek coll., No. 456.

5 ♂ ad., 1 ♀, Woodlark Island, 16. 22. 24. 26. iii., 4. 9. iv. 1897. A. S. Meek coll., Nos. 116, 147, 157, 171, 189, 206.

7 ♂ ad., 4 ♂ juv., 3 ♀♀, Simbang, Huon Gulf, German New Guinea, August, September 1899. E. Nyman coll.

C. a. christianae is very closely allied to *C. a. corinna* of the Bismarck archipelago, and differs only in its more steely blue throat and rather larger size. It is most remarkable that two forms of *C. aspasia* occur in German New Guinea, in view of the enormous area inhabited by *C. a. aspasia*, which occupies nearly the whole of Papua, but it is still more extraordinary that the form from the D'Entrecasteaux and Louisiades reoccurs on the Huon Gulf, and yet is different from the Bismarck archipelago form. We have not received any *Cinnyris* of this group from the coast-line stretching from the Huon Golf to the D'Entrecasteaux group, although we had collections from Milne Bay and Collingwood Bay.

8. **Cinnyris frenata frenata** (S. Müll.)

Nectarinia frenata S. Müller, *Verh. Nat. Gesch., Land-en Volkenkunde* p. 173 (1843 Lobo, New Guinea).

2 ♂ juv., Mysol, 11. i. 1900. H. Kühn coll., Nos. 1822, 1825.

3 ♂♂, 1 ♀, Salwatty, May—June 1875. Bruijn coll. (Specimens *i*, *u*, *v*, *g'*, of Salvadori's list in *Orn. Pap.* ii. pp. 266, 267.)

1 ♂ ad., Sorong, May 1872. D'Albertis coll. (Specimen *j'* of Salvadori's list).

2 ♂ ad., 1 ♀, Dorey, March 1874. Bruijn coll. (Specimens *p'*, *q'*, *s'*, of Salvadori's list.)

3 ♂ ad., 1 ♀, Mansinam, 1876, 1879. Bruijn coll.

1 ♂ ad., Mansinam, 30. iii. 1875. Beccari coll. (Specimen *x'* of Salvadori's list).

1 ♂ ad., 1 ♂ juv., 1 ♀, Anus, North Coast of New Guinea, long. 139° 30'. October, 1896. W. Doherty coll.

1 ♂ ad., 1 ♀ ad., Ron Island, June—July 1897. W. Doherty coll.

2 ♂ ad., 1 ♀, Kapaur, December 1896, February 1897. W. Doherty coll.

1 ♂ ad., 1 ♀ ad., Yamna Island, October 1896. W. Doherty coll.

1 ♂ ad., Terfia, October 1896. W. Doherty coll.

1 ♀ ad., Takar, October 1896. W. Doherty coll.

2 ♂ ad., 2 ♀ ad., Mafor, May 1897. W. Doherty coll.

1 ♂ ad., 1 ♀ ad., 1 ♂ juv., Ansus, Jobi, May 1897. W. Doherty coll.

1 ♂ ad., Etna Bay, 1. viii. 1896. C. Webster coll.

2 ♂ ad., 1 ♀ ad., New Ireland. Missionary coll.

1 ♂ ad., New Britain, 11. xi. 1880. Dr. O. Finsch coll., No. 417.

1 ♂ ad., 1 ♀ ad., Goodenough Island, 18. 19. xii. 1896. A. S. Meek coll., Nos. 74, 85.

2 ♂ ad., 2 ♀ ad., Fergusson Island. September—October 1896, January 1895. A. S. Meek coll.

2 ♂ ad., Friedrichwilhelmshafen. 16. 17. x. 1899. E. Nyman coll.

1 ♂ ad., Simbang, Huon Golf, 19. viii. 1899. E. Nyman coll.

1 ♂ ad., Stephansort, 13. i. 1899. E. Nyman coll.

1 ♂ juv., Yule Island, 9. iv. 1875. D'Albertis coll. (Specimen *e'''* of Salvadori's list).

1 ♂ ad., Naiabui, September 1872. D'Albertis coll. (Specimen *x''* of Salvadori's list).

1 ♂ ad., Manieri Island, Aru Islands, 19. xi. 1897. H. Kühn coll., No. 350.

1 ♂ ad., Meriri Island, Aru Islands, 23. xi. 1897. H. Kühn coll., No. 353.

1 ♂ ad., 1 ♀, Dobbo, Aru Island, 16. xi., 12. viii. 1900. H. Kühn coll., Nos. 354, 354A.

1 ♂ ad., 1 ♀ ad., Trangan Island, Aru Islands, 13. 19. ix. 1900. H. Kühn coll.

1 ♂ ad., Wokan Island, Aru Islands, 29. ix. 1900. H. Kühn coll.

Dr. Heinroth (*J. f. O.* 1903. p. 85) has separated the birds from New Britain, under the name of *C. frenata flava*, asserting that the upperside was more yellow than in New Guinea specimens. He has kindly lent us his types for comparison. Unfortunately, we are, after a careful comparison of our large material, unable to confirm his statement. His birds certainly were much yellower than the majority of our New Guinea skins, but three specimens from Anus which are in fresher plumage than the rest are as yellow, and even yellower, than Solomon Islands specimens, which agree exactly with Dr. Heinroth's types,

and an adult *male* collected on New Britain by Dr. Finsch is duller and less yellowish than in any of our New Guinea birds. Therefore we can only come to the conclusion that the greater or lesser brightness, and yellower or less yellow coloration of the upperside, is due to freshness or abrasion of the plumage.

In addition to the specimens enumerated above from the Papuan region we have :

23 ♂♂, 9 ♀♀, from Obi, Batjan, and Morty in the Moluccas, and Isabel, Kulambangra, Munia, and Guadalcanar in the Solomons, which we cannot separate from *C. f. frenata*, so that we have now 90 specimens before us.

The Morty birds are somewhat pale on the underside, but only having two adult *males* we cannot tell if this is constant. Moluccan birds are sometimes rather dark on the upperside, but this is not at all constant, and we cannot, therefore, separate the Moluccan birds either. The forms from the Celebesian subregion are all distinct subspecies.

XXI. DICAEIDAE.

1. **Dicaeum pectorale** Müll.

Dicaeum pectorale S. Müller, *Verh. Nat. Gesch. Ned. Ind., Land-en Volkenkunde* p. 162 (1839–44 : Lobo, W. New Guinea).

1 ♂, Arfak, 9. v. 1875. Bruijn coll. (Specimen *g* of Salvadori's list).
1 ♂, Arfak, June 1874. Bruijn coll. (Specimen *d* of Salvadori's list).
1 ♂, Arfak. Guillemard coll.
1 ♂, Hatam, 1879. Bruijn coll.
1 ♀, Sorong, 1. v. 1875. Bruijn coll. (Specimen *z* of Salvadori's list).
1 ♂, with label in Arabic, from Bruijn's hunters.
1 ♀, Salwatty, 8. v. 1875. Bruijn coll. (Specimen *s* of Salvadori's list).
5 ♂♂, 4 ♀♀, Kapaur, December 1896. W. Doherty coll. "Iris very dark brown, feet and bill blackish."
1 ♀, Kurudu, October 1896. W. Doherty coll.
2 ♂♂, Dorey, June 1897. W. Doherty coll.
3 ♂♂, Ron Island, Geelvink Bay, July 1897. W. Doherty coll.
1 ♂, Ambernoh River (?). J. Dumas coll. (Ex Duivenbode.)

2. **Dicaeum geelvinkianum maforense** Salvad.

[*Dicaeum geelvinkianum* A. B. Meyer, *Sitzungsber. Akad. Wien* lxx. p. 120 (1874 : "Jobi, Mysore, and Mafoor." We restrict the name *geelvinkianum* to the Jobi form, Jobi being the island mentioned first.).]

Dicaeum maforense Salvadori, *Ann. Mus. Civ. Gen.* vii. p. 944 (1875 : Mafor).

9 ♂ ad., 6 ♂ juv., 7 ♀ ad., Mafor, May and June 1897. W. Doherty coll.

3. **Dicaeum geelvinkianum mysoriense** Salvad.

Dicaeum mysoriense Salvadori, *Ann. Mus. Civ. Gen.* vii. p. 945 (1875 : Mysori).

3 ♂♂, Korrido (Mysori), 19. 20. 21. v. 1875. Beccari coll. (Specimens *d*, *e*, *g*, of Salvadori's list, all three marked "Typus" by the author).
3 ♂♂, 2 ♀♀, Korrido, October 1896. W. Doherty coll.
1 ♂, Biak, October 1896. W. Doherty coll.

4. **Dicaeum geelvinkianum nitidum** Tristr.

Dicaeum nitidum Tristram, *Ibis* 1889. p. 555 (Sudest Island).

4 ♂ ad., 1 ♂ juv., 1 ♀, Sudest Island, Louisiades, 30. iii., 2. 6. 21. 24. iv. 1898. A. S. Meek coll., Nos. 1628, 1629, 1648, 1776, 1678, 1789.

7 ♂ ad., Rossel Island, Louisiades, 23. 28. 31. i., 3. 6. ii., 7. iii. 1898. A. S. Meek coll., Nos. 1270, 1321, 1343, 1362, 1389, 1554, 1556.

4 ♂ ad., 2 ♀♀, St. Aignan, Louisiades, 7. viii. 1897. A. S. Meek coll., Nos. 767, 768, 770, 771, 772, 773.

5. **Dicaeum geelvinkianum rubrocoronatum** Sharpe.

Dicaeum rubrocoronatum Sharpe, *Nature* 1876. p. 339 (Type: "Port Moresby"?).

3 ♂♂, 2 ♀♀, Fergusson Island, September 1894. A. S. Meek coll.

1 ♂, 1 ♀, Fergusson Island, 16. v., 1. vi. 1897. A. S. Meek coll., Nos. 274, 491.

1 ♂, Goodenough Island, 2. xii. 1896. A. S. Meek coll., No. 6.

4 ♂♂, 2 ♀♀, Kotoi district, Brit. New Guinea, August 1898. A. S. Anthony coll.

2 ♂♂, 1 ♀, Kone district, Brit. New Guinea, June 1898. A. S. Anthony coll.

1 ♀, Mt. Gayata, Richardson Range, 2000—4000 ft. E. Weiske coll.

1 ♀, Mt. Cameron, 6000 ft., 26. viii. 1896. A. S. Anthony coll.

1 ♂, North Coast of British New Guinea. A. S. Anthony coll.

1 ♂, inland of Holnicote Bay. Rohu coll.

1 juv., without exact locality.

We are convinced from the above series that *Dicaeum pulchrius* Sharpe is founded on a younger *male* of *D. g. rubrocoronatum*. Our specimens from Fergusson and Goodenough are slightly larger than those from New Guinea, but not sufficient to warrant a separation.

6. **Dicaeum geelvinkianum diversum** subsp. nov.

Nearest to *D. g. rubrocoronatum*, but differs by the somewhat lighter, more scarlet crown and upper tail-coverts, and the more steel-blue, not purple, upper surface, which is also more tinged with olive.

Hab. North Coast of Dutch New Guinea.

1 ♂ ad., Ambernoh River, Dutch New Guinea. J. M. Dumas coll., No. 117. (Type of *D. g. diversum*.)

1 ♂, Humboldt Bay. J. M. Dumas coll.

1 ♀, Takar, November 1896. W. Doherty coll. "Iris dull brown; feet dark brownish; bill black, base horn-colour."

7. **Dicaeum ignicolle** Gray.

Dicaeum ignicolle G. R. Gray, *P. Z. S.* 1858. p. 173 (Aru).

2 ♂ ad., 1 ♀ ad, 1 ♂ juv., 2 ♀ juv., Wokan, Aru Island, 26. 29. 30. ix., 3. 3. 5. x. 1900. H. Kühn coll. "Iris brownish black, bill and feet blackish."

4 ♂ ad., 1 ♀, Dobbo, Aru Island, 11. 12. 14. viii. 1900. H. Kühn coll.

8. **Dicaeum eximium** Scl.

Dicaeum eximium Sclater, *P. Z. S.* 1877. p. 102 (New Ireland).

1 ♀, "New Ireland." Missionary coll.

2 ♂♂, 1 ♀, Expedition Bay, New Hanover, February and March 1897. (From spirits.) Capt. C. Webster coll.

9. **Melanocharis bicolor** Rams.

Melanocharis bicolor Ramsay, *Proc. Linn. Soc. N. S. W.* iii. p. 277 (1879 : Goldie R., British New Guinea).

4 ♂♂, 3 ♀♀, Takar, east of the Geelvink Bay, October—November 1896. W. Doherty coll. "Iris light chestnut, feet dark grey, bill blackish."

2 ♂♂, 1 ♀, Ambernoh River. J. M. Dumas coll. (Ex Duivenbode.)

1 ♂, Sattelberg, German New Guinea, 27. vi. 1899. E. Nyman coll.

1 ♀, Simbang, Huon Gulf, 4. ix. 1899. E. Nyman coll.

1 ♂, 1 ♀, Milne Bay, 12. iv., 21. ii. 1899. A. S. Meek coll., Nos. 2355, 2461.

1 ♂, Oriori district, 14. i. 1895. A. S. Anthony coll.

1 ♂, Kone district. A. S. Anthony coll.

1 ♂, Mt. Cameron, 5000 ft., 15. viii. 1896. A. S. Anthony coll.

1 ♂, Mailu district, July 1895. A. S. Anthony coll.

1 ♂, 1 ♀, Kotoi district, 4000 ft., 13. viii. 1898. A. S. Anthony coll.

1 ♂, 2 ♀♀, Mt. Gayata, Richardson Range, 2000—4000 ft. E. Weiske coll.

2 without exact locality, 1898. Emil Weiske coll.

10. **Melanocharis niger niger** Less.

Dicaeum niger Lesson, *Voy. Coqu. Zool.* i. p. 673 (1828 : Dorey).

1 ♂, Dorey, June 1897. W. Doherty coll.

1 ♂, Arfak, 12. vii. Bruijn coll.

1 ♀, 1 ♂, New Guinea, 26. vii. Bruijn coll.

1 ♀, Arfak, 1. vii. Bruijn coll.

1 ♂, Arfak. "No. 78."

2 ♀♀, with label in Arabic. Ex Bruijn coll.

1 ♂, Sorong, 24. iv. 1875. Bruijn coll. (Specimen *j* of Salvadori's list).

2 ♂♂, 2 ♀♀, Kapaur, December 1896, January—February 1897. W. Doherty coll. "Iris red-brown, bill and feet black."

1 ♀, Takar, October 1896. W. Doherty coll.

1 ♂, Mt. Maori, Humboldt Bay, January 1899. J. M. Dumas coll.

1 ♂, Eafa district, 1000—3000 ft. Anthony coll.

1, Kotoi district, 4000 ft., 13. viii. 1898. Anthony coll.

1, Mt. Gayata, 2000—4000 ft. E. Weiske coll.

1 without exact locality. E. Weiske coll.

11. **Melanocharis niger chloroptera** Salvad.

Melanocharis chloroptera Salvadori, *Ann. Mus. Civ. Gen.* viii. p. 987 (1875 : Aru).

1 ♂, 1 ♀, Dobbo, Aru Island, February 1897. W. Doherty coll.

1 ♂ juv., Wokan, Aru Island, 1. x. 1900. H. Kühn coll., No. 2629.

1 ♂, Wanambai, Kobroor, 1. ix. 1900. H. Kühn coll., No. 2322. "Iris coffee-brown, bill and feet black."

1 ♀, Sg. Bark, Kobroor, 26. viii. 1900. H. Kühn coll., No. 2324.

1 ♂, "Aru," bought of Gerrard in London.

12. **Pristorhamphus versteri** Finsch.

Pristorhamphus versteri Finsch, *Proc. Zool. Soc.* 1875. p. 642 (Arfak).

1 ♂ ad., without locality.

2 ♂ ad., 1 ♀, Kotoi district, Mts. British New Guinea, "11,000 ft.," August 1898. A. S. Anthony coll.

1 ♂ ad., "Eafa district, Mts. British New Guinea, 1000—3000 ft." Purchased from McIlwraith and McEacharn in London.

1 ♂, "Ambernoh River." J. M. Dumas coll. (Ex Duivenbode.)

1 ♂ ad., Mt. Knutsford, "11,000 ft.," 20. viii. 1898. A. S. Anthony coll.

It is most remarkable that the ♀ has a thicker bill and longer wing. Wing in ♂ 63, in ♀ 70 mm. The same is the case in the British Museum specimens. Dr. Sharpe measures the wing of the ♂ 2·45 in., that of the ♀ 2·65 in.

XXII. The Genus MYZOMELA.

1. **Myzomela rubrater** (Less.).

Cinnyris rubrater Lesson, *Voy. Coqu. Zool.* i. p. 678 (1826 : Mariannes).

11 ♂♂, 5 ♀♀, Ruck Island, 1895—1896. A. Owston's Jap. coll.

13 ♂♂, 6 ♀♀, Guam Island, 1894—1895. A. Owston's Jap. coll.

3 ♂♂, Saipan Island, 1895. A. Owston's Jap. coll.

1 ♂, Kushai, 29. i. 1899.

2 ♂♂, Yap Island, 2. ix. 1870. Kubary coll. (Ex Mus. Godeffroy, No. 4059—both.)

1, Pelew Islands, evidently Kubary coll. (Purchased from Gerrard.)

1 ♂, Agrigan Island, Mariannes, December 1888. Marche coll., No. 5717.

2. **Myzomela rubrater pulcherrima** Rams.

Myzomela pulcherrima Ramsay, *Proc. Linn. Soc. N. S. W.* vi. p. 179 (1881 : Ugi).

1 ♂ ad., Ugi, 5. ix. 1896. C. M. Woodford coll. "Iris brown" (No. 134).

1 ♂, Ugi. Lieut. Richards coll.

This form, in spite of its widely different geographical range, only differs from *M. r. rubrater* in its lighter red, and therefore we can only treat it as a subspecies.

3. **Myzomela cardinalis cardinalis** (Gm.).

Certhia cardinalis Gmelin, *Syst. Nat.* i. p. 472 (1788 : ex Latham, Tanna ins.).

1 ♂ ad., Aneiteum, New Hebrides, 1881. E. L. Layard coll. "Iris dark brown."

2 (probably ♀♀), "New Hebrides."

4. **Myzomela cardinalis nigriventris** Peale.

Myzomela nigriventris Peale, *U. S. Expl. Exp.* p. 150. Pl. 41. fig. 2 (1848 : Samoa).

1 ♂, Upolu, Samoa, 7. xii. 1886. John Young coll.

2 ♂♂, 1 ♀, 1 juv., Apia, Samoa, 7. 18. i. 1895. O. M. Woodford coll., Nos. 43, 47.

1 juv., 2 ♀♀, Upolu, Samoa. Krause coll. (Ex Mus. Godeffroy.)

The only difference between this form and typical *cardinalis* is the shorter wing of *nigriventris*. The alleged difference in the colour of the abdomen mentioned by Dr. Gadow in the *Cat. B.* ix. does not hold good.

5. **Myzomela sanguinolenta sanguinolenta** (Lath.).

Certhia sanguinolenta Latham, *Ind. Orn. Suppl.* p. xxxvii. (1801 : Australia).

1 ♂, Brisbane, 1873. Cockerell coll. (Ex von Hügel.)

1 ♂, Richmond R., S. Queensland, 1874. Cockerell coll. (Ex von Hügel.)

1 ♂, Cooktown, 12. v. 1900. Olive coll., No. A 93. "Iris brown, feet brown, bill black."

8 ♂♂, 2 ♀♀, without exact localities.

6. **Myzomela sanguinolenta caledonica** Forbes.

Myzomela caledonica Forbes, *P. Z. S.* 1879. p. 260 (New Caledonia).

1 ♂ ad., Moindu, New Caledonia, 7. x. 1881. E. L. Layard coll. "Iris brown, legs bronze-green, bill black."

1 ♂ juv., Noumea, New Caledonia, 27. v. 1879. E. L. Layard coll.

This form differs from typical *sanguinolenta* in its much darker red and the absence of the light edges to the scapulars and wing-coverts.

7. **Myzomela chloroptera** Walden.

Myzomela chloroptera Walden, *Ann. & Mag. N. H.* 1872. ix. p. 399 (Minahassa, Celebes).

3 ♂ ad., 1 ♀, Indrulaman, Bonthain Peak, 2500 ft., October 1895. Everett coll. "Iris brown, bill very dark brown, feet bright olive-brown."

1 ♂ ad., Bonthain Peak, 6000 ft. Native coll. October 1895 (Everett).

4 ♂ ad., Bonthain Peak, 4000—6000 ft., August 1896. W. Doherty coll.

1 ♂ ad., 1 ♂ juv., Saleyer, November 1895. A. Everett coll.

1 ♂ ad., 1 ♂ juv., Djampea Island, December 1895. A. Everett coll.

8. **Myzomela batjanensis** Hart.

Myzomela batjanensis Hartert, Nov. Zool. 1903. p. 56 (Batjan).

1 ♂ ad., Batjan, June 1902, 5000—7000 ft. Waterstradt coll., No. B. 579. (*Type* of species.)

6 ♂♂, 1 ♀, Batjan, June 1902, 5000—7000 ft. Waterstradt coll.

9. **Myzomela boiei** S. Müll.

Myzomela boiei S. Müller, *Verh. Nat. Gesch. Ned. Ind., Land-en Volkenkunde* p. 172 (1844 : Banda).

7 ♂♂, 3 ♀♀, Great Banda, September 1898. Heinr. Kühn coll. "Iris warm sepia brown, feet blackish brown."

1 ♂, Banda Neira, November 1896. W. Doherty coll.

10. **Myzomela annabellae** Scl.

Myzomela annabellae Sclater, *P. Z. S.* 1883. p. 56 (Lutur, Tenimber).

1 ♂ ad., Yamdena, Tenimber Islands, 8. i. 1901. H. Kühn coll., No. 2895.
1 ♂ ad., Selaru, Tenimber Islands, February 1895. W. Doherty coll.

11. **Myzomela erythrocephala** Gould.

Myzomela erythrocephala Gould, *P. Z. S.* 1839. p. 144 (Australia).

2 ♂ ad., 2 ♀ ad., Cape York, Queensland, July 1898. A. S. Meek coll., Nos. 1805, 1830, 1819, 1844.

12. **Myzomela adolphinae** Salvad.

Myzomela adolphinae Salvadori, *Ann. Mus. Civ. Gen.* vii. (1875: Arfak).

1 ♂ ad., Mt. Cameron, 6000 ft., 22. viii. 1896. A. S. Anthony coll.

M. adolphinae is most closely allied to *M. erythrocephala*, and is certainly not nearly so close to *M. boiei* as Count Salvadori suggested in *Ibis*, 1884.

13. **Myzomela erythromelas** Salvad.

Myzomela erythromelas Salvadori, *Atti R. Ac. Sc. Tor.* xvi. p. 624 (1881 : Nova Britannia).

1 ♀, agreeing with specimens in the British Museum, from uncertain locality, purchased in London.

We have no *male* of this species.

14. **Myzomela kuehni** Rothsch.

Myzomela kuehni Rothsch., *Bull. B. O. C.* February 1903 (Wetter).

1 ♂ ad., Wetter Island, 5. x. 1902. Heinr. Kühn coll., No. 5693 (*type*).
2 ♂ ad., Wetter, 14. ix. 1902, 1. x. 1902. Heinr. Kühn coll., Nos. 5668, 5480.
1 ♂ juv., 3 ♀ ♀, Wetter, 9. x. 1902. H. Kühn coll., Nos. 5570, 5481, 5479, 5692.

15. **Myzomela vulnerata** S. Müll.

Nectarina (*Myzomela*) *vulnerata* S. Müller, *Nat. Gesch. Ned. Ind., Land-en Volkenkunde* p. 172 (1844 : Timor).

4 ♂ ad., Atapupu, Timor, August 1897. A. Everett (Nat.) coll.

16. **Myzomela lafargei** Puch. & Jacq.

Myzomela lafargei Pucheran et Jacquinot, *Voy. Pôle Sud, Zool. Ois.* iii. p. 88 (1883 : Solomons)

1 ♂ ad. (mummy), ? Bougainville. Ribbe coll.

5 ♂ ♂, 5 ♀ ♀, Isabel, Solomons, July 1901. A. S. Meek coll., Nos. 3314, 3388, 3394, 3422, 3423, 3378, 3379, 3327, 3425, 3235.

17. **Myzomela dubia** (Rams.)

Cinnyris (?) *dubia* Ramsay, *Proc. Linn. Soc. N. S. W.* iv. p. 83 (1879 : Savo, Solomons).
Myzomela dubia Rothsch. & Hart., Nov. Zool. 1901. p. 181.

1 ♂ ad., 2 ♂ juv., Florida Island, December 1900, January 1901. A. S. Meek coll., Nos. 2707, 2711, 2726.

3 ♂ ad., 1 ♂ juv., 2 ♀ ♀, Guadalcanar, April—May 1901. A. S. Meek coll., Nos. 3053, 3146, 3155, 3157, 3197, 3198.

18. **Myzomela eichhorni** Rothsch. & Hart.

Myzomela eichhorni Rothschild & Hartert, Nov. Zool. 1901. p. 181 (Kulambangra).

5 ♂ ad., 1 ♂ imm., Kulambangra, February 1901. A. S. Meek coll., Nos. 2773, 2799 (*type*), 2801, 2787, 2772, 2786 (figured in Nov. Zool.).

1 ♂, 1 ♀ ad., Gigo Island, Solomons, 1. viii. 1901. A. S. Meek coll., Nos. 3539, 3540.

19. **Myzomela jugularis** Peale.

Myzomela jugularis Peale, *U. S. Expl. Exp.* p. 151 (1848 : Fiji).

2 ♂♂, 1 ♀, Suva 1894. C. M. Woodford coll., Nos. 6, 7, 42.

1 ♂ Vanua Levu, Nov. 1875. Th. Kleinschmidt coll. (Ex Mus. Godeffroy).

1 ♂, Savu Savu, 1875. Th. Kleinschmidt coll. (Ex Mus. Godeffroy).

1 ♂ ad., Bua. Tempest coll., fide Layard.

1 ♂ ad., "Fiji," 7. iv. 1877. Dr. Smith coll.

Two without labels.

20. **Myzomela rosenbergi** Schleg.

Myzomela rosenbergi Schlegel, *Ned. Tijdschr. Dierk.* iv. p. 38 (1871 : Berau Peninsula).

6 ♂ ad., 1 ♀, Arfak, 1874, 1875. Bruijn coll. (Specimens *a*, *c*, *d*, *f*, *h*, *i*, *a'*, of Salvadori's list in *Orn. Pap.* ii. p. 294).

1 ♂ ad., Katam, 4. vii. 1875. Beccari coll. (Specimen *s* of the list).

4 ♂ ad., 1 ♂ juv., 2 ♀♀, Arfak. Bruijn coll.

1 ♀, Wamai. Bruijn coll.

1 ♂, Arfak. Ex Kettlewell.

1 ♂ imm., Arfak. Bruijn coll. (Ex Guillemard).

3 ♂♂, 3 ♀♀, Mt. Cameron, 6000—7000 ft., August 1896. A. S. Anthony coll.

2 ♂ imm., Matahitang. H. O. Forbes coll., Nos. 7, 16.

1 ♂ ad., 1 ♂ juv., 3 ♀♀, trade-skins from Dutch New Guinea.

21. **Myzomela nigra** Gould.

Myzomela nigra Gould, *B. Austr.* iv. Pl. 66.

1 ♂ ad., Derby, W. Australia, 1. ii. 1900 (carbolised!). Robert Hall coll.

1 ♀ juv., Derby, W. Australia, 25. iii. 1900. Robert Hall coll., No. 89.

22. **Myzomela pectoralis** Gould.

Myzomela pectoralis Gould, *P. Z. S.* 1840. p. 170.

1 ♀ ad., Cape York, 23. vii. 1898. A. S. Meek coll. "Iris brown, feet slate, bill black."

1 ♀ ad., 1 juv., North Australia, 1876. Walter Chamberlain coll.

1 ♂ ad., without locality.

1 ♂ imm., Cooktown, 3. x. 1897.

4 imm., 3 juv., Derby and Pine Creek, W. Australia, 1896, 1900. Robert Hall coll.

23. **Myzomela nigrita nigrita** Gray.

Myzomela nigrita Gray, *P. Z. S.* 1858. p. 173 (Aru).

1 ♂ ad., Dobbo, Aru, 16. ix. 1896. C. Webster coll.
1 ♂ ad., Bendjoering, Adonar Island, Aru, 17. xi. 1897. H. Kühn coll., No. 343.
1 ♂, Wanambai, Kabroor, 31. viii. 1900. H. Kühn coll., No. 2320.
2 ♂♂, Wokan, Aru, 29. ix. 1900. H. Kühn coll.
2 ♂♂, Trangan I., Aru, 13. ix. 1900. H. Kühn coll.
1 ♂, 1 ♀, Mt. Maori, Humboldt Bay, January 1899. Dumas coll.
4 ♂♂, 1 ♀, without locality. One E. Weiske coll.
1 ♀, Kapaur, Dec. 1897. W. Doherty coll.
1 "♂" (juv.), Sogere, 2000 ft. H. O. Forbes coll.
1 ♂, Kotoi, August 1898. Anthony coll.

24. **Myzomela nigrita pluto** Forbes.

Myzomela pluto Forbes (ex Salvadori *MS.*), *P. Z. S.* 1879. p. 266.

3 ♂ ad., Miosnom, 3. v. 1875. Beccari coll. (Specimens *k*, *l*, *m* of Salvadori's list in *Orn. Pap.* ii. p. 292).
2 ♀♀, Marai and Ansus, Jobi, April and May 1897. W. Doherty coll.

25. **Myzomela nigrita louisiadensis** Hart.

Myzomela nigrita louisiadensis Hartert, Nov. Zool. 1898. p. 527 (Sudest I.).

1 ♂ ad., Sudest Island, 8. iv. 1898. A. S. Meek coll., No. 1690 (*type*).
2 ♂ ad., Sudest Island, 25. iii., 6. iv. 1898. A. S. Meek coll., Nos. 1699, 1677.
3 ♂ juv., Sudest Island, 5. 12. iv. 1898. A. S. Meek coll., Nos. 1664, 1665, 1713.
4 ♂ ad., St. Aignan, 23. 27. 28. viii. 1897. A. S. Meek coll., Nos. 689, 908, 911, 913.
1 ♀, St. Aignan, 28. viii. 1897. A. S. Meek coll., No. 914.
6 ♂ ad., 1 ♂ imm., 2 ♀♀, Woodlark Island, 1897. A. S. Meek coll., Nos. 124, 140, 152, 162, 164, 194, 200, 211.

26. **Myzomela forbesi** Rams.

Myzomela forbesi Ramsay, *Proc. Linn. Soc. N. S. W.* iv. p. 469 (1880: "Woodlark I."—erroneous, as Meek failed to find this species there, and it is represented by *M. nigrita louisiadensis*. The typical locality is Fergusson).

5 ♂ ad., 1 ♂ juv., 2 ♀♀, Fergusson I., September—November 1894. A. S. Meek coll.
1 ♂ ad., Goodenough Island, 21. xii. 1896. A. S. Meek coll., No. 98.
This is a close ally of *M. nigrita*, differing in the red patch on the crown.
The *female* is like that of *M. nigrita*.

27. **Myzomela cruentata cruentata** Mey.

Myzomela cruentata Meyer, *Sitzber. Akad. Wien* lxx. p. 202 (1874 : Arfak).

1 ♂ ad., 2 ♂ juv., 1 ♀, Kapaur, December 1896. W. Doherty coll.

1 ♂ ad., near Humboldt Bay. J. Dumas coll.

2 ♂ ad., Mt. Cameron, Owen Stanley Range, August—September 1896. A. S. Anthony coll.

2 ♂ ad., Kotoi district, August 1898. A. S. Anthony coll.

1 ♂ ad., Upper Aroa River, 3000—7000 ft. E. Weiske coll.

1 ♀, without locality. E. Weiske coll.

28. **Myzomela cruentata erythrina** Rams.

Myzomela erythrina Ramsay, *Proc. Linn. Soc. N. S. Wales* ii. p. 107 (1877 : New Ireland).

1 ♂ ad., "New Ireland." Purchased in London.

Two specimens, ♂ and ♀, from New Hanover, from spirits, collected by Captain Cayley Webster, have lost their colour, and can therefore only be presumed to belong to this form, or a closely allied new one.

Dr. Gadow (*Cat. B.* ix.) has united with *M. cruentata* the following three forms : *M. coccinea* from Duke of York Island, *M. erythrina* from New Ireland, and *M. kleinschmidti* from New Britain. This, as already pointed out by Count Salvadori, is certainly wrong ; but we think the latter goes too far in considering them as distinct species. They are evidently representative forms, and should stand as distinct subspecies of *M. cruentata*.

29. **Myzomela wakoloensis** Forbes.

Myzomela wakoloensis Forbes, *P. Z. S.* 1883. p. 116 (Buru).

1 ♂ ad., 1 ♂ juv., 4 ♀♀, Mt. Madang, W. Buru, March 1902. H. Kühn coll., Nos. 4715, 4687, 4680, 4672, 4682, 4683.

1 ♂ ad., Lake Wakolo, Buru, 2400 ft., 23. xi. 1883. H. O. Forbes coll., No. 644 (cotype).

1 ♂ ad., Lake Wakolo. H. O. Forbes coll., No. 656c (cotype).

30. **Myzomela sclateri** Forbes.

Myzomela sclateri Forbes, *P. Z. S.* 1879. p. 265 (Palakuru).

1 ♂, Nanuka, 26. v. 1879. Th. Kleinschmidt coll., No. 16570, Mus. God.

1 ♀ (?), labelled as coming from Vana Levu.

31. **Myzomela eques eques** (Less.).

Cinnyris eques Lesson, *Voy. Coqu. Zool.* p. 679. Pl. 31 (1826–28 : Waigiu).

4 ♂♂, 1 ♀, Mysol, January—February 1900. H. Kühn coll., Nos. 1824, 1880, 1881, 1991, 2013.

2 ♂♂, 1 ♀, Mt. Moari, near Humboldt Bay, January 1899. J. M. Dumas coll.

1 ♂ ad., Kapaur, 3000 ft., December 1896. W. Doherty coll.

32. **Myzomela eques nymani** subsp. nov.

M. eques eques dictae simillima, sed paullo major, paullo cinerascentior, plaga gulari latiore.

Closely allied to *M. eques eques*, but the colour is purer grey, less brownish, the wing slightly longer, the gular patch much wider, covering nearly the entire chin and throat.

♂, wing 73—76 mm. ; ♀, wing 64½ mm.

Hab. Eastern New Guinea.

Type : ♀, Simbang, 26. viii. 1899. Dr. E. Nyman coll.

This form is named in honour of the unfortunate naturalist Dr. E. Nyman, who died in Java of fever contracted in New Guinea, just as he was commencing a most successful scientific career.

We have the following specimens, in addition to the type :—

1 ♂, Eafa district, British New Guinea, 3000 ft., 1898. Anthony coll.

2 ♂ ad., British New Guinea, exact locality doubtful.

1 ♂ ad., British New Guinea, exact locality doubtful. Weiske coll.

33. **Myzomela** spec. an subsp. nov.

2 (♂ ♀) collected by J. M. Dumas, said to be from the Ambernoh River. It is impossible to diagnose this species satisfactorily from these two immature birds, although they must belong to an undescribed species. They are near *M. eques eques* in colour, but, in addition to the red gular patch, they have a lot of red on the crown and occiput.

34. **Myzomela simplex simplex** Gray.

Myzomela simplex G. R. Gray, *P. Z. S.* 1860. p. 349 (Batjan).

4 ♂♂, 1 ♀ ad., Batjan, 4000 ft., August—September 1897. W. Doherty coll.

3 ♂♂, 1 ♀, Batjan, 5000—7000 ft., July 1902. Waterstradt coll.

Brownish grey, with narrow edges to the tail and wings, and very slight edges to some of the breast-feathers brownish pink.

35. **Myzomela simplex mortyana** Hart.

Myzomela simplex mortyana Hartert, *antea* p. 56.

1, Morty, J. M. Dumas coll. (Type.)

Darker, especially on the throat and chest, more distinct red edges to the chest-feathers, no red at all on the tail.

36. **Myzomela simplex rubrotincta** Salvad.

Myzomela rubrotincta Salvadori, *Ann. Mus. Civ. Gen.* xii. p. 334 (1878 : Obi).

1 ♀ ad., Obi, September 1897. W. Doherty coll.

2 ♂♂, 1 ♀ ad., Obi, 2000 ft., March—April 1902. Waterstradt coll.

Differs from *M. s. simplex* in having the mantle and upper wing-coverts washed with crimson, the remiges beautifully edged with, and the tail entirely crimson, the underside slightly washed with crimson.

37. **Myzomela simplex rubrobrunnea** Mey.

Myzomela rubrobrunnea A. B. Meyer, *Sitzber. R. Ak. Wissensch. Wien* lxx. p. 203 (1874 : Mysori).

1 ♂, 1 ♀ ad., Korrido, October 1896. W. Doherty coll.

Differs from *M. s. rubrotincta* in the much darker red wash on the mantle, the less pronounced red margins to the wings, only crimson borders to the rectrices, darker head, and darker red wash on the underside.

38. **Myzomela cineracea** Scl.

Myzomela cineracea Sclater, *P. Z. S.* 1879. p. 448. Pl. 37 (New Britain).

1 ♀, New Britain. Kubary coll.

39. **Myzomela obscura obscura** Gould.

Myzomela obscura Gould, *P. Z. S.* 1842. p. 136 (N. Australia).

2 ♂♂, 2 ♀ ad., Cape York, June—July 1898. Eichhorn coll. (Meek), Nos. 1802, 1942, 1954, 1977.

1 ♀, Cooktown, 29. vii. 1896. (Ex Robinson).

4, Bowen, ex Mus. Godeffroy.

1 ♀, Queensland.

40. **Myzomela obscura fumata** (Bp.).

Ptilotis fumata Bonaparte (ex Müller, *MS.* in Mus. Lugd.), *Consp.* i. p. 392 (New Guinea—Outanata, Müller coll.).

1, Dobbo, Aru, 15. vi. 1896. Capt. C. Webster coll.

1 ♂, Dobbo, Aru, August 1900. H. Kühn coll.

1 ♂, Dobbo, Aru, February 1897. W. Doherty coll.

1 ♂, Trangan, Aru, 18. ix. 1900. H. Kühn coll.

The Aru examples differ from typical *obscura* (Queensland), in its uniform slate-grey colour, without brown on the breast and without lighter edges to the primaries. We have adopted the name *fumata*, although we have not been able to examine specimens from the mainland of New Guinea, as there is every likelihood that they are identical with the Aru birds. They are, however, certainly different from typical *obscura*.

41. **Myzomela albigula** Hart.

Myzomela albigula Hartert, *Bull. B. O. C.* December 1898. No. lviii. p. xx. (Rossel Island, Louisiades).

1 ♂ ad., Rossel I., 27. i. 1898. A. S. Meek coll., No. 1306 (*type*).

3 ♂ jun., 1 ♀ jun., 3 ♀ ad, Rossel I., January—February 1898. A. S. Meek coll., Nos. 1242, 1268, 1278, 1289, 1307, 1373, 1415.

42. **Myzomela pallidior** Hart.

Myzomela pallidior Hartert, *Bull. B. O. C.* December 1898. No. lviii. p. xxi. (St. Aignan).

1 ♂ ad., St. Aignan, 31. vii. 1897. A. S. Meek coll., No. 725 (*type*).

4 ♂ ad., 1 ♀ juv., St. Aignan, December 1897. A. S. Meek coll., Nos. 1108, 1172, 1178, 1191, 1192.

XXIII. MOTACILLIDAE.

1. Anthus gutturalis De Vis.

Anthus gutturalis De Vis, *Report New Guinea* 1894, *Birds* p. 5 (Mount Manaeao, 5650 and 6000 ft.).

3 ♂♂, 2 ♀♀, 1 sex doubtful, Mt. Knutsford 11,000 ft., August 1898. A. S. Anthony coll.

1, Mt. Scratchley. A. S. Anthony coll.

2. Motacilla boarula melanope Pall.

♂ ad., Kapaur, February 1897. W. Doherty coll.

♂ juv., Takar, November 1896. W. Doherty coll.

XXIV. SYLVIIDAE.

1. Locustella fasciolata (Gray).

1 ♀, Mysol, 1. ii. 1900. Kühn coll.

1 ♀ ad., Dorey, October 1896. W. Doherty coll.

1 ♀ ad., Yamna I., October 1896. W. Doherty coll.

1 ♂ juv., Kapaur, December 1896. W. Doherty coll.

1 ♀ juv., Kapaur, February 1897. W. Doherty coll.

Besides these we have sixteen from other localities.

XXV. TIMELIIDAE.

1. Cisticola exilis Vig. & Horsf.

1 ♂, 1 ♀, Friedrichwilhelmshafen, 17. x. 1899. E. Nyman coll.

1 ♂, Stephansort, 23. i. 1899. E. Nyman coll.

1 ♂, 1 ♀, New Britain, June—November 1880. Th. Kleinschmidt coll., Nos. 236, 543.

1, New Hanover, 18. ii. 1897. Capt. Cayley Webster coll. (in spirits).

Compared with 43 specimens from other localities.

2. Megalurus macrurus macrurus (Salvad.).

Sphenoeacus macrurus Salvadori, *Ann. Mus. Civ. Genova* 1876. p. 35 (Naiabui).

4 ad., Mt. Scratchley, British New Guinea. A. S. Anthony coll.

6, Mt. Owen Stanley, 3000—5000 ft., 1897. A. S. Anthony coll.

1 ♂, Mt. Knutsford, 11,000 ft., 23. viii. 1898. A. S. Anthony coll.

3. Megalurus macrurus interscapularis (Scl.)

Megalurus interscapularis Sclater, *P. Z. S.* 1880. p. 65. Pl. VI. (New Britain, Rev. Brown coll., type in Brit. Mus.).

This form has been erroneously united with *M. m. macrurus*, evidently because former authors had specimens from one or the other locality only. It differs from *M. m. macrurus* by its more yellowish brown instead of deep rufous chestnut head, a more brownish grey instead of brownish rufous colour of the upper surface and tail.

We have the following specimens :—

1, Expedition Bay, New Hanover, 15. iii. 1897. Capt. Cayley Webster coll. (in spirits).

4 ♂♂, November—December 1880, New Britain. Th. Kleinschmidt coll., Nos. 531, 600, 605, 692. Native name " Dilau " (not Kilau).

4. **Ifrita coronata** Rothsch.

Ifrita coronata Rothschild, *Bull. B. O. C.* vii. p. liv. May 1898 (locality erroneously given as low country east of Port Moresby ; the typical place is : Mountains of British New Guinea). Nov. Zool. vi. p. 218. Pl. III. fig. 1.

We have now the following specimens :—

1 ♂, type of the species, exact locality unknown.

3 ♂♂, 2 ♀♀, Mt. Knutsford, " 11,000 ft.," August 1898. A. S. Anthony coll.

2 ♂ ad., 1 ♂ juv., 3 ♀♀, Aroa River, 6000 ft., January 1900. E. Weiske coll.

We are not quite certain about the systematic position of this remarkable bird, but believe it to belong near *Drymoedus* and *Amalocichla*.

5. **Amalocichla sclateriana** De Vis.

Amalocichla sclateriana De Vis, *Report on New Guinea* for 1892, p. 95 (Mt. Owen Stanley).

1, Mt. Victoria (Owen Stanley), 5000—7000 ft., April—June 1896.

1 ♀, Kotoi district, British New Guinea, " 11,000 ft.," August 1898. A. S. Anthony coll.

1 (not sexed), Kotoi district, British New Guinea, " 11,000 ft.," August 1898. A. S. Anthony coll.

6. **Amalocichla brevicauda** (De Vis).

Drymoedus brevicauda De Vis, *Report Brit. New Guinea*, 1894, *Birds* p. 5 (Mt. Manaeao).
Amalocichla brevicauda Rothsch. & Hart., *Bull. B. O. C.* xi. p. 26 (November 1900).

1 ♀ ad., 3 (not sexed), 1 juv., Aroa River, 4000 ft., December 1899. Emil Weiske coll. " Iris black."

1 (not sexed), Mts. of the Kotoi district, August 1898. A. Anthony coll. The young bird is above rufous brown, with a blackish tip and a bright ochreous subterminal patch to each feather. The white loral spot barely indicated. Feathers of the underside pale ochreous with broad blackish edges, abdomen almost white with dirty brown edges to most of the feathers.

7. **Crateroscelis murinus** (Scl.).

Brachypteryx murinus Sclater, *Journ. Linn. Soc. London* ii. p. 158 (1858 : descr. prima).

1 ♂, 2 ♀♀, Mysol, January, February, 1900. H. Kühn coll. " Iris chocolate-brown, feet pale grey, upper mandible black, lower colourless." Nos. 1939, 1995, 2023.

1 ♂, 1 ♀, Kapaur, December 1896. W. Doherty coll. " Iris sepia."

2 ♂♂, Takar, October, November 1896. W. Doherty coll. " Iris crimson."

2 ♂♂, Marai, Jobi Island, April 1897. W. Doherty coll.

2 from near Humboldt Bay. J. M. Dumas coll.

1 said to be from the Ambernoh River. J. M. Dumas coll. (Ex Duivenbode).

1 ♂, 1 (not sexed), Mt. Cameron, 7000 ft., August, September, 1896. A. S. Anthony coll.

The amount of white on the underside varies considerably. The specimen marked " ♂ " from Mt. Cameron, and one of Doherty's from Jobi, have the underside almost uniform rufous, thus agreeing with the description of Meyer's *Brachypteryx brunneiventris*; the second specimen from Mt. Cameron, on the other hand, has the lower breast and abdomen almost white. The Jobi specimens are not separable from New Guinea ones, but one of those from Humboldt Bay has rather much dirty brown on the sides of the breast, while the other one from the same place is exactly like most of the other specimens.

8. **Crateroscelis rufobrunnea** Rothsch. & Hart.

Crateroscelis rufobrunnea Rothschild & Hartert, *Bull. B. O. Club* xi. p. 25 (November 1900 : Mt. Maori, near Humboldt Bay).

Mt. Maori, January 1899. J. M. Dumas coll. (*Type*).

Differs from *C. murinus* in many ways, but especially by the much shorter and entirely black upper and under mandible, and the almost uniform deep rusty brown under surface. Wing only 58 mm., bill from base 13, metatarsus 22, tail about 33.

9. **Crateroscelis monacha** (Gray).

Alcippe monacha G. R. Gray, *P. Z. S.* 1858. pp. 175. 191 (Aru).

1 ♂, Wokan, 2. x. 1900. H. Kühn coll. " Iris coffee-brown, feet pale grey, bill black, lower mandible white."

1 ♀, Wanambai, Kobroor, 4. iii. 1900. H. Kühn, No. 2336.

1 ♂, Trangan Island, 14. ix. 1900. H. Kühn coll, No. 2626.

10. **Crateroscelis pectoralis** Rothsch. & Hart.

Crateroscelis pectoralis Rothsch. & Hartert, *Bull. B. O. C.* xi. p. 25 (November 1900 : Mt. Cameron).

Sericornis salvadorii Reichenow, *Orn. Monatsber.* 1901. p. 4 (S.E. New Guinea, Weiske coll.).

(Cf. R. & H., *Bull. B. O. C.* xi. p. 44, February 1901.)

1 ♂ ad., Mt. Cameron, 7000 ft., 21. viii. 1896. A. S. Anthony coll. " Iris yellow, feet creamy white, bill black." (*Type*).

1 ♀ ad., Mt. Knutsford, " 11,000 ft.," 18. viii. 1898. A. S. Anthony coll.

1 (not sexed), Mt. Knutsford, " 11,000 ft.," 18. viii. 1898. A. S. Anthony coll.

1 (not sexed), Mt. Scratchley. A. S. Anthony coll.

1 ♀ jun., Aroa River, 5000 ft., September 1899. Weiske coll.

Underside more splashy and darker, the pectoral band less sharply marked than in adult birds.

11. **Sericornis beccarii** Salvad.

Sericornis beccarii Salvadori, *Ann. Mus. Civ.* vi. p. 79 (1874 : Wokan, Aru).

2 ♂♂, 1 ♀, Sg. Bark and Wanambai, Kobroor, March—August 1900. H. Kühn coll.

1 ♂, 1 ♀, Trangan, Aru, September 1900. H. Kühn coll.

1 ♀, Wokan, Aru, 25. ix. 1900. H. Kühn coll.

1, near Humboldt Bay. J. M. Dumas coll.

This last specimen is somewhat more olive above, and perhaps more washed with olive below, but without more material it cannot be separated on such slight ground.

12. **Sericornis arfakiana** Salvad.

Sericornis arfakiana Salvadori, *Ann. Mus. Civ. Gen.* vii. p. 962 (1875 : Arfak).

1 ♀ ad., Mori, Arfak, 3500 ft., 3. v. 1875. Beccari coll. (Specimen *c* of the list in *Orn. Pap.* ii. p. 408, marked as "*Typus*" by the author.)

2 ♂♂, 1 (not sexed), Kotoi district, 11,000 ft., August 1898. A. S. Anthony coll.

1 ♀, Mt. Cameron, 6600 ft., 6. viii. 1896. A. S. Anthony coll.

1 (not sexed), Eafa district, between 1000 and 3000 ft. Bought in London.

1 (not sexed), Aroa River, December 1899. E. Weiske coll.

1, Mts. British New Guinea. Bought in London.

2 ad., 1 juv., Mt. Maori, near Humboldt Bay, January 1899. J. M. Dumas coll.

13. **Sericornis olivacea** Salvad.

Sericornis olivacea Salvadori, *Ann. Mus. Civ. Gen.* xxxvi. p. 100 (1896 : Moroka).

1 ♂, Mt. Cameron, 6600 ft., 6. viii. 1896. "Iris brown, feet grey, bill black." A. S. Anthony coll.

14. **Sericornis perspicillata** Salvad.

Sericornis perspicillata Salvadori, *Ann. Mus. Civ. Gen.* xxxvi. p. 99 (1896 : Moroka).

1 specimen from the mountains of British New Guinea. Emil Weiske coll., according to preparation.

15. **Sericornis pusilla** spec. nov.

Upperside greenish olive, tail and wings fuscous brown, edged with greenish olive-brown. Eyelids yellowish white, sides of head light greyish brown, ear-coverts a little darker. Underside yellowish white, the feathers being whitish with sulphur-yellow margins, sides of breast and body greyish olive. Under wing-coverts yellowish grey, pale ochraceous near the edge of the wing. Wing-lining ashy white Wing 51, tail 37, metatarsus 17·5, bill 11 mm.

Type and unique specimen : 1 skin, said to be from Mt. Gayata, Richardson Range, 2000—4000 ft. Bought from McIlwraith and McEacharn, evidently Weiske's preparation. No. 1137.

16. **Sericornis nigrorufa** Salvad.

Sericornis nigrorufa Salvadori, *Ann. Mus. Civ. Gen.* (2). xiv. p. 151 (1894 : Moroka).

1 ♂, 1 (not sexed), Kotoi district, British New Guinea, August 1898. A. S. Anthony coll.

17. **Drymoedus beccarii** Salvad.

Drymoedus beccarii Salvadori, *Ann. Mus. Civ. Gen.* vii. p. 965 (1875 : Profi, Arfak, Beccari coll.).

2, ♂ ♀, Sg. Bark, Kobroor, Aru, 27. viii. 1900. H. Kühn coll. "Iris brownish black, feet pale flesh-colour, bill black." Nos. 2371, 2372.

1 ♂ ad., Wokan, Aru, 30. ix. 1900. H. Kühn coll., No. 2711.

18. **Cinclosoma ajax** (Temm.).

Eupetes ajax Temminck, *Pl. Col.* 573 (1835 : New Guinea ; *Typus* ex Lobo, Müller & Macklot coll.).

2 ♂ ad., 1 ♂ juv., 1 ♀, Milne Bay, February 1899. "Iris bright orange-yellow (♀ yellow), feet light brown, bill black." A. S. Meek coll., Nos. 2247, 2272, 2302, 2310.

1 ♂ juv., Eafa district, between 1000 and 3000 ft. Purchased in London.

1 ♀, British New Guinea, no exact locality.

19. **Eupetes castanonotus castanonotus** Salvad.

Eupetes castanonotus Salvadori, *Ann. Mus. Civ. Gen.* vii. p. 966 (1875 : Mt. Morait, N.W. New Guinea, Beccari coll.).

1 ♂, 1 ♀, Mt. Maori, 3000 ft., near Humboldt Bay, January 1899. J. M. Dumas coll. "Iris bright brown."

20. **Eupetes castanonotus pulcher** Sharpe.

Eupetes pulcher Sharpe, *Journ. Linn. Soc. London* xvi. pp. 319. 440 (1882 : Astrolabe Mts., S.E. New Guinea, Goldie coll.).

1 ♂ ad., 1 ♂ juv., Milne Bay, 8. 9. ii. 1899. A. S. Meek coll. "Iris dark brown, feet and bill black." Nos. 2279, 2280.

1 ♂ ad., Mts. of British New Guinea, 1894. A. S. Anthony coll., according to preparation.

2 ♀ ♀, marked "89," Astrolabe Mts. Goldie coll.

1 ♀, Mt. Cameron, 5000—6000 ft.

1 ♂, 1 ♀, "Mt. Gayata, Richardson Range, 2000—4000 ft." Purchased in London ; E. Weiske's skins.

1 ♂, 1 ♀, shot between rivers Laroki and Vanapa. E. Weiske coll.

This subspecies, though once overthrown by its author (*Cat. B.* vii. p. 341), is separable from *E. c. castanonotus* in the ♂ by a duller and more bluish mixed crown, generally also much more black on the under tail-coverts, and in the ♀ by the whitish instead of blue superciliary line and distinctly white-spotted under tail-coverts. (Cf. Salvadori, *Ann. Mus. Civ.* xxxvi. p. 101.)

21. **Eupetes caerulescens caerulescens** Temm.

Eupetes caerulescens Temminck, *Pl. Col.* ii. Pl. 574 (1835 : New Guinea, *loc. typ.* Lobo).

1 ♂, Etna Bay, 4. viii. 1896. Capt. Cayley Webster coll.

2 ♂♂, 1 ♀, Takar, October 1896. W. Doherty coll. "Iris dark drown, feet grey-brown, bill black."

22. **Eupetes caerulescens nigricrissus** Salvad.

Eupetes nigricrissus Salvadori, *Ann. Mus. Civ. Gen.* ix. p. 36 (1876 : Hall Bay, D'Albertis coll.).

1 ♀, Brown River, British New Guinea, 1898. E. Weiske coll.

1 ♀, Aroa River, January 1900. E. Weiske coll.

1 ♂, Astrolabe Mts. A. Goldie coll.

3 ♂♂, Mt. Cameron, 2000 ft., August and September 1896. A. S. Anthony coll.

1 ♂, 3 ♀♀, Milne Bay, January, March, April, 1899. A. S. Meek coll., Nos. 2101, 2305, 2375, 2453. "Iris brown, feet slaty-brown, bill black."

1 ♂, Mullen's harbour, 16. ii. 1900. A. S. Meek coll., No. 2691.

This form differs from *E. c. caerulescens* by the narrow white superciliary line of the *female* and a mixture of black on the under tail-coverts in both sexes.

23. **Eupetes geislerorum** Mey.

Eupetes geislerorum A. B. Meyer, *Journ. f. Orn.* 1892 p. 259 (Bataueng, Kaiser Wilhelm's Land).

3 ♂ ad., 1 ♂ juv., 2 ♀♀, Collingwood Bay, Northern British New Guinea, June 1899. A. S. Meek coll., Nos. 2531, 2568, 2569, 2574, 2589, 2607. "Iris dark brown, feet dirty brown, bill black."

The *male* differs from that of *E. caerulescens* by the olive-brown pileum and occiput, and the *female* is quite different from the *male*.

24. **Eupetes leucostictus leucostictus** Scl.

Eupetes leucostictus Sclater, *P. Z. S.* 1873. p. 690. Pl. 52 (Hatam).

1 ♂, Dutch New Guinea, Arfak Mts. Bourke coll.

1 ♀, said to be from Ambernoh River. J. M. Dumas coll.

1 ♀, bought from Mr. van Duivenbode.

The birds we consider to be the hitherto unknown *females* of *E. leucostictus* have the entire upper surface from the forehead to the upper tail-coverts bright rufous chestnut, while the *male* has the head and hindneck only chestnut, the back dull greenish olive. The chest is olive-greenish, not bluish. Otherwise the supposed *female* is like the *male*.

25. **Eupetes leucostictus loriae** Salvad.

Eupetes loriae Salvadori, *Ann. Mus. Civ. Gen.* xxxvi. p. 102 (1896 : Moroka).

1 ad., British New Guinea. Native coll.

2 ad., Mt. Victoria, Owen Stanley range, 5000—7000 ft., April—June 1896. Native coll.

1 ad., Mt. Scratchley, British New Guinea. Bought from McIlwraith and McEacharn.

2 ad., "Upper Brown River, between Astrolabe and Owen Stanley Ranges." Purchased from McIlwraith and McEacharn.

1 "♀," Aroa River, January 1900. E. Weiske coll.

1 "♀" juv., Mt. Cameron, 20. viii. 1896. A. S. Anthony coll.

1 juv., Aroa River, January 1900. E. Weiske coll.

The seven adult specimens are all alike, and are most likely all *males*. They are

very much like *Eu. leucostictus leucostictus*, but differ in the black upper throat and lower guttural black patch being more or less connected, and the guttural black patch being uniform black, not distinctly spotted with white, and the chest being olive-greenish, not cinereous blue.

The two young birds are above rich brown with a rufous olive wash, the wing-coverts have pale fulvous tips, the under surface is like the back, but paler, the middle of the abdomen and sides of neck more or less whitish, throat and lores blackish.

The adult *female* appears to be unknown, unless it is like the *male*, for which theory there is no reason whatever.

26. **Pomatorhinus isidori** Less.

Pomatorhinus isidori Lesson, *Voy. Coqu. Zool.* i. p. 680. Pl. 29 (Dorey).

♂, Dorey, June 1897. "Iris yellow, feet blackish, bill dull orange, base above blackish." W. Doherty coll.

♂, Dorey, 15. iv. 1875. Bruijn coll. (Specimen *c* of the list in *Orn. Pap.* ii. p. 410).

♂, Dorey? Bruijn coll. (Specimen *e* of Salvadori's list).

1 ♂, 3 ♀♀, Andai. Bruijn coll. (Specimens *i*, *j*, *k*, *m* of Salvadori's list).

2 ♂♂, Andai, November 1883. Guillemard and Powell coll.

5 ♂♂, 3 ♀♀ Kapaur, December 1896. W. Doherty coll.

2, Mt. Cameron, Owen Stanley Range, 2000 ft., August 1896. A. Anthony coll.

1, Brown River, British New Guinea. E. Weiske coll.

2 ♂♂, 1 ♀, Mysol, January 1900. H. Kühn coll., Nos. 1886, 1940, 1941.

27. **Orthonyx novaeguineae** Mey.

Orthonyx Novae Guineae A. B. Meyer, *Sitzber. R. Ak. Wissensch. Wien* lxix. pp. 74. 83 (1874 : Arfak).

1 ♂, 2 ♀♀, Mt. Scratchley, Mt. Knutsford, British New Guinea, "11,000 feet," August 1898. A. S. Anthony coll.

Should be compared with Arfak specimens.

ON THE BIRDS OF THE KEY AND SOUTH-EAST ISLANDS, AND OF CERAM-LAUT.

By ERNST HARTERT.

(*Continued from* Vol. VIII., 1901).

IN Volume VIII. of Novitates Zoologicae, on p. 1, I began the account of the collections of birds made by Mr. Heinrich Kühn on the Key group, the so-called South-East Islands (Tiandoe, Taam, Manggoer, Koer, Teoor, Watoebela, Manawoka, Goram-laut, and Ceram-laut). The introduction and the enumeration of the *Pittidae* and *Psittaci* filled pages 1 to 5. The work was continued with the list of the *Columbae*, *Megapodiidae*, *Turnicidae*, *Rallidae*, *Alcedinidae*, *Laridae*, *Podicipidae*, *Ibidae*, *Plataleidae* and *Limicolae* on pages 93—101. Between Nos. 53 and 54 (p. 99) the heading "XII. LIMICOLAE" has been omitted. The present article concludes the work with the review of the *Accipitres*, *Cuculi*, *Coraciidae*, *Caprimulgidae*, *Cypselidae*, all the *Passeres*, the *Anatidae*, and *Steganopodes*, bringing the total up to 151 species and subspecies. It must, however, be understood that this is only a list of what Mr. Kühn collected on these islands. Occasionally I have mentioned species recorded in the literature, but not obtained by Mr. Kühn; but no attempt has been made to complete their number. As, however, Mr. Kühn's collections are very rich in species, the number of birds missed by him will doubtless be very small and not alter the aspect of the ornis as given by my articles. Though very little is evidently to be added to our knowledge of the species inhabiting these islands, our information of their life-history and nidification is still very incomplete.

XIII. ACCIPITRES.

70. **Pandion haliaëtus leucocephalus** Gould.

Toeal, common.
Soa, islet near Little Key Island. (No. 139.)
Ondor, Goram-laut. (No. 2199.)
Taam. (No. 1376.)
Teoor. (No. 1501.)
Kisoei. (No. 2090.)
Maar, Ceram-laut. (No. 2032.)

71. **Haliaëtus leucogaster** (Gm.).

Toeal, Soa, near Little Key.
♂ juv., Kisoei, 8. iii. 1900. (No. 2123.)

72. **Haliastur indus girrenera** (Vieill.).

Toeal. (Kühn coll., No. 813; Webster coll., No. 78.)
Ugilgot, Little Key. (Kühn coll., No. 812.)
♂ ♀, Teoor, October 1899. (Nos. 1502, 1504.)

73. **Baza subcristata reinwardti** (Müll & Schleg.).

(Cf. Nov. Zool. 1901. p. 379.)

Toeal, two specimens.

♀, Gorom, Manawoka, 14. xi. 1899. (Kühn coll., No. 1763.)

74. **Astur albiventris** (Salvad.)

Urospizias albiventris Salvadori, *Ann. Mus. Civ. Gen.* vii. p. 983. 1875 (Key Islands ; *typus* Weri, Great Key).

4 ♂ ad., 4 ♀ ad., ♂ juv., Toeal, Oeboer, Oen, and Ohoitil, Little Key. (Kühn coll., Nos. 183, 251, 269, 361, 361a, 412, 524, 574, 824 ; Capt. Webster coll., No. 47.)

" Iris orange of various shades in the adult, sulphur-yellow in the young ; feet ochreous ; bill black." (H. Kühn.)

♂ ♀ ad., Manggoer Island, 8. x. 1879.

♂, " Iris golden yellow " ; ♀, " Iris red-orange, nearly red." (Kühn coll., Nos. 1413, 1414.)

While the Key birds are very constant among themselves, these two Manggoer birds differ somewhat. Their wings are about ½ cm. longer ; the *male* has distinct bars on the inner rectrices, of which hardly a trace is ever found in typical *albiventris*, but the *female* has no such bars. The *male* is distinctly, the *female* scarcely, darker above. They are not at all like *Astur polionotus* (Salvad.), which is still darker above, has a very wide collar, always distinct bars to the central rectrices, and the *female* of which is always brighter and narrowly barred on the underside. More material may perhaps show that the Manggoer form is separable, but at present it cannot be separated from the one pair before me.

In the Key Islands specimens the reddish collar on the upperside is well visible in the *males*, but only faintly indicated or absent in the *females*.

75. **Astur meyerianus** Sharpe.

Astur meyerianus Sharpe, *Journ. Linn. Soc. London* xiii. p. 458. Pl. XXII. (Jobi).

Mr. Kühn obtained a bird marked " ♂ " on Maar, Ceram-laut, on December 17th, 1899. He marked the iris as chromeous, feet sulphureous, bill slate-grey.

This bird, which I believe to be fully adult, agrees perfectly with Dr. Sharpe's description of *Astur meyerianus*, except that it is more distinctly, though not quite regularly, barred with black all over the breast and abdomen. The black shafts on the underside are very conspicuous. The feathers on the sides of the neck are black with white tips, the under wing-coverts white with black shafts, and some with black bars. The feathers on the hindneck have snow-white bases, those on the head and back brownish grey ones. The tail is above black with a dirty white tip, as in the type. There is apparently nothing in which this specimen differs from the type of *A. meyerianus*, except the somewhat greater amount of black barring on the under surface. The measurements agree wonderfully with those of the type, as given by Dr. Sharpe. Whether the Jobi example and this are entirely the same cannot be decided from these two single individuals. I do not understand what it has to do with *A. albigularis* from the Solomons, of which even the *female* is about one-third smaller, and which differs in many colour details. If Mr. Kühn sexed the bird correctly, the *female* must be expected to be of the size of the European goshawk, while that of *A. albigularis* is not bigger than that of *Accipiter nisus*, though it is an *Astur*, with large bill and shorter and stronger feet.

76. **Cerchneis moluccensis** (Jacq. & Puch.).

This widely spread species does not extend its area down to the Key Islands, but it occurs on the northern South-East Islands, where it was already, many years ago, found on Gorom by Rosenberg and Wallace. Mr. Kühn sent the following specimens :—

♀, Gorom, Manawoka, 14. xi. 1899. (No. 1655.)

♀, Maar Island, Ceram-laut group, 16. xii. 1899. (No. 1753.)

♀, Ondor, Goram-laut Islands, 1. iii. 1900. (No. 2177.)

77. **Falco lunulatus** Lath.

♀ juv., Toeal, Key Islands, 5. viii. 1898.

" Iris bright yellow, feet ochreous, bill ash-grey." (Kühn coll., No. 839.)

This species is apparently only a migrant or straggler to the Moluccas and Sunda Islands, where it has occurred at Ceram, Ternate and Amboina, Timor (Everett coll.) and Flores, and to the Key Islands. This example obtained by Kühn is apparently the only one known from the Key Islands.

(We have received no owls from any of these islands. Salvadori's *Ornitologia della Papuasia e delle Molucche* mentions also not a single species of owls from the Key and S.E. Islands).

XIV. CUCULI.

78. **Centropus spilopterus** Gray.

Centropus spilopterus G. R. Gray, *Proc. Zool. Soc.* 1858. p. 184 (Key Is.).

One nestling from Noekoe Roa, Little Key group, 7. vii. 1900.

Evidently not rare near Toeal, Little Key. The iris of the adult birds is vermilion or scarlet, that of the young brown. The young are above widely, though not very frequently, barred with whitish isabelline. The adult birds have sometimes (while otherwise being uniform metallic greenish black) barred remiges, but sometimes quite uniform blackish ones. The latter ones are apparently the oldest birds. The *female* is considerably larger than the *male*.

The chalky white egg measures 36 × 26·7 mm.

79. **Eudynamis orientalis everetti** Hart.

Eudynamis cyanocephala everetti Hartert, Nov. Zool. 1900. p. 231 (Sumba to Key, etc. ; type Sumba).

1 (supposed ♀ ad., not sexed), Key Island, 6. i. 1896. (C. Webster coll., No. 14.)

1 " ♂," nearly adult, but with a few pale rufous feathers of the juvenile plumage still visible underneath, Ohimas, Little Key Islands, 5. iv. 1898. (H. Kühn coll., No. 723.) The remains of the juvenile plumage seem pale, therefore I am inclined to place the bird with *everetti*, though doubtfully.

1 " ♂," Soa, Little Key group, 7. iv. 1898. " Iris vermilion." (H. Kühn coll., No. 716.) Underside pale cinnamon, crown and hindneck nearly uniform glossy black ; upperside with small, mostly white or whitish spots (? ♀ or ♂ juv.).

1 " ♀," Add, north of Great Key, 1. viii. 1900. " Iris scarlet." (H. Kühn coll., No. 2803.) Underside white, head and upperside as that of No. 716.

2 ♂ ad., Add, 8. 30. vii. 1900. (H. Kühn coll., Nos. 2800, 2802.)

1 ♂, 1 ♀ (not sexed), Key Islands, 6. 16. i. 1896. (C. Webster coll.)

1 ♂ (not sexed), moulting from the juvenile cinnamon buff plumage to the black of the adult bird, Key, 17. i. 1896. C. Webster coll.

1 ♂ ad., Soa, Little Key group, 11. vii. 1898. (H. Kühn coll., No. 817.)

1 ♂ ad., Elat, Great Key group, 22. ix. 1897. (H. Kühn coll.)

1 ♂ ad., Taam Island, 23. vii. 1899. (H. Kühn coll., No. 1362.)

1 " ♀ " (? ♂ juv.), 2 ♂ juv. (moulting from the juv. cinnamon-buff to the black plumage), 3 ♂ ad. (entirely black), Teoor, October 1899. (H. Kühn coll., Nos. 1468, 1472, 1479, 1490, 1542, 1554.)

1 " ♂," Kisoei, 3. iii. 1900. (H. Kühn coll., No. 2113.) In moult: moulting underneath from the creamy white first (nestling) plumage to a rich cinnamon-buff one, above from a barred cinnamon-buff one to a black one with whitish buff spots (? ♀ !).

1 ♀ ad., Gorom, Manawoka group, 11. xi. 1899. (H. Kühn coll., No. 1654.)

80. **Eudynamis orientalis orientalis** (L.).

1 " ♀," Kisoei Island, 3. iii. 1900. " Iris scarlet, feet bright plumbeous, bill greenish white." A **very** typical, huge *orientalis*. Probably a stray bird from the Southern Moluccas (Ceram), while the real form of the South-East Islands is *E. o. everetti*.

NOTES ON THE GENUS *EUDYNAMIS*.

The various forms of the genus *Eudynamis* are doubtless very difficult to understand. Though there is clearly no difficulty about those inhabiting India, the Malayan Islands and the Philippines, inasmuch as it is admitted that only one form occupies each area, the conclusions about the distribution in New Guinea, the Moluccas, etc., are not always quite the same. Count Salvadori * has *E. orientalis* on the Moluccas, to the Key Islands, *E. cyanocephala* in Australia, S.E. New Guinea, *E. rufiventer* in (Dutch) New Guinea, Batanta, Mysol. Shelley † distributes *E. orientalis* over the Moluccas, *E. cyanocephala* from Australia and New Guinea to Timor, *E. rufiventer* over New Guinea and the Papuan Islands. Finsch ‡ says " *E. honorata:* India to the Eastern Moluccas (Halmahera, Ternate, Tidore, Mare, Motir, Batjan). *E. rufiventer:* New Guinea, Salwatty, Bismarck-Archipelago. *E. cyanocephala:* Australia, S.E. New Guinea, Timor, Wetter, Alor, Aru, Key, Goram, Banda, Amboina. *E. orientalis:* Buru, Manipa, Kelang, Amboina, Ceram." In the same year I acknowledged § :—

Eudynamis honorata honorata: India to China.
" " *malayana:* Malay Archipelago.
" " *mindanensis:* Philippines to Sanghir.
" *orientalis orientalis:* Moluccan Islands only.
" " *rufiventer:* New Guinea and some of the Papuan Islands.
" " *salvadorii:* New Britain and New Ireland.
" *cyanocephala cyanocephala:* Australia (? to New Guinea).
" " *everetti:* Key Islands, Lesser Sunda Islands, and probably parts of New Guinea.

* *Orn. Pap.* i. pp. 359—370.
† *Cat. B. Brit. Mus.* xix. pp. 322—326.
‡ *Notes Leyden Museum* xxii. pp. 100—112, 1900.
§ Nov. Zool. 1900. pp. 231—232.

With regard to the differences of the *females* we all agree more or less, inasmuch as we consider the *females* and young of *E. orientalis* to be deeper rufous cinnamon below, with larger, less numerous, and always cinnamon-rufous (not whitish) spots above, and with wider rufous-cinnamon bars on wings and tail, while those of *E. cyanocephalus* are less rufous beneath, have much more numerous, smaller, and more or less whitish spots above, narrower and more buffy bars on wings and tail. Most authors, however, have been more or less uncertain, about the *males* especially. Shelley gives no key to the *males* of *orientalis*, *cyanocephala*, and *ruficenter*. Finsch (p. 101) admits that in many instances the adult black *males* are not distinguishable. I have said exactly the same with regard to those of *E. cyanocephala everetti* and *E. orientalis rufiventer* (p. 232). Nobody will consider the present status as an entirely satisfactory one, and I believe it is not maintainable. I have come to the following conclusions.

Although the *females* of most of the forms are rather different, they pass, in some instances, through a stage almost perfectly similar to that of other forms. It is not probably true, that any two forms breed in the same area. Their alleged occurrences in the same places are partly erroneous, partly exceptional cases of stray birds. Therefore it is more logical to treat nearly all the forms of the genus as subspecies of one species, to be called *E. orientalis*, which is the oldest name in the genus. They may thus be distinguished as follows :—

1.

♀. Crown of head with longitudinal whitish spots ; tail with narrow whitish bars ; underside whitish, thickly and widely barred with glossy blackish brown.

♂ ad. With a somewhat greenish gloss, wing about 187—197 mm.

Nestling black ; immature birds more rufous than adult *females*.

1.—*Eudynamis orientalis honoratus* (L.).

Cuculus honoratus Linn., *Syst. Nat.* ed. xii. 1766. p. 169 (ex Brisson : habitat in Malabaria !).

India, Ceylon, Andamans, Nicobars, east to China.

2.

Exactly like *E. orientalis honoratus*, but a little larger ; ♀ generally more rufescent, not so white. Nestlings black. Wing of ♂ ad. about 198—220 mm.

2.—*Eudynamis orientalis malayana* Cab. & Heine.

Eudynamis malayana Cab. & Heine, *Mus. Hein.* iv. p. 52 (1862).

Sunda Islands.

3.

Very similar to *E. o. honoratus* and *E. o. malayana*, but ♀ still more rufous as a rule, bars underneath narrower. Wing of ♂ ad. about 192—200 mm. Nestling black. In this form as well as in *E. o. honoratus* and *malayana* the rufescent bars on the tail (and wings) are very much wider in the young, much more narrow in the adult *females*. This is an important character for the understanding of the Papuan and Moluccan forms.

3.—*Eudynamis orientalis mindanensis* (L.).

Cuculus mindanensis Linn. *Syst. Nat.* ed. vii. p. 169. 1766 (ex Brisson : Mindanao).

Philippine Islands to Sanghir.

4.

Very large form. ♀ with fewer, larger, rufous cinnamon spots above, bars on wings and tail never very narrow, underside cinnamon, with narrow, few and often hardly any bars, head apparently never uniform black. Nestling cinnamon-buff. ♂ ad., wing about 213—220 mm.

4.—*Eudynamis orientalis orientalis* (L.).

Cuculus orientalis Linn., *Syst. Nat.* ed. xii. 1766. p. 168 (ex Brisson : India oriental.! I accept Amboina as the typical locality. I am not desirous to change this name, but it seems to me somewhat hazardous to accept Linnaeus' name for the Moluccan *Eudynamis*, although Brisson's figure and description agree perhaps better with it than with any other form of the genus).

Southern Moluccas only : Buru, Manipa, Kelang, Amboina, Ceram, and a specimen from Kisoei, Watoebela group, South-East Islands, in the Tring Museum, the latter probably a stray bird. I do not think that it occurs on the Key Islands, nor is the locality Lombok (*British Mus. Cat.* xix. p. 323) correct.

5.

♀ ad. Crown of head uniform black or very little spotted with rufous, chin and upper throat black, or very little streaked, on the sides of the black throat a buff moustachial line ; rufous bars on tail and wings much narrower and paler ; upper surface with numerous small whitish or pale buff roundish spots. Wing of ad. ♂ about 200—215 mm. Nestling cinnamon-buff.

5.—*Eudynamis orientalis everetti* Hart.

Eudynamis cyanocephala everetti Hartert, Nov. Zool. 1900. p. 231 (Sumba, type locality, Timor, Alor, Wetter, Moa, Key and South-East Islands. This distribution is a strange one, but I cannot separate specimens from these various places, and through Wetter and Moa a partial bridge is laid from the Lesser Sunda Islands to the Key group. Dr. Finsch, by stating *cyanocephala* to occur on Key, Wetter, Alor, entirely confirms my view. The young birds have the cinnamon-rufous bars on wings and tail as wide as in *E. o. orientalis*, and are easily mistaken for the latter, but are smaller).

6.

Perfectly like *E. o. everetti*, only larger. ♂ wing 216—222 mm. at least.

6.—*Eudynamis orientalis cyanocephalus* (Lath.).

Cuculus cyanocephalus Latham, *Ind. Orn. Suppl.* ii. p. 30 (1801 : Australia).

Australia, and perhaps Southern New Guinea.

7.

Very small form. Chin and upper throat of ♀ ad. streaked black and rufous. Wing of ♂ about 185—196 mm. ♀ apparently always very rufous spotted, the spots not so large as and more numerous than in *E. o. orientalis*, but of the same colour.

7.—*Eudynamis orientalis rufiventer* (Less.).

Cuculus rufiventer Lesson, *Voy. Coqu., Zool.* i. p. 623 (1828: New Guinea. I accept as the typical locality Dorey).

New Guinea and some of the adjacent islands (Salwatty, Batanta, Mysol, and probably Aru). All New Guinea specimens before me seem to belong to this form, and I am inclined to think that no others occur in Papua, except perhaps in the S.E. (?).

8.

Exactly like *E. o. rufiventer*, but larger. The adult *males* are apparently somewhat less greenish, more bluish. Wing of *males* about 203—210 mm.

8.—*Eudynamis orientalis salvadorii* Hart.

Eudynamis orientalis salvadorii Hartert, Nov. Zool. 1900. p. 232 (Type from New Ireland).

New Britain and New Ireland.

The adult *male* of this form resembles entirely that of *E. o. orientalis*, but the *female* is much more frequently spotted above, the under surface is lighter.

9.

Bill of the *male* black, thus distinguished from all the other forms.

9.—*Eudynamis orientalis melanorhyncha* S. Müll.

Eudynamis melanorhyncha S. Müller, *Verh. Nat. Gesch. Ned. Ind., Land-en Volkenk.* p. 176 (1839–44 : Celebes).

Inhabits Celebes and (according to Meyer and Wiglesworth) Peling (between Celebes and Sula).

10.

Exactly like *E. o. melanorhyncha*, but differs at a glance by its smaller size, and the *males* mostly by white markings on the chin and forehead, as shown by me in Nov. Zool. 1898. p. 127.

10.—*Eudynamis orientalis facialis* Wall.

Eudynamis facialis, Wallace, *Proc. Zool. Soc. London* 1862. p. 339 (Sula).

Inhabits the Sula Islands, east of Celebes.

I am sure that some of my ornithological friends will not agree with the present arrangement, but I predict that it will be the arrangement of the future, being much more natural than any other hitherto attempted. There are probably one or two errors in it, but they will then be corrected, and there are perhaps even still more forms that are separable—for example, a series from the Andamans should be compared with typical *honoratus*—but completeness cannot easily be reached at present, and we must be content to conclude as far as our material reaches at the time.

81. **Cuculus saturatus** Blyth.

" ♀ " ad., Teoor, 2. xi. 1899. (H. Kühn coll., No. 1478.)

♂ ♀. juv., Toeal, Little Key Islands, October and March. (Nos. 247, 585.)

82. **Scythrops novaehollandiae.**

Toeal, Little Key Islands.

83. **Cacomantis insperatus** Gould.

5 ad., 3 juv., Toeal, Key Islands. (H. Kühn coll., Nos. 207, 405, 465, 466, 467, 472, 666, 781.)

1 ♀ juv., Add, north of Great Key, 26. vii. 1900. (No. 2787.)

1 ♂ ad., Kisoei, 4. iii. 1900. (No. 2074.) "Iris yellowish grey; feet pale ochreous; bill black, under mandible brown, with black tip." (H. Kühn.)

2 ♂ ad., 1 ♀ ad., Teoor, October—November 1899. (Nos. 1518, 1556, 1560.)

2 ♂ ad., 1 ♀ juv., Gorom, Manawoka group, November 1899.

I have several times before alluded to the fact that Gould's name *insperatus* can very well be accepted for this bird, because his description and figures agree, and his original measurement (wing $6\frac{1}{2}$ inches) must be a clerical error.

84. **Cacomantis castaneiventris** Gould.

We have not received this species from the Key Islands, nor have former collectors found it there. Dr. Finsch, however (*Notes Leyden Museum* xxii. p. 82) mentions a "younger bird" from Key. It is quite possible that such a distinct species as *C. castaneiventris* might occur together with *C. insperatus*, but as Dr. Finsch mentions only one *immature* specimen, the case is perhaps worth further attention.

In no case can I agree to Dr. Finsch's proposal to replace the name *castaneiventris* by *C. infaustus* Cab. & Heine (*Mus. Hein.* iv. 1863. p. 23, ex Mysol). The description of *C. infaustus* in my opinion suits *C. insperatus* and not *C. castaneiventris* ("pectoris ventrisque plumis cinerascentibus, crissum versus latius latiusque rufescente limbatis, crisso tectricibusque subcaudalibus rufescentibus," etc.). Moreover, *C. insperatus* is the common bird of Mysol (and the Key Islands), while only the Leyden Museum has *castaneiventris* from that island. *C. infaustus* is therefore a synonym of *C. insperatus* = *dumetorum* = *assimilis*.

85. **Cacomantis variolosus** (Vig. & Horsf.).

Cuculus variolosus Vigors & Horsfield, *Trans. Linn. Soc.* xv. p. 300 (1826, young bird, Australia, type examined).

Cuculus tymbonomus S. Müller, *Ver. Nat. Gesch., Land-en Volkenk.* p. 177 (1839–44: Timor).

1 ♂ ad., Pulu Nai, Key Islands, 27. ix. 1899. "Iris ash-grey; feet dirty ochreous; bill black, under bill with base yellowish." (No. 1398.)

1 ♀ juv., Maar, Ceram-laut Islands, 16. xii. 1899. (No. 1689.)

These specimens agree perfectly with Australian *variolosus*. Dr. Finsch, following Salvadori and other authorities, has accepted the name *tymbonomus*, but *variolosus* is undoubtedly the oldest name.

86. **Misocalius osculans** Gould.

Collected on the Key Islands by Hoedt (Mus. Leyden). I believe it is correct to reject the name *palliolatus*, Latham's description being unsuitable.

87. **Chalcococcyx crassirostris** (Salvad.)

Lamprococcyx crassirostris Salvadori, *Ann. Mus. Civ. Gen.* xiii. p. 460 (Toeal).

2 ♂♂, 1 ♀ ad., Toeal, Little Key Islands. (Nos. 18, 133, 539.)

2 ♀ med., Toeal, Little Key Islands, 2. ix. 1897; 20. ix. 1899. (Nos. 49, 181.)

1 ♀ juv., Toeal, Little Key Islands, 22. iv. 1898. (No. 754.)

1 ♂ juv., Roemadan, Little Key group, 9. iv. 1898. (No. 647.)

2 ♂ ad., Kilsoein, Koer group, June—July 1899. (Nos. 1208, 1280.)

1 ♀ ad., Taam Island, 28. vii. 1899. (No. 1327.)

Ch. crassirostris is a rare bird in collections, and not always correctly described. The adult *male* and *female* (if correctly sexed) is above of a deep beautiful steel-blue to a dark metallic bronzy green. These blue and green birds are the same, as distinctly shown by some partially blue and green ones. A large white patch on the wing. Underside white, only on the thighs and flanks with a few bars. These bars are apparently not more, but rather less, developed in the oldest birds. The lateral rectrices with the outer web almost quite white, inner web white with the base widely and two very broad bars steel blue, or greenish blue. The other pairs without a trace of rufous in the old birds. The young bird in first full plumage is above uniform pale cinnamon, below white with or without a few faint bars. Tail above, pale cinnamon like the back. Between these two plumages is evidently an intermediate one which is above metallic bronzy greenish, below white with brown bars, though (if we accept that No. 539 is wrongly sexed) these might just as well be the adult *females*, both our specimens in this plumage (Nos. 49 and 181) being marked " ♀ "; both have rufous cinnamon edges to the upper wing-coverts.

88. **Chalcococcyx poecilurus** (Gray).

Chrysococcyx poecilurus, G. R. Gray, *Proc. Zool. Soc. London* 1861. pp. 431, 437 (Mysol and New Guinea: *type* from Mysol, in the Brit. Mus.).

1 ♀ imm., Add, north of Great Key, 1. viii. 1900. (H. Kühn coll., No. 2788.)

This specimen has certainly nothing to do with *C. crassirostris*, and I have no doubt belongs to *C. poecilurus*, though it would be desirable to examine adult examples. The wing is longer, the bill smaller, the markings in the tail different from those of *C. crassirostris*, and the upperside is pale greenish.

XV. CORACIIDAE.

89. **Eurystomus orientalis australis** Swains.

Toeal, Little Key, April and September. ♂ juv. in first plumage, 18. iv. 1898. (No. 746.)

Gorom, Manawoka, 12. xi. 1899. (No. 1648.)

Teoor, 20. x. 1899. (No. 1456.)

XVI. CAPRIMULGIDAE.

90. **Caprimulgus macrurus macrurus** Horsf.

Common at Toeal, Little Key.

1 ♂, Maar I., Ceram-laut group, 15. xii. 1899. (Kühn coll., No. 1684.)

XVII. CYPSELIDAE.

91. **Collocalia fuciphaga** (Thunb.).

4 Toeal, April 1898. (H. Kühn coll., Nos. 752, 753, 771, 772.)

2 Ohoitil, Little Key, February 1898. (Kühn coll., Nos. 571, 572.)

5 Kilsoein, Koer group, June—July 1899. (Kühn coll., Nos. 1222, 1226, 1227, 1257, 1285.)

92. **Collocalia esculenta** (L.).

♀ ad., Kilsoein, Koer group, 30. vi. 1899. (Kühn coll., No. 1256.)

XVIII. HIRUNDINIDAE.

93. **Petrochelidon nigricans** (Vieill.).

Hirundo nigricans Vieillot, *Nour. Dict. d'Hist. Nat.* xiv. p. 523 (1817 : Australia).

♂, Toeal, 15. ix. 1897. (No. 88.)

94. **Hirundo rustica gutturalis** (Scop.).

Toeal, January, March, October, November, December (common).

Ohoitil, Little Key group, 2. ii. 1898. (No. 570.)

Teoor, October, November. Common. (Nos. 1491, 1492, 1494, 1499, 1539, 1558.)

2 ♂ ad., 1 ♀ ad., Ondor, Gorom-laut, February 1900. (Nos. 2148—2150.)

1 ♀ ad., 3 juv., Maar, Ceram-laut, December 1899. (Nos. 1728, 1729, 1746.)

XIX. MUSCICAPIDAE.

95. **Monarcha leucura** Gray.

Monarcha leucura G. R. Gray, *P. Z. S.* 1858. p. 178 (Key Islands).

Very common at Toeal, Little Key. "Iris of the darkest brown (black), bill and feet blue-grey." (H. Kühn coll., Nos. 129, 129A, 266, 267, 287, 448, 456, 462, 509, 534, 751.)

The adult *female* is like the adult *male*—*i.e.*, blue-black, breast, abdomen, under wing- and under tail-coverts as well as the four outer rectrices white. The *female* is only a little smaller, the wing being about 4 mm. shorter. The young *male* and *female*, however, is above ashy-brown, the head grey, chin and middle of the throat greyish ; rest of foreneck, chest, sides of breast and of abdomen, bright cinnamon-rufous ; middle of abdomen, vent and under tail-coverts, white ; tail black, lateral rectrices white.

2 ♂ ad., 1 ♀ ad., 1 juv., Add, north of Great Key. (H. Kühn coll., Nos. 2768, 2769, 2770, 2780.)

1 ♂ ad., Elat, Great Key, February 1897. W. Doherty coll. Evidently restricted to the Key group.

96. **Monarcha nigrimentum** Gray.

Monarcha nigrimentum G. R. Gray, *P. Z. S.* 1860. p. 352 (Amboina.)

2 ♂ ad., 1 ♀ ad., 1 juv., Ondor, Goram-laut, February 1900. "Iris of the darkest brown, feet dark bluish grey, bill dark grey." (H. Kühn coll., Nos. 2140—2143.)

♂ ♀ ad. and juv., Kisoei, March 1900. (H. Kühn, Nos. 2075—2080.)

1 ♀ ad., Gorom, Manawoka, 11. xi. 1899. (No. 1620.)

The sexes and young are correctly described in the *Cat. B.* iv. p. 418. The adult *female* is like the adult *male*, only a little smaller.

97. **Monarcha castus** Scl.

Monarcha castus Sclater, *P. Z. S.* 1883. p. 53 (Tenimber or Timor-laut Is.).

4 ♂ ad., 2 ♀ ♀, 2 juv., Kilsoein in the Koer group, June—July 1899. ♂ ad.: "Iris deep brown (black), feet dark ash-grey, bill bright grey." (H. Kühn coll., Nos. 1192, 1198, 1199, 1200, 1218, 1235, 1236, 1302.)

I am not a little surprised to find *M. castus*, hitherto only known from Tenimber, on Kilsoein in the Koer group. I cannot, however, see any differences between our Tenimber and Kilsoein specimens.

Probably *M. castus* and *M. buruensis* Meyer from Buru should be treated as subspecies of *M. pileatus* from Halmahera, but I am unfortunately not able to compare the latter bird, of which only the types in the Leyden Museum seem to be known.

In the new *Hand-list*, Vol. III. p. 281, Dr. Sharpe gives as the habitat of *M. pileatus* "Halmahera and Buru." This cannot be correct, *M. buruensis* (which he also mentions) being the Buru representative of *M. pileatus*. The use of trinomials would doubtless have avoided this error.

98. **Monarcha inornatus kisserensis** Meyer.

Monarcha kisserensis A. B. Meyer, *Sitzungsber. und Abh. Isis, Dresden* 1884. p. 227.

4 ♂ ad., 1 ♀ ad., 1 jun., Toeal. (Nos. 151, 158, 195, 239, 589, 639.)

1 Elat, Great Key. (Doherty coll.)

1 ♀ ad., Add, north of Great Key, 29. vii. 1900. (No. 2806.)

4 ♂♂, 1 ♀, 1 ♀ (?) (with albinistic bill and feet), Teoor, October—November 1899. (Nos. 1540, 1544, 1557, 1575, 1581, 1583.)

1 ♀ ad., Kisoei, 9. iii. 1900. (No. 2081.)

1 ♂, Goram, Manawoka group, 13. xi. 1899. (No. 1598.)

3 ♂♂, 2 ♀ ♀, Maar, Ceram-laut, December 1899. (Nos. 1695, 1696, 1724, 1725, 1743.)

All these specimens belong to the light form, *M. i. kisserensis* Meyer, the typical dark one being from Papua.

99. **Rhipidura tricolor** (Vieill.)

Muscicapa tricolor Vieillot, *Nouv. Dict.* xxi. p. 430 (1818 : Timor, errore.)

4 ♂♂, 1 ♀, Maar, Ceram-laut group, December 1899. (Nos. 1749, 1750, 1751, 2026, 2027.)

2 ♂♂, Gorom, Manawoka, November 1899. (Nos. 1610, 1640.)

3 ♀ ♀, Ondor, Goram-laut, February 1900. (Nos. 2135—2137.)

♀, Teoor, March 1900. (No. 2129.)

Seems to be absent from the Key group.

100. **Rhipidura setosa assimilis** Gray.

Rhipidura assimilis G. R. Gray, *P. Z. S.* 1858. pp. 176. 192 (Key Islands).

Toeal, common. (Nos. 78, 445, 457, 493, 641 in Mus. Tring.)

Add, north of Great Key, July 1900. (Nos. 2771—2774.)

Kisoei, March 1900. (Nos. 2084—2089.)

Koer Island, 11. x. 1899. (No. 1408.)

Kilsoein, Koer group, June—July 1899. (Nos. 1194, 1209, 1215, 1217, 1219, 1258.)

Teoor, October—November 1899. (Nos. 1450, 1452, 1469, 1527, 1550, 1551, 1552, 1559, 1576, 1579.)

Taam, July 1899. (Nos. 1349, 1352, 1364, 1361, 1371.) "Iris dark brown, bill and feet black."

Although easily distinguished from *Rh. setosa setosa*, this is, no doubt, a representative form of the latter.

101. **Rhipidura squamata** Müll.

Rhipidura squamata S. Müller, *Verh. Nat. Gesch., Land-en Volkenkunde* p. 184 (1839–44 : Banda).

♂ ♀, Soa Island, Little Key group, 10. vii. 1898. (Nos. 807, 808.)
♂, Cape Ngidioen, Little Key Islands W., 20. v. 1898. (No. 794.)
♀, Roemadan, Little Key Islands, 9. iv. 1898. (No. 686.)
♂, Godan Island, Little Key Islands, 18. v. 1898. (No. 796.)
♂, Ohimas Island, Little Key Islands, 5. iv. 1898. (No. 685.)
3 ♀ ♀, Kilsoein, in the Koer group, June—July 1899. (Nos. 1212, 1259, 1287.)
♂, Manggoer Island, 29. ix. 1899. (No. 1421.)
♂, Fathol Island, in the Manggoer group, 7. x. 1899. (No. 1429.)
2 ♂♂, Taam Island, 22. vii. 1899. (Nos. 1344, 1351.)
1 ♀, Maar Island, in the Ceram-laut group, 21. xii. 1899. (No. 2029.)

I have hitherto seen *Rhipidura squamata* from the Banda Islands only. It is nevertheless easy to understand that it should also occur on the S.E. Islands. In the Key group it is probably a recent immigrant, as it is not found at Toeal, but only on the outlying islets.

Count Salvadori described a *Rhipidura griseicauda* from Waigiu, which he afterwards united with *Rh. squamata*. I am inclined to think that the Count's first view may be after all more correct, and that the birds from Waigiu and Salwatty (the new *Hand-list* of Dr. Sharpe adds "New Guinea") are not exactly the same, because we have different forms on the Moluccas.

102. **Myiagra galeata goramensis** Sharpe.

(Cf. Nov. Zool. x. 1903. p. 9.)

Myiagra goramensis Sharpe, *Cat. B.* iv. p. 386 (1879 : Goram).

3 ♂♂, 2 ♀ ♀, Goram, Manawoka, November 1899. (Nos. 1602, 1613, 1614, 1618, 1621.)

6 ♂♂, 6 ♀ ♀, Maar, Ceram-laut group, December 1899. (Nos. 1706—1713, 1715—1717, 1748.)

"Iris dark brown, feet black (plumbeous black), bill bluish grey with black tip."

103. **Muscicapa griseisticta** Swinh.

Muscicapa griseisticta Swinhoe, *Ibis* 1861. p. 330 (China).

♀, Roemadan, Little Key group, 9. iv. 1898. (No. 675.)
♀, Maar, Ceram-laut group, 11. xii. 1899. (No. 1694.)
(Migrant from the north.)

104. **Gerygone keyensis** Bütl.

Gerygone keyensis Büttikofer, *Notes Leyden Museum* xv. p. 258 (1893 : Little Key).

7 ♂♂, 1 ♀, Soa, Little Key group, April—May 1898, 1899. (Nos. 668, 680, 684, 695, 1393, 1395, 1396, 1397.)

1 ♀, Eer Island, Little Key group, December 1900.

3 ♂♂, 2 ♀♀, Kilsoein, in the Koer group, June—July 1899. (Nos. 1196, 1197, 1224, 1283, 1284.)

1 ♂, Komeer Island, Koer group, 15. ix. 1899. (No. 1400.)

♂ ♀, Tiandoe, December 1900.

♂ ♀, Manggoer Islands, September—October 1899. (Nos. 1427, 1440.)

2 ♂♂, 2 ♀♀, Taam Island, July 1899. (Nos. 1363, 1366, 1389, 1389A.)

The adult birds are underneath white, sides of breast and body rufous brown, crown more or less distinctly ashy. The young birds are above more uniform brown, less rufous brown, but tinged with olive ; the under surface is pale sulphur yellow, sides tinged with brown. "Iris yellowish grey, feet plumbeous, bill brownish black." The adult *female* is like the *male*, but smaller ; wing about 54, instead of 59—60½ mm.

XX. CAMPEPHAGIDAE.

105. **Graucalus pollens** Salvad.

Graucalus pollens Salvadori, *Ann. Mus. Civ. Gen.* v. p. 75 (1874 : Key).

3 ♂♂, 2 ♀♀, Toeal, on Little Key. (H. Kühn coll., Nos. 1—5.)

♂ ♀, Add, north of Great Key, 26. vii. 1900. (H. Kühn coll., Nos. 2797, 2798.)

"Iris of a very dark brown (nearly black), bill and feet black."

A young *female* has white edges, narrow and sharply defined, to the remiges and larger upper wing-coverts.

The under wing-coverts of this specimen have rusty-buff edges and cross-bars near the tip, the under tail-coverts whitish tips, and a subterminal blackish bar.

Graucalus pollens is only known from the Key Islands.

106. **Graucalus melanops** (Lath.).

Corvus melanops Latham, *Ind. Orn. Suppl.* ii. p. xxiv (1801 : hab. in Nova Hollandia).

Toeal, on Little Key.

Soa, near Little Key.

Add, north of Great Key. (No. 2795.)

2 ♀♀, Heinar, in the Tiandu group, 17. vii. 1899. (Nos. 1303, 1305.)

2 ♀♀, Noesreun Island, in the Taam group, 2. ii. 1899. (Nos. 1381, 1382.)

Generally the Key examples have a lighter breast than specimens from Australia and New Guinea.

107. **Edoliisoma dispar** Salvad.

Edoliisoma dispar Salvadori, *Ann. Mus. Civ. Gen.* xii. p. 329 (1878 : Key Bandan, 28. vii. 1873 Beccari coll.).

Toeal, on Little Key. (Nos. 8, 96, 138, 162, 214, 292, 758.)

♂, Add, north of Great Key, 30. vii. 1900. (No. 2760.)

8, Teoor, October—November 1899. (Nos. 1451, 1460, 1489, 1528, 1529, 1533, 1535, 1543.)

♂, Manggoer, 9. x. 1899. (No. 1439.)

2 ♂ ♀, Goram, Manawoka group. (Nos. 1624, 1646, 1653.)

2 ♂♂, Maar, Ceram-laut, December 1899. (Nos. 1685, 1687.)

108. **Edoliisoma amboinensis** (Hartl.).

Campephaga amboinensis Hartlaub, *Journ. f. Orn.* 1865. p. 153 (Amboina : Forsten coll. in Mus. Lugd.).

♂ juv., in moult, Maar Island, Ceram-laut group, 11. xii. 1899.

" Iris greyish-brown, bill and feet black." (No. 1686.)

I have no doubt that this specimen, although in that stage of plumage it is most difficult to determine, belongs to *E. amboinensis*, which is known to inhabit Amboina and Ceram, but certainly not Mysol, as erroneously stated in the *Catalogue of Birds*, Vol. IV.

109. **Lalage karu polygrammica** (Gray).

[*Ceblepyris karu* Lesson, *Voy. Coqu. Zool.* i. p. 633 (1828 : New Ireland).]
Campephaga polygrammica Gray, *P. Z. S.* 1858. p. 179 (Aru).

2 ♂♂, 2 ♀♀, Toeal, on Little Key, August, September, October. (H. Kühn coll., Nos. 67, 163, 163A, 163B.)

♂ ♀, Add, north of Great Key, July—August 1900. (Nos. 2781, 2782.)

I have provisionally adopted the above nomenclature for the Key Island form. It certainly differs from the typical *karu* of New Ireland and New Britain in its darker, more clouded, and more strongly barred underside. It seems to me that birds from New Guinea, the Aru and Key Islands are similar, although our material from Aru is scanty, and there may be even more forms. I have not adopted Gray's name *rufiventris*, based on the *Echenilleur à ventre roux* of Hombron and Jacquinot, from Raffles Bay, North Australia, because I doubt that any Australian birds must be united with *L. karu karu*.

Cf. Nov Zool. 1898. p. 523.

XXI. ORIOLIDAE.

110. **Sphecotheres flaviventris** Gould.

Sphecotheres flaviventris Gould, *P. Z. S.* 1849. p. 111 (Australia, *typ. loc.* Cape York).

Toeal, on Little Key, Elat, on Great Key, Add, north of Great Key, July, September, October. ♂ ad., " Iris brown (dark coffee-brown), bill black, feet pale flesh-colour ; " ♀, " Iris brown, bill brownish (brown), feet black (blackish)."

There seems to be no difference between (typical) Queensland and Key birds. Key Islands, Kühn, Webster coll. (Kühn coll., Nos. 54, 108, 180, 215, 217, 245, 2785, 2786 ; Webster coll., Nos. 5, 74.)

(The absence of *Corvidae* on the islands is most peculiar. The genus *Cracticus*, though common on the Aru Islands, has not extended its range to the Key group.)

XXII. DICRURIDAE.

111. **Dicrurus megalornis** Gray.

Dicrurus megalornis Gray, *P. Z. S.* 1858. pp. 179, 193 (Key Islands).

♂ ♀, Tocal, on Little Key, August—September 1899. (Kühn coll., Nos. A, B, C.)
♂, Add, north of Great Key, 25. vii. 1900. (Kühn coll., No. 2796.)
♂ ♀, Teoor, October—November 1899. (Kühn coll, Nos. 1457, 1474, 1475.)
♂ ♀ jun., Kisoei, in the Watoebela group, March 1900. (Kühn coll., Nos. 2114, 2115, 2116, 2117.)
♀ ad., Ondor, on Goram-laut, 24. ii. 1900. (Kühn coll., No. 2147.)
♀, Goram, Manawoka group, November 1899. "Iris vermilion." (No. 1591.)
♂, Kilsoein, Koer group, July 1899. (No. 1275.)

XXIII. STURNIDAE.

112. **Calornis metallica** (Temm.).

Large series from Tocal, Little Key, September—November. (Kühn coll., Nos. 12, 68, 204, 309, 310, 315, 323.)
♀, Teoor, October 1899. (Kühn coll., No. 1548.)
♂ ♀ Kisoei, March 1900. (Kühn coll., Nos. 2120, 2121, 2122.)
♂ ♀, Kilsoein, Koer Islands, June—July 1899. (Kühn coll., Nos. 1238, 1270, 1271, 1276, 1278.)
♂ ♀, Goram, Manawoka group, November 1899. (Kühn coll., Nos. 1595, 1611, 1630, 1651, 1657.)

XXIV. ARTAMIDAE.

113. **Artamus leucorhynchus** (L.).

♂, Manggoer (Mangni) Island, 4. x. 1899. (Kühn coll., No. 1419.)
♂ ♀, Taam Island, July 1899. (Kühn coll. Nos. 1335, 1336, 1346, 1348, 1362.)
♂ nestling, "Oeboer," Little Key group, 25. i. 1898. (No. 543.)
♂ ad., "Esmanoek Island," Little Key group, 14. xii. 1897. (No. 471.)
♀ ad., Soa Island, Little Key group, 23. v. 1899. (No. A.)
♀ jun., "Eer Island," Little Key group, 13. xii. 1900. (No. B.)
♂ ad., Pulu Nai, Key Islands, 27. ix. 1899. (No. C.)

XXV. GRALLINA.

114. **Grallina picata** (Lath.).

♀ ad., Kilsoein, Koer group, 11. vii. 1899. "Iris yellowish white, feet black, bill horn-white with blackish tip." (H. Kühn coll., No. 1274.)

The occurrence of this Australian species as far north as Kilsoein is very strange. Probably the specimen is only a straggler, and it might never again be found on the South-East Islands.

(I am still uncertain about the proper systematic position of *Grallina*.)

XXVI. LANIIDAE.

115. **Pachycephala rufipennis** Gray.

Pachycephala rufipennis Gray, *P. Z. S.* 1858. pp. 178. 192 (Key Islands).

The type is a young bird with chestnut-rufous edges to the secondaries. In the adult bird the remiges are deep brown, margined with olive-brown.

Kühn sent a series from Toeal on Little Key and from Add, north of Great Key. Doherty obtained a *female* at Elat on Great Key. (Kühn coll., Nos. A, 389, 454, 496, 2775, 2777, 2778.)

Pachycephala rufipennis is evidently restricted to the Key Islands.

116. **Pachycephala phaionotus** (Bp.).

Myiolestes phaionotus Bonaparte (ex Müll. MS. in Mus. Lugd.), *Consp. Av.* i. p. 358 (1850 : Banda).

The diagnosis of Bonaparte is very poor, and even incorrect. Therefore his name should not be adopted, except for the one reason, that the type is in the Leyden Museum, showing to which species the diagnosis refers.

The distribution of this species is very peculiar, as it occurs on Banda, on Tifore, Dammar in the Northern Moluccas, Ternate, Mareh, Motir in the Moluccas, on Mysol, Salwatty and Waigiu, and reoccurs on Mafor in the Geelvink Bay, all over the South-East Islands, and on little outlying islands of the Aru group. It evidently shares with a few other land-birds the peculiarity to inhabit very small oceanic islands only, not the neighbouring larger main islands. It has not yet been found on the larger Moluccas (Halmahera, Batjan, Obi, Buru, Ceram), nor anywhere on New Guinea, nor on the larger islands of the Key and Aru groups. (*Caloenas nicobarica* inhabits almost only small islands near larger ones uninhabited by this pigeon; *Tanygnathus megalorhynchus* shuns the main island of Celebes, while occurring on many small islets close to its coasts. The forms of *Astur torquatus* avoid Celebes, though being found on islands close to it. Attention to similar cases will be called in future.)

Mr. Kühn sent the following specimens of *P. phaionotus* :—

A series from Banda.

3 ♂♂, Maar Island, near Ceram-laut, December 1899. (Nos. A, B, 1723.)

6 ♂♂, 3 ♀♀, from Kilsoein and Komeer Islands, in the Koer group. (Nos. 1228, 1234, 1237, 1241, 1288, 1289, 1403, 1410, 1428.)

3 ♀♀, Taam Island, July 1899. (Nos. 1339, 1340, 1347.)

♂♀, Manggoer Island, October 1899. (Nos. 1422, 1424.)

♂, Roemadan Island, Little Key group, 9. iv. 1898. (No. 673.)

♂, Godan Island, Little Key group, 17. v. 1898. (No. 793.)

4 from Pulo Babi, Aru Islands.

117. **Pachycephala kuehni** Hart.

Pachycephala kuehni Hartert, *Bull. B. O. C.* viii. p. xiv (November 1898 : Little Key Island).

This species seems to be restricted in its habitat to the Key Islands. It differs from its nearest ally, *P. cinerascens*, of the Northern Moluccas, in being more brownish above, but most strikingly in the colour of the under surface, which is ochraceous buff, tinged with greyish brown on the chest and flanks ; while in

P. cinerascens the chest is ashy grey, the abdomen white or whitish. The iris is very deep brown, feet and bill black. The *female* differs from that of *P. cinerascens* also in the browner upperside and more reddish buff underside. Its iris is dark brown, bill and feet black. The young bird has a brownish bill, and much wider blackish shaft-stripes than the adult *female*, on a whitish buff underside. The dimensions are those of *P. cinerascens*.

♂ ad., Toeal, Little Key, 11. xi. 1897. (H. Kühn coll., No. 287.) Type of *P. kuehni*.

♂ ad., Toeal, October 1897. (H. Kühn coll., No. 193.)

♀ juv., Toeal, 16. ix. 1897. (H. Kühn coll., No. 82.)

♂ ad., Toeal, 24. viii. 1897. (H. Kühn coll., No. 13.)

♀ in moult, Toeal, 22. viii. 1897. (H. Kühn coll., No. 50.)

1 ♂, 2 ♀♀, Toeal, December 1897. (H. Kühn coll., Nos. 386, 469, 495.)

118. **Pachycephala tianduana** Hart.

Pachycephala tianduana Hartert, *Bull. B. O. Club* xi. p. 53 (March 1901 : Tiandu, west of the Key Islands).

This very interesting form of *Pachycephala* belongs to the same group as *P. leucogaster*, *arctitorquis*, and *meeki*. I have no doubt that they should in future all be treated as subspecies of one species, but at present the Tring Museum possesses no specimen of *P. leucogaster*, the first-named form of this group, which I have only been able to compare in the British Museum. Before I have a better series of the latter, and have studied it more closely, I refrain from using trinomials for this group, and as their habitats are far separated no harm can arise from this.

The *male* of my *P. tianduana* resembles that of *P. meeki* (from Rossel Island), but differs in its slightly paler upperside, longer wing, cream-coloured abdomen, and more slaty, less deep black tail. It differs from the *male* of *P. arctitorquis* (from Tenimber and Dammer) in the much darker colour of the upperside, wider black pectoral crescent, and darker tail. The sides of the breast are light grey, slightly tinged with buff, not so grey as in *P. meeki*, and not white as in *P. arctitorquis*.

The two *females* are worn, and apparently both immature. They differ widely from those of *P. meeki* in being brownish, not ashy greyish, above and on the tail, and in being whitish buff or buffy white, instead of rusty-buff, underneath. The *female* of *P. arctitorquis* differs still more, being above brownish cinnamon or cinnamomeous ashy, and underneath generally less striated. As all the *males* are worn or moulting, the *females* apparently both immature, exact measurements cannot be given, but the wing of the *male* is at least 86 mm. long.

Mr. Heinrich Kühn sent the following specimens :

2 ♂ ad., Tiandu, 19. xii. 1900. "Iris brownish red, bill black, feet dark plumbeous." (Nos. A, type of the name *tianduana*, B.) Both in splendid freshly-moulted plumage, wings still in moult.

1 ♂ ad., Tiandu, 19. xii. 1900, in quite worn plumage, moult only just beginning. (No. C.)

1 ♀ (apparently young), Heniar islet, Tiandu Islands, 17. vii. 1899. "Iris dark brown, bill plumbeous, feet greyish black." (No. 1307.)

1 ♀, Tiandu, 18. xii. 1900. Apparently not quite adult. (No. D.)

XXVII. MELIPHAGIDAE.

119. **Stigmatops squamata** Salvad.

Stigmatops squamata Salvadori, *Ann. Mus. Civ. Gen.* xii. p. 337 (1878: Koer, Rosenberg coll., Mus. Leyden.

4 ad., 2 imm., Kilsoein, Koer group, June 1899. "Iris grey (dark grey), feet plumbeous (dark grey, ashy grey), bill black, brownish black in the young bird." (H. Kühn coll., Nos. 1191, 1203, 1210, 1221, 1232, 1233.)

3 ad., 2 juv., Manggoer, October 1899. "Iris yellowish grey." (H. Kühn coll., Nos. 1420, 1423, 1425, 1437, 1438.)

1 ♂ ad., Fathol Island, Manggoer, October 1899. (H. Kühn coll., No. 1436.)

5 ad., 1 juv., Taam Island, July 1899. "Iris bright grey, bright yellowish grey." (H. Kühn coll., Nos. 1326, 1350, 1353, 1354, 1355, 1358.)

3 ♂♂, 3 ♀ ad., Godan islet, near Little Key, May 1898. "Iris dark brown, feet bright grey." (H. Kühn coll., Nos. 785, 786, 789, 790, 791, 792.)

All these specimens are perfectly alike, the *males* being much larger than the *females*. The young is slightly more greenish, the breast more uniform, not distinctly squamated as in the adult bird. *S. squamata salvadorii* from Tenimber is a much smaller subspecies, but otherwise perfectly similar. (Cf. Nov. Zool. 1900. p. 16, 1901. p. 171.)

120. **Philemon moluccensis plumigenis** (Gray).

Tropidorhynchus plumigenis G. R. Gray, *P. Z. S.* 1858. pp. 174—191 (Key Is.).

6, Toeal, Key Islands. "Iris coffee-brown (greyish brown), bill and feet black." (Kühn coll., Nos. 3, 27, 54, 3 without numbers.)

(Cf. Nov. Zool. 1901. p. 171.)

121. **Zosterops chloris** Bp.

Zotserops chloris Bonaparte, *Consp. Av.* i. p. 398 (1850: ex Müller MS. in Mus. Leyden, Banda).

Zosterops rufifrons Salvadori, *Ann. Mus. Civ. Gen.* vi. p. 79 (Gisser, near Ceram-laut, desc. err.).

Zosterops brunneicauda Salvadori, *Ann. Mus. Civ. Gen.* xvi. p. 82 (1880).

4, Ceram-laut, December 1899. "Iris dark chocolate, feet grey, bill black, under mandible bright grey, black towards tip." (H. Kühn coll., Nos. 1765, 1766, 1767, 2028.)

1 ♂, Komeer, Koer I., September 1899. (No. 1401.)

3, Manggoer, October 1899. "Iris chocolate-brown, feet dark ash-grey, bill black, mandible greyish or brownish black. (Nos. 1433, 1434, 1435.)

6, Kilsoein, Koer Is., June—July 1899. (Nos. 1192, 1201, 1211, 1213, 1214, 1278.)

4, Taam I., July 1899. (Nos. 1345, 1356, 1357, 1365.)

1, Teniai, Taam Is., August 1899. (No. 1367.)

6, Soa, near Little Key, April, July 1898. (Nos. 670, 715, 803, 804, 805, 806.)

Dr. Finsch (*Tierreich, Lief.* 15, *Zosteropidae*, p. 27, 1901) is evidently correct in uniting *chloris*, *rufifrons*, and *brunneicauda*. It is true that many specimens from Pulu Babi (Aru group), Koer, Soa, Manggoer and Ceram-laut are larger, but others from the same places do not differ from the Banda form—*i.e. Z. chloris chloris*. If characters should be found to separate the Pulu Babi, Key and

S.E. Islands form, then the name *Z. rufifrons* must stand for the latter. Specimens in the *rufifrons* plumage are not stained with blood, but it is the juice of a fruit or flower that stains the plumage in such a way, that some specimens are orange all over.

122. **Zosterops grayi** Wall.

Zosterops grayi Wallace, *P. Z. S.* 1863. p. 494 (Key Islands).

Mr. Kühn sent a series from Add islet, north of Great Key, and one from Elat on Great Key Island, where W. Doherty also obtained a *female*. It evidently does not occur on Little Key (Toeal). Mr. Kühn describes the iris as bright chocolate, the feet as yellowish grey, yellowish plumbeous, bluish grey, the bill as black. (Nos. 106, 2810, 2811, 2812, 2813, 2814, 2816.)

The alleged occurrence of *Z. grayi* on the Aru Islands (teste Rosenberg) is almost certainly erroneous. *Zosterops novaeguineae* is found on the Aru Islands, for we have a specimen shot at Wokan by Mr. Kühn. *Z. novaeguineae* is much smaller than *Z. grayi*, has darker sides and no yellow lores or frontal band.

123. **Zosterops uropygialis** Salvad.

Zosterops uropygialis Salvadori, *Ann. Mus. Civ. Gen.* vi. p. 78 (1874 : Toeal, Key Islands).

This bird is only known from Toeal, Little Key. Mr. Kühn sent a fine series. The iris he found bright chocolate-brown, the feet bright plumbeous (bright grey, plumbeous), the bill brownish black. (Nos. 21, 115, 148, 261, 265, 369, 453, 489, and some without numbers.)

XXVIII. NECTARINIIDAE.

124. **Cinnyris theresia** (Salvad.).

Hermotimia theresia Salvadori, *Atti R. Ac. Sc. di Torino*, x. pp. 208, 214, tab. f. 1 (1874 : Key Islands).

Mr. Kühn sent a series from Toeal and Ohimas islet, near Little Key Island. "Iris very dark brown (black), bill and feet black."

One *female* from Add, north of Great Key. (Kühn, No. 2805).

1 ♂ juv. from Elat, Great Key. W. Doherty coll.

Toeal and Ohimas. (Nos. 22, 365, 366, 368, 446, 475, 511, 679, 699.)

125. **Cinnyris aspasia aspasioides** (Gray).

[*Cinnyris aspasia* Lesson, *Voy. Coqu. Zool.* i. p. 676. Pl. XXX. (1828 : typ. loc. Dorey, New Guinea).]

Nectarinia aspasioides Gray, *P. Z. S.* 1860. p. 348 (Amboina).

5 ♂♂, Maar, Ceram-laut, December 1899. "Iris, feet and bill black." (Nos. 1701—1704, 1738.)

2 ♂♂, 1 ♀, Ondor, Goram-laut, February 1900. (Nos. 2139, 2144, 2145.)

2 ♂♂, 4 ♀♀, Goram Is., Manawoka group, November 1899. (Nos. 1594, 1599, 1604, 1619, 1626, 1649.)

This form differs from *C. a. aspasia* in the steel-blue throat without a violet-purple sheen. It can doubtless only be considered as a subspecies of the *aspasia* group, like *chlorocephala*, *cornelia*, *christianae*, *corinna*, *mysorensis*, *maforensis*, and probably others more. In view of the occurrence (if there is no mistake about

it?) of a form of *aspasia* ("*jobiensis*") and another one near *nigriscapularis* ("*salvadorii*") on Jobi, we must keep the latter two (*nigriscapularis* and *salvadorii*) specifically separate, and so we may have to do with *theresia* and the *auriceps* group. Otherwise I should treat them all as subspecies of one species.

XXIX. DICAEIDAE.

126. **Dicaeum vulneratum** Wall.

Dicaeum vulneratum Wallace, *P. Z. S.* 1863. p. 32 (Ceram).

1 ♂, Ondor, Goram-laut, 24. ii. 1900. "Iris deepest brown, bill and feet black." (H. Kühn coll., No. 2138.)

Doherty obtained a *male* on Saparua, a little island east of Amboina, in March 1897.

127. **Dicaeum keiense** Salvad.

Dicaeum keiense Salvadori, *Ann. Mus. Civ. Gen.* vi. p. 314 (1874: Key Islands).

Common at Toeal, Little Key. 5 ♂♂, 4 ♀♀, 1 pullus, killed 31. x. 1897. (Nos. 48, 86, 89, 114, 147, 257, 263, 391, 447, 701).

1 ♂, Add, north of Great Key, July 1900. (No. 2804.)

1, Elat, Great Key, February 1897. (Doherty coll.)

4 ♀♀, Teoor, October 1899. (Nos. 1582, 1585, 1586, 1587.)

2 ♂♂, Kilsoein, in the Koer group, July 1899. (Nos. 1260, 1286.) "Iris deep brown (black), bill and feet black."

XXX. TURDIDAE.

128. **Monticola cyanus solitarius** (P. L. S. Müll.)

Turdus solitarius P. L. S. Müller, *Natursyst. Suppl.* p. 142 (1776: ex Pl. Enl. 564—Philippines).

1 ♀, 16. ix. 1899, Komeer Island, Koer group. (No. 1402.)

(Migrant from the north.)

XXXI. SYLVIIDAE.

129. **Locustella fasciolatus** (Gray).

Acrocephalus fasciolatus G. R. Gray, *P. Z. S.* 1860. p. 349 (Batjan).

6 ad., 3 juv., Teoor, October 1899. (Nos. 1493, 1497, 1526, 1536—1538, 1573, 1574.)

1 immat., Kisoei, 9. iii. 1900. (No. 2082.)

3 ad., Maar, Ceram-laut group, December 1899. (No. 1690, 1691, 1747.)

(Migrant from the north.)

130. **Phylloscopus borealis** (Blas.)

Phyllopneuste borealis Blasius, *Naumannia* 1858. p. 313 (Heligoland).

1 (sex ?), Tooer, 4. xi. 1899. (No. 1525.)

4 ♂♂, 2 ♀♀, Maar, Ceram-laut group, December 1899. (Nos. 1720—1722, 1744, 1745.)

(Migrant from the north.)

XXXII. MOTACILLIDAE.

131. **Motacilla flava** L.

4 ♂, 1 ♀, Tiandoe, December 1900.
1 ♂, Teoor, October 1899. (No. 1553.)
3 ♂♂, 2 ♀♀, Maar I., Ceram-laut, December 1899. (Nos. 1726, 1739—1742.)
(Migrant from the north.)

132. **Motacilla boarula melanope** Pall.

♂ ♀, Teoor Island, October 1899. (Nos. 1496, 1549.)
(Migrant from the north.)

XXXIII. PLOCEIDAE.

133. **Munia molucca** (L.)

Loxia molucca Linn., *Syst. Nat.* ed. xii. 1766. p. 302 (ex Brisson, Moluccas).

Toeal, Little Key, common. (Nos. 235, 260, 279, 322, 381.)
♀, Eer Island, Little Key group, 14. xii. 1900.
♂, Heniar Island, Tiandu group, 17. vii. 1899. (No. 1282.)
2 ad., 1 juv., Kilsoein, Koer group, June—July 1899. (Nos. 1202, 1225, 1281.)
3 ad., Kisoei, March 1900. (Nos. 2069—2071.)
2 juv., Taam, July 1899. (Nos. 1360, 1368.)
♂, Goram, Manawoka group, 15. xi. 1899. (No. 1601.)
♀, Maar, Ceram-laut group, 13. xii. 1899. (No. 1709.)

RALLIDAE (See Nov. Zool. 1901. p. 96).

Add :—

134. **Porphyrio melanotus** Temm. (? subsp.).

"♀" (apparently not fully adult), Mataholat, Great Key, 9. ix. 1898. "Iris bright brown, feet dirty red with black joints, bill vermilion." (Kühn coll., No. 836.)

This specimen, compared with our series, is extremely small, especially the bill, legs and feet, though the wing is not appreciably smaller. See Dr. Sharpe's notes on p. 206, *Cat. B.* xxiii., about the probable existence of a small (northern) race.

XXXIV. ARDEIDAE.

135. **Nycticorax caledonica** (Gm.)

Ardea caledonica Gmelin, *Syst. Nat.* i. p. 626 (1788: ex Latham, New Caledonia! Specimens from New Caledonia should be compared! ♀)

4 ad., Toeal. (Kühn coll., Nos. 499, 527, 619, 798.)
1 juv. in first plumage, Toeal, 28. viii. 1898. (No. 1390.)
♀ ad., Kilsoein, Koer, July 1899. (No. 1301.)
♂ ad., Manggoer, September 1899. (No. 1448.)
♀ ad., Teoor, October 1899. "Iris chromeous, feet pale sulphureous, bill black, under mandible greenish yellow." (No. 1584.)
2 ♂ ad., Taam, July—August 1899. (Nos. 1383, 1385.)

136. **Demiegretta sacra** (Gm.).

Ardea sacra Gmelin, *Syst. Nat.* i. p. 640 (1788 : ex Latham, Tahiti).

A series from Toeal (♂ ad. in nuptial plumage, 6. iv. 1898) in slaty-grey, white and spotted plumage. (Nos. 276, 655, 709, 710.)

♂ ad. (slate), Teoor, October 1899. (No. 1515.)

♂ ad. (white), Taam Islands, August 1899. (No. T. 1015.)

2 ad. (white and slate), Manggoer, September 1, 1899 (moulting). (Nos. 1411, 1412.)

1 ♀ (slate), Ondor, Goram-laut, February 1900. (No. 2193.)

137. **Butorides javanica** (Horsf.) (? subsp.).

3 ad., juv., Toeal. (Nos. 303, 497, 621.)

2 ad., juv., Oeboer, Little Key. (Nos. 827, 828.)

1 ad., Add, north of Great Key, July. (No. 2823.)

These specimens are smaller than *stagnatilis*, and the adult birds have no distinct blackish spots along the throat and foreneck. *B. stagnatilis*—which, according to Dr. Sharpe's distribution (*Cat. B.* xxvi.), should occur on the Key Islands, is, of course, only a subspecies of *B. javanica*, like the large-billed *amurensis* and the dark-bellied *spodiogaster*.

138. **Ardetta sinensis** (Gm.).

Ardea sinensis Gmelin, *Syst. Nat.* i. p. 642 (1788 : ex Latham, China).

♀, Elat, Great Key, 23. ix. 1897. (No. 101.) Bill very short. A series should be compared ! !

139. **Notophoyx novaehollandiae** (Lath.).

Ardea novaehollandiae Latham, *Ind. Grn.* ii. p. 701 (1790).

♀, Toeal, 7. vi. 1898. (No. 800.)

♀, Manggoer, 1. x. 1899. (No. 1444.)

"Iris whitish yellow or whitish chromeous, feet bright chrome-yellow or chromeous, bill jet-black (black), base of mandible greyish."

140. **Notophoyx aruensis** (Gray).

♂ ♀, Toeal, 13. 14. v. 1898. (Nos. 1756, 1757.) "Iris bright yellow, feet yellowish grey, bill greenish yellow" (H. Kühn).

141. **Herodias alba timoriensis** (Less.).

Ardea timoriensis Lesson, *Tr. d'Orn.* p. 575 (1831 : ex Cuvier MS., Timor).

♂ ad., Toeal, 13. i. 1898. "Iris whitish yellow, bill ochreous, feet black." (Kühn coll., No. 500.)

142. **Garzetta garzetta nigripes** (Temm.).

Ardea nigripes Temminck, *Man. d'Orn.* iv. p. 376 (1840 : Ind. Arch.).

♂ ♀, Toeal, 12. 17. i. 1898. "Iris whitish yellow, feet black, bill black and yellow." (Kühn coll., Nos. 501, 502.)

XXXV. ANATIDAE.

143. **Tadorna radjah** (Garn.).

Anas radjah Garnot, *Voy. Coqu. Zool.* i. 2. p. 302 (1828 : Buru).

2 ♂♂, Ondor, Goram-laut, February 1900. "Iris white, bill and feet white." (Kühn coll., Nos. 2072, 2073.)

These birds agree with those from Buru, and are typical *radjah*.

144. **Dendrocygna guttata** Schleg.

Dendrocygna guttata Schlegel, *Mus. P. B., Anseres* p. 85 (1866 : Celebes, etc. *Type* Celebes Descr. princeps !).

Ohoitil and Hotil, Little Key Islands, February 1898. (Nos. 514, 516, 528.)

145. **Anas gibberifrons** S. Müll.

Anas gibberifrons S. Müller, *Verh. Land-en Volkenk.* p. 159 (1839–44 : Celebes).

♀ ad., Oeu, close to Toeal, Little Key Islands, 1. v. 1898. "Iris golden ochreous, feet black, bill dark grey (nearly black)." (No. 770.)

XXXVI. STEGANOPODES.

146. **Phalacrocorax sulcirostris** (Brandt).

1 ♂ ad., Toeal, 2. v. 1900. "Iris dark leaf-green, feet and bill black."

2 ♂♂, Ondor, Goram-laut, 25. ii. 1900. (Nos. 2191, 2192.)

147. **Phalacrocorax melanoleucos** (Vieill.).

1 ♀ ad., Toeal, 1. iv. 1900. "Iris pale yellow, feet black, bill pale ochreous to yellow with black culmen." (Kühn coll.)

1 ♀, Walir islet, Tiandoe group, 18. vii. 1899. "Iris bright grey." (Kühn coll., No. 1387.)

1 ♀, Teoor, 5. xi. 1899. "Iris yellowish white." (Kühn coll., No. 1541.)

1 ♀, Taam, 24. vii. 1899. "Iris bright grey." (Kühn coll., No. 1388.)

♂♀, Manggoer, 1. x. 1899. "Iris whitish yellow." (Kühn coll., Nos. 1445, 1447.)

148. **Sula sula** (L.).

1 ♀ jun., Goram, Manawoka group, 16. xi. 1899. (No. 1762.)

149. **Fregata aquilus** (L.).

1 "♀" (juv.), Manggoer, 30. ix. 1899. (H. Kühn coll.)

150. **Fregata ariel** (Gould).

1 ♂ ad., Toeal, 10. i. 1898. (H. Kühn coll., No. 358).

1 ♂ ad., 1 ♀, Soa, near Little Key, 11. vii. 1898. (H. Kühn coll., Nos. 798, 799.)

NEW *DREPANULIDAE, THYRIDIDAE, URANIIDAE*, AND *GEOMETRIDAE* FROM THE ORIENTAL REGION.

By W. WARREN, M.A., F.E.S.

Family *DREPANULIDAE*.

1. **Oreta subvinosa** spec. nov.

Forewings: pale yellow, with a faint greenish tinge; first line ill-defined, dull reddish brown, from costa at two-fifths, where alone it is plain, strongly curved outwards and almost touching the two white discal dots, to inner margin near base; outer line deep chestnut-brown, from a dark costal spot close before apex, nearly straight to middle of inner margin, joined on vein 6 by a short curved brown mark from costa; the space between the lines dull olive-brown; the yellow basal and marginal areas freckled with brownish, the latter with a dull reddish cloud along margin, and becoming deeper reddish towards apex; fringe red-brown, with the tips lustrous, and a silvery white spot at the apex of wing.

Hindwings: with antemedian red-brown fascia, its inner edge marked by a thick chestnut shade, continuing the outer line of forewings, its outer irregularly crenulate, the whole not reaching above vein 7; an oval grey cloud at apex; two or three rows of dark grey spots between the veins of outer area; fringe yellow, becoming brownish red at apex.

Underside of forewings deep vinous brown, narrowly yellowish along inner margin; costa yellow along basal half and between the two dark apical marks, red between; outer line from apex to vein 3 followed by a lustrous pearly shade; hindwings bright yellow, the basal half except along inner margin vinous red, this tint extending narrowly along costa and round apex to middle of hindmargin; outer half with three rows of interneural red-brown spots, not extending below vein 2; discal dots as in forewings. Face, palpi, pectus, and fringes of legs bright red; abdomen beneath and anal segments tinged with red; vertex, thorax, and abdomen above yellowish; two middle segments of abdomen olive-brown; shoulders whitish.

Expanse of wings: 36 mm.

One ♂ from Etna Bay, Dutch New Guinea, August 1896 (H. Kühn).

Antennae with a double row of long, close, clavate teeth.

Spectroreta gen. nov.

Differs from *Neoreta* Warr. in the hindmargin of hindwings not being excised below the middle, but with a short tooth at middle; the antennae not plumosely bipectinate, but with long straight stiff pectinations, in series of uneven length; the forewings with a large hyaline space below middle of costa, the hindwings with hyaline spots beyond middle of disc.

Neuration: forewings, cell more than half the length of wing; discocellular scarcely inangulated, the lower two-thirds obliquely curved, with a short vertical upper and lower portion; first median nervule at one-half, second at nine-tenths; the radials from the inner ends of the vertical portions of discocellular; 7, 8, 9, 10

stalked from the end of cell, 11 free, shortly before them : 9, 10 stalked out of 7, 8 at one-third from cell, 9 anastomosing at two-thirds with 7, 8 ; 7 slanting downwards to hindmargin below apex, 8 parallel to 7 into apex : hindwings, 7 from long before end of cell, anastomosing at once and strongly with 8, the rest as in forewings.

Type : *Spectroreta hyalodisca* Hmpsn. (*Oreta*).

2. **Teldenia strigosa** spec. nov.

Forewings : white, crossed by three brownish ochreous ill-defined streaks ; first antemedian, from one-third of costa to middle of inner margin, apparently consisting of small spots between the veins ; second broader and more diffuse, from beyond middle of costa to two-thirds of inner margin, parallel to first ; third submarginal nearly parallel to hindmargin, formed of ill-defined lunules between the veins ; fringe white.

Hindwings : with the two outer lines only, these nearly meeting at anal angle.

Underside white. Head, thorax, and abdomen white ; palpi brown.

Expanse of wings : 30 mm.

One ♂ from between Holnicote Bay and Owen Stanley Range, New Guinea.

The single specimen is somewhat worn, so that the description here given of the constitution of the transverse lines is not so precise as could be wished. *T. obsoleta* Warr., from Timor, has a submarginal and traces of a postmedian line, but also distinct black marginal spots, which this species lacks ; *T. inconspicua* Leech, from West China, must resemble it in some respects.

Family *THYRIDIDAE.*

3. **Brixia particolor** spec. nov.

Forewings : with basal half pearl-grey, with a pinkish ochreous tinge, palest along costa ; this pale area crossed in middle by a curved band slightly darker and with darker edges ; marginal half chestnut-brown, becoming pinkish ochreous along hindmargin, and there marked by very fine but regular black dots and streaks, which between veins 5 and 6 form a small black spot ; before the apex a white triangular costal blotch with some brown scales on it ; apex narrowly white to vein 7 ; costal edge finely dotted with black ; fringe pinkish ochreous.

Hindwings : pinkish ochreous, crossed by transverse rows of black dots and striae, and with a broad diffuse smoky fuscous band from middle of costa to anal angle.

Underside of forewings with basal area chestnut-brown, separated by a broad grey fascia from the chestnut-brown apical area, which is very narrow on inner margin ; costal half of the grey fascia, costal triangle, and apical streak whitish ; hindwings yellowish ochreous, with the middle band and rows of spots brownish. Head, palpi, and shoulders chestnut-red ; thorax and abdomen pearl-grey, with the fifth and last segments brown above ; anal claspers very long, with ochreous hairs ; underside of abdomen and the legs dull fulvous.

Expanse of wings : 30 mm.

One ♂ from Isabel Island, Solomon Islands, June—July 1901 (Meek).

Closely allied to *atripunctalis* Wlk. from Java, *disparalis* Hmpsn. from Ceylon, *triangularis* Pag. from Borneo and the Philippines, *bipuncta* Hmpsn. from

Tenasserim, *corticina* Pag. from Borneo, *trifascialis* Moore from the Andamans, *tritropha* Swinh. from the Khasias, and *interalbicans* Warr. from Borneo.

Similarly, *albiferalis* Wlk. from Batchian, *imbutalis* Wlk. from Mysol, *acutipennis* Pag. from Aru, and *elongata* Warr. from N. Queensland are all slightly modified forms of *dorilusalis* Wlk. from Borneo, the type of his genus *Brixia*.

4. **Striglina scalata** spec. nov.

Forewings: pinkish ochreous, faintly tinged with fulvous towards base and along costa, crossed by series of dark striae between the veins; two outer rows, postmedian and submarginal, from vein 6 to inner margin consisting of larger, more regular spots; those of the postmedian series contiguous and forming an oblique line of steps joined beneath vein 6 by a brown horizontal streak to those of the outer row, which are separate or form a waved line; cell-spot ocelloid, formed of two dark lunules; fringe concolorous.

Hindwings: fulvous at base and below cell-spot; the rows of spots curved.

Underside paler, the cell-spot of forewings large and black.

Head, thorax, and abdomen pale ochreous; shoulders fulvous-tinged.

Expanse of wings: 30 mm.

1 ♂ from Isabel Island, June—July 1901 (Meek).

Superficially like dark-marked examples of *S. reticulata* Wlk., but without the fold and flap of the inner margin of hindwings, characteristic of that species.

5. **Striglina straminea** spec. nov.

Forewings: pale straw-colour, varied with short dark brown transverse striae between the veins, confluent in places so as to form x-shaped or quadrate blotches; costal area ochreous, towards base reddish tinged above, some brown scales; a brown discal spot with pale centre; beyond the middle the striae form three or four irregular oblique series parallel to hindmargin; small marginal dots in pairs at the vein ends; fringe wholly straw-colour.

Hindwings: similar. In both wings the veins are slightly ochreous-tinged, and the whole surface somewhat iridescent.

Underside similar; the base of costa of forewings more widely blackish. Vertex, thorax, and abdomen straw-colour, like wings, the abdomen with some dark spots and ochreous-tinged; face and collar ochreous; palpi externally and fore-knees dark fuscous; rest of the legs and abdomen beneath straw-colour; pectus and palpi beneath ochreous.

Expanse of wings: 38 mm.

1 ♂ from Amboina, February 1892 (W. Doherty).

A very distinct form, having affinities with *S. duplicifimbria* Warr. from the Khasias, and perhaps with *S. sordida* Pagenstecher from Borneo.

6. **Striglina xanthoscia** spec. nov.

Forewings: deep dull yellow, spotted with dull ferruginous, a median shade, the anal angle, and a marginal blotch below apex suffused with the same tint, the spots on the suffusion becoming grey; the median fascia is indistinctly forked at costa and prominent outwards at middle; fringe ferruginous, varied with grey, and also with paler; an interrupted dark marginal line.

Hindwings: the same, the marginal blotch apical.

Underside dull yellowish, with a few of the spots, but no suffusion. Head, thorax, and abdomen dull yellow, tinged in parts with ferruginous.

Expanse of wings : 26 mm.

Two ♂♂ from Holnicote Bay to Owen Stanley Range, New Guinea (Rohu).

Quite a distinct-looking species, its appearance suggesting a small species of *Orthosia*.

Family *URANIIDAE*.

7. **Decetia torridaria.**

Auzea torridaria Moore, *P. Z. S.* 1867. p. 617.

This species, originally described from a ♀ only, is retained by Sir G. Hampson, evidently also without knowledge of the ♂, in *Auzea*, *Fauna Brit. India*, *Moths* iii. p. 120, where it is placed by itself in subsection B (antennae with uniseriate branches) of his second section (both wings with vein 5 from above middle of discocellulars), being referred to the *Uraniidae*, as not possessing a frenulum. I have lately met with a ♂ from Tonkin, which does possess a distinct frenulum and small retinaculum; so that the species, agreeing, as it does, in all points with *Decetia*, must be transferred to the *Epiplemidae*. It is doubtful, however, whether the presence or absence of the frenulum is in itself a valid reason for maintaining distinct families ; the stalking or joint origin of veins 6, 7 of forewings seems a sufficient characteristic whereby to separate the *Uraniidae* as a whole, including the *Epiplemidae*, from other families.

As the ♂ in question differs in certain points from the original description by Moore and the brief summary of Hampson, both drawn from the ♀, it will be well to give a description of the Tonkin specimen.

Forewings : dull grey-brown, covered with obscure blackish transverse striae, which are densest in the outer marginal half ; a rust-coloured, oblique, slightly undulating line from inner margin at one-sixth to the subcostal vein above the small dark discal spot, where it is obsoletely angled and retracted to costa ; within the basal area is an oblique blackish cloud at base of cell, reaching from the costal to the submedian vein ; an indistinct oblique median line, marked by dark points on veins, and followed by a dark shade ; a zigzag, fine, submarginal line from costa just before apex to inner margin at four-fifths, edged outwardly by white scales and black points in the costal half, and preceded inwardly beyond cell and above inner margin by a brown shading which fills up the lunules of the line : fringe chestnut-brown, preceded below apex by some scattered white scales.

Hindwings : with a short rust-coloured line close to base, and indistinct traces of the other two lines, the white edging of the submarginal line only visible between veins 4 and 6.

Underside paler, grey with darker freckles ; marginal area, especially in hindwings, dull orange-red ; forewings with apex blackish and an indistinct line of submarginal black spots ; an oblique blackish outer line, pointing to apex, but not corresponding to either of the lines above ; in the hindwings this line is curved and fades out before inner margin, and the submarginal black spots form the points of a zigzag blackish line. Face dark brown ; head, thorax, and abdomen like wings ; anal tuft pale ochreous.

Expanse of wings : 56 mm.

1 ♂ from Tonkin, Than-Moi, June—July (H. Fruhstorfer).

8. **Epiplema alabastraria** spec. nov.

Forewings : chalk-white ; the markings very distinct, purplish grey-brown ; some grey striae at base, a spot at base of cell, and a spot at base of submedian vein ; a broad central fascia, formed of grey streaks and edged with brown spots and lines, interrupted below median vein by the white ground-colour, so as to form two large squarish blotches ; a small blotch on costa before apex and another at anal angle represent the outer line ; a marginal blotch of five dark-edged lunules from apex to below middle ; a dark marginal line from apex to vein 3 ; fringe white, with a dark blotch below apex and another at middle.

Hindwings : with a dark line from base, a square spot in cell, and some grey striae ; outer line fine, partly double, roundly angled at vein 4, with a curved lunular blotch in submedian interval ; a black blotch on costa before apex ; a fine brown line from upper tooth to above lower tooth, where it curves away into a lustrous patch towards anal angle ; a black and brown spot below lower tooth, which is white intersected by a straight ochreous line ; marginal line interruptedly brown ; fringe white.

Underside with only the marginal blotches shown ; forewing brownish towards base. Face silvery grey ; vertex, antennae, thorax, and abdomen white ; collar finely blackish ; abdomen slightly grey-tinged on segments of dorsum.

Expanse of wings : 22 mm.

Two ♂♂, one ♀ from Isabel Island, June—July 1901 (Meek).

A very pretty and quite distinct species. The hindmargin of forewings entire, of hindwings with two teeth, at veins 4 and 7. Antennae thick, simply lamellate.

9. **Epiplema sparsipunctata** spec. nov.

Forewings : greyish ochreous, densely covered with fine darker striations ; lines very obscure, but indicated by small blackish spots ; one of these in the cell and another on submedian fold at one-third from base indicate the inner line ; the outer at two-thirds is marked by a spot just below subcostal vein, a second between 4 and 5, and a third on submedian fold ; two more distinct spots on margin between 5 and 6, and 6 and 7 ; fringe concolorous.

Hindwings : with the outer series of spots only, and one marginal, between 6 and 7.

Underside much paler, pearly grey, with blacker and coarser striae. Face and palpi dark brown ; vertex, thorax, and abdomen pale grey, without speckling ; antennae ochreous, the teeth close and clavate.

Expanse of wings : 22 mm.

One ♂ from Isabel Island, June—July 1901 (Meek).

10. **Epiplema stigmatalis** spec. nov.

♂. *Forewings :* pale wood-colour, covered with short irregularly waved brown striae ; the costa with darker striae and 2 or 3 brown spots before apex ; the lines very indistinct ; the first, curved, before one-third, marked most plainly by a curved brown streak below subcostal vein, closely followed by an elongated flattened brown cell-mark ; the outer line, starting from a brown-black blotch at two-thirds of costa, runs outwards and becomes obsolete below 4, ending on inner margin beyond two-thirds in a large brown-black blotch ; a smaller brown-black patch at anal angle ;

a curved and narrow brown mark before the subapical incision ; fringe concolorous, with a dark brown middle line.

Hindwings : with a slight basal line and a chestnut-brown postmedian line, bluntly angled on vein 4 ; a small brown-edged ocelloid cell-spot, preceded by a slight pale spot ; an irregular dark brown blotch from upper to below lower tooth, much wider in its lower half ; the costal half of wing above median vein suffused with purplish brown, the marginal area below median also darker tinged.

Underside pale dull ochreous, tinged in forewing with grey-brown ; traces of a dark submarginal band in hindwing and above anal angle of forewing. Face and palpi velvety black ; vertex, thorax, and abdomen wood-colour, without speckling.

♀ much paler, without dark speckling and markings.

Expanse of wings : 30 mm.

Three ♂♂, one ♀, from Isabel Island, June—July 1901 (Meek).

Forewings with hindmargin excised from apex to vein 4, then oblique and convex ; hindwings toothed at 4 and 7, the excision between the teeth deep.

Distinguished by the dark brown costal half of hindwings ; it is allied to *E. bicolor* Warr. from Ron Island.

Family *GEOMETRIDAE.*

Subfamily OENOCHROMINAE.

11. **Hypographa dilutaria** spec. nov.

Forewings : dull greyish, dusted with darker ; the basal and postmedian areas suffused with smoky fuscous, the latter becoming paler grey again toward hindmargin ; the lines black ; first at one-third, curved and slender, forming five wedge-shaped projections outwards, two above and three below the median ; outer line from three-fourths of costa to two-thirds of inner margin, thick and blurred, obscurely dentate-lunulate, being more or less lost in the darker suffusion ; the inner edge of this suffusion is parallel with the line, and slightly rufous-tinged ; an indistinct discal spot in the distinctly paler median band ; a marginal line of conjoined black lunules ; fringe grey, chequered with darker beyond the veins.

Hindwings : like forewings, but without first line or dark basal area.

Underside whiter, tinged with grey ; both wings with dark outer and marginal lines. Head and thorax dark smoky fuscous, like the basal patch of forewings ; abdomen whitish, like basal area of hindwings ; legs like abdomen ; antennae ochreous.

Expanse of wings : 27 mm.

1 ♀ from Roebourne, W. Australia.

A smaller and less marked species than its congeners.

12. **Oenochroma guttilinea** spec. nov.

Forewings : fawn-colour, with four inwardly oblique series of vinous red spots on the veins, the first three rising from three whitish, dark-centred, red-edged costal spots, antemedian, postmedian, and submarginal, the first interrupted between median and submedian veins ; the second continuous, the spots becoming more or less confluent with a reddish line curved below costa ; the third and fourth consisting throughout of isolated spots ; on the costa, near base, is a smaller whitish blotch and some indistinct dark dots ; fringe concolorous, with a dark red dash at apex.

Hindwings: with only the last three lines, the inner one broader; the costal area broadly pearl-white.

In the ♂ these red spots are centred with a few hoary grey scales; in the ♀ the spots are twice as large as in the ♂ and filled up with chalk-white, with a few dark scales in their centre.

Thorax, patagia, and basal segments of abdomen fawn-colour, like wings; shoulders, vertex, and face deeper fawn; abdomen beneath, at sides, and the whole anal segments whitish; palpi and pectus pale grey, speckled with darker; legs whitish grey, flecked with purplish at the joints.

Underside of wings greyish pink, slightly flecked with dark scales; the costal spots vinous red; the lines generally obsolete; in the forewings the base of the second and third lines is swollen into a large purplish vinous blotch between veins 1 and 2, a smaller blotch of the same colour appearing on costa of hindwings; inner margin of forewings glossy white; both wings with a marginal festoon of claret-coloured lunules.

Both above and below the ground-colour and markings are deeper and more distinctly expressed in the ♀♀ than in the ♂♂.

Expanse of wings: 36—40 mm.

2 ♂♂, 2 ♀♀, from Townsville, Queensland, bred February 1900 (F. P. Dodd).

13. **Oenochroma simplex** Warr.

In Nov. Zool. vol. iv., I described at p. 206 the ♂ of this species from Roebourne, W. Australia. I have lately seen a ♀ from Toowoomba, Queensland, which, notwithstanding the difference in locality and certain slight divergences in markings, I believe to be referable to the same species. The ♂ described was without any markings; the present ♀ has on both wings a dark discal spot and a very ill-defined grey outer line; in the forewings this line runs from four-fifths of costa to three-fourths of inner margin parallel to hindmargin; and in front of the discal spot there are also traces of an inner line reaching inner margin at middle, and therefore approximated to outer line; in the hindwings there is one line only, nearly in the middle of wing, distinctly sinuous, and touching the discal spot. Fringe of forewings slightly brown-tinged between veins. Underneath, the forewings have the large curved purplish blotch, as in the ♂, stretching from vein 6 to below vein 2, both sexes therein differing from the other species of the genus.

Expanse of wings: 56 mm.

Subfamily DYSPHANIINAE.

14. **Dysphania imperatrix** spec. nov.

Forewings: deep purple, crossed by three series of pale greenish yellow spots; first series antemedian, consisting of a distinct oblong blotch, oblique from subcostal to median, and three indistinct diffuse purple-stained blotches lying in a curve, one between veins 2 and 3, the second on the submedian fold, the third below submedian vein; second series short, beyond cell only, formed of two almost contiguous blotches on each side of vein 5; third series palest and plainest, formed of two lunules from vein 7 to 5, two smaller ones nearer hindmargin between 5 and 3, and three more, less defined, and nearer base, from 3 to inner margin before anal angle.

Hindwings: deep purple, crossed just before middle by a broad pale greenish yellow band, swollen at middle, and containing a large semi-oval discal spot of purple; marginal area traversed by a deep orange belt of contiguous lunules, the two between veins 3 and 5 smaller, less contiguous, and nearer hindmargin.

Underside the same, but with the pale yellow and orange markings all more developed and clearer. Head, thorax, and abdomen all deep purple, except the anal segments and sides of abdomen and the external margin of the eyes, which are orange.

Expanse of wings: 104 mm.

1 ♀ from Isabel Island, June—July 1901 (Meek).

This is closely allied to *D. regnatrix* from Kulambangra, another island of the Solomon group; but in it the purple tints predominate to a much greater degree; the types of both are ♀ ♀, so that the difference is not sexual.

Subfamily GEOMETRINAE.

15. **Anisogamia albifimbria** spec. nov.

Forewings: deep grass-green; costa white, with some small brown striae; the lines snow-white; first from one-eighth of costa to one-third of inner margin, waved; a small white spot at centre of base, and a slight white discal mark; outer line from two-thirds of costa to two-thirds of inner margin, lunulate-dentate, curved out at first from costal streak to vein 6, then vertical to 5, between 5 and 4 forming a strongly marked lunule towards base, from 4 to 3 a vertical lunule, thence oblique, the large lunule below vein 2 broadly and diffusely white; submarginal line formed by a series of white blotches between the veins; before the hindmargin the ground-colour becomes pure white like the fringe, and in the middle of the white is a series of blackish marginal lunules mixed with green scales.

Hindwings: without first line; the green ground-colour slightly powdered with white.

Underside white with a tinge of green, but in the forewings the basal two-thirds, as far as outer line, is suffused with greenish fuscous, the costa and a curved submarginal band being darker fuscous; in hindwings, wholly white except a submarginal blotch at apex continued as a fine dark shade partly round wing; marginal dark spots on both wings. Face, thorax, and abdomen green, the last with white dorsal spots; vertex white; palpi fuscous; underside of abdomen and legs white; forelegs in front fuscous.

Expanse of wings: 35 mm.

1 ♀ from Isabel Island, June—July 1901 (Meek).

Nearest to *A. nivisparsa* Butler, from Duke of York Island.

The white hindmargin and fringe with the dark marginal lunules will distinguish the species at once.

16. **Chrysochloroma ornatifimbria** spec. nov.

Forewings: deep grass-green; in certain lights two faint darker green shades can be detected, the first curved at one-fourth, the second just beyond middle, slightly bent at vein 4; these shades are indistinctly dentate-lunulate; between them is a bright orange-red cell-spot; marginal line deep brown, interrupted by rather large ochreous spots at the vein ends; fringe grey-brown, continued along with the marginal line round the apex, the latter running along costa nearly to

middle ; beneath it towards apex, and continued along hindmargin, but thinner and less distinct, is a deep orange-red line.

Hindwings: similar, but only the median line visible ; the spots at end of veins larger, and the fringe itself mottled with ochreous between the veins.

Underside of forewings dull green along costal and hindmargin, gilded yellow at centre ; of hindwings bright golden-yellow throughout ; fringe of forewings dark brown-grey, of hindwings whitish grey. Head, thorax, and abdomen all concolorous green, the anal segment alone yellowish ; underside of abdomen and legs pale ochreous ; antennae fuscous.

Expanse of wings : 22 mm.

1 ♂ from Isabel Island, June—July 1901 (Meek).

Much smaller than the other species ; hindtibiae with all four spurs.

Genus **Diplodesma** Warr., Nov. Zool. iii. p. 289.

Acrortha Warr., Nov. Zool. iii. p. 361.

The only difference between these genera appears to be sexual. In the ♂♂ veins 10 and 11 are separate (as in *Diplodesma*) ; in the ♀♀ they are coincident (as in *Acrortha*). In the ♀♀ they anastomose and become coincident with the costal vein ; in the ♂♂ 11 does likewise, but not 10, which only touches 12 at a point, the course of 12 after the osculation being very fine and easily overlooked. In all other respects the two genera agree : veins 6, 7, 8, 9, 10, 11 are stalked together, and 3, 4 of forewings also.

Thalassodes obnupta Swinh. (= *Th. melica* Swinh.) is referable to this genus, the types of both being ♂♂ ; and I am inclined to think that *N. viata* Moore (the type a ♀) is the same insect.

17. **Halterophora thalassias** spec. nov.

Forewings: blue-green ; deeper on the basal side of an oblique, irregularly waved, whitish line from apex to before middle of inner margin, where it becomes white ; immediately before the whitish line the blue-green shades into deep sea-green ; beyond the line the marginal area is paler blue-green mixed with whitish, showing traces of a waved whitish outer line in lower half of wing ; base of wing with a slightly paler shade of bluish green, its edge rounded, but not marked by dots or any distinct line ; cell-spot brown ; costal edge white, thickly mottled with brown flecks, which at base become coalescent ; fringe pale olive-green, slightly deeper beyond veins.

Hindwings: with the oblique white line of forewings continued at one-fifth from base, the white shading gradually into blue-green, and that again into deep sea-green before a slightly concave white line at two-thirds ; the same transition occurring, but the green more yellowish, before a waved submarginal line ; the marginal area pale blue-green before the fringes, which are like those of forewings ; cell-spot small, dark green.

Underside of forewings whitish green, deeper green towards costa and in cell ; costal white area broader, with the brown mottlings less dense but more distinct ; cell-spot brown ; fringe with the mottled patches at end of veins brown ; hindwings white ; cell-spot green. Face, palpi, vertex, and shoulders green ; patagia and metathoracic tuft whitish mixed with green ; abdomen white ; legs greenish, the tarsi fuscous, dotted with white ; antennae dull greenish white, darker beneath.

Expanse of wings : 44 mm.

1 ♂ from Etna Bay, Dutch New Guinea, August 1896 (H. Kühn).

While agreeing with the type of the genus in the peculiar structure of the frenulum, this species differs somewhat in neuration: the cell is not half as long as the wing; vein 6 is stalked with 7, 8, 9, 10, and veins 3, 4 of hindwings rise both from the lower end of cell; the hindwings are scarcely toothed at middle, nor is the apex of forewings produced; the pectinations of the antennae scarcely reach beyond halfway.

Subfamily STERRHINAE.

Thysanotricha gen. nov.

A development of *Craspedia*. The hindwing of the ♂ has the abdominal margin thickened and contorted, slightly swollen at middle; from near the base of the wing rises a pencil of hairs, contorted parallel to the margin, under the fold of which they are sometimes hidden.

Type: *T. ziczacata* spec. nov.

18. **Thysanotricha ziczacata** spec. nov.

Forewings: chalk-white; crossed by three fuscous lunulate-dentate lines, darker marked on the veins; a slight cell-dot between first and second; marginal line grey; fringe white, tinged with grey; costa dark at base.

Hindwings: like forewings; the abdominal fold in the ♂ grey towards anal angle; the pencil of hairs rufous.

Underside white, tinged with grey towards costa of forewings. Face and palpi dark brown; vertex, thorax, and abdomen white; the hinder segments of abdomen grey-tinged on dorsum.

Expanse of wings: 16 mm.

A pair from Isabel Island, June—July 1901 (Meek).

Subfamily HYDRIOMENINAE.

Calleulype gen. nov.

Agrees with *Eulype* Hüb. in neuration, the forewings having a single areole and the hindwings the discocellular biangulated, with the radial from the lower outward angulation; but the wings are longer and narrower; the palpi upcurved and blunt in front of face instead of porrect and pointed; the forehead smooth and flat, without the projecting tuft below; and the antennae have the joints angular.

The character of the markings is also entirely different; and the abdomen and thorax, as in *Abraxas*, are yellowish with series of dark spots.

Type: *Calleulype whitelyi* Butler (*Abraxas*).

Telenomeuta gen. nov.

The species described by Leech in the *Entomologist* xxiv. *Suppl.* p. 53 as *Scotosia punctimarginaria*, and transferred to *Phibalapteryx* (*Ann. Mag. N. H.* 1897. xix. p. 562), belongs strictly to neither genus, and will require a new one for its reception. The forewings have the areole simple, therein differing, as far as I know, from all the species referable to either of the genera mentioned.

In the hindwings the discocellular is oblique, with the radial from its centre, therein likewise differing from *Scotosia* and its allies, with which it agrees well in other respects, especially in the character of the markings and the crenulation of the hindwings.

19. **Xanthorhoë roseopicta** spec. nov.

Forewings: pale grey with darker grey suffusion, tinged in places with vinous; basal patch and bands of central fascia vinous fuscous; edge of basal patch from one-fifth of costa to one-fourth of inner margin, concave outwards to subcostal, there sharply angled and oblique, almost straight; two similar lines across the patch; inner edge of central fascia curved and waved, followed by two lines, the three together forming a band filled up with dark fuscous and vinous; outer band formed of three wavy lines, the outermost forming a beak below vein 4; the fascia is preceded and followed by a very fine white line; cell-spot black, distinct; submarginal line very indistinct, lunular, followed by a dark shade below costa; pairs of marginal spots at the ends of the veins; fringe dark grey.

Hindwings: grey, with beginnings of dark lines on inner margin, faintly visible across wing; cell-spot black.

Underside vinous grey, paler and black-speckled at base in hindwings; the lines and marginal dots finely and neatly expressed; cell-spots distinct. Head and shoulders ochreous grey, speckled with red; palpi externally fuscous; thorax fuscous; abdomen cinereous.

Expanse of wings: 30 mm.

One ♂ from Celebes (Doherty).

Belongs to the *munitata* group.

Xenospora gen. nov.

This new generic name is proposed for *Melanthia latifasciaria* Leech (*Entom.* xxiv. *Suppl.* p. 53), referred subsequently (*Ann. Mag. N. H.* 1897. xix. p. 560) to *Scotosia*. The hindwings of the ♂ have a long fringe of hair beneath along the submedian fold which is somewhat contorted and raised, causing a furrow to appear on each side, and the edge of the inner margin at middle is bluntly elbowed, so that at first sight it might seem referable to the genus *Calocalpe* Hüb., notwithstanding its superficial dissimilarity. Mr. Leech at the end of his description adds: "This species bears a superficial resemblance to (*Melanippe*) *Eulype hastata*." It is, in fact, closely allied to that genus; for the areole of the forewings is single as in *Eulype*, veins 10 and 11 being stalked. The genus therefore represents a development from *Eulype* analogous to that of *Calocalpe* from *Triphosa*. The hindmargin of the hindwings is strongly crenulate, the excision beyond cell between veins 4 and 6 being unusually prominent, and the forehead below bears a peak of hairs nearly as long as the palpi, which are shortly rostriform, rough-haired, with the joints obscured: antennae quite simple, lamellate.

Subfamily ASTHENINAE.

20. **Epiphryne citrinata** spec. nov.

Forewings: pale yellow, crossed by faint waved purplish lines; three curved near base forming a basal patch; two in middle forming the edges of a median fascia; the inner from just before middle of costa to two-fifths of inner margin, wavy, and somewhat oblique inwards below middle; the outer from just beyond middle of costa to just beyond middle of inner margin, rather strongly excurved and dentate-lunulate between veins 7 and 2; a very indistinct line traverses

the middle of this band, passing over a rather large cell-spot ; towards the hindmargin are traces of two more waved purplish lines ; fringe concolorous.

Hindwings : paler, with four or five waved dark lines and a cell-spot.

Underside dull yellow, with faintly shown markings. Head, thorax, and abdomen yellow ; face and palpi brownish.

Expanse of wings : 25 mm.

One ♀ from Invercargill, New Zealand.

The discocellular of hindwings is biangulated, the radial from the lower, outer angle ; and the areole in forewings is single.

Superficially exactly like *Asthena anthodes* Meyr. from Australia.

Subfamily TEPHROCLYSTIINAE.

Gullaca gen. nov.

Allied to *Calluga* Moore, which genus, however, having only terminal spurs to the hindtibiae of the ♂, is a development of *Gymnoscelis* Mab., whereas *Gullaca*, with all four spurs, is more nearly related to *Chloroclystis*.

The costa of the forewing of the ♂ is arched in the basal third, and bears a fringe of rough hairs, generally thickening outwards, in one case forming a kind of overlying lappet at one-third.

Type : *Gullaca modesta* Warr. (*Calluga*).

In *Phrissogonus* Butler, a genus formed for an Australian insect, the costa of the forewing of ♂ forms at one-third a tuft-bearing projection, which is not present in *Gullaca*. The two following species will also be included in it—viz. *catastreptes* Meyr. from Australia described as *Phrissogonus*, and *consobrina* Warr. from St. Thomé Island described as a *Calluga*.

21. **Gullaca festivata** spec. nov.

Forewings : dull greyish green ; basal patch small, its outer edge curved ; the inner edge of central fascia also curved, both marked with rufous at costa ; outer edge of central fascia crenulate, oblique outwards from three-fifths of costa to vein 6, then vertical to vein 4, and again oblique inwards, the outer half of the fascia above median dull reddish, the transverse lines that cross it also reddish ; the fascia is followed by a distinct paler band with darker line along its centre ; submarginal line uniformly zigzag, emphasised by darker green shades before and beyond it, especially at costa and beyond cell ; fringe pale green ; the costal fold reddish.

Hindwings : with similar markings, but the central fascia hardly darker, and only tinged with reddish on its outer edge beyond cell ; the veins with fine black speckles.

Underside without markings, shining greenish cinereous. Head, thorax, and abdomen dull greenish ; palpi with some reddish scales.

Expanse of wings : 18 mm.

On ♂ from Celebes (Doherty).

The hindmargin of hindwings is crenulated, the forehead is marked below with a cone of scales, and the palpi reach well in front of face, being formed as in *Rhinoprora* Warr.

22. **Rhinoprora ruptiscripta** spec. nov.

Forewings: with the pale ground-colour varied with bright red scaling; the markings dark olive-green; basal patch with its outer edge bent at middle and crossed by a pale band; central fascia broad, its inner edge waved and curved, its outer also curved and slightly projecting above and below cell, traversed by several fine waved pale lines, and containing a large dark cell-spot; interval before submarginal line filled by an olive-green fascia; marginal line dark green; median vein rufous from base; central fascia interrupted by a rufous wedge-shaped blotch between veins 2 and 4; outer fascia interrupted twice, along vein 6, and between veins 3 and 4.

Hindwings: greyish ochreous, with indications of the outlines of the markings of forewings in darker grey.

Underside dull suffused rufous, with the dark markings showing through. Head, palpi, and thorax dark green and pale rufous ochreous, the palpi very long; abdomen wanting.

Expanse of wings: 23 mm.

One ♂ from North Luzon, 5000—6000 ft. (Whitehead).

23. **Prorocorys admirabilis** spec. nov.

Forewings: pale straw-colour, densely powdered with dark atoms and crossed by six bluish silvery lines; two close to base dentate and irregular; third broader, at one-third, outcurved in cell, then oblique and undulating basewards; fourth median, narrow, angled outwards on veins 7, 4, and 2, deeply concave between 4 and 2; fifth broad, dentate-lunulate, angularly projecting in middle; sixth submarginal, lunulate-dentate; the third and fifth bands limiting the central fascia are edged finely with black scales; the fifth and sixth bands are each preceded by lunulate bands of deep vinous red, in the latter case interrupted between veins 3 and 4; the third band is preceded by two red blotches, one above, the other below, the median, and followed by a fine red band, which is wider on inner margin; at base of wing on inner margin a small red blotch; cell-spot black, linear, in a narrow unspeckled space of straw-colour; marginal line of short black dashes; fringe straw-colour, mottled with black at the vein-ends, except vein 3.

Hindwings: similar.

Underside of all wings dull dark cinereous. Face, palpi, vertex, thorax, and abdomen straw-colour, varied with dark atoms; upper part of face, two bands on the patagia, band on metathorax, and the edges of all the abdominal segments red; palpi with the apices of all the joints pale.

Expanse of wings: 30 mm.

One ♀ from Isabel Island, June—July 1901 (Meek).

Allied to *P. gemmata* Warr., also from the Solomons, but palpably distinct.

Subfamily TRICHOPTERYGINAE.

24. **Remodes erebata** spec. nov.

Forewings: dark olive-green, crossed by five distinct darker green and blackish bands; first band basal, rather oblique outwards, consisting of two smaller bands with a paler interval; second band antemedian, with irregular waved edges and

narrow at inner margin ; third band postmedian, broader, consisting, like basal band, of two bands, each of which is double, the two outer ones dentate towards hindmargin ; these last two bands form the edges of the usual central fascia, which has a paler green central space ; the inner preceded and the outer followed by a paler band with a darker line down its middle ; submarginal line lunulate-dentate between the fourth and fifth darker bands ; a row of blackish green marginal spots at the vein ends ; fringe olive-green.

Hindwings : smoky blackish, tinged with green ; the apex curved round into hindmargin, which forms two rounded lobes ; the inner margin at base with a large lappet folded over.

Underside dull greenish cinereous, the hindwings darker, with the fringe black, tinged, at the incision between the two lobes, with ochreous ; the underside of the lappet at base of inner margin white and scaleless. Head, palpi, antennae, and thorax olive-green ; abdomen with an ochreous tinge and smoky dark green scales ; abdomen beneath yellowish green, with a similarly coloured curled lateral tuft on the praeanal segment, and a short black tuft on the basal segment ; hindlegs with tarsi very short, tibiae broadened and flattened, with both edges fringed, the two legs in repose folded close together along underside of abdomen, so as to resemble the keel which occurs in *Steirophora*.

Expanse of wings : 40 mm.

2 ♂♂ from Isabel Island, June—July 1901 (Meek).

The forewings have the hindmargin very strongly gibbous from below apex to the incision above anal angle. Distinguished at once by the black hindwings, and the white lappet of their underside.

Subfamily OURAPTERYGIDAE.

25. **Tristrophis veneris** ab. **unistriga** nov.

In this aberration the first and second crossbands of the forewings are wanting, the second entirely, the first indicated by a slight dot on costa and another on median vein. Underside the same. The markings of the hindwings are normal.

1 ♀, marked simply Japan.

Subfamily DEILINIINAE.

26. **Aplochlora fallax** spec. nov.

Forewings : uniform dull olive-green ; the fringe paler ; a small black cell-spot ; beyond the lower angle of cell, extending from vein 2 to 4, a quadrate semi-transparent patch devoid of green scales.

Hindwings : like forewings, but without the pale patch.

Underside much paler, grey-green ; both wings with a broad submarginal darker grey-green band ; hindmargin and fringe paler. Head and collar yellowish ochreous ; thorax like wings ; abdomen greenish ochreous.

Expanse of wings : 30 mm.

1 ♀ from Isabel Island, June—July 1901 (Meek).

This species wonderfully mimics some of the true *Geometrinae*. It differs from the typical species in having the hindwings slightly toothed in the middle of hindmargin and faintly crenulate throughout.

27. **Peratostega pallidicosta** spec. nov.

Forewings: dull reddish, the costa broadly pale grey, the whole wing covered with darker striae ; lines indistinct, slightly paler, and marked by dark dots on the veins ; these dots white-tipped inwardly on the basal line, outwardly on the exterior line ; the basal line from one-fourth of costa to one-third of inner margin ; the outer from three-fourths of costa to two-thirds of inner margin ; cell-spot dark, obscure ; fringe reddish.

Hindwings: similar, without basal line, the costa glossy whitish ; the abdominal fold with its pencil of hairs towards anal angle greyish.

Underside paler reddish, with no markings. Shoulders and thorax of the same colour as forewings ; face and palpi deep red ; vertex snow-white ; abdomen ochreous grey, penultimate segment on dorsum covered with dark grey mealy scales.

Expanse of wings : 40 mm.

1 ♂ from Florida, Solomon Islands, January 1901 (Meek).

Subfamily ABRAXINAE.

28. **Abraxas sylvata** ab. **continuata** nov.

Like the form described by me as *suffusa* (Nov. Zool. i. p. 417), but the post-median bands of double spots united so as to form a continuous fascia of which the inner half is the darker ; this fascia in the forewings is sharply angled at vein 6 internally, its external edge and the line separating the two shades of the fascia being both lunulate-dentate ; in the hindwings the fascia is sinuous and both edges retain the curves of the spots.

Expanse of wings : 48 mm.

1 ♀, marked simply Japan.

Subfamily BRACCINAE.

29. **Bordeta floridata** spec. nov.

Nearest to *B. woodfordii* Butler, from Shortland Island, from which it differs in two points : first, in the forewings, the small spot in cell, between the larger basal blotch and the round one at end of cell, is always wanting, while the second small spot between veins 3 and 4 is diminished in size, and in the only ♂ seen altogether wanting ; secondly, the hindwings agree with those of *B. siriella* Druce from Guadalcanar rather than with *woodfordii* Butler, both having the base of wings black, but the black in the present species is not so extensive, and consequently the white space shows larger.

Expanse of wings : ♂, 52 mm. : ♀, 60 mm.

Five ♀♀, one ♂, from Florida Island, Solomons, January 1901 (Meek).

Subfamily ENNOMINAE.

Tessarotis gen. nov.

Forewings: costa straight ; apex rectangular ; hindmargin strongly bent in middle, the lower half very oblique ; anal angle distinct ; inner margin short.

Hindwings : with the apex obtuse ; hindmargin with a prominent angle at vein 7, thence to the rectangular anal angle straight.

Antennae lamellate, slightly ligulate ; palpi porrect, bluntly rostriform ; tongue and frenulum well developed ; forewings with fovea, which, though distinct beneath is not visible above ; hindlegs broken.

Neuration : forewings, cell half as long as wing ; discocellular slightly inbent at middle ; first median nervule at two-thirds, second shortly before third ; lower radial from a little above centre of discocellular, upper from upper angle of cell ; 7, 8, 9 stalked from just before end ; 10 and 11 from cell, 10 anastomosing with 11 and again with 8, 9 ; hindwings, costal approximated shortly to subcostal at one-third of cell ; 6, 7 from end of cell ; no radial ; medians as in forewings.

Type : *Tessarotis rubrata* spec. nov.

The typical species is without any apparent close affinity.

30. **Tessarotis rubrata** spec. nov.

Forewings : dull brick-red; the costal area broadly peach-blossom-coloured, its lower edge starting from near base of inner margin and reaching costa a little before apex ; the lines fine, whitish, all starting below the edge of the costal streak ; first at two-fifths, vertical ; second at two-thirds, outwardly curved from costa and incurved towards inner margin ; third line at five-sixths, parallel above to outer margin, below middle curved and sinuous to inner margin just before anal angle, approximated there to second line ; traces only of a submarginal line denoted by black spots between the veins ; a black spot at each end of the discocellular ; second and third median nervules white, the former expanding into a diffuse white blotch beyond outer line ; fringe and extreme hindmargin from vein 4 to submedian fold white ; above middle and at anal angle red, like the wings.

Hindwings : with basal area and the cell dull smooth grey ; the rest coloured like forewings, and towards hindmargin speckled with black, and with two small black marks before apex ; cell-spot whitish ; a curved whitish median line from lower angle of cell to abdominal margin, and traces of a dark submarginal line ; fringe deeper red, with whitish tips.

Underside dull pinkish, suffused with grey, especially in hindwings ; the costal streak of forewings without grey suffusion ; traces of two dark outer lines and cell-spots on both wings ; the cell-spot of the hindwings white and distinct. Face and palpi bright reddish ; collar and thorax like the costal streak of forewings ; abdomen brick-red, with the segmental rings finely paler. Foretarsi blackish, with the joints white ; antennae glossy, pinkish white.

Expanse of wings : 26 mm.

One ♂ from Mackay, Queensland.

NEW AFRICAN *THYRIDIDAE* AND *GEOMETRIDAE* IN THE TRING MUSEUM.

By W. WARREN, M.A., F.E.S.

Family *THYRIDIDAE*.

Heteroschista gen. nov.

Differs from all other genera of the family in having veins 9 and 10 of the forewings long-stalked, these veins forking halfway between cell and apex. From *Striglina*—to which it is most nearly related, both by its stoutness of build and the hairiness of the hindtibiae and abdomen of the ♂—it is separated by the length of the cell, which is nearly two-thirds as long as the forewings ; the submedian vein is abruptly elbowed at one-fourth from base. In the hindwings the costal vein distinctly anastomoses at a point with the subcostal just beyond the middle of cell.

Type : *H. nigranalis* spec. nov.

1. **Heteroschista nigranalis** spec. nov.

Forewings : deep fulvous, covered with darker suffusion and transverse striae, which form no distinct markings on the upperside ; the costal edge is marked with blackish dots ; fringe concolorous.

Hindwings : similar, but deeper fulvous.

Underside much paler, with fewer striae ; beyond the cell is a broad dark brown fascia extending from vein 6 to inner margin, distinct on the forewing, but more or less obsolete on the hindwing. Head, thorax, and abdomen above like wings ; abdomen below paler ; anal tuft black.

Expanse of wings : 26 mm.

One ♂ from Agberi, Niger, July 1901 (Dr. Ansorge).

Family *GEOMETRIDAE*.

Subfamily GEOMETRINAE.

2. **Prasinocyma dohertyi** spec. nov.

Forewings : green shagreened with whitish ; costal edge narrowly brick-red, varied with black scales ; cell-spot large, dull black-brown, with some rufous scales about it ; marginal dots blackish, at the ends of the veins ; fringe pale green.

Hindwings : like forewings, except the costal edge.

Underside pale green ; marginal dots very distinct ; costa of forewings red. Face and palpi brick-red, paler below ; antennae red ; patagia green ; vertex and shoulders paler green, perhaps faded ; abdomen ochreous, with a green tinge.

Expanse of wings : 38 mm.

Several examples from the Kikuyu Escarpment, British East Africa, January 1901, 6500—9000 ft. (Doherty).

A very distinct species.

Subfamily STERRHINAE.

3. **Craspedia naias** spec. nov.

Forewings: white, densely dusted with grey-green; the lines grey-green, all somewhat diffuse; basal line absent; median, a little before the middle, bluntly angled in cell, then oblique inwards; outer line at two-thirds, diffuse and double, becoming faint before costa, where it seems to be retracted; submarginal line, parallel to margin, slightly but irregularly waved; marginal dots and a very fine marginal festooned line somewhat darker green; fringe white.

Hindwings: with postmedian and submarginal lines only, the former single; cell-mark elongate, formed of white slightly raised scales; marginal dots and line as in forewings.

Underside white; forewings with a few faint speckles in costal half only; costal edge ochreous; marginal dots of both wings minute, blackish. Face and palpi (damaged) brown; vertex, thorax, and abdomen white, the last slightly speckled with green.

Expanse of wings: 30 mm.

One ♀ from the Kikuyu Escarpment, British East Africa, January 1901, 6500—9000 ft. (Doherty).

The hindmargin of hindwings is slightly indented between veins 4 and 6, with an insignificant tooth at vein 4. Nearest to the S. Indian species *celebraria* Wlk., with which I have hitherto identified it.

4. **Lycauges fragilis** spec. nov.

Forewings: very pale bone-colour, with slight speckling of grey scales; no distinct inner line; cell-spot black, distinct, followed by an oblique, diffuse, obscurely marked shade, and three fine equidistant lines running towards apex; of these the first, representing the exterior line, is less waved than the two submarginal; marginal dots very minute; fringe concolorous.

Hindwings: with the costal half pale; the three outer lines curved; the median shade represented only on inner margin; cell-spot black.

Underside of forewings with basal two-thirds grey speckled and suffused; the three outer lines fine and distinct; also a fine brown marginal line, without dots; cell-spot distinct; hindwings similar, but without any grey speckling. Face and palpi brown; thorax and abdomen bone-colour.

Expanse of wings: ♂, 26 mm.; ♀, 22 mm.

One ♂, one ♀, from the Kikuyu Escarpment, British East Africa, January 1901, 6500—9000 ft. (Doherty).

The species differs from true *Lycauges* in that the hindlegs of the ♂, though fully developed, are totally devoid of spurs; the ♀ possesses all four, well developed.

5. **Ptychopoda fumilinea** spec. nov.

Forewings: ochreous with a reddish tinge, and coarsely speckled with olive-fuscous; inner and median lines diffuse, broad at costa, angled in cell, then oblique inwards and approximated to each other, the median touching the cell-spot at its angle; outer line at two-thirds, more defined and bisinuate; two submarginal

olive-fuscous waved shades, enclosing the pale submarginal line; some irregular dark marginal spots; fringe concolorous, chequered with fuscous.

Hindwings: with all the lines obscured by the denser fuscous dusting.

Underside rufous ochreous, without dusting. Face and palpi brown-black; vertex, thorax, and abdomen like wings, thickly dusted with darker.

Expanse of wings: 18 mm.

One ♂ from Weenen, Natal.

Subfamily HYDRIOMENINAE.

Epirrhoë prasinaria Warr.

Among the insects sent by the late W. Doherty from the Kikuyu Escarpment, British East Africa, was a long series (over eighty) apparently belonging to this species, which was described by me (Nov. Zool. ix. p. 13) from a single ♀ from Mamba, Kilimanjaro. They vary very little *inter se*, the only exceptions being two or three cases in which the central fascia is filled up with reddish brown instead of green; and I mention them here mainly to draw attention to the points in which they differ from the species next described. The green ground-colour is never pure, but varied with darker grey-green scaling; the cell-spot of forewings is small and dark; the hindwings pale grey, with scarcely any rufous tinge (herein differing somewhat from the type); and the underside of both wings is always marked by a more or less distinct grey marginal border preceded by a paler band. On the average they are slightly larger than the original type, expanding 28 mm. They were taken between October 1900 and April 1901.

6. **Epirrhoë subrufaria** spec. nov.

Forewings: pale green, with slightly deeper green speckling, rarely with darker grey scaling; markings much as in *E. prasinaria*, but the edges of the basal patch and central fascia more vertical and more strongly marked, often blackish; the central fascia always narrower, and the cell-spot larger, in many cases swollen by the aggregation of dark scales into a blotch.

Hindwings: pale, whitish, always with a rufous tint, and without markings.

Underside pale greenish grey in forewings, with the markings of upperside partly shown towards costa; in the hindwings always strongly tinged with rufous; both wings speckled with grey.

Of this species several varieties occur; one in which both basal patch and central fascia are filled up with purplish grey or rufous brown; a second in which the marginal area and the band between basal patch and central fascia are rufous; a third in which the upper part of the central fascia is filled up with blackish green; and again a fourth which shows the middle of the central fascia crossed vertically from costa to inner margin by a broad, diffuse, smoky dark shade.

Expanse of wings: 24 mm.

More than thirty examples, taken, like those of *E. prasinaria*, at the Kikuyu Escarpment, between October 1900 and April 1901.

Distinguished by the paler green ground-colour and smaller size, the narrower central fascia of forewings, and the reddish tint of hindwings beneath.

Subfamily TEPHROCLYSTIINAE.

7. **Tephroclystia bryophilaria** spec. nov.

Forewings: pale whitish green, with the markings black or brown-black. These are much the same as in *Epirrhoë prasinaria* and *subrufaria*, but in all cases the band edging the basal patch, those edging the central fascia, and the band preceding submarginal line, form four dark-edged more or less distinctly triangular costal blotches; as in the species above named, the central fascia is sometimes filled up with rufous brown or flesh-colour, or again, while the basal patch and fascia remain green, the band between them and the marginal area are flesh-colour; and in one case the lower half of central fascia is filled up with brown-black scales; sometimes the dark lines are distinct throughout, in other cases the outer edge of central fascia and the submarginal shade are more or less obsolescent; the bands preceding and following central fascia are traversed by a waved deeper green line, which in the inner band often becomes a blackish spot on inner margin; cell-spot generally faint; marginal spots black, in pairs at the end of the veins; fringe whitish, with strongly marked dark mottlings beyond veins.

Hindwings: pale grey, or almost whitish, with indications of cloudy grey curved shades, median, postmedian, and submarginal; cellspot, marginal spots, and mottlings of the fringe, all much fainter.

Underside greenish grey or greenish white, with the markings of forewings shown. Head, thorax, and abdomen green, varied with darker; the segmental rings of abdomen dark.

Expanse of wings: 26—28 mm.

Four ♂♂, five ♀♀, from the Kikuyu Escarpment, British East Africa, January—April 1901 (W. Doherty).

Taken along with *E. prasinaria* and *subrufaria*, from which they can be at once separated by the black costal triangles; the areole is single, not double. The antennae of the ♂ are strongly serrate-ciliate.

8. **Tephroclystia fumitacta** spec. nov.

Forewings: dull brownish green; the markings darker; the basal patch, central fascia, and submarginal shade, much as in *T. bryophilaria*, but all more or less obscured by a smoky suffusion; the basal patch and central fascia both darker, filled up with fuscous; the costa without black blotches; cell-spot dark; black marginal dots in pairs; the fringe dull greenish or brownish with darker mottlings.

Hindwings: dark smoky fuscous, with dark cell-spot and indistinct curved pale submarginal band; fringe pale with dark mottlings.

Underside dull greenish cinereous, darker, more fuscous towards hindmargin; markings of upperside sometimes distinct on both wings, often obscured. Head, thorax, and abdomen like wings.

Expanse of wings: 24 mm.

Five ♂♂, one ♀, from the Kikuyu Escarpment, British East Africa, January—March 1901 (Doherty).

Distinguished by the dull smoky tint of the hindwings.

Subfamily ASCOTINAE.

9. **Calamodes lignaria** spec. nov.

Forewings: pale wood-colour, speckled with fuscous; the veins marked with pale ferruginous; costa marked with short black streaks and tinged with fuscous: first line from one-fourth of costa to inner margin close to base, bluntly bent outwards in cell, then obliquely sinuous inwards; outer line from three-fourths of costa to two-thirds of inner margin, bluntly angled on vein 6, denticulate above and crenulate below; the marginal area from just beyond this line suffused with smoky brown black, through which an irregularly waved submarginal line can be traced; marginal lunules black; fringe brown, somewhat chequered; cell-spot black and large; there appear to be traces of a dark shade close before and parallel to the outer line.

Hindwings: paler; three dark curved lines, all becoming obsolete before the costa, median, postmedian, and submarginal, the postmedian most distinct, crenulate; marginal area darker, but not so dark as in forewings.

Underside uniformly freckled with fuscous and grey; the outer lines shown on both wings.

Head, thorax, and abdomen like wings; face dark brown.

Expanse of wings: 31 mm.

1 ♂, Cubal River, Angola, March 1899 (Penrice).

Subfamily SELIDOSEMINAE.

Genus **Xylopteryx** Guen., *Phal.* i. p. 215.

To this genus must be transferred the species placed by me (cf. Nov. Zool. ix. pp. 525. 526), in *Scotopterix*: viz. *albimaculata* Warr., *emunctaria* Guen., *interposita* Warr., and *versicolor* Warr., with its aberrations. This last species is, I find, identical with *protearia* Guen., the type of the genus; Guenée's figure of *protearia* is very inadequate, not to say misleading. *Scotosia? lucidiscata* Wlk., *Cat.* xxvi. p. 1724—also identical with *protearia*—represents the aberration which I have called *albimedia*.

In the description of *versicolor* it was remarked that some examples have the usually paler broad central space narrowed by the outer area—that between the median and exterior lines—being filled up with darker. It seems therefore not unlikely that Guenée's other species *emunctaria*, described as a *Boarmia*, from a worn ♀, distinguished mainly by the narrowness of the central fascia, should also be referred to *protearia* as a further aberration, the median line, in the one case, being prominently developed while the exterior becomes faint, in the other the difference between the lines being reversed.

The other two new species *albimaculata* and *interposita* are closely related to Walker's smaller species *Xylopteryx arcuata*, described by him twice as a *Larentia* (*Cat.* xxiv. p. 1191 and 1193) under the names *arcuata* and *sublectata*, and a third time as *Cidaria laticinctata* (*Cat.* xxv. p. 1399).

Subfamily SEMIOTHISINAE.

10. **Calletaera ansorgei** spec. nov.

Forewings: sandy ochreous, speckled with darker; basal and outer lines marked only by brown spots on veins, at one-fourth and two-thirds respectively,

the latter angled at vein 6; a darker median shade, also bent below costa, then parallel and near to first line; submarginal line pale, regularly zigzag; space between it and outer line filled up with grey, forming a fascia; a grey marginal cloud beyond cell; marginal spots black; fringe sandy; cell-spot brown.

Hindwings: like forewings, but without basal line of dots; hindmargin crenulate.

Underside with ground-colour paler, whitish; markings darker, fuscous brown; forewings speckled with brown; middle line and submarginal fascia distinct, brown, the latter connected with the brown marginal cloud; outer and marginal lines of spots; middle line crossing cell-spot on forewings, preceding it on hindwings. Head, thorax, and abdomen concolorous with wings.

Expanse of wings: ♂ 30 mm.; ♀ 35 mm.

2 ♂♂, 1 ♀, from Agberi, Niger, July—September, and 1 ♂ from Ase, Niger, August 1901 (Dr. Ansorge).

Named in honour of the captor.

Type: ♂, September.

Subfamily FIDONIINAE.

Neostega gen. nov.

Forewings: triangular; costa straight; apex rounded; hindmargin oblique, faintly curved below.

Hindwings: broad, triangular; hindmargin rounded; both angles well marked. Antennae of ♂ simple, subserrulate, pubescent; palpi porrect, short; tongue and frenulum present; legs short and stout; hindtibiae thickened, with four spurs.

Neuration: forewings, cell less than half as long as wing; discocellular vertical; first median nervule at five-eighths, second at seven-eighths; lower radial from a little above middle of discocellular, upper from upper angle of cell; 7, 10, 8, 9 stalked from before end of cell, 10 anastomosing at a point with 12; 11 absent (coincident with 10?): hindwings, costal shortly anastomosing near base with subcostal; veins 3 and 7 before angles of cell; first median at three-fourths; no radial. No fovea in either wing.

Type: *Neostega flaviguttata* spec. nov.

11. **Neostega flaviguttata** spec. nov.

Forewings: dark purplish grey with darker striations; costa spotted with yellowish towards apex; two indistinct darker waved lines at about one-third and two-thirds, each accompanied by a dull yellow blotch from costa as far as vein 4, and slightly yellow marked at inner margin; fringe dark with slight pale marks beyond veins.

Hindwings: with an obscure central line, marked with yellow below costa and at inner margin.

Underside similar, the yellow markings indistinctly shown. Head, thorax, and abdomen concolorous with wings.

Expanse of wings: 19 mm.

1 ♂ from Oguta, Niger, July 1901 (Dr. Ansorge).

Subfamily ENNOMINAE.

12. **Eurythecodes mutabilis** spec. nov.

♂. *Forewings:* dull greyish olive, dusted with black scales; the lines slightly darker, the inner preceded, the outer followed, by a paler line, and both marked by dark vein-spots; first from one-third of costa to one-third of inner margin, bent on the subcostal vein, thence nearly vertical; outer line slightly curved, from two-thirds of inner margin towards apex, angled on vein 7 and retracted shortly to costa; a black cell-spot; some irregular dark clouds in the marginal area; fringe concolorous.

Hindwings: with a single nearly straight line just beyond middle, preceded by the black cell-dot; the colour paler, less olive-tinged.

Underside of forewings olive-cinereous with darker dusting, the outer line only indicated; hindwings paler, with coarse olive-fuscous speckles; outer line distinct, dentate-lunulate, black-marked on the veins; cell-spots in both wings. Head, thorax, and abdomen like wings.

♀. Always much paler and yellower.

Expanse of wings: ♂, 37 mm.; ♀, 39 mm.

A long series of both sexes from the Kikuyu Escarpment, British East Africa, Jan. 1901, 6500—9000 ft. (Doherty).

The species varies greatly; the above may be taken as the commonest form, which itself varies much in the amount of olive suffusion and in the clearness of the lines.

There are three main forms of variation; the first, which I propose to term

ab. **pallida**,

has the ground-colour pale ochreous, freckled with brownish; the two lines brown, and the cell-spots dark; no trace of other markings; ♂♂ only.

The second is an intensification of the type-form and of aberr. *pallida*. In this the outer line is followed by blackish scales and five blackish blotches—two between veins 2 and 4 touching the outer line, and two beyond them nearer hindmargin, the fifth between the two upper pairs below vein 2; these are also present, but less pronounced, in the hindwings; this aberration,

ab. **punctata**,

occurs in both sexes.

In the third,

b. **immaculata**,

one large velvety black spot stands beyond the outer line between veins 2 and 3; this form likewise occurs in both sexes.

In all cases the ♀ is yellow, sometimes golden-yellow, the fringe darker. The costa of forewings is well arched throughout, and the hindmargin angled in middle of both wings. In the hindwings the costal is closely approximated to the subcostal for quite half the cell.

Although the insect must be plentiful—nearly a hundred specimens having been secured by Doherty—I have not been able to find any description which is applicable to it in any of its forms.

In the original description of the neuration of the genus *Eurythecodes* it was stated that 10 and 11 coincidently anastomosed with 12; it would be more correct, in this and in similar cases, to consider 11 as given off from 12, and 10 as rising separately and anastomosing with 11.

13. **Pareclipsis ansorgeata** spec. nov.

Forewings: fawn-colour, thickly dusted with black scales, especially along the costa, which is striated with black; basal line at one-sixth, very obscure, curved; a slight blur on discocellular marks the cell-spot; outer line at two-thirds, curved from 6 to 2, marked only by black vein-spots; submarginal line very indistinct, paler and lunulate, only marked beyond cell and on submedian fold, where it passes through a blotch of black scales; that beyond cell larger and touching hindmargin; marginal spots black; fringe concolorous, with black scales at base.

Hindwings: with distinct black antemedian line, followed by a dark shade on inner margin touching a diamond-shaped black cell-spot with white centre; outer line as in forewings; submarginal line marked by lunules filled up with blackish between veins 7 and 8, beyond cell, and on submedian interspace, this last double; marginal spots and fringe as in forewings.

Underside the same, but redder; the speckling and markings stronger; forewings with distinct black cell-spot with shade below it. Head, thorax, abdomen, and antennae like wings.

Expanse of wings: 48 mm.

1 ♀ from Agberi, Niger, December 1901 (Dr. Ansorge).

The hindmargin of both wings is rounded and deeply crenulate. Cell in both wings quite short; in forewings 6 is short-stalked with 7, 8, 9; 10 and 11 coincident anastomose with 12. Superficially the insect is very much like the species of *Ocoelophora* Warr., but there is no fovea, and in the hindwings 3, 4 and 6, 7 are not stalked.

14. **Plegapteryx anomalus** H.-S., *Auss. Schm.* figs. 462. 463.

A ♂ example from Sierra Leone, though from colour and markings evidently belonging to this species, differs from Herrich-Schaeffer's figure in not having the two yellowish spots in the cell of forewings, but instead a blackish discal spot, preceded by three short double vertical pale streaks across the cell; on the underside, however, these streaks are represented by a yellowish patch with a few red scales on it, preceded by a less distinct single patch; it is probable, therefore, that in some examples these yellow spots appear, as in Herrich-Schaeffer's figure, on the upperside also. The marginal third of the wings above and a narrower area beneath have a strong plumbeous lustre, developed into a blotch at anal angle of forewings both above and below, and at apex of hindwings above. The underside of the forewings is in the main deep red.

15. **Plegapteryx segmentata.**

Syndetodes segmentata Warr., Nov. Zool. ix. p. 535.

The generic name *Syndetodes* must sink, the type-species being manifestly congeneric with *P. anomalus* H.-S. From that species it is distinguished by its olive-greenish colouring instead of chestnut-red, by the yellow underside of both wings, and by the white cheeks and base of antennae. A second example of this insect has been received, like that of *P. anomalus* above recorded, from Sierra Leone; the type was from Warri.

MAP OF THE WADI NATROUN

ACCORDING TO THE LATEST SURVEY

— OF —

THE EGYPTIAN SALT DEPARTMENT

LIST OF MAMMALS OBTAINED BY THE HON. N. CHARLES ROTHSCHILD AND THE HON. FRANCIS R. HENLEY IN THE NATRON VALLEY, EGYPT.

By W. E. De WINTON.

(*With topographical description and field-notes by the collectors.*)

(Plates VII., VIII.)

DESCRIPTION OF THE WADY NATRON.

"THE Wady Natron lies to the west of the Nile delta. It is about twenty-two miles long, and runs in a north-westerly direction, its south-eastern end being about forty miles north-west of Cairo. The valley is never more than five miles wide; the low undulating hills running on each side of it are covered

Wady Natron, from Zaghig.

with silicious pebbles and a few very stunted bushy plants. These hills slope down to the sandy valley, the lowest point of which is seventy to eighty feet below the level of the sea at Alexandria. In this valley there are about eight lakes lying in a line from one end of the Wady to the other. Beyond their edges, and extending some distance into the desert from them, is a thick growth of very tall reeds, called by the natives 'bourdi,' which is largely used as fuel by the Egyptian Salt & Soda Company in their manufactory here.

ZAGHIG AND LAKES.

During the last few years the 'bourdi' has been much reduced. All the lakes are salt (though the most northerly one, Lake Gar, is less so than the others), containing in solution varying quantities of chloride and carbonate of soda, and sometimes some sodium sulphate. The sand for some distance round the lakes, and even as far south as Der Macarius, is covered with a thick outgrowth of salt. The lakes dry up in the summer, some of them becoming completely dry, while others remain as moist, though hardly wet, marshes. The large deposits of salt, both that formed by the outgrowth on the sand and that deposited by the receding lakes, are dug out and carried on trolleys to the soda factory at Bir Hooker, where the

soda is extracted and purified. The outcrop of salt gives the country a very wintry aspect; the appearance, in fact, suggests a heavy fall of snow. This illusion, however, is rapidly dispelled by the quantities of mosquitoes which frequent the margins of the lakes. The soda factory is about eight miles from the southern end of the Wady, near the east side of the fourth lake, counting from that end. Near the factory is an excellent spring of fresh water, and similar springs of equally good fresh water rise in the centre of the salt lakes. There are two or three very small villages in the Wady; but, apart from the men working at the soda factory, the principal inhabitants of the district are the monks in the Coptic monasteries, of which there are four. The only ancient remains are at Zaghig, situated about the middle of the Wady, where are the ruins of an old glass factory. Pieces of

Mount Muluk.

rather finely-coloured blue and green glass can still be found. About two miles west of Bir Hooker is the hill Muluk, rising about eighty feet from the surrounding plain, where there are considerable deposits of fossils. The quickest route from Cairo to the Wady Natron is by the light railway from Khatatbeah on the Cairo-Alexandria line to Bir Hooker. The principal stop is about half-way between Khatatbeah and the Wady at Bir Victoria, celebrated for its well, which is said to be the best in Egypt. The water there is rather wasted, as the population of the place consists of four human beings (the station-master and his family) and a small herd of goats. The country round is covered with silicious pebbles; and the plants which grow in the sandy depressions are even fewer than in the Wady Natron. Animal life is decidedly scarce all over the district. Gazelles are far from common, though we observed a few, which we unfortunately failed to secure.

Hares were fairly numerous; and, judging by their tracks, a species of jackal occurred, known by the natives as 'Dib.' Those, too, unfortunately eluded us. Wild boars, which even five or six years ago were fairly numerous in the Wady, are now entirely extinct, none existing at all in any of the reed-beds there. The destruction of the 'bourdi' previously referred to, and the increased civilisation introduced into the district by the soda factory, seem to have entirely destroyed this animal. Wardan, where some specimens of gerbils were obtained, is not in the

Bir Victoria.

Natron Valley, but is a railway station and village, one hour north of Cairo towards Alexandria, on the extreme western edge of the delta."—N. C. R. & F. R. H.

1. **Felis lybica** Meyer.

No. 104, ♂, Bir Victoria, March 6th, 1903.

This single specimen is not of the normal colour of the species, but is pale yellow, with the body markings and tail rings of a more rufous tone. This coloration may often be seen in domestic cats.

J. Smit del. et lith.

Mintern Bros. imp.

1. DIPODILLUS HENLEYI de Winton. 2. D. AMOENUS de Winton. 3. PACHYUROMYS DUPRESI NATORENSIS de Winton.

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NATURAL HISTORY

2. **Vulpes famelica** Cretzschmar.

No. 2, ♂, Der Macarius, Wady el Natron, February 22nd, 1903.

"We found a single specimen of this fox close to Der Macarius. The animal was observed with its nose protruding from its burrow, which was made in the sand and did not extend more than about two or three feet down, so the creature was easily dug out."—N. C. R. & F. R. H.

3. **Vulpes zerda** Zimmermann.

Nos. 29, 30, ♂ ♀, Zaghig, February 25th, 1903; No. 115, ♂, Wardan, March 13th.

"The true Fennec, according to the natives, is not uncommon in the Natron Valley. We were never able to dig one out personally. The specimens secured were brought in by natives, who stated that they had dug them out."—N. C. R. & F. R. H.

In the volume on "Mammalia," in Anderson's *Fauna of Egypt*, p. 223, I was unable to give any exact locality for the Fennec. There is no doubt that it is located by the present specimens. Dixon Bey has lately presented several living specimens to the Zoological Society, and I have them under my charge at the Gardens in Regent's Park. Dixon Bey informs me that these animals are plentiful about Kantura, in the desert between Port Said and Ismailia, on the Sinaitic side of the Canal.

4. **Ictonyx libyca** Ehrenberg.

No. 114, ♂, Bir Victoria, March 13th, 1903.

Native name, "Abou Menten."

"This animal lives in burrows in the sand, and the natives assured us that it lived almost entirely on lizards. The single specimen we secured ate lizards voraciously in preference to all other food."—N. C. R. & F. R. H.

These beautiful little animals have never lived very long in confinement, but this interesting observation on their habits may help future attempts at keeping them.

5. **Mus musculus orientalis** Cretzschmar.

No. 70, ♂, Zaghig, February 28th, 1903.

6. **Gerbillus gerbillus** Olivier.

No. 86, ♂, Zaghig, March 1st, 1903; Nos. 82—85, 88, ♀ ♀, Zaghig, March 1st.

"The Gerbils, *Pachyuromys*, etc., were all trapped in mousetraps set at night, so naturally there is little to be said about their habits."—N. C. R. & F. R. H.

7. **Gerbillus tarabuli** Thomas.

Nos. 11, 12, 14, ♂♂, Zaghig,* February 23rd, 1903; Nos. 18, 19, 20, ♂♂, Zaghig, February 24th; Nos. 23, 25, 26, ♂♂, Zaghig, February 25th; Nos. 32, 33, 36, ♂♂, Zaghig, February 26th; Nos. 46, 47, 54, ♂♂, Mt. Muluk,* February 27th; Nos. 65, 66, ♂♂, Zaghig, February 28th; Nos. 74—79, ♂♂, Zaghig, March 1st; Nos. 95, 97, ♂♂, Bir Victoria, March 4th; Nos. 100, 103, ♂♂, Bir Victoria,

* Many of the traps in which Gerbils, etc., were caught were set *between* Zaghig and Mt Muluk. These localities are consequently slightly inaccurate.

March 5th; No. 113, ♂, Bir Victoria, March 9th; Nos. 17, 27, ♀, Zaghig, February 24th and 25th; Nos. 37, 40, ♀♀, Zaghig, February 26th; No. 48, ♀♀, Mt. Muluk, February 27th; No. 67, ♀♀, Zaghig, February 28th; No. 91, ♀♀, Bir Victoria, March 3rd; Nos. 93, 94, ♀♀, Zaghig, March 4th; Nos. 96, 98, ♀♀, Bir Victoria, March 4th; No. 105, ♀♀, Bir Victoria, March 7th; Nos. 107, 108, ♀♀, Bir Victoria, March 8th; No. 112, ♀, Bir Victoria, March 12th.

This species, which is closely allied to *G. pyramidum*, but differing in its redder colour and total absence of black tips to the hairs of the back, was described by Mr. Oldfield Thomas (*P. Z. S.* 1902. Vol. II. Part 1. p. 5) from specimens obtained in Tripoli. The species is now recorded for the first time from Egypt.

8. **Gerbillus andersoni** de Winton.

Nos. 115—117, ♂♂♀, Wardan, March 13th, 1903.

The three specimens are not in such good preservation as the greater part of the collection, but appear to agree with the typical form, which was believed to come from near Alexandria.

9. **Dipodillus henleyi** spec. nov.

(Plate VIII. fig. 1).

No. 53, ♂, Mt. Muluk, February 25th, 1903; No. 28, ♂, Zaghig, February 27th; No. 101, ♂, Bir Victoria, March 5th.

Size, smallest of all known Gerbillines, markedly smaller than *D. watersi*. Colour pale, rather bright fawn and white with no darker markings. The tail very slightly crested at its extremity.

Measurements taken by the collector from the type specimen (No. 28) in the flesh: Head and body, 61 mm.; tail, 72; hindfoot, 18; ear, 9.

The specimen from Bir Victoria seems rather larger, and the tone of colour is less bright. The collectors' measurements are:—Head and body, 76 mm.; tail, 82; hindfoot, 18; ear, 10; greatest breadth, 12.

Measurements of skull of No. 28: Greatest length, 21·5 mm.; length of nasals, 8·5; frontal constriction, 4·5; basal length, 17·3; length of palate, 8; incisor foramina, 3·7; molar series 3; width, outside molars, 4·5.

10. **Dipodillus amoenus** de Winton.

(Plate VIII. fig. 2.)

No number (? 24), ♀, Wardan, March 13th, 1903.

This skin is not quite perfect, but I have no hesitation in identifying it with this species, the only known examples of which were three specimens preserved in spirit collected by Dr. Andrews and Mr. Beadnell in the province of Ghizeh, but of which the exact locality was unknown.

11. **Meriones crassus sellysii** Romel.

No. 39, ♂, Zaghig, February 26th, 1903; No. 57, 59, ♂♂, Mt. Muluk, February 27th; No. 22, ♀, Zaghig, February 25th; No. 58, ♀, Mt. Muluk, February 27th; No. 60, sex not determined, Mt. Muluk, February 27th.

I fix the above name on these specimens as, when working out this group for the *Fauna of Egypt*, I said on p. 267, that if a form of *Meriones* with projecting

bullae was found, it might belong to this species. The bullae extend something like 2 millimetres behind the occiput ; this is therefore not quite so much as is found in the specimens from Tripoli referred by Mr. Oldfield Thomas (*P. Z. S.* 1902. Vol. II. Part I. p. 9) to *M. schousboei*. The habits of these nearly allied forms with such marked differences in the development of the auditory chambers will provide very interesting material for field naturalists.

12. **Pachyuromys dupresi natronensis** subsp. nov.

(Plate VIII. fig. 3.)

No. 99, ♂, Bir Victoria, March 4th, 1903 ; No. 102, ♂, Bir Victoria, March 5th ; No. 106, ♀, Bir Victoria, March 8th.

This is another addition to the fauna of Egypt, and extends the range of the genus eastwards from Tunisia. This Egyptian form is so striking in its delicate pale coloration that I think it well worthy of subspecific rank. Possibly distinguishing characters will be found in the skulls when better material can be obtained of the typical form for comparison.

The auditory chamber is so enormously enlarged in these animals that the bones are almost in contact above and below the foramen magnum. One specimen has a sinus about 2 millimetres in extent in the base of the organ, and I have noticed similar malformation in other specimens.

An inquiry of great interest might be made as to the cause of the extraordinary enlargement in the auditory chambers in so many different orders of animals which live in sandy districts : notably Foxes, Hedgehogs, and these Gerbilines.

13. **Jaculus jaculus** Linnaeus.

No. 7, ♂, Zaghig, February 22nd, 1903 ; No. 87, ♂, Zaghig, March 1st ; No. 90, 92, ♂♂, Zaghig, March 3rd ; Nos. 110, 111, ♂♂, Bir Victoria, March 9th, 1903.

14. **Lepus rothschildi** de Winton.

Nos. 4, 5, 6, ♂♂, Wardan, February 22nd, 1903 ; No. 16, ♂, Zaghig, March 23rd ; No. 76, ♂, Zaghig, February 7th ; No. 109, ♂, Bir Victoria, March 5th ; No. 89, no sex, Zaghig, February 1st ; No. 3, ♀, Wardan, February 22nd ; No. 21, ♀, Zaghig, February 27th ; Nos. 63, 64, ♀♀, Zaghig, February 25th ; No. 103, ♀, Bir Victoria, March 5th.

" This species, judging from the numerous footmarks, is fairly common throughout the Wady. It also extends south of the Wady, and is found close to Wardan Station. Wardan is a well-known game preserve, and it is most probable that the specimens of this hare, which from time to time reach Cairo in the flesh, are sent there by rail by native shikaris who have secured them near Wardan Station, which is barely an hour from Cairo by train."—N. C. R. & F. R. H.

The specimens in this collection are rather more rufous in general colour than those obtained by Mr. Rothschild on a former occasion, but for which the exact locality was not known. This is possibly a seasonal change.

REISE NACH DEM RIO DE ORO, JUNI BIS AUGUST 1902.

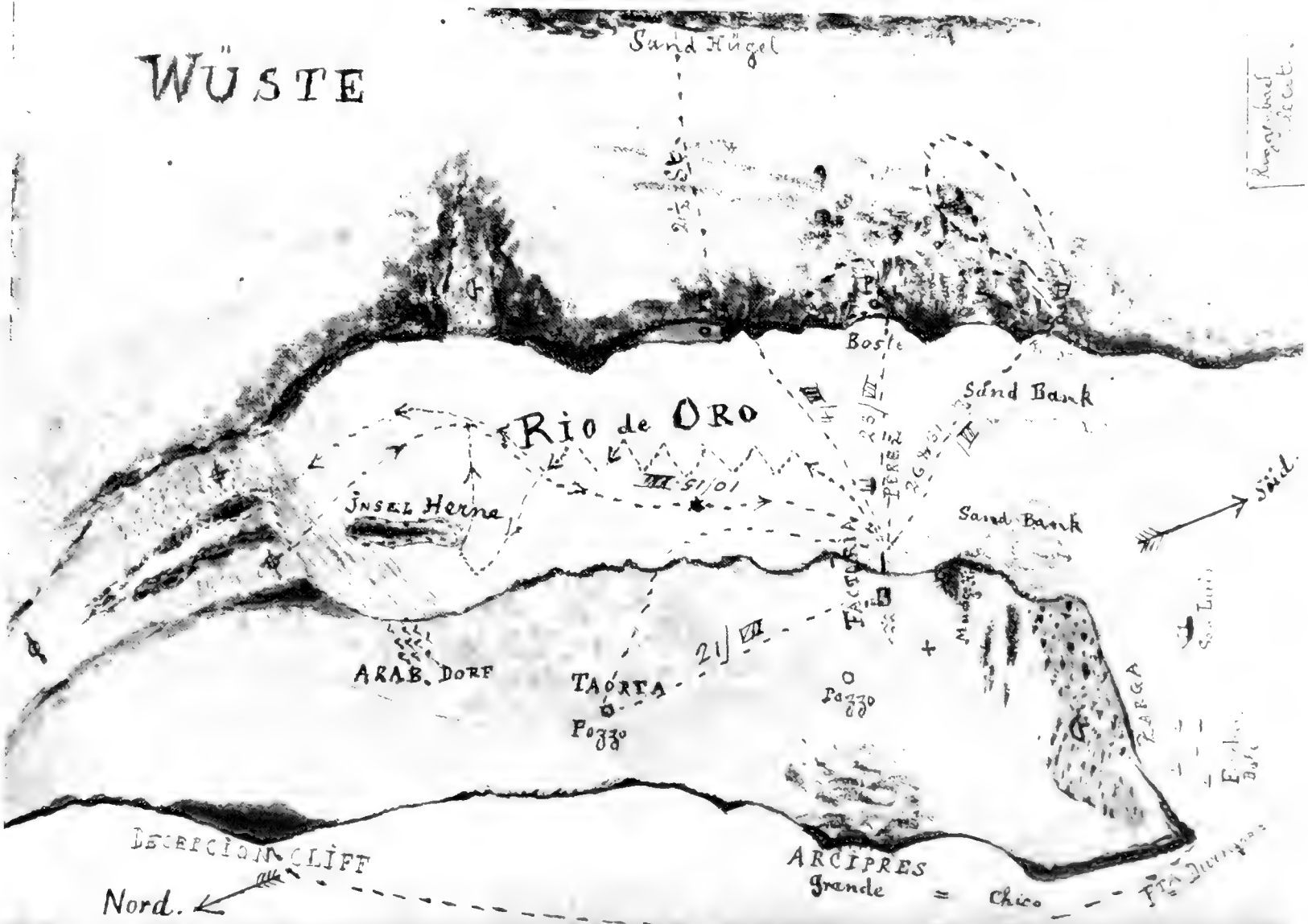
Von F. W. RIGGENBACH.

(Plate VI.)

SÜDLICH von Marokko bis zum Senegal, d. h. etwa zwischen dem Cap Bojador und Cap Blanco liegt, bei einer Küstenlänge von circa 400 Seemeilen, ein bis jetzt noch wenig erforschtes, beinahe unbekanntes Land, welches Spanien angehört und von den Spaniern "Sahara occidental" genannt wird.

Spanien hat bis heute wenig für diese Colonie gethan; es baute in den 80er Jahren des vergangenen Jahrhunderts eine Factorei und ein Fort auf einer Halbinsel, 178 Seemeilen südlich vom Cap Bojador—bekannt unter dem Namen "Rio de Oro" und verpachtete die Factorei an die "Compania hispano-africana" unter Besetzung des Forts mit 30 Mann Marine-Infanterie; vor einigen Jahren liquidierte die Compania hispano-africana und überliess die Factorei der spanischen Dampfergesellschaft "Compania transatlantica española," die solche heute noch inne hat, aber nur einen ganz unbedeutenden Tauschhandel mit dem Innern unterhält. Ihr Hauptgeschäft macht die Gesellschaft mit dem Seefischfang, wozu sie ein Segelschiff, den "San Luis," mit 19 Mann Besatzung beständig daselbst hält; die Fische, die in kolossaler Menge daselbst vorkommen, hauptsächlich Corbinas und Hundehaie, werden gesalzen, an der Luft getrocknet und dann zum Consum nach den canarischen Inseln und nach Fernando Po gesandt; auch canarische Fischer kommen stets zum Fischfang dahin, immerfort sind an der Zarga 8 bis 12 "Pailebotes" (Fischerkutter) verankert. Warum das Fort und die Factorei gerade auf dieser 20 Seemeilen langen Halbinsel gebaut wurde, ist unerklärlich. Es ist solches sicher der ungeeignetste Ort an der ganzen Küste; nicht nur dass die Araber, die Produkte aus dem Innern bringen, also schon 4 bis 5 Tagereisen und noch weiter herkommen, noch einen Umweg von 35 Kilometern machen müssen, sondern es giebt auch auf der ganzen Halbinsel nicht einen Tropfen für den Europäer geniessbares Wasser. Das Trinkwasser für die Besatzung des Forts kommt von den canarischen Inseln und das für die Factorei aus Cadiz oder Barcelona! Die beiden Tiefbrunnen in der Mitte der Halbinsel haben brackiges Wasser mit nicht viel weniger Salzgehalt als das Meerwasser, es wird aber von den wenigen die Halbinsel bewohnenden Arabern getrunken. Dagegen giebt es an der Küste des Festlandes über ein halbes Dutzend Orte, die gutes Süsswasser haben z. B. in Punta Cavalho, Buen jardin u. a. m., Orte, die in jeder Beziehung für die Anlage einer Handelsfactorei viel günstiger gewesen wären, als der Rio de Oro.—Dieser Rio de Oro also ist es, nach welchem ich 1902 auf Veranlassung von Herrn Ernst Hartert eine zoologische Sammeltour für das Museum des Herrn Dr. Walter von Rothschild unternahm.

Ich verliess Gran Canaria am 3. Juni mit dem Dampfer "Larache" der Compania transatlantica, welcher die 280 Seemeilen bis Rio de Oro in 30 Stunden zurücklegte. Die Dampfer dieser Compagnie können ihres Tiefganges wegen nicht in die Bucht hineinfahren und ankern bei der Zarga draussen in offenen Meere, während die kleinen (monatlichen) Dampfer der Compania interinsular in den Rio hinauffahren und gegenüber der Factorei ankern. Eine Stunde vor der Ankunft fuhr der


WÜSTE
Sand Hügel
Boste
Sand Bank
Rio de ORO
Insel Herne
Sand Bank
Süd.
ARAB. DORF
TAORTA
Pozzo
Pozzo
ARCIPRES
Grande
Chico
DECEPCION CLIFF
Nord.
20 SEEMEILEN

BRITISH MUSEUM
Z D
NATURAL HISTORY

Dampfer längs der Küste, die einen trostlosen Eindruck macht: eine einförmige, etwa 10 Meter hohe Küste aus abgestürzten Felsblöcken, nur an einer Stelle durch ein etwa 30 Meter hohes Cap (Arciprès grande) unterbrochen, dahinter eine gelbe, eintönige Sandbank ohne jegliche Vegetation.

Bei meiner Ankunft in der Zarga war die See ziemlich bewegt und es ging daher das Entladen der Wasserfässer und der Ladung nur langsam von Statten; die beiden Leichter, die das Löschen besorgten, fuhren mehrere Mal zu dem Segelschiff "San Luis," wo sie die Waaren deponierten, um sie dann in den folgenden Tagen in die Factorei zu bringen; endlich um 9 Uhr Nachts war das letzte Collo gelöscht

ARCIPRÈS GRANDE.

und fuhren wir an Bord des "San Luis," um da die Nacht über zu bleiben; ich hatte mich an Bord des "Larache" dem Factor und Chef der Factorei Herrn Gregorio Zarate vorgestellt, der mir dann auch sofort, nachdem er den Zweck meines Herkommens erfahren hatte, seine Dienste zur Verfügung stellte und mich einlud, bei ihm in der Factorei zu wohnen; Don Gregorio ist ein liebenswürdiger, zuvorkommender Mann, ein richtiger Hidalgo, stets bemüht gefällig zu sein, und ich bin ihm zu vielem Dank verpflichtet. Auch der Priester der Factorei, ein alter Catalane, war an Bord gekommen. Am folgenden Morgen früh fuhren wir in einem der gedeckten Leichter, der ein enormes Segel aufgesetzt hatte, bei heftigem Gegenwind und stürmischer See in die Bucht hinein und gelangten nach unzähligen

Kreuzungen und nachdem wir etwa 10 Minuten auf einer Sandbank festgesessen hatten nach 2½ Stunden zur Factorei.

Die ganze spanische Colonie in Rio de Oro besteht aus: 1 Gouverneur (Capitän der Marine-Infanterie), 1 Leutnant (Chef des Destacaments), 1 Militärarzt, 1 Feldwebel, 2 Korporälen, 1 Lazaretgehülfen, 28 Soldaten, sämmtlich im Fort wohnend; 1 Chef der Factorei, 1 Priester der Factorei, 1 Koch der Factorei. In der Factorei angestellt sind 6 bis 8 Araber und im Fort etwa 4, wovon 2 Dolmetscher. Sämmtliche Araber sprechen gut spanisch. Neben dem Fort wohnen in ihren Beduinenzelten etwa 80 bis 100 Eingeborene; an der Zarga deren 6, die den canarischen Fischern Handlangerdienste leisten, und weiter landeinwärts, gegenüber der Insel Herne, ist ein Dorf von etwa 100 Einwohnern, die sich

Fort und Factorei, Rio de Oro.

kümmerlich von Fischfang und Gazellenjagd ernähren—das ist die ganze Bevölkerung der Halbinsel. Die Nahrung dieser Leute besteht aus in Salzwasser gesottenem Fisch und Gofio (geröstetes Maismehl), das sie in der Factorei gegen Corbinas, Felle und Gazellen eintauschen. Weiter landeinwärts (nach Osten) ist 3 bis 4 Tagreisen weit nur unbewohnte Sandwüste, dann aber sollen zahlreiche viehzuchttreibende Beduinenstämme vorkommen und die Gegend viele Tiefbrunnen besitzen.

Diese Leute bringen ab und zu Wolle, Schafe, Ziegen, Esel und Pferde nach der Factorie. Die Pferde sind klein und nicht viel werth, dagegen sind die Esel und Ziegen sehr schöne Thiere, von bedeutend bessern Rassen als die Marokkanischen.

Die erste Person, die ich traf, nachdem ich wieder festen Boden unter den Füssen hatte, war der Gouverneur. Ich stellte mich ihm vor und sagte ihm, dass ich ein Empfehlungsschreiben seiner Excellenz des Herzogs Almodovar del Rio, Ministro de Estado, für ihn habe, worauf er glaubte, ich wäre der neue Leutnant.

Der erste Eindruck, den der Gouverneur auf mich machte, war nicht sehr günstig,—seine defekten Hosen und die Klatschsucht, mit der er mir sofort haarklein Alles erzählte, was der Factor, der Priester, der Leutnant etc. etc. thäten und wer sie seien, machten mir den Mann unsympathisch und das ist er mir auch geblieben. Sein Hauptvergnügen besteht darin, die 3 oder 4 bessern Leute hintereinander zu hetzen und die Eingeborenen zu prügeln. Den grössten Theil des Tages sitzt er bei seiner arabischen Concubine ; im übrigen ist er feige.

Der erste Eindruck dieser trostlosen Sandwüste wurde jetzt noch verstärkt durch den herrschenden heftigen Nordwestwind ; jahraus und jahrein immerfort bläst dieser Wind über die Ebene in einer Mittel-Stärke von 1 Kilometer per 2 bis 3 Minuten, manchmal wird er zum Orkan, wie z. B. vom 22 bis 27 Juni und ganz besonders am 14 Juli. An solchen Tagen ist es unmöglich, vor die Thüre zu gehen, eine gelbe Sandwolke hüllt Alles ein—man könnte sich in einem gelben Nebel

Arabische Frauen und Kinder.

glauben, in welchem einem von unsichtbarer Gewalt Sandkörner ins Gesicht geschleudert werden, die nadelstichähnliche Schmerzen verursachen.

In 75 Tagen, die ich in Rio de Oro zubrachte, waren nur 2 Tage mit *schwachem* Winde, der 29. Juli mit 1 km. per 7 Minuten und der 30. Juli mit 1 km. per 6 Minuten. Windstille gab es während meines ganzen dortigen Aufenthaltes nicht. Der Wind hat übrigens das Gute, dass er vom Meere kommend kühlend wirkt und somit das Klima ganz erträglich macht ; vom 1. bis zum 15. August war die mittlere Temperatur an der Sonne nur 35° Celsius (der 3te August wies mit 41° die höchste Temperatur auf, an einem andern Tage war die höchste Temperatur 30° an der Sonne), im gleichen Zeitraume schwankte die Temperatur im Schatten zwischen 21 bis 25° Celsius. Barometerstand 755 bis 760 mm., Mittel 756 mm. Regen giebt es beinahe nie ; in 2 Jahren hat es einmal geregnet und zwar am 1 Januar d. h. aber nur eine ganz kleine Menge (einige Millimeter). Das Klima ist sehr gesund ; Typhus, Tuberkulose, etc., sind gänzlich unbekannt ; die einzigen Krankheiten, mit welchen die Araber behaftet sind, haben ihre Ursachen im

Schmutz und dem schlechten Wasser (Ausschläge, etc.), auch giebt es Augenentzündungen (Ophthalmie), die wohl durch den feinen Wüstensand verursacht werden.

Die meiner Ankunft folgenden Tage benützte ich zu Exkursionen in der Umgebung der Niederlassung, wobei ich zu meinem grossen Leidwesen bemerkte, dass beinahe gar keine Landvögel vorhanden waren, von Schmetterlingen gar nicht zu sprechen ; Heteroceren gab es nur an den 2 Tagen (29/30 Juli), an welchen beinahe kein Wind wehte. Meine ganze Ausbeute an Landvögeln bestand desshalb nur in 22 Exemplaren, die 10 Arten repräsentieren, gesehen habe ich noch, aber ohne darauf zum Schuss zu kommen : einige Raben, 2 Mandelkrähen und 1 Weih. Wasser- und Strandvögel giebt es in Folge des grossen Fischreichthums in grosser Menge, hauptsächlich Strandläufer, Brachvögel, Möwen, Seeschwalben, Reiher, Flamingos, und Kormorane. Dieselben halten sich hauptsächlich auf den Sandbänken im Rio auf und es ist beinahe unmöglich ihnen beizukommen ; auch

Haima (Beduinenzelt).

die wenigen vorhandenen kleinen Landvögel sind furchtbar scheu, trotzdem kein Mensch ihnen nachstellt. Das beinahe gänzliche Fehlen der Landvögel erkläre ich mir aus verschiedenen Gründen; Körnerfresser finden überhaupt keine Nahrung, Insekten giebt es auch nur wenig, höchstens Fliegen in Menge ; dann ist kein Süsswasser da, die feuchten Niederschläge Nachts sind salzig und werden sofort vom Winde aufgetrocknet, Bäume und Sträucher zum Nisten und Schutz vor dem Raubzeug fehlen und es werden die Vögel, die Nachts am Boden schlafen, mit Leichtigkeit eine Beute der massenhaft herumstreichenden Schakale.

Reptilien sind auch nicht so zahlreich, wie ich gehofft hatte.

Säugethiere sind schon zahlreicher, es giebt Gazellen, Hasen, Schakale, Hyänen, Mäuse, Springmäuse (*Dipus*), *Mellivora* (Stinkthier), Antilopen, Mähnenschafe, Leoparden, die letztern 4 Thiere jedoch nur im Innern, ihre Felle aber werden ab und zu von den Arabern in die Factorei gebracht. Gazellen bringen die arabischen Jäger oft in die Factorei, wo sie gegessen werden. Leider konnte ich es nicht dahin bringen, dass man mir die Gazellen ohne durchschnittenen Hals und

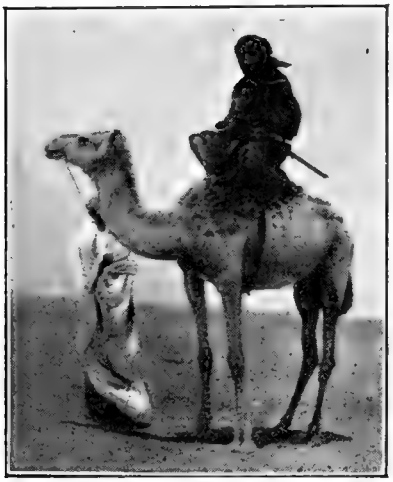
durchschnittene Sprunggelenke brachte, nur ein einziges Thier erhielt ich ganz, weil es nicht weit von der Factorei erlegt wurde (beim Pozzo Taorta). 1 Hasen schoss ich selbst beim Arciprès grande, ebenso erlegte ich zwei Schakale; hätte ich Tellereisen bei mir gehabt, würde ich Schakale wahrscheinlich in grosser Menge haben fangen können, denn oft hörte ich sie Nachts am Strande heulen. Hyänen bekam ich nicht, dagegen hörte ich sie in 2 Nächten weinen. Weisse Mäuse mit rothen Augen soll es auch geben, ich konnte aber keine bekommen, ebenso wenig wie einen Dipus, trotzdem ich mir die grösste Mühe gab. Eine *Mellivora* brachte man mir lebendig; ich erschoss sie sofort, weil sie einen kleinen Araber ins Bein gebissen hatte. Die Gazellen und Hasen haben ein sehr fein schmeckendes Fleisch, was mir unerklärlich ist, da ihre Nahrung einzig aus einer Salzpflanze besteht; diese Pflanze mit kleinen ovalen dicken wässrigen Blättern und eine Cactusart bilden die **einzige Vegetation** der Halbinsel.

Am 8. Juni machte ich einen kleinen Ausflug landeinwärts, d. h. in der Richtung des Brunnens Taorta. Ich mochte nahezu eine Stunde drauf los marschirt sein, ohne einen Vögel noch irgend ein anderes lebendes Wesen gesehen zu haben, als ich plötzlich am Horizonte ein Wäldchen auftauchen sah; ich war einigermassen erstaunt, da solches gar nicht mit dem stimmte, was ich bezüglich der Vegetation der Halbinsel im Fort gehört hatte; tapfer ging ich auf das Wäldchen los, aber je mehr ich lief, desto weiter entfernte sich das Gehölz, bis ich einsah, dass ich das Opfer einer *Fata morgana* sei. Nunmehr fasste ich einen besonders grossen Strauch ins Auge, direct ging ich auf ihn zu, wobei derselbe immer kleiner und kleiner wurde, bis ich endlich bei ihm anlangte; der aus der Ferne 3 Meter hoch erschienene Busch entpuppte sich als ein kleiner Sandhügel von etwa 50 cm. Höhe, bewachsen mit einem etwa 10 cm. hohem Cactus. Nunmehr machte ich mich auf den Rückweg, ich war ziemlich weit entfernt von der Factorei, dieselbe erschien mir in der Grösse eines 5 cm. hohen weissen Nürnberger Holzspielzeuges; stramm marschirte ich darauf zu, allmälig wurde das Gebäude grösser und grösser und nach etwa einer halben Stunde sah ich die Niederlassung inmitten einer wundervollen blauen Lagune voll kleiner grüner Inselchen vor mir stehen. Diese Täuschung dauerte bis ich dem Fort auf etwa 2 km. nahe war, um sich allmälig wie ein Nebelbild aufzulösen. Solche Trugbilder sah ich in der Folge noch oft, aber nie am Morgen, sondern stets nur Nachmittags, jedoch hat mir keines solch einen unauslöschlichen Eindruck gemacht, wie das erste, auf welches ich nicht vorbereitet gewesen war.

Ich wäre nun gar zu gerne für etwa 10 Tage ins Innere gegangen, es war aber ein Ding der Unmöglichkeit. Nicht nur konnte ich die nöthigen Kameele nicht erhalten, sondern es war auch Niemand da mich zu begleiten. Die in der Factorei angestellten Araber dürfen es nicht wagen, ins Innere zu gehen, da sie von den Eingeborenen dort als Abtrünnige angesehen und unfehlbar von ihnen getötet werden würden, und ich konnte mich nicht allein den im schlechtesten Rufe stehenden Beduinen anvertrauen. Ich hatte einem derselben vorgeschlagen, er möchte seinen Bruder gegen entsprechende Bezahlung als Geissel bis zu meiner Rückkehr im Fort lassen, worauf er aber nicht eingehen wollte.

Schliesslich benützte ich die Gelegenheit, als am 4 Juli die Araber der Factorei an der gegenüberliegenden Küste fischen gingen, zu einem Besuche des Festlandes; die Küste desselben ist zerklüftet, steil und 50 bis 60 Meter hoch; nachdem ich nach 2 stündiger Fahrt im Segelboot mit vieler Mühe an's Land gekommen war, machte ich mich sofort an's Erklettern der Felswand. Sie bestand aus

verwittertem Sandstein und man rutschte bei jedem Schritt wieder um die Hälfte zurück, schliesslich aber kam ich bis auf etwa 4 Meter zum obern überhängenden Rand. Bei jeder Bewegung die ich machte rollten Steine ab und rutschte der Sand unter meinen Füssen in die Tiefe. Zoll für Zoll, Hände und Füsse in den Sand eingrabend, kroch ich aufwärts, mein Jagdgewehr von mir herschiebend; endlich nach etwa ¼ Stunde, die mir Stunden gedauert zu haben schien, war ich oben. Nun kam auch mein Araber, der mich begleiten sollte, und ganz mühelos durch eine Schlucht hinaufgekommen war. Vorerst durchsuchte ich einige Schluchten in der Nähe, fand aber nichts Lebendes, sondern nur eine Strohmatte und darunter einen Sack aus Ziegenfellen, gefüllt mit allerlei Beduinen-Hausrath, wie Kamelshaare, Muscheln, rothe Steine, mit denen die Frauen sich das Gesicht färben, einige Beutelchen Droguen, die die Araber als Medizin anwenden, einige Lappen blauen Baumwollstoff, 2 Strohteller und ein Stück von 1 Antilopenhorn. Landeinwärts am Horizonte lief parallel mit der Küste eine Hügelkette, die Ebene bis dahin war die richtige Wüste ohne jegliche Vegetation; im Sande gab es unzählige Gazellenspuren, die alle in der Richtung der Hügelkette liefen, so entschloss ich mich denn bis zu den Hügeln zu gehen, hoffend daselbst einige Vögel, oder vielleicht Gazellen in der Mittagsruhe anzutreffen. Also marschirten wir auf unser Ziel los, und nach einer Stunde ungefähr traf ich auf frische Kamelsspuren, die in der Richtung von Nord nach Süd gingen, mein Begleiter kam mir nach und sagte mir in seiner lakonischen Art: "frische Kamelsspuren, von heute, 7 Kameele, wovon eines störisch"—ich antwortete ihm auf dieselbe Art: "Wenn 7 Kameele, 7 schlechte Männer, so habe ich Mauser 5 Schuss, Jagdgewehr, 2 Schuss!"—und damit war die Sache abgethan, stillschweigend marschierten wir weiter; bei den Hügeln angekommen fand ich auch Nichts zu schiessen und machte desshalb wieder kehrt. Die Hügel sind aus demselben Material wie die Küste: Sand und Muscheln. Den Abstieg zum Rio machte ich diesmal durch eine Schlucht und schoss dabei einen schwarzen Steinschmätzer mit weissem Bürzel, einen zweiten, den ich sah, erbeutete ich nicht.



Ein Sohn der Wüste.

Da ich am 18. Juli zurückreisen wollte, nahm ich mir vor, doch noch vorher per Kamel bis an den Anfang der Halbinsel (gegenüber der Insel Herne) zu reiten. Ich verständigte mich desshalb mit einem Gazellenjäger auf den 14. Juli, leider herrschte aber an diesem Tage ein derartiger Orkan, dass es nicht möglich war, auch nur vor die Thüre zu gehen; wie es dann kam, dass ich am 18. Juli noch nicht abreiste, werde ich nachstehend erzählen.

Am 17. Juli morgens kam mit dem Interinsulardampfer ein Priester, Don Norberto Font aus Barcelona, in Rio de Oro an. Er war vom Marquis de Comillas, Präsidenten der Compania transatlantica, gesandt worden, um die geologischen und Wasser-Verhältnisse zu studiren. Don Norberto, ein noch junger Mann, ist in

Catalonien als Geologe rühmlich bekannt und geschätzt. Gleich nachdem wir einander vorgestellt waren, sagte er mir, ich solle meine Abreise doch noch einen Monat verzögern, während welcher Zeit wir zusammen Exkursionen machen könnten, was für uns Beide angenehm und von Nutzen sein würde. Ich überlegte mir denn die Sache nicht lange und entschloss mich, noch einen Monat länger zu bleiben, was ich dann auch nicht zu bereuen hatte ; an diesen mit Don Norberto in grösster Harmonie zusammen verlebten Monat werde ich stets mit grosser Freude zurückdenken. Beinahe täglich machten wir zusammen Ausflüge, darunter 5 grössere Exkursionen: eine nach dem Pozzo Taorta, wo ich eine schöne, sandgelbe, grosse Wüstenlerche—die einzige dieser Art, die mir zu Gesicht gekommen—erbeutete; dann 2 im Segelboot und 1 eine im Fischerkutter nach der gegenüberliegenden Küste des Festlandes und schliesslich eine von fünf Tagen in dem Bergantin (Segelschiff) "San Luis" bis ans Ende der Bucht von Rio de Oro.

Bei einer der Exkursionen nach dem südlichsten Boste war ich, während Don Norberto den Brunnen untersuchte, auf eigene Faust herumstreichen

Der Autor auf einem Ausfluge.

respective jagen gegangen, wobei mir die enorm vielen Spuren von Gazellen, Schakalen und Hasen auffielen. Auch die Spur eines grössern Raubthieres—die Pfote mochte etwa 8 cm. Durchmesser haben—fand ich, und folgte derselben bis in eine Schlucht hinein, wo ich sie verlor ; es wird wahrscheinlich eine Hyäne gewesen sein. Auch 3 schwarze Steinschmätzer erbeutete ich noch.

Der Name Rio de Oro hatte in mir die Vermuthung aufkommen lassen, dass in frühern Zeiten irgendwo, aber sehr wahrscheinlich am Ende der Bucht, ein Fluss in die Bucht gemündet haben werde, wodurch solcher der Name Rio (Fluss) beigelegt wurde. In Algerien giebt es solche Flüsse, die im Sande versiegen und unterirdisch dem Meere zufliessen, man braucht da nur im ehemaligen noch deutlich erkennbaren Flussbette einige Meter zu graben, um auf süsses Wasser zu stossen. Ich theilte diese Idee Don Norberto mit, welcher selbst schon das Gleiche gedacht hatte. Von Cadix hatte er eine Maschine zum Bohren von artesischen Brunnen mitgebracht, aber er kam nicht in die Lage solche zu benützen, da er bei der Untersuchung des Endes der Bucht die Entdeckung

machte, dass der vermeintliche ausgetrocknete Fluss weiter nichts ist, als die Fortsetzung der Bucht, durch welche solche vor noch gar nicht langer Zeit mit dem offenen Meere zusammengehangen hat; die heutige Halbinsel ist also ehemals eine Insel gewesen und selbst heute noch kann man deutlich erkennen, dass bei grossen Fluthen das Meer und die Bucht beinahe zusammenfliessen. Meine Erwartung, dass es daselbst Süsswasser und Vegetation und demzufolge auch eine grössere Manigfaltigkeit in der Thierwelt, besonders der gefiederten, gebe, erfüllte sich also nicht. Auch auf der Insel Herne fand ich nichts Besonderes. Von dem gegenüber liegenden Festlande brachten mir die Araber eine hellgelbe Schlange, leider mit abgetrenntem Kopfe. Auf unserer Rückreise nach der Factorei erlebten wir auch noch das Vergnügen mit dem "San Luis" auf einer Sandbank aufzulaufen—der Rio hat nämlich nur einen sehr schmalen Kanal mit Tiefen von 6 bis 70 Meter. Durch diesen waren wir denn auch glücklich aufwärts gekreutzt; beim Zurückfahren wollte der "Patron" (Capitän) einen schmälern, aber nähern Canal benützen und blieb dabei im Sande stecken; wir blieben noch etwa 4 Stunden an Bord, während welcher tüchtig gearbeitet wurde, um das Schiff flott zu machen, was aber nicht gelang. Am folgenden Tage wurde der "San Luis" um 200 Säcke Salz erleichtert und kam dann am 3ten Tage morgens bei Fluth frei. An Bord vom "San Luis" hatte ich mit der Angel 2 Haifische gefangen. Auch grosse Sonnenfische giebt es im Rio, die Fischer erbeuten sie einzig der Leber wegen, die ein werthvolles Oel enthält.

In die Factorei zurückgekehrt fanden wir 15 Esel vor, deren Spuren wir auf dem Festlande am Ende der Bucht schon gesehen hatten; es waren Prachtthiere, aschgrau, gelb und weiss mit schwarzer kreuzförmiger Rückenzeichnung. Schade, dass sie nicht vorher gekommen waren, wir hätten sie zu unsern Exkursionen gut benützen können.

Don Norberto hatte mir auch die Lust am Sammeln von Fossilien und dergleichen beigebracht; ich sammelte z. B. eine Anzahl fossiler Fischzähne und Knochen von Fischen, dann Achate in allen Farben und schliesslich sehr schöne Pfeilspitzen, Lanzenspitzen, Kratzer, Messer, Nadeln, etc., aus Feuerstein oder Achat, wie sie die frühern Bewohner der Halbinsel angefertigt und benützt haben. Einige der gefundenen Pfeilspitzen und Nadeln sind so fein gearbeitet, dass ich mich mit Staunen fragen muss, mit welchen Instrumenten diese Wilden aus so harten Steinen solch feine Gegenstände anfertigen konnten. Diese Sachen hatte Don Norberto zuerst in einem Hügel alter Küchenabfälle entdeckt; der Hügel bestand aus Asche, Muscheln u. s. w. und dient heute als Begräbnissplatz für die Araber, und auch ein Steinbeil hat er daselbst gefunden.

Endlich war der Tag unserer Abreise, der 18. August, da. Begleitet von der ganzen europäischen und einheimischen Bevölkerung schifften wir uns am Molo ein. Um 10 Uhr lichtete der Dampfer die Anker und hinaus dampften wir aus dem "Goldflusse," der kein Fluss ist und wo von Gold keine Spur vorhanden. Don Gregorio begleitete uns noch bis zur Zarga, der Dampfer stoppt, ein Händedruck, und dann hinunter in's Boot. Ein Winken mit den Taschentüchern, die Schiffsmaschine arbeitet und bald ist das Boot unsern Blicken entschwunden. Eine wehmüthige Stimmung ergreift mich, denn auch die Wüste ist schön, wenn wir dort nette Menschen kennen gelernt und zurückgelassen haben.

LIST OF BIRDS COLLECTED AT RIO DE ORO BY MR. F. W. RIGGENBACH.

By ERNST HARTERT.

THE bird-collection from Rio de Oro is as unsatisfactory as it can be. The barren nature of the place necessitates a very poor avifauna, but we should have expected more than this. We hoped that Riggenbach would be able to penetrate farther inland, where no doubt much bird-life exists. Moreover, he paid his visit to the Rio de Oro at the wrong time of the year. It is true that I did not want him to go in winter, fearing that he might find so many migrants that the collecting of them would prevent him from thoroughly investigating the resident species; but he certainly started too late. April would probably have been the best time. As it is, the collection, besides being extremely poor in species, contains mostly very worn birds—so much worn that the coloration can only be seen roughly.

1. **Aëdon luscinia** (L.).

1 ♂ ad., 13. viii. 1902. (No. 38.)

In good, fresh plumage. Evidently not a resident bird, but a bird of passage.

2. **Hypolais polyglotta** Vieill.

♂ ♀, 27. 31. vii.; ♂♂, 11. 13. viii. 1902.

All in worn plumage, evidently after breeding. (Nos. 29, 31, 33, 37.) "Iris black-blue with orange ring, feet bistre, bill above coffee-brown with yellow edges, lower mandible flesh-colour."

Probably a bird breeding at Rio de Oro.

3. **Saxicola leucurus** (Gm.).

♂ ad., 4. vii. 1902; ♂ ♀, 23. vii. 1902.

Both birds of the year, but one is still in its first plumage, while the other has its full fine plumage like an adult bird, the belly only still showing feathers of the first plumage.

1 ♂ juv., 31. vii. 1902. (Nos. 21, 27, 28, 30.)

These birds doubtless breed at the Rio de Oro.

4. **Otocorys bilopha** (Temm.) (? subsp.).

2 ♀ ♀ ad., 10. vi. 1902.

"Iris dark blue with orange circle, feet lead-grey, bill lead-grey, under mandible bluish-grey with darker tip." (Nos. 7, 8.)

In very worn plumage, moult beginning. The wings and tails are so worn that they cannot be measured; but apparently these Rio de Oro specimens are smaller than Egyptian (Hon. N. C. Rothschild coll.) and Tunisian specimens. *Males* and specimens in better plumage are necessary to show if the Rio de Oro race is separable or not.

5. **Galerida theklae** subsp.

1 ♀ ad., Rio de Oro, 9. vi. 1902. (No. 5.)

One single specimen in terribly worn plumage. It is impossible to say to which form it belongs, if not to a new one. It appears to be very near to *G. t. superflua* Hart. and *G. t. deichleri* Erl., especially the former.

6. **Alaemon alaudipes** (Desf.).

1 ♂ juv., 21. vii. 1902.

Moulting from the first juvenile plumage to that of the adult bird. (No. 26.)

7. **Hirundo rustica** (L.).

2 ♂ ad., 9. 11. vi. 1902. (Nos. 6, 9.)

In fine spring plumage, not different from European examples. Probably breeding as far south as Rio de Oro, although Mr. Riggenbach gives no information on this point. As the swallow nests as far south as Mogador in Morocco, I see nothing extraordinary in their breeding here in the middle of the Saharan desert-belt.

8. **Motacilla campestris rayi** (Bp.).

♂ ad., 29. vi. 1902. (No. 20.)

In terribly worn plumage, but evidently belonging to the English race. I fancy it must be a migrant which for some reason did not return to its home in England for the summer, and was unfortunate enough to be met with by Riggenbach.

9. **Apus apus apus** (L.).

2 ♂ ad., 1 juv., 11. viii. 1902. (Nos. 34, 35, 36.)

These birds are typical dark European *apus*, and must already have been on their way south, as early as August 11th.

10. **Upupa epops** L.

1 ♂, 2 ♀♀ (one erroneously sexed " ♂ "), 7. 31. vii. 1902. (Nos. 22, 23, 32.)

I suppose these birds breed at Rio de Oro.

11. **Oidemia nigra** (L.).

2 ♂ ad., 20. vi. 1902 (one erroneously marked " ♀ "). (Nos. 16, 19.)

It is strange to understand why these birds are spending the summer here. They are in their black plumage, but very strongly worn.

12. **Aegialitis hiaticula** (L.).

2 " ♀♀," 7. 16. vi. 1902. (Nos. 2, 11.)

One in very good plumage.

13. **Aegialitis alexandrinus** (L.).

3 ♂ ad., 1 ♀ ad., 7. 8. 17. vi. 1902. (Nos. 1, 3, 4, 10.)

In worn breeding plumage.

14. **Tringa canutus** L.

2 ♂ ad., 1 ♂, 17. 18. vi. 1902. (Nos. 12, 13, 14.)

One of these is in a somewhat peculiar plumage. There are white feathers with blackish brown markings **rather worn**; besides them, feathers for their greater part chestnut cinnamon, and **not at all worn**, looking like fresh feathers, while white and brown ones are also sprouting.

15. **Numenius phaeopus** (L.).

♂ ad., 10. vii. 1902. (No. 25.)

16. **Sterna maxima** Bodd.

♀, 8. vii. 1902. (No. 24.)

17. **Sterna cantiaca** Gm.

♂, 20. vi. 1902. (No. 17.)

This, as well as the former, are not in breeding plumage; the forehead white, the nape and hindneck black and white.

18. **Sterna fluviatilis** Naum.

♀ juv., 19. 20. vi. 1902. (Nos. 15, 18.)

That is all we have received from the "Rio de Oro." Though it is a miserable list, it seems to show:—

1. That Rio de Oro is not a place for any collector to go, unless he manages to travel inland for at least a day or two, where he finds vegetation and doubtless some interesting birds as well.

2. That the faunal character of these latitudes, though being practically the tropic of Cancer and thus the middle of the Sahara, is quite palaearctic, not tropical. Cf. *Hypolais polyglotta*, *Saxicola leucurus*, *Upupa epops*, *Otocorys bilopha*, *Hirundo rustica*, *Alaemon alaudipes*, which are with more or less certainty breeding here.

3. That the Rio de Oro, probably on account of its abundance of fishes and sheltered position, is a welcome home for tired and invalid migrants which are not inclined to undertake the voyage to their breeding-places. Cf. *Oidemia nigra*, *Motacilla campestris rayi*, and *Tringa canutus*, the presence of adult individuals of which in this latitude is otherwise strange to understand in the month of June.

REPTILES FROM RIO DE ORO, WESTERN SAHARA.

By DR. A. GÜNTHER, F.R.S.

THE Tring Museum has received last year a small collection of reptiles made by Mr. Riggenbach in the littoral district of the Rio de Oro. The physical features of this district are more fully described by Mr. Riggenbach, and therefore it may suffice to mention here that the "Rio de Oro" is a marine channel separating a peninsula bearing the same name from the mainland, which for some distance inland is a barren, sandy desert, without any vegetation. It was here where the following eight species were collected.

1. **Geckonia chazaliae.**

Mocquard, *Bull. Mus. d'Hist. Nat. Paris* i. 1895. p. 311.

This singular Gecko seems to be one of the most characteristic forms of the Reptilian Fauna of this part of Africa. It is a true desert form, reminding us of *Phrynosoma* by its form and coloration, and particularly by the row of enlarged tubercles which borders the back of the head. It was described in 1895 by M. Mocquard from a specimen obtained 20 kilometers inland of Cape Blanco—that is, somewhat more to the north than our specimens, in typical desert country. To M. Mocquard's description I have only to add that in our specimens the median lower labial scute is conspicuously longer than broad, without separating the pair of small chin-shields. The largest of several individuals is 82 mm. long, of which the tail takes 30 mm. In the perfect state the tail is tapering, slightly depressed at the base, annulated, covered with very small scales, and armed with two longitudinal series of pointed projecting tubercles along the side, the upper series being composed of the largest. Each annulus is armed with one pair of tubercles.

2. **Stenodactylus sthenodactylus** Licht.

3. **Tropiocolotes tripolitanus** Ptrs.

4. **Varanus griseus** Daud.

5. **Acanthodactylus scutellatus aureus** subsp. nov.

A considerable number of this species were collected, and therefore it seems to be the most common Lizard in this district. Specimens of this widely distributed species differ greatly in the form of the snout. Although the snout is generally conspicuously narrower than in the allied *A. pardalis*, individuals do occur, especially in the eastern localities, in which the snout is almost as wide as, and not much longer than, in typical *A. pardalis*. The greatest degree of attenuation has been attained by the snout of specimens from the westernmost limit of the

range of the species. In Morocco and Western Algeria no individuals are found with a broad snout. Sometimes the snout is so much compressed that the canthi rostrales are slightly concave, instead of straight lines.

In all the specimens which I have examined from localities from Syria to Algeria, the series of upper labials (to below the centre of the orbit) is composed of five, and exceptionally six, scutes ; whilst in the specimens from the western limits of the range of the species, this number is reduced to four by the coalescence of the two posterior scutes, one very long scute bordering the lip below the anterior

A. s. aureus.

Typical form.

half of the eye. Coalescence or division of labial shields is in Lizards of such common occurrence that taxonomic value is scarcely ever attached to it. Yet it seems to be worthy of notice that of more than thirty specimens from the Rio de Oro, and of several from Southern Algeria (Lataste coll.), **every one** has an undivided fourth labial ; whilst in all from more western localities I have found that shield divided into two subequal halves. To draw attention to this peculiarity I have named the western form *aureus*.

6. **Macroprotodon cucullatus.**

Three specimens, agreeing in having 19 rows of scales, and in being nearly uniformly coloured, with very small spots on the back, and unspotted abdomen.

7. **Psammophis schokari** Forsk.

8. **Coelopeltis monspessulana** Herm.

ON A SMALL COLLECTION OF MAMMALS FROM THE RIO DE ORO, WESTERN SAHARA.

By OLDFIELD THOMAS.

BY the kindness of the authorities of the Tring Museum, I have been entrusted with the examination of a small collection of mammals obtained by Herr Riggenbach at Rio de Oro, a most interesting locality situated just on the Tropic of Cancer, on the western coast of the Sahara.

With the exception of the four species recorded * by Martinez in 1886 from the same district, no mammals have ever been described from within many hundred miles of this place, and it is therefore not surprising that I have had to give new names to all three of the determinable small species in the collection.

1. **Canis anthus** F. Cuv.

♂ ♂, July 10th and 24th, 1902.

These specimens are valuable as being more nearly typical of the Senegal jackal described by F. Cuvier than the North African examples which have usually had to do duty as such.

2. **Mellivora** spec.

♂, August 3rd, 1902.

Young. May be *M. leuconota*, Sclater.

3. **Eliomys lerotinus occidentalis** subsp. nov.

♀, July 29th, 1902. *Type.*

A pallid form, with a black, white-tipped tail.

Size about as in *lerotinus*. General body-colour above pale grey, with but slight suffusion of fulvous, which disappears altogether on the sides. Cheeks and undersurface creamy white, well defined laterally. Face-markings normal, strong, and well defined, but somewhat restricted in area. Forehead whitish grey, as pale as in *E. melanurus*. Hands and feet pure white. Tail slender, little bushy; greyish for its basal half-inch only, then quite black above and below until the end, where there is a short, pure white tip.

Skull as usual; palatal foramina smaller, bullae shorter but rather more inflated than in true *lerotinus*.

Dimensions of the type, measured in skin :—

Head and body, 112 mm.; tail, 91; hindfoot, s.u., 23; ear (dry), 20.

Skull, greatest length, 33 mm.; basilar length, 25; zygomatic breadth, 18·5; palatal foramina, 4 × 2·5; length of bulla, 10; length of upper molar series, 5·1.

* *Ann. Soc. Esp.* xv. p. 522. 1886.

This dormouse, curiously enough, has more resemblance to the *E. lerotinus tunetae* Thos., of Tunis, than to the typical *E. lerotinus* from the intermediate locality of Mzab, Saharan Algeria, for it has an even more completely black tail than the former; but its body-colour is more as in the pale Saharan form.

The "*Bifa lerotina*" recorded by Martinez is no doubt the present animal.

4. **Gerbillus riggenbachi** spec. nov.

5 ♂♂, July 12th to August 1st, 1902.

1 ♀, July 15th, 1902.

A representative of *G. pyramidum*, but smaller, and with a whiter and less pencilled tail.

General colour above as usual, light sandy buffy, rather paler even than in *G. pyramidum tarabuli* Thos., and nearly matching the clearest examples of *G. gerbillus*. Belly snowy white, extending fairly high up on sides, where the buff-tipped flank hairs are also white at base. Sides of muzzle, cheeks, orbital rings and ear-patches, white, less sharply defined, owing to the general pallor, than usual. Hands and feet white and hairy below, as usual, a small portion only of the posterior soles naked. Tail apparently rather short for the group, but, as no measurements have been taken, the exact length cannot be given. In colour it is whitish buffy above, lightening terminally, and pure white below; hairs of pencil little developed, and with scarcely a trace of the usual darkening on the upperside.

Skull distinctly of the more elongate, rat-like proportions of that of *G. pyramidum*, not as in *G. gerbillus*. Compared with the former it is, however, smaller, with narrower molars (*m*′ 1·6 mm. broad) and decidedly smaller bullae.

Dimensions of the type, measured in skin, and merely approximate :—

Head and body, 101 mm.; tail, 132; hindfoot, s.u., 30; ear, 13.

Skull, greatest length, 31 mm.; basilar length, 33; zygomatic breadth, 16·2; length of nasals, 12; interorbital breadth, 6·5; breadth of braincase, 14; diastema, 8·5; length of upper molar series, 4; bulla, 10·2 × 5·3.

Type: old *male*, "Mouse No. 6," collected July 29th, 1902.

The species of this group are all very nearly allied, and present few tangible characters, but *G. riggenbachi*, while most closely allied to *G. pyramidum*, seems to be readily distinguishable by its smaller size, paler and less tufted tail, and smaller bullae.

5. **Dipodillus** spec.

♂, June 17th, 1902.

Too young for determination. Allied to *D. dodsoni* Thos.

6. **Lepus harterti** spec. nov.

♀, July 29th, 1902. *Type.*

Allied to *L. tunetae* de Wint.,* but lighter coloured throughout.

Size and proportions about as in *L. tunetae*, though the ears are rather shorter. General colour of back very pale, something between "cream-buff" and "pinkish buff" of Ridgway. Sides scarcely paler and without any fulvous band along the

* *Ann. Mag. N. H.* (7) i. p. 157. 1898.

edges of the belly, which is pure white throughout. Chin white; throat-band greyish cream-buff. Crown of head like back, therefore much lighter than in *L. tunetae*; sides of muzzle, orbital rings and a patch between eye and ear, white. Nape-patch a delicate buffy vinaceous, rather paler than in *tunetae*. Front surface of back of ear cream-buff, edged with white, or cream-white to the tip, the narrow black terminal edging only beginning beyond the tip, where on the hind surface of the ear-back there is a small blackish patch. In *L. tunetae*, about an inch at the end of the front margin is black-edged. Hairs of inner surface of ear creamy white. Limbs pale pinkish buff, very different to the fulvous of the forearms and lower legs of *tunetae*; hands and feet cream-buff, the longer hairs under the fingers and toes deep ochraceous-buff. Tail black above, white below and on the sides.

Dimensions of the type, measured in skin :—

Head and body 410 mm.; tail, 70; hindfoot, s.u., 93; ear, from notch 101, from base at back, 115.

This hare is a desert species of the *L. tunetae* type, and may be distinguished from that animal by its paler colour, especially its paler head, and the absence of the fulvous tones on the limbs and sides of the belly.

I have named it in honour of my friend Ernst Hartert, who induced Mr. Riggenbach to make a trip to the Rio de Oro for the Tring Museum, and to whom I have been so often indebted for introductions to possible mammal-collectors, and for many other kindly services.

7. Gazella dorcas L.

♂, (Skull).
♀, July 2nd, 1902.

ON THE SCORPIONS, SOLIFUGAE, AND A TRAPDOOR SPIDER, COLLECTED BY REV. HENRI A. JUNOD, AT SHILOUVANE, NEAR LEYDSDORP,* IN THE TRANSVAAL.

By W. F. PURCELL, Ph.D.,
First Assistant in the South African Museum, Capetown.

An interesting collection of Transvaal Arachnida was recently submitted to me for examination by Mr. H. Junod. The collection contained specimens of Scorpions, Pseudoscorpions, Opiliones, Solifugae, and Araneae, and of these the Scorpions, Solifugae, and Trapdoor Spiders are here enumerated, and the new species described.

Order SCORPIONES.

The scorpions found belong to five different species, one of them not previously recorded from the Transvaal.

1. **Uroplectes triangulifer** Thor.

2 ♀ ♀ and 1 juv. These specimens closely resemble the Johannesburg form of the species (described in *Ann. S. Afr. Mus.* v. 2. p. 187. 1901), but differ slightly in the coloration, the tibia of the pedipalps being infuscated in the distal two-fifths only, while the femora of the legs are entirely yellow. Ex. in the South African Museum.

2. **Uroplectes formosus** Poc.

1 ex. This species has not hitherto been recorded from the Transvaal.

3. **Opisthhopthalmus glabrifrons** Peters.

2 ♂♂, 2 ♀♀, and 2 juv. ♀♀. These specimens, which are of a large size, have the eyes placed far forward, and closely resemble those described by me in a previous paper (*Ann. S. Afr. Mus.* v. 1. p. 161, under *a*). Ex. in the South African Museum.

4. **Cheloctonus jonesi** Poc.

3 ♂♂, 2 ♀♀, and 4 juv. In the South African Museum.

5. **Opisthacanthus validus** Thor.

1 ♀.

* The Station of Shilouvane, belonging to the Swiss Evangelical Mission, is at the foot of the Drakensberg Range, near Kranzkop, in the low country of St. Pietersburg, about 2000 feet high, on a little hill not far from the Selati River.—H. A. Junod.

ORDER SOLIFUGAE.

Four species of this order were found, all belonging to the genus *Solpuga* Licht. Of these, one is new to the Transvaal, two are undescribed, and the fourth is too young to be identified.

1. **Solpuga sericea** Poc.

1 ♂. This species was hitherto known only from Rhodesia.

2. **Solpuga spiralicornis** spec. nov.

Several specimens (♂♂, ♀ and juv.) Type in the South African Museum.

♂♀. Very closely allied to *S. serraticornis* Purc. (*Ann. S. Afr. Mus.* v. 1 p. 409. fig. 16 and 16*a*, 1899), but distinguishable as follows :—

Flagellum of ♂, when seen from the side, resembling that of *serraticornis*, but differing, when viewed from above, in being much more strongly outcurved posteriorly, and in having the distal sinus in the form of a half-spiral curve, instead of lying in a vertical plane ; moreover the bluntly serrated edge is very short or quite obsolete,

FIG. 1.—*Solpuga spiralicornis* spec. nov. Right chelicera of ♂ seen from outer side (A), and from dorsal side (B).

being confined, when distinguishable, to the outer side of the distal part of the spiral sinus, and not continued distally along the dorsal edge.

Colour much as in *serraticornis*, but the abdominal tergites are more or less yellowish, except along the median line and all round the edges, where they are blackened. The soft skin at the sides of the abdomen is narrowly blackened above in the ♂, but broadly in the ♀. The under surface is pale yellowish.

Length (including chelicerae) of ♂ 37—41 mm., ♀ 14 mm. ; width of carapace in largest ♂ 10½ mm., ♀ 9 mm. ; length of pedipalps (excluding coxa), ♂ 48 mm., ♀ 27½ mm.

3. **Solpuga junodi** spec. nov.

Several specimens (♂♂ and ♀♀). Type in the South African Museum.

♂. Colour of head and limbs yellowish ; tarsus and apex of metatarsus of pedipalps black, the rest of the metatarsus sometimes brown above ; legs blackened distally, the fourth pair reddish and (although much rubbed) evidently provided with a mane of long pale yellowish hairs ; six anterior tergites of abdomen brownish yellow, blackened laterally, the posterior tergites quite black ; soft skin on sides pale yellowish, covered with creamy white silky hairs, only the extreme upper edges being blackened ; sternites of abdomen pale yellowish, broadly blackened at the sides.

Upper finger of chelicerae short and straight, curved only at the apex, the

terminal fang long and strong, the two distal teeth large, strongly laterally compressed and sublaminate, appearing broadly conical when seen from the side, and placed about midway between the apex and the large basal tooth of the single series; the latter tooth with a tiny (sometimes obsolete) tooth in front at base; inner part of dorsal surface deeply grooved, the groove bordered on the inner side by a high keel, the greater or distal part of the groove free, the flagellum occupying only the basal part.

Lower finger of chelicerae with three upright teeth close together near the base; the outer side provided in the middle with a strong tubercular crest, as in *S. hostilis* (White).

Basal enlargement of flagellum large, rounded above posteriorly, with high dorsal keel; procurrent portion of flagellum short, recurving between the two distal teeth; recurrent portion curving slightly and ending just behind the basal enlargement, its upper surface flattened, grooved posteriorly, its apex slender and pointed.

Pedipalps stout, the three distal segments with numerous truncated cylinder-bristles below.

FIG. 2.—*Solpuga junodi* spec. nov. Right chelicera of ♂ from outer side.

♀. Upper finger of chelicerae with only one intermediate tooth. First abdominal sternite strongly produced at the median hinder angles into a pair of broadly rounded lobes. Underside of tibia of pedipalps with very few truncated bristles, the upperside of this segment, like that of the metatarsus, thickly covered with short, dark brown, cylindrical bristles.

Total length, ♂ 26 mm., ♀ 27 mm.; width of carapace, ♂ 6 mm., ♀ 6½ mm.; length of tibia of pedipalp, ♂ 7 mm., ♀ 5½ mm.

The dentition is peculiar on account of the absence of a large gap in the single series of the upper finger, although the species is evidently related to *S. hostilis* (White), which it resembles in the general coloration, the presence of a mane on the hindlegs and particularly the presence of the strong outer crest on the lower finger of the chelicerae.

ORDER ARANEAE.

Amongst the *Araneae* was one Trapdoor Spider of the family *Ctenizidae*, and belonging to a genus not previously recorded from the Transvaal. This species is described here, but the rest of the spiders have not been identified.

Heligmomerus caffer spec. nov.

1 ♀ (somewhat damaged).

Colour of carapace and limbs reddish brown, the underside more yellowish.

Length of carapace (measured across posterior lateral eyes) equal to that of the tibia, metatarsus and two-thirds of the tarsus of fourth leg. Ocular area nearly one-half wider than long, its width considerably less than the length of the first metatarsus; frontal eyes the largest of the eight, transversely oval, placed on separate tubercles and looking slightly outwards and downwards, their distance apart about three-quarters of their own diameter; anterior median eyes of the second group much smaller than the frontal eyes and less than a diameter apart,

the quadrangle formed by these four eyes about as long as its anterior width, which greatly exceeds the posterior width ; posterior row of eyes straight, the median eyes almost round, their distance apart at least double their distance from the lateral eyes, which are obliquely oval and a little smaller than the anterior laterals.

Tibia of third leg much shorter than the patella and provided on each side above with a group of stout spinules, that on the posterior side broadly triangular and occupying more than the distal third of the segment. Patella with five to six stout distal spinules above on posterior side; the anterior side with a row of them, expanding into a rastellum at distal end.

Labium with five distal teeth.

Abdomen too shrivelled for description.

Length of carapace, 9⅓ mm. ; width of ocular area, 2 mm.

SOME NEW *COSSIDAE* FROM QUEENSLAND, BRED BY MR. F. P. DODD.

By the Hon. WALTER ROTHSCHILD, Ph.D.

1. **Xyleutes doddi** spec. nov.

♂ ♀. Body above and forewing olive grey. Antenna wood-brown, pectinations nearly black on the upperside. Mesonotum of ♂ with two narrow black lines converging in front. Abdominal tergites (except distal ones) with ill-defined, broad, hair-brown bands, which in ♀ occupy nearly the whole tergites. Underside of body olivaceous grey. Tarsi brown, segments tipped with white.

Wings, *upperside.*——Forewing : very densely irrorated with a network of mouse-grey lines all over ; a conical spot before SM^2, about 5 mm. long, situated beyond the middle of SM^2 ; an indistinct spot or patch in front of the conical spot, but a little more proximal, contiguous with it ; a third spot at lower angle of cell ; an indication of a postdiscal series of spots ; blackish mouse-grey marginal dots distinct ; the lines in proximal half of wing partly more prominent and longer than those in outer half.——Hindwing : white in ♂, dark drab-grey in ♀ ; fringe with indistinct brown dots, longer scales of fringe white.

Underside.——Forewing : ground-colour rather darker than above; conical spot absent.——Hindwing of ♂ as above, but costal edge grey ; fringe white, with distinct dots; of ♀ similar to forewing, irrorated with mouse-grey in outer half.

Neuration: R^1 of forewing close to cellule ; R^2 and R^3 from a point. D^1 of hindwing one-half (or less) longer than D^2 ; D^3 less than half the length of D^4.

Length of forewing : ♂, 33 mm. ; ♀, 55 mm.

Hab. Townsville, Queensland, September and October.

One pair.

Type : ♂, October.

2. **Xyleutes striga** spec. nov.

♂ ♀. Body above and forewing olivaceous white-grey. Antenna wood-brown beneath, pectinations nearly black above. Mesonotum of both sexes with two black lines, anteriorly converging. Abdominal tergites shaded with mouse-grey in ♂. Midtibia and midtarsal segments black, slightly tipped with grey, the other tarsi rather paler and more extended grey. Breast shaded with brown, darker than nota.

Wings, *upperside*.——Forewing: basal two-fifths of costal margin shaded with black in ♂, marked with six to eight black bars, which partly extend into cell; apical half of costal margin with five or six black dots; a conspicuous black streak in front of SM^2, curved forward to M^2 or M^1, and continued costad by a nebulous band; the streak narrows slightly proximally and does not reach the base of the wing; the area between this streak and M rather paler than the rest of the wing, especially in ♂; there are traces of a postdiscal series of spots, but there is no network of lines in the outer half of the wing; black marginal dots conspicuous.——Hindwing: creamy-grey in ♂, more olivaceous grey in ♀, without markings in either sex, excepting the black marginal dots.

Underside of both wings olivaceous grey.——Forewing: costal spots black, conspicuous, small, restricted to the edge of wing.

Neuration: R^1 of forewing from the cellule, R^2 and R^3 close together. D^3 of hindwing about half the length of D^4.

Length of forewing: ♂, 30—33 mm.; ♀, 31—41 mm.

Hab. Townsville, Queensland, September and October.

Two pairs.

Type: ♂, October.

3. **Xyleutes molitor** spec. nov.

♂ ♀. Body and wings greyish white, distinctly creamy. Palpus blackish or brown at the sides. Antenna buff, scaling white. Mesothorax of ♂ marked on the back with two narrow black lines, which converge in front. Abdominal tergites and metanotum with very faint traces of interrupted black bands in ♂. Tarsi slightly ringed with brown.

Wings, *upperside*.——Forewing: markings mouse-grey, far less conspicuous than in *pulchra* and *lichenea*, appearing washed out; there are about sixteen costal dots between base and apex, the distal ones more widely apart than the proximal ones, especially in ♀; a subbasal patch situated between C and SM^2 mouse-grey, connected in front and at M with an irregular patch which expands between the same veins and which is distally produced costad and apicad to near the subcostal veins; these mouse-grey patches include between themselves a creamy grey patch devoid of dark markings situated between M and SM^2 a little proximally of the middle of SM^2, and one or two similar but less conspicuous patches in the cell; a mouse-grey postdiscal spot or a macular band from SC^5 obliquely backwards; outer half of wing with a faint network of lines, scarcely noticeable in ♀; a stripe of more distinct network before hinder margin from near base beyond middle; dark mouse-grey fringe-dots distinct.——Hindwing: nearly pure white in ♂, grey in ♀; there are no markings, except a series of mouse-grey or blackish fringe-spots, which extend a little along the veins.

Underside paler than upper; the markings of the forewing much less distinct than above.

Neuration: R^1 of forewing well separated from cellule. D^3 of hindwing nearly as long as D^4.

Length of forewing: ♂, 25—27 mm.; ♀, 30—35 mm.

Hab. Townsville, Queensland, September and October.

Four pairs.

Type: ♂, October.

4. **Xyleutes eluta** spec. nov.

♂. Similar to *X. molitor*. Upperside of body white-grey, slightly cinereous, not creamy. Antenna dark wood-brown. Black lines of mesonotum distinct. Markings of forewing greyish black, deeper in tint than in *molitor*, but less deep than in *pulchra*; four costal bars in basal two-fifths, followed in distal half of costal margin by a number of small dots; an angulate transverse spot between M^2 and SM^2 conspicuous, deeper black than the other markings; in front of this spot there is an elongate spot M^1—M^2, preceded by some indistinct spots situated between R^1 and R^3, and by an indistinct elongate patch in the cell; a postdiscal nebulous band extends from near apex to discal spots; marginal dots distinct.—— Hindwing olivaceous white-grey, with vestigial marginal dots.

Underside pale olivaceous grey, without markings, except in faint costal dots on forewing, and the marginal dots.

Neuration: R^1 of forewing close to cellule; R^2 and R^3 shortly stalked together. D^1 of hindwing less than one-third of D^2; D^3 less than one-fourth of D^4.

Length of forewing: ♀, 36 mm.

Hab. Brisbane district.

One ♀.

SOME NEW BUTTERFLIES AND MOTHS.

By the Hon. WALTER ROTHSCHILD, Ph.D.

NYMPHALIDAE.

1. **Hypocysta leucomelas** spec. nov.

♂. Body olive-black, shaded with grey. Antenna ochraceous beneath. Wings sooty black above and below.

Upperside.——Forewing without markings, shorter and more rounded than in *H. osyris*; SC^2 stalked with $SC^{3,4,5}$; cell broad, D^1 less than half the length of partition M^1—M^2 of M, more oblique than in *osyris*.——Hindwing: a broad white band from SC^2 to abdominal margin, gradually and slightly widening behind, its proximal edge straight, crossing M midway between base and M^2, its outer edge evenly convex, not at all angulate, crossing R^3 near base; the wing more rounded than in *osyris*, the abdominal margin decidedly shorter.

Underside.——Forewing as above.——Hindwing: white band a little narrower than above; distal area with two metallic plumbeous lines, one proximal, the other distal, connected behind M^2, interrupted anteriorly; between these lines the wing is dark clay-colour, and there are four blue dots in this area, besides one large circular eye-spot, which is situated in cellule R^3—M^1, but extends beyond both these veins; the eye-spot black, encircled by a pale ochraceous line and centred with a tiny white dot.

Length of forewing, 16 mm.

Hab. Aroa R., British New Guinea (Weiske).

One ♂.

2. **Hypanartia splendida** spec. nov.

♂. Frons and sides of sterna tawny; upperside of thorax black, clothed with green hairs, abdomen olive-black; tibiae and tarsi luteous; palpi grey.

Wings, *upperside*, rufous orange.——Forewing: a bar at apical third of cell, a discal band outside cell, including vitreous spots, a postdiscal curved band of bars from costal margin to R^3, and a submarginal line parallel to distal margin, black; costal edge from cell to apex of wing shaded with black; cross-veins thinly black; vitreous spots four in number, the upper three close together, the second the largest of them, spot 4 between M^1 and M^2, the largest of all; base of wing shaded with olive-black like base and abdominal area of hindwing; distal margin angulate between SC^5 and R^1, strongly and evenly rounded from M^1 backwards.——Hindwing: upper angle shallowly sinuate, distal margin rounded from SC^2 down to R^2, posterior area from R^3 backwards strongly produced distad, the tail 13 mm. long measured at anterior edge, only 9 mm. measured behind; a discal band, as prolongation of

that of forewing, running from costal margin towards anal angle, narrowing behind; a postdiscal band of heavy bars from SC^2 to R^3 and again from R^3 to (SM^1), this posterior half of the band situated farther distad, touching with its upper end the submarginal line; this line parallel to distal margin and extending into tail, which is nearly entirely brown-black; the bands and line black; fringe of both wings brown-black; anal angle with some bluish scaling.

Underside: basal half of forewing and a marginal band from apex to angle R^1—R^2, and a triangular basal costal area on hindwing extending to discal line and to middle of cell, orange-ochraceous; rest of wings chestnut, marked with grey.—— Forewing: vitreous spots as above; cell with a subbasal and a median double bar, each more or less composed of rings, and a simple subapical bar; upon cross-veins there is also an irregular double bar, and the vitreous spots are edged respectively with black and brown; the bars vestigial behind cell; in outer half of wing there is a postdiscal line corresponding to that of upperside, but continued to near hinder margin and less distinct; submarginal line thin, irregularly dentate between the veins.—— Hindwing; a double bar in cell composed of rings, continued costad, but less distinct before cell; traces of other bars in the ochraceous orange area; a black double line straight across the wing, beginning at costal margin close to apex of C and ending close to anal angle, where it meets longitudinal abdominal bars; postdiscal band in position as above, less distinct; upper portion of submarginal line not distinct, followed by traces of an admarginal line, posterior portion of submarginal line broad; the interspaces between the lines more or less filled up by pinkish grey lines or shades.

Length of forewing, 28 mm.

Hab. Peru; no more precise locality given.

Two ♂♂.

3. **Charaxes harmodius infernus** subsp. nov.

♂. *Upperside* similar to that of *Ch. harmodius martinus* from Sumatra; the black submarginal patch (SM^1)—SM^2 of the forewing smaller, the brown postdiscal lunules SC^5—R^2 very thin.

Underside intermediate in colour between that of *Ch. harmodius martinus* and *Ch. harmodius harpagon*, paler than in the former and deeper in tint than in the latter; the white edges of the bars a little more distinct than in *harm. harpagon*, but much less prominent than in *harm. martinus* and *harm. harmodius*.

Hab. Borneo: region of the sources of the Mahakam R.

One ♂, received from Herr Fruhstorfer.

4. **Charaxes castor comoranus** subsp. nov.

♀. Discal band of fore- and hindwing and postdiscal spots of forewing, on *upperside*, as deep ochraceous as in dark West African *males*; submarginal spot C—SC^2 of hindwing obsolete.

On *underside*, the interspace between the bars of basal half of fore- and hindwing olive-black; median bars D^3—M^2 of forewing narrow, strongly anguliform; discal spot R^1—R^2 only one-third the size of spot M^1—M^2; ochraceous postdiscal spots separated from the olive-black ones and from one another, patch

M^2—SM^2 quite as distinct as in West African specimens. Chestnut band of hindwing separated into patches, area between these patches and black submarginal bars almost entirely grey, the zigzag line being widened and not sharply defined; pale ochreous admarginal spots larger than in the two Continental subspecies.

Hab. Great Comoro I.

One ♀.

5. **Eulepis pyrrhus watubela** subsp. nov.

♂. Similar to *E. pyrrhus keianus*, but differs as follows : creamy cell-spot of upperside of forewing separate from patch R^3—M^1; blue discal scaling of hindwing more extended; black discal bar R^3—M^1 of underside of forewing not continuous with and not in the same direction as the bar upon the cross-veins; ochreous admarginal spots of hindwing larger.

Hab. Kissoei, Watubela, March 1901 (H. Kühn).

One ♂.

SATURNIIDAE.

6. **Antheraea jana platessa** subsp. nov.

♂. Forewing broader than in the insular forms, the discal crenate line very distinct and separate from the brown median shadowy band; yellow line of eye-spot obsolete. Costal angle and distal margin of hindwing much more strongly rounded than in the other forms. On the underside, the white line of the eye-spots conspicuous, the antemedian line sharply marked, especially on the hindwing, and the postdiscal spots of the hindwing obsolete, excepting spot C—SC^2, which is conspicuous, being black.

Hab. Bassein, Burma.

One ♂.

7. **Antheraea jana fusca** subsp. nov.

♀. Fuscous, darker in tint than the Javanese and Burmese forms. Crenulate discal line of forewing nearly completely merged together with the shadowy median band, the line being dilated to large patches which are separated from the band only by a slightly paler interspace; the line situated at the distal side of the crenulated one strongly marked, straight, being very slightly undulate in upper half. On the hindwing both these lines distinct (♀). Eye-spots large, vitreous centre large on forewing, small on hindwing; rings composing the spots of the same colour as in the ♂♂ of the other forms of *jana*. On the underside, the median band narrow, the postdiscal series of spots distinct on both wings. Anterior legs rufescent.

Hab. Kuching, North Borneo.

Two ♀♀.

ARCTIIDAE.

8. **Zygaenopsis rubiana** spec. nov.

Body black, underside of abdomen ochreous ; legs black, or part of underside of hindleg ochreous. Wings as in *salomonis*, forewing a little more elongate and the veins slightly more black.

Hab. Kulambangra, New Georgia, Solomon Is., March (Messrs. Meek & Eichhorn).

Two ♂♂, one ♀.

9. **Clerckia fulvia trigona** subsp. nov.

♂. Forewing, above, with extremely narrow black border, which widens a little at and near hinder angle ; black border of hindwing 4 mm. wide at SC^2, strongly narrowing anad, extended along abdominal margin to base.

Hab. Aroa R., British New Guinea (Weiske).

Two ♂♂.

A COLLECTION OF FLEAS RECEIVED FROM BARON CARLO VON ERLANGER AND MR. OSCAR NEUMANN.

(Plate V.)

By the Hon. N. CHARLES ROTHSCHILD, M.A., F.L.S.

MESSRS. Erlanger and Neumann, on their joint expedition to Arabia, Somaliland, and Ethiopia, secured one hundred and fifty fleas of at least five species. A detailed list of the collection is appended to this article. Of these five species, two are undoubtedly new, and are here described for the first time.

Forty-nine of the specimens have been provisionally identified as *Pulex felis*, though they may eventually prove to be distinct from that insect. The single representative of the genus *Sarcopsylla* has not been specifically determined, owing to a lack of suitable material for comparison, which other collectors, it is hoped, will supply in the near future.

1. * **Pulex regis** spec. nov.

(Pl. V. figs. 1. 3. 4. 7. 9.)

This species is allied to *P. cleopatrae*,† but is somewhat larger, and has longer hairs on the abdomen. The palpi and rostrum reach to the end of the forecoxa, the former being longer than in *cleopatrae*. The proximal series of hairs on the epimerum of the metathorax is irregular, two or three of the hairs being more proximal than the others (fig. 1, *epmt*). The first tergite of the abdomen is clothed with a number

* The type specimen, a ♂, is dated December 26th, 1899, and was taken from *Meriones rex* in Southern Arabia.

† *Ent. Mo. Mag.* (2). xiv. p. 84 (1903).

of hairs, in addition to those of the postmedian row (fig. 1, *ab'*). The seventh tergite bears one long and two very short hairs. The abdominal sternites of the *male* bear two bristles, while those of the *female* have three or four. The longest apical bristle of the foretibia on the ventral surface reaches beyond the base of the third tarsal segment; that on the dorsal surface, however, reaches to the apex of the segment. The first segment of the midtarsus is fully twice as long as it is broad. The anterior part of the hindcoxa bears numerous long hairs, the comb on it consisting of seven spines. The hindfemur is completely rounded ventrally near the base, and not angulate. It bears two subventral bristles near the apex on the outer surface, and a subventral series of five or six bristles on the inner surface. The hindtibia (fig. 3) bears four pairs of bristles. The longer bristle of the fourth pair, situated at the hinder edge of the tibia, reaches far beyond the apex of the tibia. Of the subterminal pair, the longer bristle is as long as the tibia is broad at the end, being much longer than in *cleopatrae*. The longer dorsal terminal bristle reaches far beyond the tip of the first tarsal segment. The first segment of the hindtarsus (fig. 3) is distinctly longer than the second. The fourth segment is short, being scarcely double its own breadth. The longest terminal bristle of the first segment of the hindtarsus reaches to the centre of the third segment, while the longest terminal bristle of the second segment reaches beyond the claw (fig. 3). The eighth sternite of the *male* bears one bristle situated beyond the middle, and another before the apex. The movable finger is rather large, obtuse, and bears a number of bristles on its dorsal edge near the apex, and several very long ones on its ventral edge (fig. 7, *F*). The ninth sternite (fig. 7, *st*) is similar to that of *P. cleopatrae*. The internal plate of the penis (fig. 4) is broad, straight above, somewhat rounded at the end. The eighth tergite of the *female* (fig. 9) bears three long proximal bristles, which are about equidistant from one another and the stigma. The eighth tergite also bears a series of five bristles a very short distance from the apical edge, and six or seven bristles at the edge. The subapical series is continued ventrally by three more bristles. In addition to these three bristles, and on a level with the first of them, there are two more proximal hairs.

Length: ♂, 1·42 mm.; ♀, 1·85 mm.

Messrs. Erlanger and Neumann secured nineteen specimens (nine ♂♂ and ten ♀♀) of this species in South Arabia from *Meriones rex* on December 26th, 1899.

2. * **Pulex isidis** spec. nov.

(Pl. V. figs. 2. 5. 6. 8.)

The head of the *male* is horizontal above, but very strongly rounded in front. That of the *female*, however, is almost evenly rounded from the mouth to the hinder edge. The palpi are shorter than the rostrum, which reaches to the end of the forecoxa. The epimerum of the mesosternum (fig. 2, *epms*) bears four bristles, one at the anterior edge below the middle, the second placed posteriorly near the upper edge, and two very close together at the oblique hinder edge. Of these last, the upper one is long, while the lower one is short. The epimerum of the metathorax (fig. 2, *epmt*) bears four bristles near its hinder edge, the most

* The type specimen, a ♂, is dated November 1st, 1900, and was taken from *Procavia erlangeri* at Harar.

ventral of which is the longest. Besides these there is a fifth bristle placed anteriorly of the fourth. The solitary bristle of the metasternum (fig. 2, *mtst*) is short. The first abdominal tergite has one row of bristles, there being no additional bristles in front of it (fig. 2, *ab'*). The seventh tergite bears a stout apical bristle, which is not longer than the most ventral bristle of the same tergite. This stout bristle has on each side a minute hair. The mid- and hindcoxae are much longer than they are broad. The hindcoxa is pear-shaped (fig. 2), the hinder (or meral) part becoming gradually (not suddenly) narrower towards the apex. The comb on the hindcoxa consists of from five to seven spines. Posteriorly at the apex of the coxa there are two stout bristles of equal length. The hindfemur is not angulate beneath near the base. It bears on the outer side two subventral bristles near the apex, and on the inside a series of six or seven sublateral hairs. The bristles of the tibiae and tarsi are short. The second segment of the midtarsus is nearly twice the length of the first. The first segment of the hindtarsus is a little over half the length of the hindtibia, and the third segment is longer than the second. The longest apical spine of the second segment does not quite reach to the apex of the third. The fourth segment is short and cup-shaped, being broader than it is long, if the narrow basal portion be neglected. The eighth sternite of the *male* bears three bristles, placed one behind the other in the apical half. The clasper (fig. 6) consists of two slender processes, bearing hairs at their apices. The upper process (*a*) is decidedly longer than the lower one (*b*). The ninth sternite (fig. 6, *st*) is similar in shape to that of *P. chephrinis*. The internal plate of the penis is broad from the base to the apex, the latter being obliquely rounded. The eighth tergite of the *female* (fig. 8) bears two proximal bristles and a series of about ten short hairs close to the edge and another series of smaller ones at the edge.

Length, 1·85 mm.

Messrs. Erlanger and Neumann found sixty-seven specimens (twenty-three ♂♂ and forty-four ♀♀) of this species in 1900 and 1901 near Harar. They were collected from *Procavia erlangeri*, and probably also from *Procavia brucei*.

Detailed List of this Collection of Fleas.

1. **Pulex regis** spec. nov.

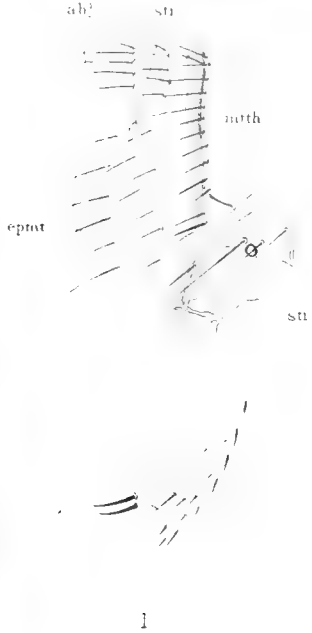
	Locality.	Date.	Host.
9 ♂♂	South Arabia.	December 26th, 1899.	*Meriones rex.*
10 ♀♀	,, ,,	,, ,, ,,	,, ,,

2. **Pulex isidis** spec. nov.

19 ♀♀	Harar	November 1900.	*Procavia erlangeri.*
15 ♂♂	,,	,, ,,	,, ,,
2 ♀♀	,,	March 12th, 1900.	,, ,,
8 ♂♂	,,	April 14th, 1901.	,, ,,
23 ♀♀	,,	,, ,, ,,	,, ,,

3. **Pulex irritans.**

4 ♀♀	Berber.	1900.	*Canis familiaris.*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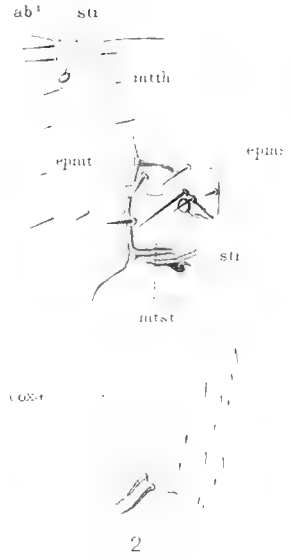
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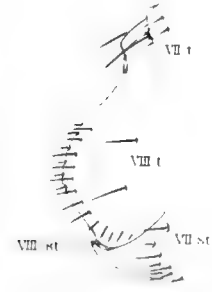
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NATURAL HISTORY

4. **Pulex felis.**

5 ♀♀	Harar.	March 11th, 1900.	*Canis familiaris.*
5 ♂♂	„	„ „ „	„ „
12 ♀♀	Daroli.	February 22nd to March 13th, 1900.	„ „
12 ♀♀	„	„ „ „ „ „	„ „
7 ♂♂	„	„ „ „ „ „	„ „
7 ♀♀	Waute	May 19th, 1900.	*Canis mesomelas.*
1 ♂	?	?	„ „

5. **Sarcopsylla ?**

1 ♀	Waute	May 19th, 1900	*Canis mesomelas.*

SOME NEW SPECIES OF MOTHS.

By DR. KARL JORDAN.

The following species were discovered by Mr. A. S. Meek in British New Guinea, at and near the Upper Aroa River, from January to April 1903.

AGARISTIDAE.

1. **Argyrolepidia aurea** spec. nov.

♂ ♀. Head, thorax and wings black, with a conspicuous dark blue gloss in side-light. A line on head along eye white, widest on frons, connected below frontal tubercle with the line of the other side. Second segment of palpus with a white line above and below. First segment of palpus and coxae buffish grey, the hairs of the coxae long. Abdominal tergites and anal sternite cadmium-yellow, first tergite and the sides of the sternites black, apical edges and middle of sternites buffish grey.

Wings, *upperside.*——Forewing with an orange band from middle of costa to anal angle, the band just entering cell ; no metallic scales.——Hindwing : a large cadmium-yellow area from near costal to abdominal margin, widest behind, the blue-black distal marginal band being only 2 mm. wide at (SM^1).

Underside similar to upper, the patch of the hindwing smaller, and both the band of the fore- and the patch of the hindwing pale cadmium-yellow.

Length of forewing, 20 mm.

A series.

GEOMETRIDAE.

2. **Milionia macrospila** spec. nov.

♂. Head, thorax and upperside of wings black, without metallic gloss ; breast, legs and underside olivaceous black.——Forewing, *above*, with a large white patch in middle, ovate, narrowest in front, extending from SC to SM^2 or beyond, and

expanding from base of M^2 to a little beyond base of M^1; another patch midway between cell and apex of wing, extending from SC^5 to R^3, about one-third the size of the median patch; a slaty transverse spot before anal angle, separated into two spots; a buff-yellow spot at hinder margin at basal fourth.—— Hindwing: a very large chrome-yellow area from abdominal margin forward to SC^2 or beyond, reaching base behind; black distal marginal band 4 mm. wide at M^1, attenuating to a point beyond SM^2.

Underside similar to upper.

♀. Like ♂, but abdomen and yellow area of hindwing as well as spot at hinder margin of forewing far less bright in tint, more buffish ochre-yellow; hindwing with a small black stigma.

Length of forewing, 38 mm.

A series.

3. **Milionia paradisea** spec. nov.

♂ ♀. Body and basal third of wings greenish blue, very strongly glossy; outer two-thirds of wings blue-black.——Forewing: an orange band from middle of costal to hinder margin, slightly curved, crossing SM^2 about 3 mm. from end; width of band about $2\frac{1}{2}$ mm. in middle, not quite constant.——Hindwing: a rose-red band just outside cell, extending from R^1 to beyond SM^2.

Underside like upper, outer two-thirds less blue and bands slightly paler.

Length of forewing, 25 mm.

A series.

NOVITATES ZOOLOGICAE.

Vol. X. DECEMBER, 1903. No. 3.

FURTHER CONTRIBUTIONS TO THE KNOWLEDGE OF THE SIPHONAPTERA.

BY THE HON. N. C. ROTHSCHILD, M.A., F.L.S.

(Plates IX. X.).

1. **Ceratophyllus terribilis** spec. nov. (Pl. IX. fig. 1. 2. 3).

Head.—The head (fig. 1. ♂) is somewhat longer than it is broad, and bears a row of short stout spine-like hairs between the upper end of the antennal groove and the ventral corner of the frons. The frons is much more strongly curved in the *male* than in the *female*. The hinder portion of the head is hairy above. It bears also numerous short hairs at the sides above the antennal groove. A hair above the hinder ventral corner, another in the middle above the antennal groove, and four others situated in front of the eye are long and stout. The palpus is considerably shorter than the rostrum.

Thorax.—The pronotal comb (fig. 1) consists of twenty-two teeth. The mesonotum is densely clothed with numerous short hairs, in addition to the ordinary row of bristles. The epimerum of the metathorax bears one bristle on its hinder edge, and a row of three or four more situated immediately below the stigma. In addition to these the epimerum bears a few scattered hairs on the proximal portion of its surface.

Abdomen.—The first three abdominal tergites bear a small spine on each side. The seventh tergite has on each side three apical bristles, two long and one short, the latter being the most ventral of the three.

The abdominal sternites 2 to 7 have three hairs on each side.

Legs.—The anterior femur bears numerous fine hairs scattered over its outer surface. The foretibia is short, and ventrally and dorsally rounded (in optical section), the bristles on the dorsal edge being very numerous, but not long. The first segment of the tarsus is about half as long as the tibia, with seven pairs of long thin bristles on its dorsal edge.

The midtibia bears ten pairs of long thin bristles on its dorsal edge, and two subdorsal rows of hairs on the outer surface and a number of ventral bristles as well. The first segment of the midtarsus is half as long as the tibia and very densely covered with hairs.

The posterior tibia bears on its outer side two subdorsal series of hairs and numerous ventral bristles; on the inner side only one row of hairs is present. The tibia, moreover, bears thirteen or fourteen pairs of bristles on the dorsal edge. The first segment of the hindtarsus is about three-quarters the length of the tibia,

and is densely covered with fine hairs, as are all the tarsal segments. The second segment is only half the length of the first segment, its longest apical bristle not quite reaching the middle of the fourth segment. The fifth segment (exclusive of claw) is a little longer than the third.

Modified Segments.*—In the *male* the eighth tergite bears at its hinder edge twelve to fourteen long bristles, placed quite close together. The eighth sternite is rounded and truncate at the end, with its upper corner produced into a lobe, which is densely beset with long bristles at its edge (fig. 2). The ninth tergite is very characteristic. The process of the clasper is acuminate, the manubrium being strongly curved and obtuse at the end. The movable finger is a little shorter than the process of the clasper, and somewhat shaped like a half-crescent, being convex on the hinder and concave on the anterior or "upper" side.

In the *female* the apical edge of the eighth tergite (fig. 3) is sinuate. The number of bristles is not quite constant. There is one long solitary bristle beneath the stigma. The three upper bristles situated near the apical edge are short and stout. The eighth sternite bears one very small hair at the apex.

Length, 3·3 mm.

We received ten specimens of this interesting species from Mr. G. F. Dippie, taken from *Lagomys princeps* :—

4 ♂♂, Canadian National Park, Alberta, Canada, July 26, 1899.
5 ♀♀, " " " " " " "
1 ♀, Banff, Alberta, Canada, July 26, 1899.

2. **Stephanocircus thomasi** spec. nov.† (Pl. IX. fig. 4. 5).

Head.—The frontal portion of the head (fig. 4) is very long. It is again separated into an upper part (H) corresponding to the "helmet" of the other species of *Stephanocircus* and into a lower or genal part (G). The upper part bears at its ventral and posterior edges a series of heavy spines (fig. 4). Eight of these are situated at the ventral edge. Of these spines, the first is situated apart from the rest, the one spine at the angle being about twice as long as any of the other spines. The three spines at the hinder edge are short, gradually decreasing in length. There are no genal spines. The palpi are shorter than the rostrum, the latter reaching beyond the apex of the forecoxa.

Thorax.—The pronotal comb consists of twenty-seven teeth. The epimerum of the metathorax bears two vertical rows of hairs, consisting of three hairs each, and in addition a single ventral hair.

Abdomen.—The first four tergites bear a comb consisting of 26, 22, 21 and 12 teeth respectively, the teeth standing close together. The seventh tergite has at its apical edge on each side three or four long bristles, of which the second is the longest and the most dorsal one the shortest.

The first abdominal sternite bears a curved row of about seven bristles on each side, and a number of shorter hairs situated immediately in front of this row. The third, fourth and fifth sternites have three or four bristles.

Legs.—The bristles of the legs are slender, those of the very slender tarsi being also extremely short (fig. 5).

* The more posterior segments, that is to say, segments 8 to 10, of the majority of the *Siphonaptera*, are considerably modified for sexual purposes, and are throughout the present article described separately from the rest.

† This species is named in honour of Mr. Oldfield Thomas, F.R.S., the British Museum.

The curved apical bristle of the hindfemur is shorter than the bristle similarly placed on the anterior legs. The outer side of the hindtibia is very hairy (fig. 5). The first and third dorsal pairs of bristles situated on the tibia (counting from the apex) are more than half the length of the tibia. The first segment of the hindtarsus is only one-fourth shorter than the tibia. The stout apical bristle of this segment does not reach to the middle of the second segment. The fourth tarsal segment is short, measuring scarcely twice its own breadth.

Modified Segments.—The eighth tergite (♀) is angulate, bearing an irregular series of apical bristles, and a further series of somewhat longer ones close to its edge, besides two or three slender proximal bristles.

Length, 3·4 mm.

The type, a *female*, is unique, and was taken from *Mus ferculinus* Thos. on Barrow Island, North-West Australia, in 1901, by J. Tunney, who was then collecting for the Perth (West Australia) Museum.

3. **Stephanocircus minerva** spec. nov. (Pl. IX. fig. 6. 7.).

The present species is closely allied to *S. mars*,* but is abundantly distinct from it, differing in the following characters.

Head.—The posterior edge of the helmet-like portion of the head is densely clothed with very short hairs. There are only five genal spines (fig. 6).

Thorax.—The pronotal comb consists of twenty-five teeth.

Abdomen.—The short triangular spines situated at the apical edges of the first four abdominal tergites are much more numerous than in *S. mars*. The first segment bears 11 such spines on the two sides taken together; the second, 12 ; the third and fourth, 9 each; the fifth, 3 ; and the sixth, 2.

Legs.—The femur of the present species lacks the row of lateral bristles on its inner side. There are a number of bristles, however, situated near its apex. These subapical bristles are fewer in number than those similarly placed in *S. mars*. In *S. mars* the longest dorsal apical bristle of the hindtibia reaches to the apex of the first tarsal segment; in the present species this bristle is quite a third shorter (fig. 7). The corresponding bristle of the fore- and midtibiae are also much shorter in the present species than in *S. mars*. The hindcoxa bears both in *S. mars* and in this species a comb similar to that present in the genus *Pulex*. It may possibly be of interest to note that in the Australian species† just described (*S. thomasi*) this comb is absent. The coxae too are more elongate in *S. thomasi*.

Modified Segments.—The eighth tergite (♀) of the present species is more rounded at the apex, and bears many more bristles than that of *S. mars*.

Length, 3·2 mm.

We received two *female* specimens of this species from Mr. William Foster taken from *Didelphysazarae*, near Sapucay, Paraguay, in 1901.

4. **Ceratopsylla insignis** spec. nov. (Pl. IX. fig. 8—12).

Head.—The flaps of the head are not narrowed at their apices. There is a very long bristle situated on the hinder part of the head, immediately above the antennal groove. Three short bristles, with a few more situated in front of

* Nov. Zool. v. p. 544. t. 14. f. 11 (♀) (1898).

† In the Australian *Stephanocircus dasyurae* Skuse, this comb is also absent. We have one ♀ of *S. dasyurae* found at Williams, West Australia, on *Bettongia penicillata*.

them, are placed at the ventral angle of the hinder portion of the head immediately behind the antennal groove. The bristles on the posterior portion of the head are numerous.

Thorax.—The pronotal comb consists of thirty-six teeth. The mesonotum bears on each side, before the apex, two slender teeth. On the metathorax there is a "comb" (fig. 8, C), which is not homologous to the combs found on other species of Siphonaptera, being a development from the subapical row of long bristles found in these insects. This is clearly demonstrated by the thoracic and abdominal combs of the present species gradually merging into the ordinary bristles of that series, as is shown in the figure. The lateral teeth of this "false" comb do not stand at the edges of the segments; the shorter and more central teeth, however, have acquired this position in consequence of the apical margins of the segments being dorsally sinuate. The teeth of the metathoracic comb are much less modified than those composing the combs of the first four abdominal tergites. The epimerum of the metathorax bears a number of bristles. One of these is situated behind the stigma. Three more are placed at the hinder edge, of which the upper two are nearly of the same length, while the third is shorter and thinner. In addition to these, there are seven or eight more bristles, as shown in the figure.

Abdomen.—On the first seven tergites, combs similar to that on the metathorax are present. The modification of the bristles into a comb-like structure is least advanced on the sixth and seventh tergites, where only two to four bristles have become shortened and thickened. These bristles do not stand exactly at the edge of the segments, the small sinus not being sufficiently deep. The number of teeth in the abdominal false combs varies considerably in individuals. The comb on the first tergite consists of from ten to twelve teeth. The number of teeth present in the abdominal combs gradually decreases. The first three tergites bear two irregular series of hairs, in addition to the posterior row of long bristles; the remaining tergites, however, bear only one row of short hairs, besides the long ones of the posterior row. The seventh tergite in both sexes bears one long apical bristle on each side, situated on a cone.

The third, fourth, fifth and sixth sternites of the *male* bear from three to four bristles on each side, while the seventh segment bears a row of from seven to nine. In the *female* these hairs are considerably longer, and occasionally more numerous.

Legs.—The posterior femur bears four subapical bristles, two of which are lateral and two subventral. There are three pairs of bristles on the ventral side near the base. The hindtibia is clothed on the outer side with two rows of hairs, and bears, in addition, a number of shorter ones situated more ventrally.

Modified Segments.—The eighth tergite of the *male* is sinuate below the stigma, and produced upwards behind this sinus into a broad lobe (fig. 9). This lobe bears three long bristles, and there are in addition a number of marginal hairs above these bristles. The ventral distal edge of the segment is minutely serrate. The eighth sternite (fig. 11) is somewhat sole-shaped, and bears numerous short hairs. On the inner side there are brushes of long hairs similar to the brushes found in the following insect. Of the clasping organs the broad process P (fig. 10) is very conspicuous on account of the six or seven long bristles situated in a row at its apex. The finger (F) is square, and its upper proximal corner is produced into a short conical process, bearing a short spine near the tip.

The eighth tergite of the *female*, as seen in the mounted specimen, is represented by fig. 12. The hairs are numerous.

Length 2·9 mm.

We received twelve specimens, 3 *male* and 9 *female*, of this interesting species from Mr. G. F. Dippie. They were taken from *Myodes lucifugus* on July 2nd, 1900, near Waterloo, Ontario, Canada.

5. **Ceratopsylla wolffsohni** spec. nov. (Pl. IX. fig. 13; Pl. X. fig. 14—16).

Head.—The anterior part of the head is shorter, and the second frontal flap slenderer, than in *C. insignis*. The head in other respects is similar to the head of that species.

Thorax.—The pronotal comb consists of from twenty-seven to twenty-nine teeth. The mesonotum has two slender bristle-like teeth on each side before the apex. On the metanotum there are laterally at the edge two short strongly chitinised teeth. Above these the segment is sinuate, so that the bristles of the subapical series become apical (fig. 13), resembling a comb as in *insignis*. The epimerum of the metathorax has two or three proximal hairs, a longer hair behind the stigma, another still longer placed farther down, and two more at the hinder edge (fig. 13).

Abdomen.—The first abdominal tergite resembles the metanotum in structure. The dorsal apical bristles, however, are still more tooth-like. On the other tergites the long bristles remain normal in position and length. The fourth, fifth and sixth tergites have only two small hairs in front of the row of bristles. The seventh tergite bears on each side one long apical bristle, which is situated on a cone, and has on each side of it a very small hair.

The sternites of the fourth, fifth and sixth segments have in the *male* one hair and in the *female* four hairs on each side; the sternite of the seventh segment, however, bears a few more hairs in addition to these in both sexes.

Legs.—The legs of this insect resemble those of *C. insignis*.

Modified Segments.—The eighth tergite of the *male* is strongly rounded-dilated anad, and bears a patch of bristles at the apex. At the upper edge of the dilated portion of the tergite (fig. 14) there is a row of short hairs, while the oblique ventral edge is minutely serrate. The eighth sternite (fig. 15) is small and gradually widened anad, bearing at the apical edge a row of bristles placed closely together. Above this sternite there are two pieces of chitin, densely clothed with long fine hairs, being brush-like in appearance. These brushes represent apparently the ninth sternite. The clasper (fig. 16) is produced into a somewhat elliptical process (P), which bears at the end two long bristles. The movable finger (F) is not longer than this process, but much broader, being triangular, with the ventral edge shortest and the hinder edge longest. The finger has no long hairs, and is, in optical section, dorsal of the process of the clasper.

The eighth tergite of the *female* is similar to that of *C. insignis*, but some of the hairs are absent.

Length 2·1 mm.

We have received a very large series of this flea from Mr. William Foster, taken near Sapucay, Paraguay (*type*), from various hosts—*Myotis nigricans*, *M. albescens*, etc., etc. Mr. J. A. Wolffsohn, in whose honour this species is named, also forwarded us two *female* specimens taken from *Vespertilio nigricans* at Valparaiso, Chili.

6. **Ceratopsylla martialis** spec. nov. (Pl. X. fig. 17—20).

Head.—Both flaps of the head are long, the first being rounded at the end, the second acuminate. A regular series of hairs extends from the base of the first flap to the insertion of the antenna, the hairs composing it being rather stout. The posterior part of the head in the ♂ is longer than in the ♀. There is a regular series of short but stout hairs placed along the antennal groove. The hinder part of the head bears, besides, four or five transverse series of bristles, of which the lateral ones are somewhat long. Ventrally at the hinder edge of the posterior portion of the head there is a series of from five to seven bristles, which stand close together, are spinelike, and gradually decrease in length, the uppermost being the longest (fig. 17).

Thorax.—The pronotal comb consists of twenty-two teeth. All three thoracic segments are densely clothed with hairs on the back. The pronotum is longer than it is posteriorly broad, and the metanotum is twice as long as it is posteriorly broad (when viewed in optical section). The metanotum bears three teeth on each side at the apical edge. The mesonotum has the two usual pointed teeth at the side, and a third close to the ventral edge. The epimerum of the metathorax bears fifteen bristles, of which two stand near the hinder edge.

Abdomen.—The basal edges of the abdominal tergites are incrassate. The first and second tergites bear an apical tooth on each side. The first tergite, moreover, bears three, and the second two rows of hairs besides the ordinary row of long bristles. There are also a few additional hairs on the back.

The third, fourth, fifth, sixth and seventh abdominal sternites bear in the ♂ two or three, in the ♀ four, bristles on each side.

Legs.—The first segment of the foretarsus is one-third shorter than the second segment.

The first segment of the midtarsus is one-fifth longer than the second.

Along the ventral side of the hindfemur there are from base to apex about twelve bristles. On the outer side of the hindtibia there are three rows of hairs, of which only the posterior one is regular; on the hinder edge of the tibia there are, besides numerous short bristles, a subbasal pair, a single median one, a shorter subapical one, and an apical pair of prolonged setae. The first segment of the hindtarsus is half as long again as the second. The fourth segment of the hindtarsus is elongate, while the third segment is half the length of the first. The hairs of the tarsi are short and numerous, the first hindtarsal segment bearing laterally a series of ten pairs.

Modified Segments.—The sternite of the eighth abdominal segment of the *male* is prolonged, and bears at its apical edge a row of six bristles (fig. 18). The process of the clasper (fig. 19, P) is large, truncate, with the upper inner angle rounded; it bears at the upper outer angle two bristles. The movable finger (fig. 19, F) is gradually widened at the apex, being somewhat club-shaped. It has at the anal edge four bristles, namely, a long one at the upper angle, and three thinner ones farther down. There are, besides, five short hairs near the upper angles.

The eighth abdominal tergite of the *female* (fig. 20) bears near the apical edge a series of five short and stout spines placed close together, and a number of longer bristles, as shown in the figure. These bristles are placed as follows: two between the stigma and the series of five spines, and six arranged in two groups of three at the apical edge. There are also six or seven more bristles

situated more ventrally and proximally. The eighth sternite (*st*), however, lacks any bristles whatever.

Length : 2·9 mm.

Ten specimens (five *males* and five *females*) of this species were received from Mr. Sikora. They were taken at Plaine des Palmes, in the Island of Réunion, on *Nyctinomus acetabulosus*.

7. **Ceratopsylla caminae** spec. nov. (Pl. X. fig. 21. 22).

Head.—Both flaps of the head are acuminate, the second being twice the length of the first. Some very short and fine hairs are scattered irregularly over the surface of the anterior part of the head. The posterior portion of the head is nearly twice as long (measured laterally) as the anterior part in the ♂, while the two portions are of nearly equal length in the ♀.

Thorax.—The comb of the pronotum consists of twenty-four teeth. The mesonotum (when viewed in optical section) is more than twice as long as it is broad (excluding epimerum and episternum). It bears, besides the two slender lateral and subapical teeth, two series of hairs and a few single bristles. The epimerum of the metathorax (fig. 21, *epmt*) has one hair below the stigma. In addition to this there are four hairs more ventral in position, two being proximal and two subapical, and one hair at the apical corner. The metathoracical comb consists of twenty-three teeth.

Abdomen.—The comb of the first abdominal tergite is vestigial, having only four short teeth (fig. 21, *t'*). The number of teeth of the other five abdominal combs is in the ♂ 24, 21, 18, 17, 18 respectively, and there are a few teeth more in the combs of the ♀.

The sternites of the fourth, fifth and sixth abdominal segments have three hairs on each side in both sexes.

Legs.—The coxae are elliptical. The hindfemur has two subapical hairs, the one placed subventrally, the other laterally. The hindtibia bears one series of lateral hairs on the outer side. The bristles of the legs are short, the longest apical bristle of the hindtibia being little more than one-third the length of the first hindtarsal segment.

Modified Segments.—The eighth sternite of the *male* is somewhat bottle-shaped, being rather strongly narrowed from the apical third to the end (in lateral view). The narrow apical portion is beset with a number of long and short bristles. The clasper (fig. 22) is elongate-ovate, the process P and the finger F taken together. The finger is very narrow and curved. It bears a few thin and short hairs, of which the one situated at the upper third of the convex edge is the most conspicuous.

The eighth tergite of the *female* is truncate sinuate distally, and bears very numerous hairs.

Length : 2·1 mm.

We have received three specimens of this interesting species : one *male* and two *females*, from Bannertel, West Australia, taken by Mr. B. Woodward of the Perth (West Australia) Museum, on August 20th, 1900, from a bat.

8. **Ceratopsylla reductus** spec. nov.

This insect is very closely allied to *C. caminae*. It is probably the Eastern Australian representative of the latter. It differs from *caminae* in the reduced

numbers of spines in the combs, the numbers being in the *male* 23, 2, 20, 16, 16, 13, 13, and in the *female* 15, —, 13, 11, 10, 10, 10. It will be noticed from these figures that, in contradistinction to *C. caminae*, the *male* has more spines than the *female*. The metathoracical epimerum of the *female* has a few more proximal hairs in *reductus*, while the eighth tergite of *reductus* has a few less than *caminae*. The eighth sternite of the *male* bears fewer hairs at the apex than in *caminae*, and the narrowed apical portion is shorter than in that species. There are apparently no differences in the clasping organs of the two species.

We received one pair from Mr. Le Souëf, taken in Melbourne, Victoria, on *Vespertilio macropus*.

9. **Ceratopsylla fosteri** spec. nov. (Pl. X. fig. 23—26).

Head.—The head and thorax are long. The anterior portion of the head is about as long as the posterior, being covered at the sides with numerous spines (fig. 23). Those near the antennal groove are strongly chitinised. The spinose area covers the upper two-thirds of the lateral surface of the head. There is a series of about ten short and stout bristles on the hinder part of the head along the antennal groove. The hinder part of the head (like the three tergites of the thorax) shows several incrassations internally, which appear in optical section as dark brown bands. The two flaps of the head are neither acuminate nor curved. The anterior one is broad, being about twice as long as it is basally wide.

Thorax.—The pronotum is shorter than it is apically broad (teeth excepted), and bears a comb of twenty-four teeth (fig. 23). The mesonotum and metanotum are about equal in length, their bristles being stout like those of the prothorax. The comb of the metanotum consists of twelve teeth. The epimerum of the metathorax is longer than it is broad, acuminate, and bears three bristles below the stigma, standing in a triangle, the posterior of them being the longest. In addition there is one bristle behind the stigma and one at the apical angle.

Abdomen.—The bases of the tergites are incrassate internally. The four combs on the abdominal tergites consist of 21, 16, 17 and 16 teeth respectively.

The abdominal sternites are also incrassate internally near the base. Those of segments 5 and 6 have three bristles on each side. The sternite of the seventh segment of the *female* is irregularly triangular in lateral view, and bears nine or ten hairs on each side. The eighth sternite of the *male* is elongate, and bears ventrally before the apex a number of short hairs (fig. 24, *viii. st.*).

Legs.—The first segment of the foretarsus is as long as the second.

The first segment of the midtarsus is one-fourth longer than the second. The midcoxa is as broad as it is long. The mid- and hindfemur have some hairs ventrally near the base, but none on their lateral surfaces. The tibiae are short when compared with the tarsi.

The hindtibia has on the outer surface one row of rather long hairs and several hairs on the inner surface. At the hinder edge of the hindtibia there are six pairs of bristles. The hindtarsus is two and a half times as long as the hindtibia; its fourth segment is only slightly over half as long again as it is apically broad.

Modified Segments.—The process P (fig. 25) of the clasping organ of the *male* is large, triangular, and bears on the lateral surface a number of stout bristles. The finger F (of which the exact outline cannot be very clearly made

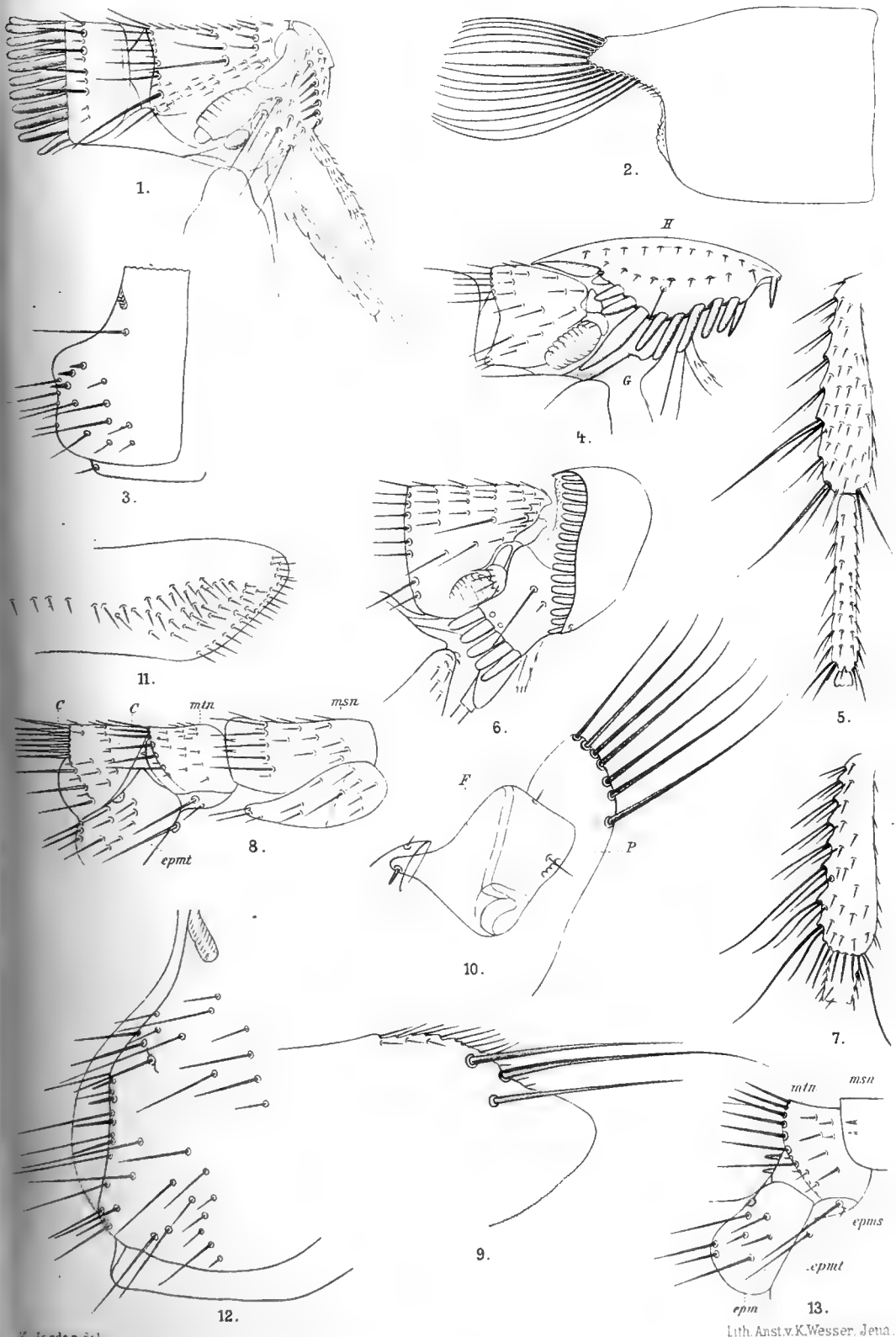
EXPLANATION OF PLATES IX. AND X.

PLATE IX.

Fig. 1. Head and pronotum of *Ceratophyllus terribilis* ♂ . . . . p. 317
„ 2. Eighth abdominal sternite of ♂ of the same . . . . . p. 318
„ 3. „ „ tergite of ♀ of the same . . . . . p. 318
„ 4. Head and pronotum of *Stephanocircus thomasi* ♀ . . . . p. 318
„ 5. Hindtibia and first tarsal segment of the same . . . . p. 319
„ 6. Head and pronotum of *Stephanocircus minerva* ♀ . . . . p. 319
„ 7. Hindtibia of the same . . . . . p. 319
„ 8. Thorax of *Ceratopsylla insignis* ♂ . . . . . p. 320
„ 9. Eighth abdominal tergite of the same (♂) . . . . . p. 320
„ 10. Clasper of the same . . . . . p. 320
„ 11. Eighth abdominal sternite of the same (♂) . . . . . p. 320
„ 12. „ „ segment of ♀ of the same . . . . . p. 321
„ 13. Metathorax of *Ceratopsylla wolffsohni* ♂ . . . . . p. 321

PLATE X.

Fig. 14. Eighth abdominal tergite of *Ceratopsylla wolffsohni* ♂ . . . p. 321
„ 15. „ „ sternite of „ „ ♂ . . . p. 322
„ 16. Clasper of the same . . . . . p. 322
„ 17. Hinder lower edge of head of *Ceratopsylla martialis* ♂ . . . p. 322
„ 18. Eighth abdominal sternite of the same (♂) . . . . p. 322
„ 19. Clasper of the same . . . . . p. 322
„ 20. Eighth abdominal segment of ♀ of the same . . . . p. 322
„ 21. Thorax of *Ceratopsylla caminae* ♂ . . . . . p. 323
„ 22. Clasper of the same . . . . . p. 323
„ 23. Head and prothorax of *Ceratopsylla fosteri* ♂ . . . . p. 324
„ 24. Seventh and eighth sternites of the same (♂) . . . . p. 324
„ 25. Clasper of the same . . . . . p. 324
„ 26. Eighth abdominal segment of ♀ of the same . . . . p. 325
„ 27. „ „ „ of ♀ of *Ceratopsylla distinctus* . . p. 325



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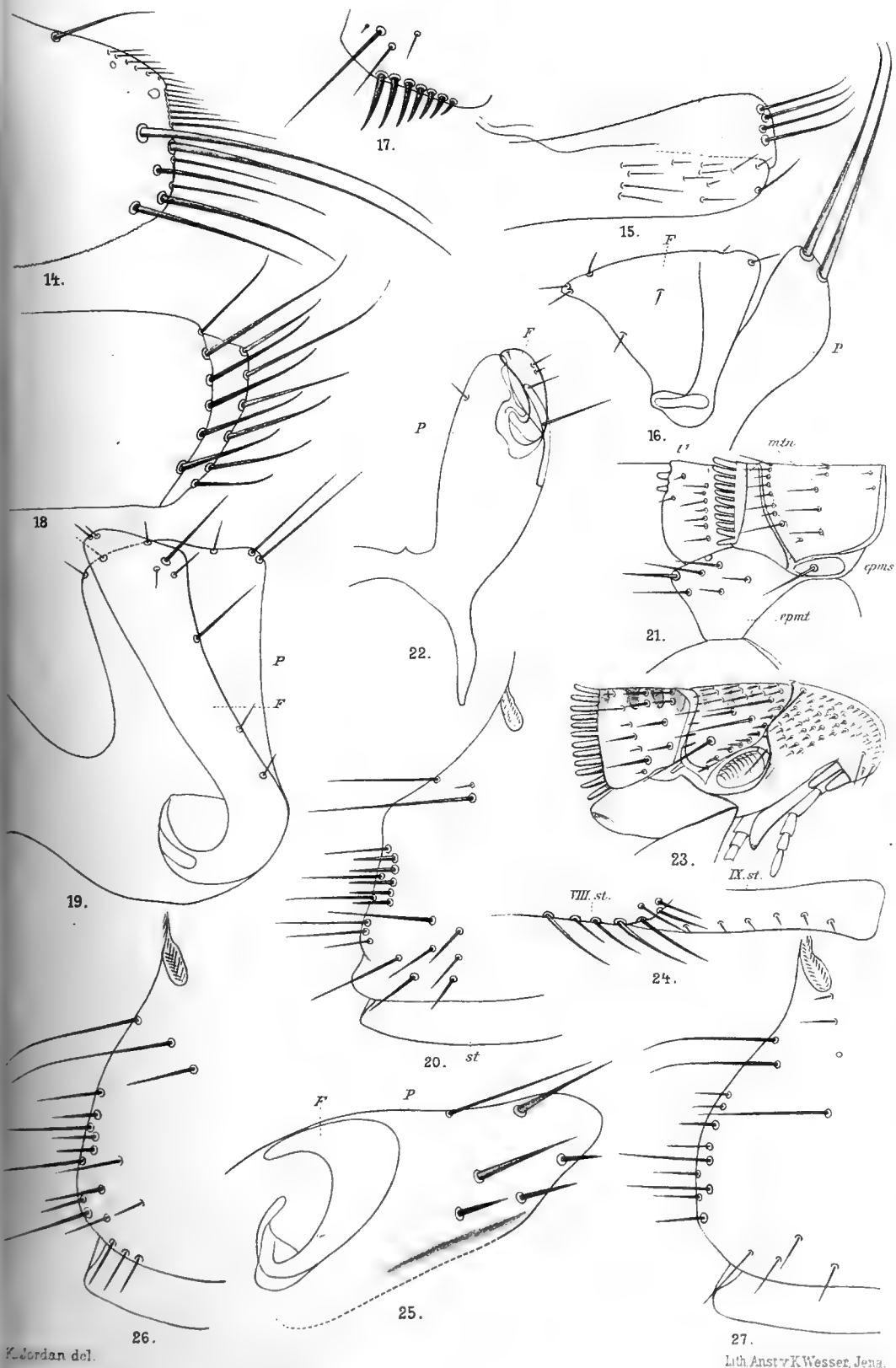
Lith. Anst. v. K. Wesser, Jena.



K. Jordan del.

Lith. Anst. v. K. Wesser, Jena.

out in the specimen) is strongly curved. The ninth sternite is somewhat bone-shaped (fig. 24, *ix. t.*).

The eighth tergite of the *female* is rounded at the apex (fig. 26). It bears an oblique series of three bristles below the stigma, four long and six smaller ones at the oblique upper apical edge, two to four laterally near the apex, and a row of three at the oblique ventral apical margin.

Length, ♂, 2·21 mm.; ♀, 2·4 mm.

We have received from Mr. William Foster (in whose honour this species is named) of Sapucay, Paraguay, one *male* and two *females* taken from *Molossus bonariensis* on August 6th, 1900, and another *female* from the same locality from *Nyctinomus laticaudatus*.

10. **Ceratopsylla distinctus** spec. nov. (Pl. X. fig. 27.)

Head.—Both flaps of the head, the posterior portion of which is longer than the anterior part, are long, acuminate, and somewhat curved. The hairs and bristles of the head are long and stout.

Thorax.—The pronotal comb consists of twenty long teeth. The mesonotum bears numerous hairs extending from the base to the posterior row of long bristles. There are two long slender teeth in front of its apex. The metanotum, which is much longer than it is apically broad (when viewed in optical section), is rather hairy on the back, and bears one short strongly chitinised tooth laterally at the apical margin. The metathoracic epimerum is much higher than it is long, its stigma-bearing edge being nearly vertical. It bears three hairs proximally of the stigma, two below the stigma, two more farther back, and one at the apical angle.

Abdomen.—The anterior edges of the abdominal tergites are incrassate, appearing deep brown in optical section. The first three tergites have one apical tooth laterally, and bear (besides the posterior row of bristles) two rows of hairs, and on the back some additional hairs. The first tergite is especially hairy. The apical bristle of the seventh tergite is very long.

The sternites of the fourth, fifth and sixth abdominal segments have six or seven bristles on each side. The seventh sternite, moreover, bears numerous smaller hairs in addition.

Legs.—The anterior femur bears four or five lateral bristles. The foretibia has, on the outer side, two irregular and one regular rows of hairs. The first segment of the foretarsus is five times as long as it is broad.

The longest apical bristle of the hindtibia is only one-third the length of the first tarsal segment. The tarsi are very long, and bear numerous stout and very short hairs. On the mid- and hindtarsus along the edge of the first segment there are about fifteen pairs of very short stout bristles. The first segment of the hindtarsus is as long as the hindtibia, being longer than the head.

Modified Segments.—The eighth tergite of the *female* is rounded at the apex; it bears a number of hairs which are distributed as shown in the figure (fig. 27). The conical process of the anal tergite is only a little longer than it is broad.

Length, 2·8 mm.

A single *female* specimen of this species was taken at Villa Rica, Paraguay, on October 31st, 1900, by Mr. William Foster. The host unfortunately is not stated.

A MONOGRAPH OF *CHARAXES* AND THE ALLIED PRIONOPTEROUS GENERA.

By the Hon. WALTER ROTHSCHILD and Dr. K. JORDAN.

(*Concluded from* Nov. Zool. VII. p. 524.)

Genus *PALLA*.

Papilio Eques Achivus, Cramer, *Pap. Exot.* ii. p. 148 (1777).
Papilio Nymphalis Gemmatus, Drury, *Illust. Exot. Ins.* iii. Index (1782).
Papilio Nymphalis, Fabricius, *Ent. Syst.* iii. i. p. 67 (1793).
Palla Hübner, *Verz. bek. Schm.* p. 47 (1816–27) (type : *decius*) ; Schatz, *Exot. Tagf.* p. 176 (1888) (partim).
Nymphalis, Godart, *Enc. Méth.* ix. p. 363 (1823) (partim).
Papilio, Donovan (*non* Linné, 1758), *Natural. Repos.* iv. f. 109 (1826).
Philognoma Doubleday, Westw. & Hew., *Gen. Diurn. Lep.* ii. p. 310 (1850) (partim ; type : *decius*).
Charaxes, Aurivillius (*non* Ochsenheimer, 1816), *Ent. Tidskr.* xv. p. 312 (1894) ; Butl., *Journ. Linn. Soc. Lond.* xxv. p. 348 (1896) ; Auriv., *Kongl. Sv. Vet. Ak. Handl.* xxxi. 5. p. 221 (1899) (partim).

♂♀. Basal patch of modified scales at hinder margin of forewing, on underside, limited in front by SM^2, not extending costad beyond this vein as in *Eulepis*, *Charaxes*, and *Euxanthe*. Stalk $SC^{3,4,5}$ of forewing longer than in *Charaxes*. D^3 of hindwing very thin, reaching M between M^1 and M^2, being much closer to M^2 than to M^1. Mid- and hindtibia not spinose on upperside. Foretibia with apical spines.

♂. Tenth abdominal tergite produced into a simple, long, curved, pointed hook ; tenth sternite long and slender. Ninth segment larger than in *Charaxes*, covering ventrally the bases of the claspers. The latter with ventral apical hook. Penis-funnel absent. Apex of penis-sheath more or less densely dentate.

♀. Seventh abdominal segment with a divided mesial tubercle at apical margin. Early stages not known.

Hab. West Africa : Sierra Leone to Angola, eastwards to Uganda.

Four species, which are all closely allied in pattern and in shape. However, while *decius*, *violinitens*, and *ussheri* are sexually strongly dichromatic, the sexes of *publius* are nearly the same in colour. There is no black line on vein D^3 of the hindwing (which closes the cell), and on the forewing bar D^3 is seldom indicated. The outer half of the underside of the forewing, the distal margin excepted, is densely irrorated with short transverse bars, which are not homologous to the regular series of bars found in *Charaxes*. This irrorated area is limited distally by a series of more or less indistinct bars, which correspond to the submarginal series of *Charaxes*. On the hindwing the irroration is repeated, but here we find distinct submarginal spots.

The hindwing is in outline similar to that of *Charaxes varanes*, having one obtuse tail.

Key to the species :

I. *Males.*

a.	White median band of forewing below sharply limited distally by a brown-black band .	1. *P. publius.*
	This band not sharply limited distally . .	*b.*
b.	White median band of upperside of hindwing more or less shaded and margined with blue, the blue scaling extending beyond R^2	*c.*
	White band of hindwing not reaching beyond R^1, not edged and shaded with blue	2. *P. ussheri.*
c.	Band of hindwing above not extending beyond R^3	3. *P. decius.*
	Band of hindwing above extending beyond R^3	4. *P. violinitens.*

II. *Females.*

d.	Median band of forewing below sharply limited distally by a brown-black band. . .	1. *P. publius.*
	This band not sharply limited distally . .	*e.*
e.	Postdiscal spots of upperside of forewing contiguous with one another, orange . .	2. *P. ussheri.*
	These spots more or less widely separated .	*f.*
f.	Band of forewing above measuring less than 10 mm. at M^2, generally shaded with orange anteriorly	3. *P. decius.*
	The band measuring more than 11 mm. at M^2, all white	4. *P. violinitens.*

1. Palla publius.

Palla ussheri, Aurivillius (*non* Butler, 1870), *Öfv. Vet. Ak. Förh.* xxxxiv. p. 312. n. 18 (1887) (Congo).

Palla publius Staudinger, *Iris* v. p. 267 (1892) (♂ ♀, S. Leone).

Palla rectifascia Weymer, *Stett. Ent. Zeit.* liii. p. 91. n. 9 (1892) (♂, W. Afr.).

Charaxes publius Aurivillius, *Tidskr. Ent.* xv. p. 312. sub. n. 203 (1894) (Congo); Butl., *Journ. Linn. Soc. Lond.* xxv. p. 403. n. 158 (1896) (partim); Auriv., *Kongl. Sv. Vet. Ak. Handl.* xxxi. 5. p. 242. n. 57 (1899) (S. Leone; Sklavenküste; Old Calabar; Kuilu; Congo; "Angola" *alia spec.*).

♂. Body above olive-black, shaded with mummy-brown, below mummy-brown; underside of abdomen not paler than breast; femora black, speckled with white; head and pronotum partly shaded with cinnamon-rufous.

Wings, *upperside*, black, slightly purplish.——Forewing: a straight white band from costal to inner margin, slightly widening behind, touching apex of cell, bordered with blue or violet at inner side, this border not reaching costal margin, often vestigial, a similar border at outer side, but shorter and narrower, often absent.——Hindwing: the white band of the forewing continued to R^1 or R^2, pointed behind or truncate, generally slightly edged with blue or violet proximally; the band continuous with an orange area, which widens behind, extending at distal margin from tail to anal angle, tail inclusive; four or five submarginal dots: the

first black, white-pupilled, encircled with orange, between R^2 and R^3, spot R^3—M^1 black, vestigial, mostly absent, spot M^1—M^2 black, distinct, mostly with white or bluish centre, two dots M^2—SM^2 bluish white, often absent; tail narrowly tipped with buff; fringe behind tail brown, not orange; a small white patch at abdominal margin near anal angle; abdominal area olivaceous.

Underside of both wings olivaceous walnut-brown in basal area, olivaceous mummy-brown in distal area.——Forewing: four black lines in cell, first and third externally, second and fourth internally bordered with glossy plumbaginous white, a costal dot representing a prolongation of the second line is situated between first and second or nearer first; a straight white band from costal to inner margin as above, bordered proximally by a white line, and distally sharply limited by a broad brown-black band, which is ill-defined distally; between white band and olive distal marginal area the wing is densely striated with black; from R^1 backwards there is a row of black submarginal transverse bars, often indistinct, bar R^2—R^3 anguliform.——Hindwing similar to forewing, the black striation occupying also the greater part of the abdominal area; an anterior series of three bars from tip of praecostal spur to M, bordered with plumbaginous white proximally; white band shaded with cream-colour, narrowing posteriorly, reaching abdominal margin, but including posteriorly black striae, proximally bordered by a black line, which itself is more or less plumbaginous at distal side, the band not sharply limited distally, the brown-black band of the forewing being at the highest vestigial between SC^2 and R^1; a complete row of orange submarginal spots, all pupilled with bluish white, except spot R^3—M^1, the pupil encircled with black (or partly), the black ring conspicuous in spot M^1—M^2; the submarginal spots proximally bordered by plumbaginous halfmoons, which, between R^2 and anal angle, are connected with a plumbaginous marginal line, and there are traces of white halfmoons underneath the plumbaginous ones, the white halfmoon M^1—M^2 alone being distinct; tail olivaceous orange, tipped with buff; striated areas of both wings shaded with glossy plumbaginous.

♀. Similar to the ♂, duller in colour, the underside paler, the wings somewhat wider.

Wings, *upperside*: forewing with more or less faint traces of pale postdiscal spots, corresponding to the postdiscal macular band of this sex of the other species of *Palla*; hindwing with a larger abdominal subanal white patch than in ♂, and a much longer white median band, the black submarginal spots R^2—M^2 also larger, and there are traces of three submarginal orange spots between C and R^2.

Underside again as in ♂, but the black submarginal spots larger, and the white halfmoons proximally of them nearly all distinct.

Early stages not known.

Hab. Sierra Leone to the Congo.

In the Tring Museum 9 ♂♂, 3 ♀♀ from: Sierra Leone (Mitford); Old Calabar; Cameroons; Stanley Pool to Lokolele (Harrison); Lokolele, Congo; Kassai Country.

2. **Palla ussheri.**

Nymphalis decius, Godart (*non* Cramer, 1777), *Enc. Méth.* ix. p. 363. n. 46 (1823) (partim, ♂); Lucas, *Lép. Exot.* p. 122. t. 64. f. 2 (♂) (1835) (Guinea); id., in Chenu, *Enc. Hist. Nat., Pap.* i. t. 26. f. 4. (♂) (1852).

Philognoma decius, Doubleday, Westw. & Hew., *Gen. Diurn. Lep.* ii. p. 311. n. 1 (1850) (partim).

Philognoma ussheri Butler, *Trans. Ent. Soc. Lond.* p. 124 (1870) (Ashanti); id., *Lep. Exot.* p. 52. t. 21. f. 3 (♂) (1871); Sharpe, *Proc. Zool. Soc. Lond.* p. 341. n. 48 (1894) (Uganda, 4000 ft.).

Palla decius, Kirby, *Cat. Diurn. Lep.* p. 273. n. 1 (1871) (partim)
Palla ussheri, id., *l.c.* p. 273. n. 2 (1871) (Gold Coast).
Palla decius var., Staudinger, *Exot. Tagf.* t. 60 (♂) (1886) (Sierra Leone).
Palla ussheri, id., *l.c.* p. 173 (1886) (♂ ; ♀ = *violiniteus*) ; id., *Iris* v. p. 265 (1892) (Sierra Leone ; ♂♂, ♀♀) ; Schaus & Clem. *Sierra Leone Lep.* p. 9 (1893).
Palla usheri (!), Weymer, *Stett. Ent. Zeit.* liii. p. 93 (1892).
Charaxes ussheri Butler, *Journ. Linn. Soc. Lond.* xxv. p. 404. n. 159 (1896) (Sierra Leone ; Ashanti ; Old Calabar ; Cameroons ; Congo); Auriv., *Kongl. Sv. Vet. Ak. Handl.* xxxi. 5. p. 242. n. 58 (1898) (partim).

♂. Body above olivaceous black, underside somewhat paler, tibiae and tarsi clayish, underside of abdomen pale buff, with blackish mesial vitta; head and pronotum partly shaded with cinnamon-rufous ; femora black, speckled with white.

Wings, *upperside*, black, slightly purplish in side-light.——Forewing : no markings, except a straight white band from costal to inner margin, touching apex of cell, gradually widening behind, feebly purplish at the edges, often shaded with orange at inner margin of wing.——Hindwing : white band of forewing here continued only to SC^2, or just indicated at costal margin, this white patch being the anterior portion of a large orange area which extends backwards to outer margin, expanding there between R^2 and anal angle, the area similar to that of *publius*, but on the whole a little wider ; black, white-pupilled, submarginal spots R^2—R^3 and M^1—M^2 distinct, dot R^3—M^1 very small or absent, white dots M^2—SM^2 distinct, orange patch R^2—R^3, in which is situated the black submarginal spot, more or less completely merged together with the orange area, a small submarginal orange spot R^1—R^2, and sometimes traces of similar spots between C and R^1 ; tail tipped with buff ; fringe brown between tail and anal angle.

Underside somewhat paler than in *publius*, the tail brighter orange, the white band not sharply limited externally on either wing, the interspaces between the black striae being white near the band both on fore- and hindwing ; the striated areas less extended glossy than in *publius*, especially on the forewing.

♀. Very different from the *male* in pattern, wings wider, tail longer and broader. Variable. Body paler than in ♂ ; underside of palpus pale clayish buff like the tibiae and tarsi.——Wings, *upperside* : basal area extending on forewing just beyond apex of cell, on hindwing beyond base of M^2, brown-black, shaded with olive, its outer edge straight or denticulate ; a broad median band from costal edge of forewing to abdominal margin of hindwing, narrowed at both ends, of 10 to 15 mm. width at inner margin of forewing, and of about the same width at R^3 of hindwing, not so sharply defined distally as proximally, on the forewing more or less incised at the upper veins and dentate at the lower ones, of a pale orange colour distally, shading into whitish buff-yellow proximally and behind, and on hindwing becoming nearly white at proximal edge ; the long hairs white at the proximal edge of the band on hindwing ; upon this band follows a black one, which is vestigial on the forewing in one of our ♀♀ ; the black band incompletely separated into spots on the forewing and oblique in position, approaching hinder angle, 6 to 10 mm. wide, on hindwing parallel to outer margin, strongly narrowed between M^1 and abdominal margin ; outside this band there is on the forewing a narrower orange band, subdivided into spots, spot R^1—R^2 more distal than the two next to it, the spots more or less produced distad along the veins, spot R^2—R^3 deeply sinuate distally ; on the hindwing there is a corresponding submarginal band, which is separate from the edge of the wing by a narrow marginal black or brown-black line between C and tail, and by a plumbaginous line (often indistinct) between tail and anal angle ; this

submarginal band variable in width, much wider behind tail than in front, sometimes reduced to rather small isolated spots between C and R^3; within it there are black, white-pupilled dots, of which spot M^1—M^2 is rather large, dot R^2—R^3 coming next in size, while the others are indistinct as a rule; distal margin of forewing generally shaded with orange-brown.

Underside similar to that of the ♂, but paler, the median band wider and, like discal striated area, shaded with creamy buff; the creamy white submarginal lunules of the hindwing nearly all distinct.

Early stages not known.

Hab. West Africa: Sierra Leone to the Upper Congo and Uganda.

In the Tring Museum 22 ♂♂, 12 ♀♀ from: Sierra Leone; Kumassi to Cape Coast Castle, April 1899 (Captain Giffard); Kumassi to Kuitampo, and Kumassi to Mansu, April 1899 (Col. Northcott); Kumassi (Wolseley); Begoro, Ashanti (McDonald); Warri, Lower Niger, March 1896 (Dr. F. Roth); Cameroons; Stanley Pool to Lokolele, Congo (Harrison); eighteen days' march from Fort Beni, Aruwimi Forest, May 22nd, 1899 (Dr. Ansorge).

3. Palla decius.

Papilio Eques Achivus decius Cramer, *Pap. Exot.* ii. pp. 26. & 148. t. 114. f. A. B (♀) (1777) (Guinea); Fabr., *Spec. Ins.* ii. p. 18. n. 71 (1781); id., *Mant. Ins.* ii. p. 10. n. 81 (1787); Jabl. & Herbst, *Naturs. Schm.* iv. p. 20. n. 132. t. 56. f. 1. 2 (♀) (1790).

Papilio Nymphalis Gemmatus decius, Drury, *Illustr. Exot. Ins.* iii. p. 6. t. 6. f. 1. 2 & Index (♂) (1782) (Sierra Leone).

Papilio Nymphalis decius, Fabricius, *Ent. Syst.* iii. i. p. 67. n. 210 (1793).

Palla decia, Hübner, *Verz. bek. Schm.* p. 47. n. 441 (1816–27).

Nymphalis decius, Godart, *Enc. Méth.* ix. p. 363. n. 46 (1823) (partim).

Papilio decius, Donovan, *Natural. Repos.* iv. t. 109 (♂) (1826) (Gold Coast).

Philognoma decius, Doubleday, Westw. & Hew., *Gen. Diurn. Lep.* ii. p. 311. n. 1 (1850) (partim); Butl., *Cat. Diurn. Lep. descr. by Fabr.* p. 49. n. 2 (1869) (Ashanti); Capronn., *C. R. Soc. Ent. Belg.* xxxiii. p. 125. n. 64 (1889) (Kassai).

Palla decius, Staudinger, *Exot. Tagf.* p. 174 (1886) (partim); Auriv., *Tidskr. Ent.* xii. p. 216. n. 147 (1891) (Cameroons); Staud., *Iris* v. p. 264 (1892).

Charaxes decius, Aurivillius, *Tidskr. Ent.* xv. p. 312. n. 203 (1894) (Cameroons); Butl., *Journ. Linn. Soc. Lond.* xxv. p. 403. n. 157 (1896) (S. Leone; Accra; Ashanti); Auriv., *Kongl. Sv. Vet. Ak. Handl.* xxxi. 5. p. 242. n. 60 (1899).

Charaxes publius, Butler (*non* Staudinger, 1892), *Journ. Linn. Soc. Lond.* xxv. p. 403. n. 158 (1896) (partim; ♀♀).

♂. Body as in *ussheri*, but the pale stripes on the underside of the abdomen only vestigial.

Wings, *upperside*.——Forewing as in *ussheri*, the white band a little more irregular in outline, with a rather broad pale blue proximal border, which does not reach costal margin, and a narrower and violet distal border.——Hindwing: the white band continued to R^2 or (proximally) to M, bordered and shaded with blue on both sides, followed by an orange patch, which is widest at external margin, expanding here between tail (inclusive) and anal angle, and which extends anteriorly always beyond R^3; three submarginal orange spots C—R^2 often indicated, orange spot R^2—R^3 distinct, isolated, or merged together with the orange area, including a black, bluish-white-pupilled dot, black spot M^1—M^2 larger, also with bluish white centre, submarginal dots M^2—SM^2 bluish white; proximally of the submarginal spot M^1—M^2 there is, within the orange area, a blackish halfmoon, either distinct or vestigial, indications of similar halfmoons also between R^3 and M^1, and

M^2 and SM^2; sometimes the whole orange area shaded with brown; fringe blackish between tail and anal angle; tail tipped with buff.

Underside as in *ussheri*, the interspaces between the striae near the band of the hindwing less white.

♀. Similar to the ♀ of *ussheri*, but differs as follows: Band of forewing strongly narrowing costad, narrower than in *ussheri*, more or less buff-yellow in costal two-thirds, slightly edged externally with orange, milky white in posterior third, edged with pale blue proximally; a series of seven widely separated postdiscal spots, buff-yellow, seldom almost white, spots 1, 2 and 4 much smaller and more proximal than 3.——Hindwing: band white, shaded and edged with pale blue (proximally) and violet (distally), narrower than in *ussheri*; submarginal spots $C—R^2$ nearly white proximally, orange or buff-yellow distally, isolated, the second and third, or only the third, externally with a black dot with bluish white centre, submarginal spot $R^2—R^3$ orange, with creamy white halfmoon proximally and black central dot which has bluish pupil, the spot isolated or connected behind with the following orange spots, which extend more or less to edge of wing, orange spots $R^2—M^2$ with creamy white proximal lunules, black centre of spot $M^1—M^2$ large.

Underside as in *ussheri*, submarginal spots of hindwing and tail less orange.

Early stages not known.

Hab. West Africa: Sierra Leone to Angola.

In the Tring Museum 19 ♂♂, 3 ♀♀ from: Sierra Leone; Accra, Gold Coast.

4. **Palla violinitens.**

Palla ussheri, Staudinger (*non* Butler, 1870), *Exot. Tagf.* p. 174 (1886) (♀, *non* ♂).

Palla decius, id. (*non* Cramer, 1777), *l.c.* (1886) (♂, partim).

Philognoma violinitens Crowley, *Trans. Ent. Soc. Lond.* p. 554. t. 18. f. 1 (♂). 2 (♀) (1890) (Ashanti).

Palla violinitens, Staudinger, *Iris* v. p. 266 (1892).

Charaxes violinitens, Butler, *Journ. Linn. Soc. Lond.* xxv. p. 402. n. 155 (1896) (Accra; Cameroons; Old Calabar); Auriv., *Kongl. Sv. Vet. Ak. Handl.* xxxi. 5. p. 242. n. 59 (1899) (Ashanti; Sklavenküste; Old Calabar; Kamerun).

Charaxes coniger Butler, *l.c.* xxv. p. 403. n. 156 (1896) (Old Calabar; Congo; Angola).

Charaxes decius var. *coniger*, Aurivillius, *l.c.* p. 242. sub n. 60 (1898) (Old Calabar; Kamerun; Congo; Angola).

♂. Very close to *decius*, but the blue borders of the band broader both on fore- and hindwing, the blue and white scaling of the hindwing, above, extending beyond R^3, the orange area consequently reduced; the white band as well as the blue borders variable in width and, on hindwing, in length.

♀. Band of wings, *upperside*, white throughout, edged with pale blue proximally and, especially on hindwing, with violet distally, broader than in *decius*, being at least as wide as in *ussheri* ♀; postdiscal spots of forewing either separate as in *decius*, milky white, seldom shaded with black or assuming a faint yellow tint, or more or less contiguous and tawny-orange; submarginal spots of hindwing similar to those of *decius*, the white lunules on the whole purer white; the median band broader also on *underside* and purer white, and the white submarginal lunules larger.

Early stages not known.

Hab. West Africa: Gold Coast to Angola.

In the Tring Museum 5 ♂♂, 5 ♀♀ from: Accra, Gold Coast; Kumassi to

Kuitampo, April 1899 (Col. Northcott); Warri, Lower Niger, March 1896, April 1895 (Dr. F. Roth); Stanley Pool to Lokolele, Congo (Harrison).

Though *violinitens* comes very close to *decius*, the two insects are apparently always distinguishable in the *male* sex. Some of the *females*, however, present a combination of characters which seems to indicate that there is no constant line of division between what is called *decius* and *violinitens*. *Female* specimens with broad white band and buff-yellow postdiscal spots to the forewing, and others with a narrow white band which has scarcely a trace of orange, and with almost purely white postdiscal spots, make the specific distinctness of *decius* and *violinitens* at least doubtful. More material of the female sex is required to decide the question.

Genus *EUXANTHE*.

Papilio Nymphalis Phaleratus, Cramer, *Pap. Exot.* i. Index (1775).
Papilio Festivus, Fabricius, *Ent. Syst.* iii. i. p. 57 (1793).
Papilio, Donovan, *Ins. India* t. 34 (1800).
Euxanthe Hübner, *Verz. bek. Schm.* p. 39 (1816-27) (type : *eurinome*) ; Schatz. *Exot. Tagf.* ii. p. 180 (1888) ; Auriv., *Kongl. Sv. Vet. Ak. Handl.* xxxi. 5. p. 219 (1899).
Nymphalis, Godart, *Enc. Méth.* ix. p. 398 (1823).
Godartia Lucas, *Ann. Soc. Ent. France* p. 297 (1842) (type : *madagascariensis*) ; Snell., *Tijdschr. Ent.* xxxv. p. 7 (1892).
Authora Doubleday, *List Lep. Ins. B.M.* i. p. 99 (1846) (*nom. nud.*).
Hypomelaena Aurivillius, *l.c.* p. 220 (1899) (type : *trajanus*).

♂ ♀. All the tibiae spinose above and below. Spines of upperside of tarsi long. Claw-segment with ten apical bristles as a rule. Basal patch of modified scales of underside of forewing extending beyond SM^2 (as in *Charaxes*) ; stalk of $SC^{3,4,5}$ short ; upper angle of cell obtuse. Hindwing rounded, no indication of tail, anal angle not produced ; PC not forked. Palpi, breast and legs dotted with white. No such black bars on wings as are found in *Eulepis*, *Charaxes*, and *Palla*. Cell of hindwing open or closed.

♂. Foretarsus very short, not scaled below from middle to apex ; foretibia with numerous slender bristles. Sexual apparatus as in *Charaxes*.

Early stages similar to those of *Charaxes*.

Hab. Aethiopian Region inclusive of Madagascar.

The neuration is different in nearly all species. The subcostals differ often on the right and left forewing of the same individual. The copulatory apparatus (♂ ♀) is the same in the various species.

Key to the species :

1.	Cell of hindwing closed ; basal area of forewing above orange	2.
	Cell of hindwing open (sometimes closed by a black bar, but never by a complete vein, the cross-vein D^3 being only vestigial or quite absent)	3.
2.	SC^1 of forewing free	1. *E. tiberius*.
	SC^1 „ „ anastomosed with C . .	2. *E. trajanus*.
3.	Pale median streak C—SC^2 of hindwing above long, extending to near base of C	4.
	This streak reduced	5.

4. Pale patches large	6. *E. crossleyi.*
Pale patches reduced	7. *E. ansorgei.*
5. SC^1 of forewing absent. Underside of hindwing bright rufous chestnut . . .	3. *E. madagascariensis.*
SC^1 of forewing present	6.
6. SC^2 of forewing free. Patch R^3—M^1 of forewing close to cell	4. *E. wakefieldi.*
SC^2 of forewing anastomosed with C. Patch R^3—M^1 of forewing widely separate from cell (as a rule)	5. *E. eurinome.*

1. Euxanthe tiberius.

Euxanthe tiberius Smith, *Ann. Mag. N. H.* (6). iii. p. 129 (1889) (Mombasa, 1 ♀); id. & Kirby, *Rhop. Exot.* i., *Euxanthe*, p. 2. t. i. f. 2. 3 (♂). 4 (♀) (1890); Auriv., *Kongl. Sv. Vet. Ak. Handl.* xxxi. 5. p. 221. n. 6 (1899) (Mombasa).

♂. Body olivaceous black; abdomen beneath with three lines of white dots; upperside of abdomen, metanotum and posterior half of mesonotum clothed with long olive hairs, like basal area of hindwing.

Wings, *upperside*, black, slightly bluish when viewed obliquely.——Forewing: basal area dark orange, sharply defined, separated by a black interspace from the band of pale patches, produced distad at costal margin and extended behind M, filling in the basal angle of cellule R^3—M^1; median and discal spots greenish, submarginal ones milky white; cell-spot triangular, situated in upper corner, with the point directed backwards; it is the first spot of an oblique band; the second spot of this band, between R^2 and R^3, is larger, also triangular, with the point directed distad; the third, R^3—M^1, does not quite extend to the base of the cellule; the fourth is the largest, elongate, obliquely rounded at both ends, not extending farther proximad than the third, remaining 2 to 3 mm. outside the base of M^1; the fifth and sixth spots are also elongate, partly merged together, the last being the smallest of all; the veins between the first five spots black; a row of four discal spots from SC^4 to R^3, the second the smallest; a complete series of nine submarginal spots, the series broken at R^3, spots R^3—M^2 being rather more proximal than those before and behind them; these two spots rounded, about the same size as the first two, which are, however, more triangular or ovate, spots R^2—R^3 and (SM^1)—SM^2 minute; fringe with small white spots between the veins, distal margin even, slightly sinuate between R^3 and M^1; apex rounded.——Hindwing: no pale discal area; an incomplete postdiscal series of small rounded spots, of which the second is the largest; a submarginal series of minute dots, two in each cellule, and close to these dots small transverse dashes, all white, shaded at the edges with blue; fringe with white spots between the veins; distal margin nearly even, not being distinctly scalloped.

Underside.——Forewing: apical area down to upper angle of cell bright russet mummy-brown, this colour extending along outer margin to near M^2; a large patch in cell, not reaching base, but extending beyond M, filling in the base of cellule M^1—M^2, dark orange; rest of wing black, with practically the same white respectively greenish white markings as above, besides the basal costal and subbasal cellular white dots.——Hindwing: olivaceous chestnut, brightest at costal and abdominal margins; veins and streaks between the veins black; white basal dots encircled with black, submarginal dots with olive-black.

♀. Forewing more triangular than in the ♂, the costal margin being proportionally longer. Abdomen rather paler than in the ♂, the ventri-lateral dots merged together to a streak. The median and discal spots of the forewing, on *upperside*, pure white like the submarginal ones, and the median spots R^3—SM^2 larger ; there is a trace of a white patch near middle of hinder margin. The hindwing has a complete series of white postdiscal spots and a large white median area, which reaches from SC^2 to abdominal margin, and from near base of R^1 to beyond curvature of R^3, the width of the area measured along M and R^3 surpassing a little the width of the black distal area measured at R^3.

The *underside* differs from that of the ♂ like the upper.

Neuration : SC^1 and SC^2 of forewing free, not anastomosed with C ; $D^2 = D^1$, transverse, D^3 deeply concave, transverse ; D^4 not longer than D^2 ; D^3 of hindwing reaching M proximally of M^1, being more proximal in ♀ than in ♂.

Early stages not known.

Hab. British and German East Africa.

In the Tring Museum 1 ♂, 1 ♀, from Nguelo, German East Africa.

2. Euxanthe trajanus.

Godartia trajanus Ward, *Ent. Mo. Mag.* viii. p. 36 (1871) (Cameroons, ♂) ; id., *Afr. Lep.* p. 10. t. 8. f. 3. 4 (♂) (1874) ; Druce, *Proc. Zool. Soc. Lond.* p. 410. n. 2 (1875) (Angola); Snell., *Tijdschr. Ent.* xxxv. p. 8 (1892) (cell of hindwing closed).

Euxanthe trajanus, Kirby, *Cat. Diurn. Lep.* p. 740. n. 4 (1877) ; Dew., *Nova Acta K. Leop. Carol. Ak. Naturf.* xli. 2. 2. p. 7 (1879) (Chinchoxo) ; Staud., *Exot. Tagf.* p. 140 (1886) (Congo) ; Auriv., *Ent. Tidskr.* xv. p. 309. n. 183 (1894) (Bonge, Oct., ♀) ; id., *Kongl. Sv. Vet. Ak. Handl.* xxxi. 5. p. 221. n. 5 (1899) (Cameroons ; Chinchoxo ; Congo).

Euxanthe schatzi Staudinger, *l.c.* t. 48 (♂ (1885).

Similar to *tiberius*, but easily distinguished by the first subcostal vein of the forewing being anastomosed with the costal, by the median patches R^3—(SM^1) of the forewing not being separated from one another, and by patch R^3—M^1 extending to the very base of the cellule R^3—M^1, by the hindwing of the ♂ bearing a large creamy area on the upperside, and the white basi-distal area of the hindwing of the ♀ being much larger than in that sex of *tiberius*, etc., etc.

♂. Body brown-black ; abdomen beneath marked with three rows of dirty white dots, the lateral dots being more or less confluent.

Wings, *upperside*, black.——Forewing : orange basal area rather smaller than in *tiberius*, shaded with brown at costal margin, reaching the cell-spot and the median spot M^1—M^2, being separated from the former only in costal half by a narrow black interspace, cell-spot creamy, like the median ones, transverse, subrectangular, extending from SC to M, its upper outer angle obliquely truncate ; the median band consisting of four spots, besides the one in cell ; spot R^2—R^3 the first, small, triangular, the second entirely covering the base of cellule R^3—M^1, the third long, reaching at M halfway from M^1 to M^2, obliquely rounded or truncate distally, the fourth spot shorter, the fifth small, elongate, almost or quite separate, the veins not black between these spots, except D^3 and (SM^1) ; an ill-defined creamy streak along hinder margin from near base to beyond middle ; four postdiscal spots white, the series a little more regular than in *tiberius*, continued by the submarginal spots R^3 — SM^2 ; submarginal spots R^1 — R^3 absent or vestigial, spots SC^4—R^1 present, but smaller than in *tiberius* ; fringe with vestiges of white internervular spots ; distal margin a little more strongly

rounded than in *tiberius*.——Hindwing : a large area extending from near base to beyond the curvature of R^3 and reaching (about) from R^1 to (SM^1) creamy ; in this area the scales of the upper layer are creamy, while nearly all the scales of the under layer are black, giving the patch a powdery appearance ; no postdiscal spots ; a series of white submarginal dots from SC^2 to SM^2, two in each cellule; white fringe-spots traceable only here and there ; shape of wing as in *tiberius*.

Underside olive-black, hindwing shaded with orange in basal area.—— Forewing : markings essentially as above, but the submarginal spots SC^4—R^1 absent.——Hindwing : black streaks rather wider than in *tiberius* ; submarginal dots absent, vestigial, or minute.

♀. Body paler than in the ♂ ; abdomen from the stigmata downwards dirty cream-colour, with a sharply defined brown-black ventral vitta, which includes a row of small white dots.

Wings, *upperside*.——Forewing longer than in ♂, the sexual difference, however, not being so obvious in *tiberius* and *trajanus* as in *eurynome* and allies ; median band white ; cell-patch divided, spot R^2—R^3 small, more or less shaded with black ; patches R^3—(SM^1) larger than in ♂ ; a long white streak at hinder margin ; submarginal spot R^2—R^3 absent, the others all present ; postdiscal spots R^1—R^3 much larger than the first two.——Hindwing : white area slightly creamy, rounded distally, extended nearly to base of cell and reaching beyond C, the veins not black within the area, except SC^2 ; the brown-black distal area of the wing only 10 mm. wide at R^3 ; two small white postdiscal dots SC^2—R^2, and a series of submarginal ones from SC^2 to (SM^1) ; white fringe-spots of both wings small but distinct.

Underside much paler than in ♂, dark bistre-brown, disc of forewing deeper in tint ; markings essentially as above, except the white area of the hindwing, which is much smaller, scarcely reaching SC^2 and not extending much beyond the curvature of R^3.

Neuration : SC^1 of forewing (seldom SC^1 and SC^2) anastomosed with C, D^1 very short, almost reduced to a point, D^2 oblique, D^3 also oblique, little curved, posteriorly more distal than in *tiberius*, therefore D^4 longer than in that species ; D^3 of hindwing distal of point of origin of M^1.

Early stages not known.

Hab. West Africa : Niger to Angola.

In the Tring Museum 9 ♂♂, 1 ♀ from : Oviogie, Niger 14. i. 1900 (Dr. Ansorge) ; Mongoma-Lobah (Thomson).

In a ♀ in the British Museum from Barombi, Cameroons, the subcostals and the upper radial of the forewing form a kind of areole by being anastomosed ; the areoles of the right and left wings are different.

3. Euxanthe madagascariensis.

Godartia madagascariensis Lucas, *Ann. Soc. Ent. France* (i.) xi. p. 299. t. 12. f. 1. 2. 3 (♂) (1842) (Madagascar) ; id., in Chenu, *Enc. Hist. Nat., Pap.* i. p. 137. t. 34. f. 1 (♂) (1852) ; Doubl., Westw. & Hew., *Gen. Diurn. Lep.* ii. p. 282. n. 2 (1850) ; Mabille, in Grandid., *Hist. Madag., Lép.* p. 167. t. 19. f. 1. 2. (♂), 3. 4. (♀) (1887).

Anthora amakosa Doubleday, Westw. & Hew., *l.c.* (sub syn. with ?).

Euxanthe madagascariensis, Kirby, *Cat. Diurn. Lep.* p. 228. n. 2 (1871) ; Staud., *Exot. Tagf.* p. 140 t. 48 (♂) (1886) ; Auriv., *Kongl. Sv. Vet. Ak. Handl.* xxxi. 5. p. 220. n. 1 (1899) (Madagascar).

Godartia madagascarensis (!), Ward, *Ent. Mo. Mag.* x. p. 152 (1873).

♂. Body black, upperside of abdomen, meta- and posterior part of mesonotum with olivaceous hairs ; underside of abdomen tawny for the greater part, marked with black, especially the proximal segments, and dotted with white in middle. White spot on second segment of palpus large.

Wings, *upperside*, black, purplish in certain lights.——Forewing : markings greenish, except the submarginal dots, which are white ; a transverse subapical bar in cell, separated in two or more spots ; a band of seven patches from $SC^{1,5}$ to SM^2, all separated from one another, the last two sometimes partly confluent, the four upper ones of about the same length, the second triangular, the fourth more distal than the previous, not reaching base of cellule ; a thin streak behind SM^2 ; discal dots SC^1—R^3 absent from most specimens ; the series of submarginal dots complete or incomplete, the upper three the largest, dots M^2—SM^2 mostly absent ; distal margin scalloped, strongly convex, subsinuate below apex, the latter obtuse, but a little produced ; fringe with a very few white scales midway between the veins ; distances from base to M to tip of SC^1 and M^1 the same.——Hindwing : a white subbasal costal spot ; anal area more or less orange-tawny ; a greenish white central patch, consisting of three confluent patches : a small one before R^1, a larger one between R^1 and R^2, and the largest in cell ; a series of five or six postdiscal spots, greenish white, the first and second the largest, the others gradually decreasing in size, spot R^3 to M^1 about one-fourth the size of the first, or less, being often a mere dot ; admarginal dots vestigial or absent ; distal margin scalloped ; fringe with just a trace of white spots.

Underside bright rufous chestnut ; markings paler than above.——Forewing : a large area from inner margin to R^2 black, extending from base to hinder angle ; markings essentially as above, but the cell-bar and the submarginal spots, as well as the posterior discal patches rather larger.——Hindwing : brighter than the forewing ; subbasal triangular costal spot conspicuous ; discal spot SC^2—R^1 vestigial, patch R^1—R^2 and the cell-patch rather smaller than above ; between the proximal half of the cell-patch and the abdominal margin there are several more or or less distinct white patches ; postdiscal spots as above, the second the largest ; a complete series of submarginal dots, two in each cellule, followed by a simple series of admarginal dots standing upon the internervular folds.

♀. Abdomen paler than in ♂, and beneath more extended ochraceous.

Wings, *upperside*.——Forewing : almost normal in shape, triangular ; markings white ; cell-bar larger than in ♂ ; discal patches also larger, especially patch R^3—M^1, which nearly reaches base of cellule, patch R^2—R^3 narrowing distally ; streak before inner margin distinct ; postdiscal spots absent (always ?) ; submarginal spots larger than in ♂, especially the upper ones ; distal margin nearly straight taken as a whole, scalloped ; fringe-spots small.——Hindwing : white central area extended from SC^2 to abdominal margin, widest at SM^2, reaching base behind ; a white submedian dot behind C ; postdiscal spots C—R^1 large, spots R^1—M^2 gradually decreasing, no postdiscal spots beyond M^2 ; submarginal dots present only in posterior cellules ; a complete series of transverse admarginal dots ; fringe-spots distinct ; distal margin scalloped.

Underside : ground-colour as in ♂, rather less bright ; white markings essentially as above, but white central area of hindwing smaller and the submarginal series complete on both wings. Forewing sometimes with a white dot proximally of middle behind SC.

Neuration : SC^1 of forewing **absent,** SC^2 free, D^1 longer than D^2, both oblique,

D^3 incomplete, its upper half or third not developed, the cell therefore partly open ; D^3 of hindwing absent.

Early stages not known.

Hab. Madagascar.

In the Tring Museum 7 ♂♂, 4 ♀♀.

4. Euxanthe wakefieldi.

Godartia eurinome, Hopffer (*non* Cramer, 1775), in Peters, *Reise Mozamb.* p. 386 (1862) (Querimba).

Godartia wakefieldi Ward, *Ent. Mo. Mag.* x. p. 152 (1873) (Ribé, Brit. E. Afr.) ; Oberth., *Etud. Ent.* iii. p. 28. t. 2. f. 5 (♂) (1878) ("Zanzibar"=Continent. E. Afr.) ; Trim. & Bowk., *S. Afr. Butt.* i. p. 300. n. 98 (1887) (Delagoa B.) ; Junod, *Bull. Soc. Neuchat. Sc. Nat.* xxii. p. 26 (1892) (descr. of larva) ; id., *l.c.* xxvii. p. 204 (1900) (Delagoa B.).

Euxanthe wakefieldi, Kirby, *Cat. Diurn. Lep.* p. 740. n. 5 (1877) ; Staud., *Exot. Tagf.* p. 140 (1886) ; Smith & Kirby, *Rhop. Exot.* i., *Euxanthe* p. i. t. 11. f. 1 (♀) (1890) (E. Afr.) ; Lanz. *Iris* ix. p. 140 (1896) (Parumbira, E. Sept., Beg. Oct. ; Tanganyika) ; Butl., *Proc. Zool. Soc. Lond.* p. 399. n. 23 (1898) (Mgana, Aug.) ; Auriv., *Kongl. Sv. Vet. Ak. Handl.* xxxi. 5. p. 221. n. 2 (1899) (Delagoa ; Querimba ; Parumbira ; Tanganyika ; Bagamoyo ; Usambara ; Ribé ; Mgana).

♀. Body black, long hairs of meso-metanotum and abdomen somewhat olivaceous ; abdomen tawny-ochraceous, more tawny above, middle of first tergites black, the area narrowing behind, base of underside of abdomen also black.

Wings, *upperside*, deep black, slightly bluish in side-light.——Forewing : costa occasionally tawny near base ; markings greenish white, except the submarginal ones, which are white ; a large patch at apex of cell, transverse, oblique (in accordance with the oblique position of the cross-veins), variable in width, but never separated into spots ; discal spots $SC^{4,5}$—SM^2 all separate, or spots M^2—SM^2 partly fused, the first three spots the smallest, the second being a mere line or dot or being altogether absent, spot R^2—R^3 reaching base or close to base of cellule, sinuate distally, spot R^3—M^1 longer than spot R^2—R^3, reaching farther proximad as well as distad, spot M^1—M^2 the longest of all, but not so broad as spot R^3—M^1, reaching proximally beyond the middle of spot R^3—M^1 ; a conspicuous isolated streak behind spot (SM^1)—SM^2 ; three or four postdiscal spots SC^4—R^3, the first often absent, the other three more or less rhombiform, the first of them the largest ; submarginal dots small, variable in number, seldom all present, dots R^3—M^2 always marked ; distal margin rounded, very feebly scalloped, white fringe-spots absent, apex obtuse.——Hindwing : a greenish white central area extending from SC^2 to (SM^1), externally to near curvature of R^3, and proximally to near base of M, incised at the veins ; a trace of a white subbasal costal spot ; a series of postdiscal spots from C to SM^2, greenish white, the upper one ovate, the others more or less circular, the fourth smaller than the third and fifth, the seventh and eighth the smallest ; the submarginal series of dots incomplete, the upper cellules being generally without dots, the admarginal series of dots mostly complete, but the dots very small, especially the anterior ones ; distal margin rounded, feebly scalloped ; no white fringe-spots ; anal angle occasionally with tawny spot.

Underside tawny russet.——Forewing black from hinder margin to R^1, the black area occupying the greater part of the wing ; markings slightly larger than above and a little less green ; a white dot in cell behind SC.——Hindwing : white central area larger than above, extended to abdominal margin ; postdiscal spot SM^2—SM^3 present ; submarginal and admarginal rows of dots complete.

♀. Abdomen generally more extended olive-black above than in ♂, and on

underside marked with some white mesial dots. Markings of wings all white, slightly bluish, especially on the veins of the hindwing. Forewing triangular, costal margin much longer than hinder one, distal margin convex in front, then concave, straight behind, scalloped, the sexual difference in the shape of the wing much greater than in the previous insects.

Wings, *upperside*.——Forewing : a large patch at apex of cell, variable in size ; in most specimens, besides, a small proximal cell-spot, often joined to the patch ; a discal band as in ♂, but spots R^3—M^2 larger : spots $SC^{4,5}$—R^3 small, well separated from one another, all three more or less acutely triangular, spot R^3—M^1 completely filling in the base of the cellule, spot M^1—M^2 also extended to the very base of the cellule in most individuals, longer than, or as long as, the following spot, which is only 3 to 6 mm. short of the distal margin ; three large postdiscal spots SC^5—R^3 always present, often also a smaller spot SC^4—SC^5, which is more proximal than the others ; two submarginal dots R^3—M^2, seldom a submarginal dot R^2—R^3 ; white fringe-spots present.——Hindwing : an elongate spot before and another behind C, the former subbasal, the latter submedian ; a large central area from SC^2 to abdominal margin, reaching base behind and extending beyond curvature of R^3, somewhat produced along the veins ; postdiscal spots as in ♂ ; postdiscal area occasionally tawny chestnut ; submarginal series of dots incomplete as in ♂, seldom complete, the upper dots the smallest ; admarginal series mostly complete, but the dots very small ; distal margin scalloped ; white fringe-spots distinct.

Underside slightly more olivaceous than in ♂ ; markings essentially as above, but forewing with four or three submarginal dots R^3—SM^2, the central area of the hindwing rather smaller, especially behind, and the series of submarginal and admarginal dots complete.

♂ ♀. *Neuration* : SC^1 of forewing anastomosed with C, seldom abbreviated and not reaching C, SC^2 free ; cross-veins D^1, D^2 and D^3 very oblique, D^1 and D^2 about equal in length, D^1 in ♂ nearly equal to D^4, but in ♀ shorter than D^4, D^3 very thin in upper half, but not obliterated as in *madagascariensis*, D^3 of hindwing absent.

Early stages described by Junod, *l.c.*

Hab. East Africa : Delagoa Bay to British East Africa.

In the Tring Museum 37 ♂♂, 12 ♀♀ from : Delagoa Bay ; Parumbira, Nyassa, 6. xi. 1893 (Dr. Ansorge); Bandawe, Nyassa ; Tanganyika ; Dar-es-Salaam ; Lindi ; Melindi ; Mombasa ; Kikuyu Escarpment, British East Africa, ix. x. 1900 (W. Doherty).

5. Euxanthe eurinome.

Papilio Nymphalis Phaleratus eurinome Cramer, *Pap. Exot.* i. p. 109. t. 70. f. A. (♀) & Index (1775) (" Ind. or." !) ; Fabr., *Spec. Ins.* ii. p. 101. n. 443 (1782) ; id., *Mant. Ins.* ii. p. 54. n. 538 (1787) ; Jabl. & Herbst, *Natura. Schm.* vi. p. 26. n. t. 123. f. 1 (♀) (1793).

Papilio Festivus eurinome, Fabricius, *Ent. Syst.* iii. 1. p. 57. n. 178 (1793) (" India orient." !).

Papilio euronimene (!), Donovan, *Ins. India* t. 34. f. 3 (♂) (1800).

Papilio eurinome, id., *l.c.* (text).

Euxanthe eurinome, Hübner, *Verz. bek. Schm.* p. 339. n. 39 (1816-27) ; Staud., *Exot. Tagf.* p. 140 (1886) (Gold Coast ; Old Calabar ; Gabun); Auriv., *Kongl. Sv. Vet. Ak. Handl.* xxxi. 5. p. 221. n. 4 (1899).

Nymphalis eurinome, Godart, *Ent. Méth.* ix. p. 398. n. 163 (1823) (♀, " Ind. or." !).

Anthora eurinome, Doubleday, *List Lep. Ins. B.M.* i. p. 99 (1846) (Sierra Leone ; Ashanti ; Congo).

Godartia eurinome, Butler, *Cat. Diurn. Lep. descr. by Fabr.* p. 100. n. 1 (1869) (Ashanti).

♂. Head and thorax black ; posterior part of mesonotum, metanotum and first abdominal tergite russet mummy-brown, with the long hairs partly grey ; abdomen

tawny-ochraceous, sternites basally black, especially the proximal ones, and marked with white in middle.

Wings similar to those of *wakefieldi* in outline, rather more brownish in basal region, the basal area of the forewing being often distinctly dark chocolate.—— Forewing : cell with two markings, a proximal dot and a longitudinal oblique patch extending from middle to near lower angle, the two markings for the greater part white, often confluent, but the subbasal spot also often absent, and the larger spot, which is mostly tridentate, not rarely reduced to a small streak or dot ; discal patches widely separated from one another, all elongate, the fourth spot, R^3—M^1, much more distal than in *wakefieldi*, the distance from the base of M^1 equalling or surpassing the length of the spot, spots R^3—SM^2 shorter and narrower than in *wakefieldi*, spot M^1—M^2 rounded off proximally, pointed distally, situated with the proximal end behind (or nearly behind) point of origin of M^1, spots M^2—SM^2 always separate ; streak before hinder margin prominent, seldom minute ; four postdiscal spots SC^4—R^3, smaller than in *wakefieldi*, the first apparently always present, but often small ; these spots greenish like the discal ones ; a complete series of eight white submarginal spots, of which spot M^1—M^2 is the largest, being generally triangular or arrowhead-shaped ; white fringe-spots vestigial.——Hindwing : central area greenish, in size similar to that of *wakefieldi*, consisting of five or six patches, patches SC^2—R^2 separated from one another and from the large cell-patch, the veins being black, patch R^3—M^1 small or absent, patch M^1—M^2 mostly larger than in *wakefieldi*, also separate, patch M—(SM^1) covered by white hairs ; cross-vein D^3 often partly or entirely indicated by a black line ; postdiscal spots greenish, on the whole larger than in *wakefieldi*, somewhat variable in size individually, spots R^3—M^2 often approaching in size spots C—R^1, spots M^2—SM^2 small ; a few submarginal dots in the posterior cellules ; a complete series of rather large white admarginal dots ; white fringe-spots vestigial.

Underside dark olivaceous bistre- or Vandyke-brown, basal costal areas of both wings more or less tawny-russet ; posterior half of forewing black ; maculation similar to that of upperside, but cell-patch of forewing and central area of hindwing larger, the latter extending to abdominal margin, and the submarginal row of spots of the hindwing complete.

♀. The sexes differ in the same way as in *wakefieldi*.

Wings, *upperside*.——Forewing : cell-patch very large, completely merged together with the proximal cell-spot, therefore appearing triangularly produced basad ; discal patches larger than in ♂, but similar in position, spot R^2—R^3 standing far away from the base of M^1, while spot R^3—M^1 reaches M, only in one of our specimens (Gold Coast) spot R^3—M^1 fills in entirely the base of cellule R^3—M^1, most of the underscales of the proximal portion of the patch remaining, however, also in this case black, all the patches separate ; four postdiscal spots as in ♂, but larger ; a complete series of eight submarginal dots ; these small in the Gold Coast specimen just mentioned, and the first, seventh and eighth shaded with black.—— Hindwing : central area less extended distad than in this sex of *wakefieldi*, the distal portions of the veins more distinctly black within the white area ; postdiscal spots smaller than in the ♂, but larger than in *wakefieldi* ♀ ; submarginal series of dots complete or incomplete ; admarginal dots larger than the submarginal ones, seldom smaller, the series complete ; white fringe-spots of both wings distinct.

Underside with similar markings as upper, submarginal spots of hindwing larger.

♂ ♀. *Neuration:* SC^1 and SC^2 of forewing always anastomosed with C; D^1 and D^2 oblique, D^1 longer than D^2, equalling about D^4, D^3 as in *wakefieldi* nearly obliterated in upper half; cell of hindwing open, D^3 being absent, or rarely indicated by a spur projecting from D^2.

Early stages not known.

Hab. West Africa.

There are two subspecies:

a. E. eurynome eurynome.

Papilio Nymphalis Phaleratus eurinome Cramer, *l.c.*

Godartia eurinome, Butler, *l.c.* (Ashanti).

Euxanthe eurinome, Möschler, *Abh. Senk. Nat. Ges.* xv. p. 57. n. 59 (1887) (Aburi); Lathy, *Trans. Ent. Soc. Lond.* p. 193. n. 109 (1903) (Niger).

Godartia ansellica, Büttikofer, *Reisebild. Liberia* ii. p. 482. n. 61 (1890).

♂. Central patch of hindwing white, becoming green in a disto-lateral aspect.

♀. Markings of wings milky white, distal portions of veins within the central area of hindwing thinly black on upperside, the white area reaching beyond curvature of R^3, patch R^3—M^1 large, triangular, not isolated.

Hab. Sierra Leone to the Niger.

In the Tring Museum 12 ♂♂, 12 ♀♀ from: Sierra Leone; Gold Coast; Warri, Niger, June 1897 (Dr. Roth).

b. E. eurynome ansellica.

Anthora eurinome, Doubleday, *List Lep. Ins. B. M.* i. p. 99 (1840) (partim; Congo).

Godartia eurinome, Doubleday, Westw. & Hew., *Gen. Diurn. Lep.* i. p. 282. n. 1 (1850) (partim; Congo).

Godartia ansellica Butler, *Trans. Ent. Soc. Lond.* p. 525. n. 21 (1870) (Kinsembo); id., *Lep. Exot.* p. 51. t. 20. f. 1 (♂) (1870); Druce, *Proc. Zool. Soc. Lond.* p. 410. n. 1 (1875) (Angola); Dewitz, *Nova Acta Leop. Car. Ak. Nat.* L. 4. p. 369 (1887) (Mukenge; ♂ Oct., ♀ March); Snellen, *Tijdschr. Ent.* xxxv. p. 8 (1892) (= slight var. of *eurinome*).

Euxanthe ansellica, Dewitz, *Nova Acta Lep. Car. Ak. Naturf.* xli. 2. 2. p. 7 (1879) (Chinchoxo); Staud., *Exot. Tagf.* p. 140 (1886); Smith, *Proc. Zool. Soc. Lond.* p. 469. n. 60 (1890) (Aruwimi).

Euxanthe eurinome, Aurivillius, *Ent. Tidskr.* xv. p. 309. n. 181 (1894) (Kitta, Lova, Kamerun, April, May, ♂ ♀); id., *Kongl. Sv. Vet. Ak. Handl.* xxxi. 5. p. 221. n. 4 (1899) (partim; Kamerun, Gabun).

Euxanthe eurinome var. ansellica, id., *l.c.*

On the whole somewhat larger than the previous.

♂. Discal and postdiscal spots of forewing and central area and postdiscal spots of hindwing, above, more obviously yellowish green than in *eur. eurynome*; underside duller olivaceous. The central area of the hindwing sometimes much reduced, but as a rule not essentially smaller than in the more northern form.

♀. Markings slightly but obviously greenish, rather smaller than in *eur. eurinome*, especially the central area of the hindwing; this area not reaching curvature of R^3, the veins broadly black distally within the area, spot R^3—M^1 small, isolated. Abdomen more extended blackish brown above.

Hab. Cameroons to Angola and Unyoro.

In the Tring Museum 19 ♂♂, 2 ♀♀ from: Bipindi, Cameroons; Carnotville; Bopoto, Congo; Kassai R.; Yanga, Ituri R., 29. v. 1899 (Dr. Ansorge); Aruwimi Forest, three days' march from Fort Beni, Congo Free State, 7. v. 1899 (Dr. Ansorge); Kitanwa, Unyoro, 10. viii. 1897 (Dr. Ansorge).

6. Euxanthe crossleyi.

Godartia crossleyi Ward, *Ent. Mo. Mag.* viii. p. 36 (1871) (Cameroons); id., *Afr. Lep.* p. 11. t. 8. f. 1. 2 (♂) (1874); Oberth, *Et. Ent.* xvii. p. 31. t. 1. f. 7 (♀) (1893) (Ogowé).

Euxanthe crossleyi, Kirby, *Cat. Diurn. Lep.* p. 740. n. 3 (1877); Staud., *Exot. Tagf.* p. 140 (1886); Butl., *Ann. Mag. N. H.* (6). vii. p. 43. n. 19 (1891) (Kandera); Auriv., *Ent. Tidskr.* xv. p. 309. n. 182 (1894) (N'Dian, Cameroons, Mai, ♀); id., *Kongl. Sv. Vet. Ak. Handl.* xxxi. 5. p. 221. n. 3 (1899) (Cameroons; ? Kandera).

♂. Body as in *eurynome*; forewing more stumpy than in that species, the apex being more obtuse and the distal margin more rounded.

Wings, *upperside*, deep black, bluish in side-light; markings (except sub- and admarginal dots) pale yellowish green.——Forewing: a basal costal streak of variable length of the colour of the discal spots or ochraceous; cell with two spots, one subbasal or in middle of cell behind SC, small, mostly merged together with the other, which is large, occupying the greater part of the apical half of the cell; discal spots resembling in position somewhat those of *eurynome*, all separate, except sometimes spots M^2—SM^2, the last three and the streak before hinder margin longer than in the other species, spot R^3—M^1 separated into two, the smaller portion situated near the base of the cellule, often absent, the distal portion placed as the respective spot of *eurynome*, but is smaller, spot M^1—M^2 filling in base of cellule, pointed at both ends, streak M^2—(SM^1) reaching proximally at least to middle of patch M^1—M^2, its distal end as near the distal margin as in *eurynome*, streak (SM^1)—SM^2 a little more distal than the one before it and mostly of the same length, sometimes longer, sometimes shorter; streak at inner margin also long; one to four minute postdiscal dots SC^4—R^3; a complete series of submarginal dots, of which dot M^1—M^2 is the largest; fringe-spots vestigial.——Hindwing: costal edge white; a large central area from C to (SM^1) coloured like discal patches of forewing, composed of seven patches, which in most specimens reach or approach the postdiscal spots, postcellular patch covered with white hairs, the patches separated by the black veins; postdiscal spots in size about the same as in *wakefieldi*, being smaller than in *eurynome*; a complete series of yellowish submarginal dots, and another of white admarginal ones; white fringe-spots traceable here and there.

Underside black or olive, in the latter case the forewing black from inner margin to R^2, a costal spot near base of forewing and basal costal patch on hindwing ochraceous. Markings larger than above, the pale area of the hindwing extending from costal to abdominal margin, the veins all black, and the submarginal spots of the same wing white; forewing often with a black dot in the pale cell-patch, and the spots R^3—M^1 occasionally joined together.

♀. Body paler than in ♂, meso-metanotum with white hairs laterally. Forewing a little less triangular than in *eurynome*.

Wings, *upperside*, with the light marking very much enlarged, the markings yellowish cream-colour.——Forewing: cell-patch occupying five-sixths of the cell, extended close to the veins, which remain black; a long costal streak, a short one behind SC^3, three long streaks $SC^{4,5}$—R^3, extending from cross-veins to near the postdiscal spots, which they do not reach, four large patches R^3—SM^2, reaching from cell to submarginal spots, only partly separated, the veins being partly cream-colour, a long streak at inner margin, streak (SM^1)—SM^2 almost completely merged together with streak M^2—(SM^1), forming one large streak which is incised distally and triangularly sinuate proximally; four postdiscal spots SC^4—R^3, more or less

triangular, at least as large as in *eurynome* ; eight yellowish submarginal spots.—— Hindwing : pale area extended from costal to abdominal margin and from near base to round postdiscal spots, veins within the area black at least distally ; a complete series of yellowish submarginal spots, which are somewhat larger than in *eurynome* ; and an also complete row of white marginal dots ; white fringe-spots present on both wings.

Underside : markings as large as above or larger ; the dark costal and distal parts of the forewing and the distal area of the hindwing shaded over with grey, only the basal patch of the forewing remaining deep black ; ochraceous basal markings similar to those of ♂, paler ; submarginal spots of hindwing white.

♂ ♀. *Neuration :* essentially as in *eurynome.*

Early stages not known.

Hab. West Africa : Cameroons to Angola and the Aruwimi Forest.

In the Tring Museum, 6 ♂♂, 2 ♀♀ from : Bipindi, Cameroons (Zenker) ; Carnotville ; Lukolele, Congo ; Cubal R., Angola, April 1899 (Penrice) ; 4 days' march from Fort Beni, Congo Free State, 8. v. 1899 (Dr. Ansorge).

7. **Euxanthe ansorgei** spec. nov.

♂. Similar to *E. crossleyi*, but the markings in the middle of the wings much reduced. Most likely only the eastern subspecies of *crossleyi.*

Wings, *upperside.*——Forewing less stumpy than in *crossleyi* ; basal area obscure chestnut, a pale basal costal streak creamy buff and ochraceous ; anterior cell-spot minute, posterior one ovate, much narrower than the interspace between it and median patch M^1—M^2 ; median streaks $SC^{4,5}$—M^1 thin and much shorter than in *crossleyi*, streak R^3—M^1 midway between cell and submarginal dot, streaks M^1—SM^2 also reduced, being more like those of *eurinome* than those of *crossleyi*, streak along internal margin shorter than in *crossleyi* and longer than in *eurinome* ; four minute postdiscal dots ; white submarginal spots as in *crossleyi.*—Hindwing : median area extended to near base as in *crossleyi*, and of the same pale yellowish green colour, a streak behind cell and one each in front of and behind SM^2 white ; the median area smaller than in *crossleyi*, the streaks being shorter, not extending beyond the bent of R^3, streak R^3—M^1 very small.

Underside representing similar differences from *crossleyi* as upper. Bases of wings brighter ochraceous ; greenish cell-patch of forewing occupying less than one-third of the cell ; distal areas of both wings paler than in *crossleyi.*

Neuration : as in *crossleyi*, but SC^2 of forewing free.*

♀. Not known.

Hab. Patsho, Nandi country, Uganda Protectorate. One ♂ caught by Dr. Ansorge on February 22nd, 1899.

This species stands in a somewhat similar relation to *crossleyi* as does *wakefieldi* to *eurinome.**

* We have lately examined two specimens from the Hope Department, University Museum, Oxford. These specimens have the spots slightly less reduced and SC^2 of the forewing anastomosed to C. We have no longer any doubt that the form described above is a subspecies of *crossleyi.* Its name is *E. crossleyi ansorgei.*

NEW *URANIIDAE, DREPANULIDAE* AND *GEOMETRIDAE* FROM BRITISH NEW GUINEA.

By W. WARREN, M.A., F.E.S.

THE species described in this paper were all obtained by Mr. A. S. Meek at the Upper Aroa River, British New Guinea, from the end of January to the beginning of April 1903, at an altitude of 4000 feet and upwards.

Family *URANIIDAE.*

Subfamily EPIPLEMINAE.

Cirrhura gen. nov.

Forewing: costa straight, becoming convex before the rounded apex; hindmargin straight, oblique; anal angle well marked; inner margin straight.

Hindwing: kite-shaped; apex rectangular; anal angle obtuse; hindmargin at vein 4 with a fine slightly depressed tooth, the margin above it straight, below it to anal angle sinuous.

Antennae (♀) lamellate, formed of short clavate teeth, but these not well separated till towards apex; palpi short, narrow, porrect slightly upward; tongue present.

Neuration: forewing, cell hardly one-third of wing; discocellular fine, slightly concave outwards; first median nervule at two-thirds, second and third from lower end of cell; vein 5 from upper end of cell, whence also the stalk of 6, 7; 8, the stalk of 9, 10 and vein 11, all three near together from about one-half of cell; 9 anastomosing near cell with 8 and not separating till near costa: hindwing, cell two-fifths of wing; discocellular very fine, oblique, angled outwards in middle; 6, 7 and 3, 4 from angle of cell; 5 from the angle of discocellular; 2 at three-fourths.

Type: *Cirrhura cometifera* spec. nov.

Nearest to *Orudiza* Wlk., but abundantly distinct.

1. Cirrhura cometifera spec. nov.

Forewing: purplish grey, thickly and regularly striated with darker grey; costal edge whitish, with short blackish marks; lines brownish fuscous; first from one-fourth of costa to two-fifths of inner margin, straight; second from just beyond middle of costa to three-fourths of inner margin, nearly parallel to first line, but slightly nearer on inner margin than on costa; the first preceded, the second followed, by a narrowly paler space; cell-spot brown, indistinct; submarginal line waved, very indistinct, indicated by 3 brown scarcely conjoined spots obliquely below one another in a line pointing towards apex below veins 7, 6, 5, with another nearer margin below vein 4; hindmargin darker tinged; fringe pale grey, with darker middle line.

Hindwing: with a double brown outer line with pale centre, from two-thirds of costa to four-fifths of inner margin, forming a bluntly-rounded projection towards hindmargin between veins 4 and 3, then sinuous; on discocellular an oblique brown

mark thickening downwards, below vein 5 trailing off into a double tail of black and white scales running into the projection of outer line ; outer line edged by a space of lilac grey scales, broader on costa and inner margin, followed by more distinct blackish striae ; hindmargin from apex to tail narrowly white preceded by a deep black line which curves out above the tail ; below it a white dash, running out and fringing the tail below ; below the base of tail a roundish drop of purplish and dark brown scales, with a shallow lunule nearer anal angle, both finely edged with white and dark scales ; fringe grey, with base darker than the tips.

Underside dull cinereous, indistinctly striated.

Face and palpi black ; vertex and base of antennae snow-white ; thorax and abdomen pale grey ; legs paler ; all the tarsi and fore- and midtibiae brownish.

Expanse of wings : 30 mm.

1 ♀.

In outward appearance this species bears a very marked resemblance to several South American species.

2. **Epiplema inquinata** spec. nov.

Forewing : white, with exceedingly fine and delicate black dots and striae, and with three curved stains of greyish brown, all very faint and narrow towards costa, but broader along inner margin, emphasised by fine black dots, especially on inner margin ; the first at about one-fourth, the second just beyond middle, the third at five-sixths ; the last two are curved outwards above, and the last ends in a black blotch before anal angle ; a minute spot of black scales beneath apex ; an extremely fine ochreous marginal line ; fringe white.

Hindwing : with the two outer stains and an additional slight marginal one below middle ; a black dot in cell near base and a more minute one below base of lower tooth ; marginal line very fine ; fringe whitish.

Underside all white.

Head, thorax, and abdomen white ; tips of palpi and inside of foretibiae and tarsi alone fuscous.

Expanse of wings : 24 mm.

3 ♀♀.

Allied to *E. denigrata* Warr. from the Trobriand Islands.

Hindmargin of forewing entire ; of hindwing with fine tails at veins 4 and 7 ; inner margin of forewing sinuate.

3. **Monobolodes ustimacula** spec. nov.

Forewing : ochreous tinged with fawn-colour, minutely grey-speckled ; costa slightly darker ; an interrupted black-brown erect shade from inner margin just before middle, not plainly reaching the costa, but apparently curved inwards towards it ; a thick black erect line from three-fourths of inner margin reaching vein 6, followed by first a narrow rust-coloured line and then another blackish one, the anal angle occupied by a purplish black blotch ; a submarginal series of small black dots from apex to anal angle ; the marginal stripe darker and ferruginous-tinged ; fringe with a pale shining base, and chequered along the tips with black.

Hindwing : black-brown, except a narrow ochreous streak from base through cell widening to hindmargin between veins 4 and 6 ; crossed by two parallel curved black rusty-edged lines, antemedian and postmedian ; a row of small black marginal lunules on a paler ground ; fringe black-brown.

Underside yellowish ochreous, dark leaden grey towards the hindmargins.

Face and palpi, tips of patagia, metathorax and abdomen black-brown; shoulders and patagia rufous ochreous ; vertex and antennae snow-white ; abdomen beneath and legs ochreous ; forelegs in front brown-black.

Expanse of wings : 19 mm.

1 ♀.

The whole surface of the wings is somewhat glossy, and the dark shades in certain lights have a plumbeous reflection.

4. **Phazaca erosioides** Wlk.

In Nov. Zool. iii. p. 278, I described an *Epiplema undulata* from Fergusson Island, the specimen being a ♀, remarking that it was much like Walker's Bornean species *Phazaca erosioides*, except that this had an almost white hindwing. Among the *Epipleminae* lately received from A. S. Meek collected on the Upper Aroa River, British New Guinea, I find 2 ♀♀ of *E. undulata* and 1 ♂ of *Phazaca erosioides*, the latter a very strongly marked dark example ; and there can be small doubt that, different as the sexes appear, they yet belong to one and the same species. In neuration *Phazaca* agrees with *Epiplema*, vein 5 of the forewing rising from the upper end of the cell at the same point as the stalk of 6 and 7, and veins 10 and 11 both rising from the cell ; but the ♂ to a certain extent simulates the ♂♂ of *Dirades*, the hindwing being rounded, with a small insignificant tooth at vein 7 only, and the space between veins 1 and 2 devoid of colour and pattern, though without any pencil of hairs ; the ♀♀ likewise have only a slight projection at veins 4 and 7. In both sexes the apex of forewing is rounded, and the hindmargin nearly straight, while their style and pattern of markings is strongly suggestive of *Dirades*. The ♂ antennae have closely placed clavate teeth. The ♀♀ have been redescribed by Swinhoe as *Epiplema kohistaria* from Port Blair, Andaman Islands, cf. *Ann. Mag. N. H.* (7). ii. p. 307 (1900), though by a misprint they are recorded as ♂♂. The full synonymy will be as follows :—

Phazaca erosioides Wlk., xxvii. p. 21 (♂) (1863).

Epiplema undulata Warr., Nov. Zool. iii. p. 278 (♀) (1896).

Epiplema kohistaria Swinh., *l.c.* (1900).

Pterotosoma gen. nov.

The ♂ is like *Epiplema* in the neuration and general shape of forewing ; the hindmargin quite as long as the inner margin, slightly protuberant in middle and faintly indented beyond cell ; but the hindwings agree with the ♂ of *Dirades* in neuration and in the possession of an inner marginal fold and pencil of hairs ; the inner margin is shortened, and the hindmargin irregularly crenulate throughout, with a more prominent tooth at vein 7, as in *Monobolodes*. The pencil of hairs rises from the extreme base of wing, and is as long and conspicuous as in the ♂ of *D. onusta* Warr. The main characteristic is an appendage of rough scales enveloping the basal segments of the abdomen beneath, and produced on each side in the form of a tuft of hairs reaching nearly to apex ; the costa of hindwing is evenly curved throughout, and the inner margin of forewing straight.

Type : *Pterotosoma bilineata* spec. nov.

5. **Pterotosoma bilineata** spec. nov.

Forewing: lilac-grey, slightly dark-speckled; the lines rusty-brown; the first from one-third, and the outer nearly from two-thirds, of the costa, below which they are somewhat curved, then vertical and parallel to each other to a little beyond one-third and two-thirds of inner margin respectively, the outer with a short projection below vein 4; a bilunate brown blotch before margin between veins 4 and 6, with a dark spot or two above and below.

Hindwing: with similar lines, but the outer one plainly edged with ochreous and bent on vein 5, both stopping short at vein 2; a black-edged yellowish submarginal lunule on each side of vein 4; fringe rather darker; the fold whitish, the tuft of hair yellowish and glossy.

Underside paler, without any markings.

Face and palpi black; vertex and base of antennae cream-coloured; thorax and abdomen like wings; the tips of the lateral tufts pale.

Expanse of wings: 22 mm.

1 ♂.

Superficially the insect is not at all unlike *E. simplex* Warr. from India.

Family *DREPANULIDAE.*

6. **Oreta subvinosa** Warr.

Along with a ♂ example, agreeing exactly with the type lately described in Nov. Zool. x. p. 255, from Etna Bay, New Guinea, there has come another from the Upper Aroa River, differing in that the dark tints of both wings are all dull rufous brown, and the oblique line thin, inconspicuous, and curved, not straight and dark. On the underside and in all other points this example agrees with the type.

The two specimens, both ♂♂, were taken in March 1903.

7. **Tridrepana fulvata** Snell., ab. **fasciata** nov. and **olivacea** nov.

This species, described in the first instance from Java by Snellen, afterwards under the names *albonotata* Moore and *ochrea* Butler from India, and *lunulata* Butler from the Solomon Islands, is widely spread. In the British Museum there are examples from Hong Kong, and in the Tring Museum from Japan, Penang, Sumatra, Bali and New Guinea. In the last locality it appears to be subject to aberrational forms not met with, except in one solitary instance, elsewhere. The form I call *fasciata* consists merely in the area between first and second lines of the forewings being filled up with fulvous, generally without any alteration in the rest of the wing, though in one instance the deeper shade is diffused over the whole wing and the markings become thickened and blurred. Only in one example, from Gunong Ijau, has a similar development been noticed, as far as I know, out of New Guinea. The other form, *olivacea*, has not presented itself before. Out of 9 examples just received from the Upper Aroa River, 3 (2 ♂♂, 1 ♀) are of the typical form, 3 (2 ♂♂, 1 ♀) belong to ab. *fasciata*, the remaining 3, all ♂♂, are on the upperside dull olive-brown without a vestige of yellow, with the markings precisely as in the type, but the central fascia deeper, as in the ab. *fasciata*. Underneath the coloration is of the typical yellow, the only difference being that the cell-spot, the costal portion of the outer line, and the fringes are olive-brown;

the thorax, patagia, and abdomen are, like the wings, olive-fuscous; abdomen beneath and legs yellow, as in the type; in the brown upper half of face, the yellow vertex and antennae, and the white front of the shoulders, they agree with the type-form also.

All the examples were taken from February to April 1903.

Urogonodes gen. nov.

Forewing: costa convex towards apex, which is bluntly produced and subfalcate in the ♀, blunt and rectangular in the ♂; hindmargin bluntly elbowed at vein 3, faintly concave above and below.

Hindwing: apical and anal angles rounded; hindmargin straight to a blunt depressed tooth between veins 3 and 4, thence concave to anal angle; the inner margin not shortened.

Antennae with close clavate teeth in both sexes; palpi extremely short; tongue and frenulum absent; hindtibia with terminal spurs only.

Neuration: forewing, cell more than half the length of wing; discocellular strongly inangulate in middle, shortly vertical at lower end; first median nervule at one-half, second at three-fourths; lower radial from the lower outward angle of discocellular; vein 6 stalked with 7: 8 from upper end of cell, 10 and 11 long-stalked from close before it, 9 absent; hindwing, 7 long-stalked with 8, the stalk touching the subcostal at a point at middle of cell; discocellular vertical above, oblique below; first median nervule at two-thirds, second at eight-ninths, third stalked with the radial.

Type: *Urogonodes scintillans* Warr. (*Oreta*?).

8. **Urogonodes scintillans** Warr.

Oreta? scintillans Warr., Nov. Zool. iii. p. 273 (♀) (1896)(Ferguson).
Cyclura inconspicua Warr., id. vi. p. 3 (♀) (1899) (St. Aignan).

The type of *scintillans* was in very poor condition. In referring *inconspicua* to *Cyclura* I remarked that the neuration did not agree: besides which, the inner margin of hindwing is not shortened nor the hindmargin excised, as I have been enabled to determine from the examination of specimens in good condition from the Upper Aroa River. The description given of *inconspicua* is good as far as it goes; but there is an outer diffuse dark line, starting from costa at two-thirds, oblique outwards to vein 7 near apex, then oblique inwards to two-thirds of inner margin. This and the median shade together form an ill-defined broad central fascia, continued across hindwing. The underside is better described as yellow ochreous. The ♂ is smaller and darker, with a purplish tinge; the two shades darker, marked by black costal spots nearer together, the outer shade, when visible, approaching the inner on submedian fold; the dark marginal markings are developed into a deep purple-brown blotch below middle, with some pale lilac-grey scales on it; there are also sometimes traces of an inner line nearer base; hindwings without distinct markings, either purplish or reddish.

Underside of forewing of ♂ bright red, the inner margin and a large costal blotch before apex yellow; the dark oblique line of the ♀ generally not so well developed; hindwings wholly bright red, flushed with yellow along costal and inner margins, and in one example tinged with dark; the line hardly shown.

Face and forelegs of ♂ bright red; thorax and abdomen sometimes dark fuscous; the shoulders always pale grey.

The discal spot of forewing is inconspicuous, especially in the ♂♂.

These New Guinea specimens expand 30 mm. in the ♀, and 22 mm. to 24 mm. in the ♂♂.

4 ♂♂, 1 ♀.

Family *GEOMETRIDAE*.

Subfamily ORTHOSTIXINAE.

9. **Celerena hirtipes** spec. nov.

Forewing: pale yellow; the costa black to middle; the outer three-fifths of wing black, containing a large oblong yellow blotch from costa beyond middle towards anal angle, its sides generally parallel, but sometimes swollen below; the inner edge of the dark portion diffuse; the yellow triangular basal area nearly always more or less suffused with slaty grey, in the extreme cases with only the base of cell yellow.

Hindwing: yellow, with a broad black border from before apex to above anal angle.

Underside like upper; the basal area unsuffused, but always more restricted than above, the transverse black bar being broader.

Face, palpi, thorax and abdomen yellow; the tips of palpi blackish. Fore- and midlegs and hindtarsus dark; hindtibia with a large tuft of dark hairs at extremity.

Expanse of wings: 68 mm.

6 ♂♂, 6 ♀♀.

The furrow in forewing of ♂ lies in the cell, as in *vulgaris* Butler and *proxima* Meyr. In one ♀ example the slaty grey suffusion embraces not only the basal area of forewing but the marginal areas of both wings, as in *C. griseofusa* Warr., but in that species the shape of the yellow blotch is quite different. Both species have a dark tuft of hair at the end of the hindtibia.

10. **Celerena nigriceps** spec. nov.

Forewing: deep yellow, the costa broadly black to middle, before which an oblique black bar runs to anal angle and joins the marginal black area; the yellow postmedian blotch bluntly pointed towards anal angle.

Hindwing: deep yellow, with a nearly uniformly broad black border from before apex to anal angle.

Underside the same, but the transverse black bar broader.

Face, palpi, vertex, and shoulders all black; patagia, thorax, and abdomen yellow. Fore- and midlegs and last four segments of hindtarsus dark; hindtibia and first segment of tarsus yellow; both slightly swollen, but without excrescences or tufts of hair.

Expanse of wings: ♂ 44 mm; ♀ 44—48 mm.

6 ♂♂ 3 ♀♀.

In this species the furrow in forewing of ♂ is short, and runs below the cell, not through it; both wings are shorter and broader by comparison, the hindwing especially; antennae of the ♂ simply ciliated.

11. **Celerena vulgaris** Butler.

Along with the above-mentioned examples of *C. hirtipes* and *nigriceps* came also 7 ♂♂ and 14 ♀♀ of another species, agreeing with *hirtipes* in the position and length of the furrow in the ♂ forewing, but without any tufts of hair on the hindtibiae, though these are armed with an apical projection, and the first joint of hindtarsi is swollen and triangular. In these the face remains yellow, while the vertex and shoulders are dark. The width of the transverse black band of forewing varies much. In four examples (3 ♀♀ 1 ♂) it is very broad, and the black suffusion extends along inner margin towards base. The ♂ agrees exactly with the description of *proxima* Meyr. The rest, in which the basal yellow area remains triangular and unsuffused, I refer to Butler's *vulgaris*, of which *proxima* Meyr. must be considered as an extreme aberration.

12. **Rambara strigicosta** spec. nov.

Forewing: white; the costa freckled and striated with grey; the lines formed of ochreous spots; first, basal, formed of three spots lying in a curve from one-fourth of costa to one-fifth of inner margin; the second, postmedian, from three-fourths of costa to middle of inner margin; the first five spots vertical to vein 4, except that the spot on the radial is displaced basewards, the last two vertical beneath the discocellular spot, the sixth obliquely half-way between the fifth and seventh; submarginal line continuous; a row of rather large round marginal spots; cell-spot large and black, irregularly triangular; fringe white.

Hindwing: with cell-spot ochreous, moderate; postmedian line strongly outcurved at middle; the rest as in forewings.

Underside white; the costa of forewings striated with grey, and the cell-spot blackish.

Head, thorax, and abdomen white; palpi externally dark fuscous; second segment of abdomen with black spots.

Expanse of wings: 25 mm.

1 ♂.

Subfamily DYSPHANIINAE.

Microschema nom. nov.

I propose to substitute the above name for the genus called by me *Dysschema* (Nov. Zool. v. p. 10), which name has been already used by Hübner.

Of the type species *goniata* 2 ♀♀ were received from the Upper Aroa River.

Subfamily PSEUDOTERPNINAE.

13. **Actenochroma albifusaria.**

Boarmia albifusaria Wlk. xxxv. p. 1589 (♀) (1866).
Pseudoterpna albifusaria Swinh. *Cat. Lep. Het. O.M.* ii. p. 385. t. 5. fig. 7 (1900).

The ♀ only has been hitherto recognised. In the fine collection made by A. S. Meek in the spring of 1903 on the Upper Aroa River, there are 4 ♂♂ and 1 ♀; the ♂♂ have simple antennae, and the species must be transferred to *Actenochroma*. A comparison of the sexes also shows that it is only in the ♀ that

the white subcostal blotches are developed—one at base of cell, the other beyond it ; in the ♀♀ these remain green. In the hindwing the discal spot is followed in the ♀ by a square snow-white patch ; this is green or whitish green only in the ♂♂. In both sexes a noticeable feature, visible in fresh examples, is a reddish patch on inner margin beyond the subterminal line.

14. **Hypochroma modesta** spec. nov.

Forewing : deep green, speckled with blackish ; the costal edge marked white in places and striated with blackish ; the lines blackish, forming spots on costa ; first quite close to base, obscurely marked ; inner line at one-fourth, curved, slightly prominent above and below median vein, and well marked with black and some reddish scales following it on inner margin ; outer line from nearly three-fourths of costa to middle of inner margin, concave outward to vein 6, then lunulate-dentate, and from vein 4 strongly incurved, marked like the inner line with black on inner margin and preceded there by reddish scales ; cell-spot linear, oblique, very obscure ; the inner line is preceded and the outer followed by a slight whitish or bluish-white tinge, which is developed into a patch towards hindmargin, between veins 3 and 4, and along submedian interval ; a few reddish scales before outer line above vein 4 ; a row of black marginal lunules ; fringe blackish with paler base, with a white fleck below vein 4.

Hindwing : similar ; the cell-mark accompanied by a pale spot ; submarginal line faintly paler.

Underside of forewing greenish grey, freckled with blackish, and tinged with olive towards hindmargin, which has a bluish-white patch below middle ; base of cell yellow ; costa yellowish ; cell-spot black ; hindwing in basal half like forewing, the outer half black, with a broad whitish fascia along its inner edge and a white patch on margin below vein 4.

Palpi and face dark brown, the face with a white bar at top and bottom ; vertex green, brown in front ; shoulders green, tipped with brown ; thorax and abdomen green, the latter becoming greyish ochreous in anal half and paler beneath ; dorsal crests very inconspicuous.

Expanse of wings : 39 mm.

1 ♀.

The hindmargin of forewing is slightly elbowed at vein 4. Hindwing with 6 and 7 separate ; forewing with 11 free.

15. **Hypochroma saturataria.**

Hypochroma saturataria Wlk., xxxv. p. 1593 (♂) (1866).
Actenochroma ? caesia Warr., Nov. Zool. iii. p. 282 (♀) (1896).
Hypochroma perfulvata Warr., Nov. Zool. vi. p. 326 (♂) (1899).
Pseudoterpna saturataria Swinh., *Cat. Lep. Het. O.M.* ii. p. 384. t. 5. fig. 6 (1900).

The examination of a series of 9 ♂♂ and 9 ♀♀ of *saturataria* from the Upper Aroa River, British New Guinea, enables me to make this correction. Eight ♂♂, 6 ♀♀, are all typically marked on the uppersides, but the ♂♂ are all orange-yellow below, and the ♀♀ bluish slate-colour, in one example pale blue ; the black marginal border is narrower and more broken in the ♀♀, the apex and marginal blotches bluish grey, instead of whitish ochreous. The remaining 3 ♀♀ have lost the bright green coloration of the upperside altogether, the slaty hue of the underside predominating and suffusing the whole surface of both wings, while

the black markings remain the same as in the type-form. In one example, the darkest of the three, the whole underside is a rich purple-blue. These three ♀♀ are identical with the ♀ described by me as *Actenochroma? caesia* from Fergusson Island, and of which I have also seen a ♀ from Ron Island. This must now stand as an aberration of *saturataria* Wlk. ♀. The redescription of the ♂ under the name of *perfulvata* was due to the erroneous idea that Walker's types of *saturataria* and *albifusaria*, both given from Mysol, referred to one and the same species. The ninth ♂ of the series received differs from the type-form on the upperside almost as much as the *caesia* form of the ♀, and I describe it as

ab. *perviridata* nov.

Forewing: pale green, slightly deeper green towards hindmargin; all the darker green mottlings and black lines and shades of the type-form wanting except the costal speckling; the inner and outer lines are marked only at inner margin with black and red scales, the outer also with dark green beyond the cell; submarginal line represented by a small patch of reddish scales on vein 5; hindwings with the outer line faintly marked in black and red, some black and red scales also on the upper half of discocellular and along subcostal vein towards base; the basal two-thirds of both wings and the veins throughout are conspicuously spotted and mottled with white. Head, thorax, and abdomen of the same pale green as the wings, the bar at base of face and across the middle of shoulders paler red than in the type. Underside like typical ♂♂ in all respects.

The example is slightly larger than those of the ordinary form.

16. **Hypochroma subrubella** spec. nov.

Forewing: moss-green, varied with brown and fuscous, and striated with blackish; central area darker, its inner edge at one-third, vertical, slightly indented below median, the outer from three-fourths of costa to two-thirds of inner margin, slightly bent at vein 6 and concave to 4, then dentate-lunulate and incurved, the teeth well marked on the veins; cell-spot blackish, followed by a paler patch; basal third green, traversed by a band of reddish brown and fuscous striae, broad and triangular at costa and fading out before inner margin; a narrow reddish and fuscous basal patch; submarginal line dentate, pale green, the teeth whitish, filled up with reddish and fuscous beyond a greenish band; marginal area paler at middle, the veins marked broadly with brown, the intervals with green; indistinct marginal blackish lunules; fringe greenish, darker beyond veins.

Hindwing: similar; the outer line acutely dentate; generally the brown tints predominate in the basal, the green in the marginal area.

Underside of both wings dull brick-red; costa of forewing yellowish, speckled with red; an angulated blackish median line on both wings; a submarginal row of pale spots on veins preceded by a darker tinge; fringe of both wings greenish ochreous, mottled with reddish in forewing, tipped only with reddish in the hindwing.

Face and palpi reddish above, ochreous below; vertex, thorax, and abdomen green varied with reddish; the base of shoulders and patagia and the basal segments of abdomen marked with reddish and fuscous scales; dorsal crests of abdomen metallic, prominent, curled; antennae reddish.

Expanse of wings : ♂, 35 mm. ; ♀, 40 mm.

3 ♂♂, 1 ♀ ; the ♀ wasted, the ♂♂ quite fresh.

Veins 6, 7 of hindwing separate ; in forewing vein 11 anastomoses with 12, 10 with 11, and again with 8, 9.

17. **Pingasa acutangula** spec. nov.

Forewing : white, dusted with pale greenish or reddish scales ; costa with fine reddish-grey striations ; lines exceedingly slender, blackish with reddish scales in part ; first line from one-third of costa, preceded there by a small reddish-grey cloud, acutely angled inwards below subcostal vein, then running outwards beneath and parallel to subcostal to upper end of the discal mark, which is a long narrow oval edged with black and red scales, and with the central scales raised ; then back again parallel to its former course to below its first baseward angulation, acutely angled on the median, again running outwards and forming a double blunt angle on the submedian fold mixed with red scales, then oblique inwards to inner margin at one-fifth, marked there by bright red scales. Outer line at two-thirds of costa, forming three uniform outwardly wedge-shaped markings on veins 5, 6, 7, and three acutely angled teeth inwards in the intervals, the tooth above vein 4 sometimes prolonged linearly to touch the cell-mark ; from vein 4 to 2 running in the direction of the anal angle, thence oblique inwards, concave from 2 to 1, then straight to before middle of inner margin, marked there, like the inner line, with red scales ; marginal area beyond outer line straight to anal angle violet-grey, the submarginal line paler and zigzag ; a slightly paler, somewhat greenish blotch on margin below vein 4 ; marginal line festooned, black ; fringe violet-grey chequered with white.

Hindwing : with basal two-thirds white, dusted with greenish ; outer line forming a curve from costa to below vein 5, concave inwards, another to vein 2, marked with reddish teeth on the veins ; blackish lines between the veins denoting the teeth of the submarginal line ; marginal area paler than in forewing, broken up by patches of greenish white ; fringe white, marked with violet-grey beyond cell and on submedian fold.

Underside white, with very deep black marginal band in each wing, its inner edge running from two-thirds of costa to anal angle, leaving in forewing a square apical spot and an oblong marginal spot below middle white ; the spots in hindwing longer and narrower ; a fine linear cell-mark on forewing.

Head, thorax, and abdomen whitish, dusted with reddish grey ; a fine double reddish line along dorsum on each side of the crests, the segments sometimes banded with reddish.

Expanse of wings : 48 mm.

2 ♂♂, 4 ♀♀.

A remarkable species, distinguished by its acutely angled lines.

18. **Pingasa rufilunata** spec. nov.

Forewing : pal ewhitish green, in central area whitish dusted with pale green ; inner line dark green, shaped much as in *angulifera*, but nearer the base, the sharper angle on submedian fold marked with reddish scales ; outer line blackish green, distinctly dentate-lunulate throughout, oblique outwards to vein 6, vertical to vein 3, then oblique inwards, followed by four brown lunules below vein 3 and by a brown lunulate cloud from vein 5 to costa, the slightly paler submarginal line

forming the edge of the brown markings ; black marginal spots between the veins ; fringe pale greyish green ; cell-spot linear, blackish green, with traces of a small dot above it.

Hindwing : without first line ; some dark scales at base ; cell-spot green.

Underside whitish, with a greenish tinge ; a blackish marginal border to forewing, paling towards hindmargin and apex, but leaving no distinct spots, its inner edge sinuous ; cell-spot large, with a small dot above it ; hindwing with slight cell-spot, the black border narrower, its inner edge curved and subcrenulate, its outer more broadly pale.

Face deep black ; palpi pale greenish ochreous ; vertex, thorax, and abdomen green, the last with the basal segments dusted with blackish laterally, the anal segments and underside ochreous.

Expanse of wings : 40 mm.

1 ♀.

Akin to *P. angulifera* Warr., but smaller and more neatly marked ; the underside quite different.

Subfamily GEOMETRINAE.

19. **Agathia conjunctiva** spec. nov.

Forewing : deep green, without any yellow tint ; the markings brownish liver-coloured ; all much broader and more ample than those of *A. pisina* Butl., which to a great extent they resemble ; the central fascia is more oblique, less constricted above and below the middle, and instead of ending vertically at middle of inner margin, curves obliquely outwards and coalesces below vein 1 with the dark outer area ; the inner edge of this area is oblique and indented once only, at vein 4 ; within its inner edge is a lustrous violet dentate line, well marked ; the subapical green blotch is bilobed and never reaches below vein 4 ; below it are two isolated yellow-green spots ; the marginal area becomes paler brown with dark slender strigae ; fringe red-brown.

Hindwing : with the marginal two-fifths dark, the inner edge merely bent, without any sinus, or at least with only a slight indentation at vein 4 ; the green submarginal oval blotch, the tooth and pale spot below it, as in *pisina* ; but the fringe red, darker beyond veins.

Underside like *pisina*, but the bands broader.

Shoulders, base of patagia, and a spot on metathorax green ; all the rest violet-brown ; face and palpi below ochreous.

Expanse of wings : 44 mm.

6 ♀♀.

This is nearest to the ♀ of *A. subcarnea* Warr., from which it is at once separable. Unfortunately, as in the case of *A. obnubilata*, no ♂♂ have been secured.

20. **Agathia obnubilata** spec. nov.

Forewing : bright pale green ; the basal patch, a thick sinuous antemedian fascia, and the whole outer half of wing smoky olive-grey-green ; the costa grey-speckled ; the edge of basal patch curved ; the fascia bluntly rounded outwards above the median vein, and inwards below it, coalescing with the marginal dark area above the submedian vein ; this area inwardly projecting at vein 3 and more bluntly

below 6, with an outward sinus between; a pale green oblong subapical patch between veins 5 and 7, crossed by a row of pale green submarginal blotches of varying intensity, sometimes absent; fringe olive-grey.

Hindwing: with very small basal patch and no fascia; the pale green colour forming a square projection in cell into the dark outer area; a narrow elongated pale green blotch before margin from vein 7 to 5, and a small red-brown blotch on margin below vein 4, preceded by a pinkish ochreous dash; fringe olive-grey; a small pale green spot above anal angle between veins 1 and 2.

Underside cream-colour, faintly green-tinged in the forewing; the fascia very pale pinkish above median vein; a broad dull vinous submarginal fascia, pinkish inwardly, then crossed by a thick black zigzag cloud, and externally striated and blotched with blackish; small patches of reddish and black striae at apex and middle of hindmargin; hindwing with the broad internal pink-tinged area of the submarginal fascia very faint, the dark portion narrower; the tooth blackish grey, and the fringe darker than in forewings.

Abdomen beneath, legs, antennae, and palpi cream-colour; palpi above, upper part of face and fillet grey-green; vertex, shoulders, metathorax, and dorsal patches on the segments of abdomen bright green; patagia and rest of abdomen olive-green.

Expanse of wings: 44 mm.

5 ♀♀.

Allied in markings and coloration, but not in outline, to *A. diversiformis* Warr.

21. **Anisogamia coerulea** spec. nov.

Forewing: bluish green, more thickly scaled than in *chionoplaca* Lower and its allies, the veins not darker nor marked with white dots; costa narrowly dotted with white and fuscous; lines white; first from one-sixth of costa to one-third of inner margin, minutely biangulated outwards in cell and on submedian fold; cell-spot dark green; outer line strongly zigzag at five-sixths, bisinuate inwards on submedian fold, at each side of vein 4 more broadly white; marginal white spots at end of veins, that at vein 4 enlarged into a blotch; fringe pale greenish.

Hindwing: the same, but without inner line.

Underside whitish; costal area of forewing greener, costal edge yellowish.

Face and palpi white below, olive-green above; fillet and antennae white; vertex, thorax, and abdomen of the same bluish green as the wings; dorsum with white spots, abdomen beneath and legs white.

Expanse of wings: 30 mm.

3 ♀♀.

22. **Anisogamia rufipunctata** spec. nov.

Forewing: semidiaphanous, deep green; the veins finely deeper green, speckled with white; costa brown, dotted with white; the lines starting from deep yellow spots; the first, very fine and wavy from one-fourth of costa to one-third of inner margin; the outer from three-fourths of costa to three-fourths of inner margin, lunulate-dentate, vertical and distinct to vein 4, then oblique and obsolescent; marginal line crenulate, deep green, with large pink spots at the teeth; fringe pale green, pink beyond the spots; a slight reddish tinge in certain lights below end of cell between veins 2 and 3.

Hindwing : similar ; the apex with a shallow reddish smear from vein 8 to 6.

Underside pale iridescent green ; costa of forewing brown-speckled, with a spot at the origin of outer line.

Palpi white below, rather bright red above and externally ; face green, whitish below ; antennae red, white-dotted ; vertex, shoulders, patagia, and basal segments of abdomen deep green ; thorax and rest of abdomen pink with thick black speckling ; anal segment of abdomen and underside whitish ; laterally with a green stripe ; legs pinkish, forelegs red.

Expanse of wings : 35 mm.

2 ♀♀.

Allied to *metaspila* Wlk., *saturataria* Wlk., and *goniota* Lower.

In this species from the base of forewing beneath there depends a fan-like tuft of long green hairs. A similar tuft is present in several (probably all) of the allied species ; in *goniota* Lower, *chionoplaca* Lower, *lithocrossa* Meyr., and *subvenusta* Warr., the tuft is green ; in *fascinans* Lucas, *nigrimaculata* Warr., *insperata* Wlk., and *muscosa* Warr., white. The hairs composing the tuft probably soon get worn off, as they are always most conspicuous and perfect in the freshest specimens.

23. **Chlorochroma gigas** spec. nov. and ab. **minor** nov.

Forewing : pale green ; costa reddish grey, costal edge white, except at base ; two fine white lines ; the first obscure, from one-sixth of base to one-third of inner margin, bent on the median ; the second from two-thirds of costa straight to two-thirds of inner margin, very fine or obsolete above, thickening downwards ; cell-spot dark green ; fringe yellow beyond a fine red basal line, which is sometimes marked by red dots at the vein-ends.

Hindwing : similar ; the first line curved at submedian fold, the second bent at vein 3.

Underside whitish green, the outer line showing through ; costa of forewing reddish.

Face green ; palpi white below, sometimes tinged with reddish externally, the terminal segment reddish fuscous ; vertex and antennae white ; collar crimson ; thorax and abdomen deep green with a yellow dorsal line ; anal segment and underside white.

Expanse of wings : 44 mm.

9 ♂♂, 1 ♀.

The hindmargin of the hindwing is bluntly bent at vein 4.

The form which I call ab. *minor* differs first in its smaller size, 34—40 mm., and in the direction of the outer line of hindwing. This, instead of being bent at vein 3 and so running, as in the type-form, parallel throughout to the hindmargin, runs nearly straight across the wing, with a slight curve, if any, below the submedian fold.

Of this form there were 3 ♂♂ and 2 ♀♀ taken along with the type specimens.

24. **Chlorochroma indistincta** spec. nov.

Forewing : dull dark sage-green, with a slight bluish tinge in certain lights when fresh ; costa narrowly white ; fringe green ; cell-spot deeper green ; the two transverse lines very obscure, sometimes hardly distinguishable, and then marked only by the deeper tint accompanying them ; first curved from one-fourth of costa

to one-third of inner margin, second from two-thirds of costa to three-fourths of inner margin, lunulate-dentate, oblique outwards to vein 4, then somewhat sinuate inwards.

Hindwing : the same.

Underside white, in forewings slightly greenish beneath the white costa.

Palpi below white ; above and externally green ; face, vertex, thorax, and abdomen deep green ; fillet and antennal shaft snow-white ; the pectinations greenish ; abdomen beneath and legs white ; forelegs greenish.

Expanse of wings : ♂, 30—32 mm. ; ♀, 33—36 mm.

2 ♂♂, 2 ♀♀.

25. **Chlorochroma marginepunctata** spec. nov.

Forewing : pale green, somewhat transparent ; costa broadly white ; lines whitish, indistinct ; first from costa near base to one-third of inner margin, outcurved above and below the median ; outer from three-fourths of costa to two-thirds of inner margin, regularly lunulate-dentate, but only the teeth marked distinctly white on the veins ; the inner line is followed, as the outer is preceded, by a slightly deeper shade of green ; cell-spot rusty ; fringe whitish-yellowish, with ferruginous spots at base between the veins.

Hindwing : without first line, the outer curved.

Underside whitish green.

Face and palpi green above ; fillet and antennae snow-white ; vertex, thorax, and abdomen green, the last with white dorsal spots ; legs whitish, the forelegs tinged with greenish.

Expanse of wings : 38 mm.

2 ♀♀.

Hindwings elbowed at vein 4.

26. **Chlorochroma minutipuncta** spec. nov.

Forewing : deep green, paling towards hindmargin ; costa narrowly fuscous ; two darker green transverse lines near together : the first waved, from one-fourth of costa to quite one-third of inner margin, oblique from costa ; second from just beyond middle of costa to beyond middle of inner margin, vertical, lunulate-dentate ; a black cell-speck of raised scales ; fringe pale green, with minute dark specks at the base beyond veins, that at apex large.

Hindwing : similar ; the outer line parallel to hindmargin, which is bent at vein 4 ; the spot at vein 4 larger.

Underside whitish green, greener in forewing ; the hindmargins always paler.

Face and palpi green, the palpi ochreous below ; fillet and antennal shaft snow-white, the pectinations rufous ; vertex, thorax, and abdomen green, the last with white dorsal spots ; anal segment and underside of abdomen, and the legs whitish ; forelegs green-tinged.

Expanse of wings : 30 mm.

3 ♂♂, 1 ♀.

27. **Chlorochroma polluta** spec. nov.

Forewing : bright apple-green ; costal edge yellowish white, narrowly underlined with pinkish grey ; the lines whitish, fairly distinct, obscurely lunulate-dentate ; first from one-fourth of costa to one-third of inner margin, curved ; the second from

two-thirds of costa to two-thirds of inner margin, outcurved above median vein; cell-spot black accompanied by some fuscous scaling, which is sometimes confined to the discocellular and at others is diffused in parts over nearly the whole of the space between the lines and along their course; marginal red spots beyond the veins; fringe deep yellow.

Hindwing: with the outer line strongly curved in the middle and bent in to three-fifths of inner margin; cell-spot black, without any fuscous scaling; fringe deep yellow, sometimes reddish-tinged.

Underside whitish green; forewing dark green in costal half; the costa coloured as above.

Face green; palpi white below, the terminal segment fuscous; vertex and antennae white; collar crimson, yellow behind the eyes; thorax and abdomen green, with a yellow dorsal line; anal tuft and underside white.

Expanse of wings: 30 mm.

2 ♂♂, 2 ♀♀.

The hindwing bluntly elbowed at vein 4.

28. **Chlorochroma punctulata** spec. nov.

Forewing: blue-green; costal edge ochreous; the lines slightly paler; first, waved, oblique, from near base of costa to one-third of inner margin; the outer lunulate-dentate, from two-thirds of costa to two-thirds of inner margin, slightly projecting on veins 3 and 4; space between the lines a little darker; purple marginal dots at ends of veins; fringe yellow; cell-spot minute, dark green.

Hindwing: like forewings.

Underside very pale green, deeper on forewing below the yellow costal streak; marginal dark dots conspicuous.

Palpi red above, whitish below; face red; fillet and shaft of antennae snow-white, the pectinations green; vertex, thorax, and abdomen blue-green; anal segment and underside of abdomen whitish; legs whitish, forelegs reddish fuscous.

Expanse of wings: ♂, 34 mm.; ♀, 40 mm.

6 ♂♂, 4 ♀♀.

Endemia gen. nov.

Forewing: with costa straight; apex bluntly rounded; hindmargin slightly curved.

Hindwing: with apex rounded; anal angle rectangular; hindmargin faintly bent at middle.

Antennae of ♂ with straight even pectinations to three-fourths, these ciliated; of ♀ annulate, pubescent. Palpi upturned in front of face, short, terminal segment short, pointed; tongue and frenulum present, the latter very fine; hindtibia thick, with four spurs and a projection at end; tarsi quite short.

Neuration: forewing, cell less than half the length of wing; discocellular concave; first median nervule at two-thirds, second and third from the lower end of cell; lower radial from upper two-thirds of discocellular, upper from top end of cell; 10, 7, 8, 9 stalked from the end, 11 just before them, anastomosing with 12, 10 with 11; hindwing with 3, 4 and 6, 7 stalked.

Type: *Endemia tenera* spec. nov.

29. **Endemia tenera** spec. nov.

Forewing: smooth grass-green, slightly diaphanous; costa reddish fuscous; lines neatly marked, darker green; first from costa close to base to one-third of inner margin, outcurved above and below median; outer, lunulate-dentate from two-thirds of costa to three-fifths of inner margin, projecting at veins 3 and 4; discocellular darker green, with a point in its lower half of raised black scales; fringe green, darker along base.

Hindwing: the same, but without first line.

Underside silky white; upper half of cell of forewing and the parts beyond greenish.

Face and palpi dull red above, white below; antennae red, the apical fourth white; vertex, thorax, and abdomen green, the last with white dorsal spots; anal segment, underside, and legs whitish; forelegs tinged with green.

Expanse of wings: 26 mm.

1 ♂, 3 ♀♀.

30. **Hemistola? punctifimbria** spec. nov.

Forewing: dark bluish green; costa dark brown with fine ochreous dots; the lines whitish, the first generally interrupted and obscure above the median, outcurved on both sides and with the teeth marked whiter on the veins; outer line from below three-fourths of costa to two-thirds of inner margin, the teeth forming broad wedge-shaped marks on the veins, interrupted between; the central area deeper green, especially along the lines; cell-spot dark green; fringe green, with paler outer half, sometimes obscurely chequered with darker.

Hindwing: without first line; the fringe distinctly chequered with brown, the spot at vein 4 prominent.

Underside bluish white, glossy; the forewing mainly suffused with deeper green; the costa as above; fringes of both wings olive-green with distinct brown chequering.

Palpi, face, and vertex deep green; thorax and abdomen bluer green; the latter with white segmental rings sometimes forming dorsal spots; the metathorax with a large white spot; towards the anus and beneath the abdomen is white; pectus and femora green; tibiae and tarsi dark fuscous with ochreous rings.

Expanse of wings: 42—46 mm.

4 ♀♀.

Placed in *Hemistola* provisionally in the absence of the ♂.

31. **Iodis costipicta** spec. nov.

Forewing: bluish green, speckled with dark green; the costa orange striped with green; markings green; an undefined cloud near base, and a curved diffuse band from below two-thirds of costa to beyond middle of inner margin, touching on the inner side a green cell-mark; hindmargin darker green; fringe green.

Hindwing: like forewings.

Underside pale bluish green with the fringes deep green; costal half of forewing yellowish green; costa itself yellow.

Face and palpi above olive-green; fillet and shaft of antennae white, the pectinations olive-green; vertex, thorax, and abdomen green; abdomen beneath and legs white; the fore- and middle-legs green-tinged.

Expanse of wings : 22 mm.

1 ♂.

Near *I. centrophylla* Meyr. from Australia and *viridaurea* Warr. from Ron Island.

32. **Iodis fragilis** spec. nov.

Forewing : delicate pale green, with a bluish gloss, caused by a sprinkling of fine whitish scales ; costa from near base pinkish grey, in one case pinkish ochreous ; the lines whitish, dentate-lunulate ; the first from near base to one-third of inner margin, the outer from two-thirds of costa to nearly three-fourths of inner margin, the first followed and the outer preceded by deeper green ; cell-spot green. In some cases both lines are very faint and indicated mainly by the dark green shades ; in others quite distinct and the outer marked by white points on veins, while the cell-spot is followed by a white spot ; fringe green.

Hindwing : like forewing, similarly varying.

Underside whitish green ; the costal half of forewing delicate pale green ; the costal edge as above.

Face and palpi green above, white below ; fillet and shaft of antennae white ; the pectinations olive-green or yellowish ; vertex, thorax, and abdomen green ; segmental rings white ; anal tuft and underside of abdomen white ; legs white, the forelegs greenish-tinged.

Expanse of wings : 24 mm.

9 ♂♂, 2 ♀♀.

33. **Loxochila? meeki** spec. nov.

Forewing : dark green, thinly scaled ; costa ochreous spotted with purple ; the lines white, very strongly waved ; first, more or less interrupted, from one-fifth of costa to one-fourth of inner margin, bent outwards above and more strongly below the median, marked with white on the veins and at the ends of the projections ; outer line from five-sixths of costa to two-thirds of inner margin, marked by three white spots placed obliquely on veins 7, 6, and 5, and below 5 lunulate-dentate, the outer teeth and the lunule on submedian fold more broadly white, an acute white tooth running inwards along vein 1 ; cell-spot dark green ; marginal line finely white ; fringe purple at base, with whitish tips and chequered with white between the veins.

Hindwing : similar, without first line.

Underside whitish green, the lines showing through ; fringes and costa of forewing as above.

Face and palpi wholly dark green ; fillet and antennae white ; vertex, thorax, and abdomen green ; metathorax with white crest ; dorsum with white spots ; pectus and sides of abdomen green ; femora green ; tibiae and tarsi purple-brown spotted with ochreous.

Expanse of wings : 60 mm.

1 ♀.

Pauresthes gen. nov.

Among the *Geometrinae* from New Guinea lately received from A. S. Meek there are a few which cannot be satisfactorily referred to any existing genus, and which, as not apparently occurring in the neighbouring islands, are probably

endemic developments. The four species before me, while all characterised by enlargement and coloration of the discal stigma, are separable into two quite distinct groups. That for which I propose the name *Pauresthes* seems most nearly related to *Anisogamia metaspila* and its allies. As in those species, the margins of both wings are crenulate and the wings themselves semitransparent, though not to the same extent. In *P. caniola*, which I make the type, the cells are shorter than half the wing and vein 6 of forewing is stalked with 7 ; in the other the cells are longer.

34. **Pauresthes caniola** spec. nov.

Forewing : dark green, thinly scaled, dusted with very fine bluish white scales ; costal edge yellow throughout ; the two transverse lines dentate-lunulate, only marked by the shade of deeper green following the first and preceding the second ; the first from costa near base to one-third of inner margin, obliquely curved, and slightly indented on submedian fold ; outer line from three-fourths of costa to two-thirds of inner margin, strongly dentate, and as deeply insinuate between the teeth, especially on submedian fold, the teeth on veins 3 and 4 equally produced and forming a squarish projection ; fringe green ; cell-spot black, set in a disc of hoary rufous grey scales, somewhat diffusely edged with a ring of olive-green and blackish scales.

Hindwing : without first line ; the black cell-spot large and placed in a pyriform disc of reddish-brown scales speckled with black.

Underside whitish green, the markings only showing through ; costa of forewing yellow ; fringes dark green.

Palpi white below, greenish-tinged externally, the terminal segment greenish fuscous, sometimes reddish-tinged ; face yellow-green above, whitish below ; fillet and base of antennae white ; rest of antennae reddish ; vertex blue-green ; collar whitish ; thorax and abdomen dark green, the latter with white dorsal spots ; abdomen beneath and legs whitish ; forelegs in front and internally reddish.

Expanse of wings : 40 mm.

2 ♀♀.

Cell less than half of wing ; vein 6 of forewing stalked with 7 ; veins 6, 7 and 3, 4 of hindwing stalked.

35. **Pauresthes signifera** spec. nov.

Forewing : sea-green, semidiaphanous ; the space between the two transverse lines deeper green ; costal edge fuscous ; the lines faintly whitish ; first from one-sixth of costa to one-third of inner margin, outcurved above and below median vein ; second from three-fourths of costa to two-thirds of inner margin, dentate-lunulate, outcurved from costa to submedian fold, the teeth whiter on the veins ; fringe green ; cell-spot irregularly lunate, brownish ochreous speckled with black scales, the whole surrounded with white scales.

Hindwing : similar, but the cell-mark much larger, ear-shaped and constricted in the middle ; the outer line bent parallel to hindmargin.

Underside whitish green, the spots showing through.

Face and palpi green above, white below ; fillet and antennae white ; vertex, thorax, and abdomen dark green. Abdomen beneath and legs white.

Expanse of wings : 29 mm.

1 ♀.

In forewing vein 6 from upper angle of cell, which is half the length of wing ; cell of hindwing more than half as long as wing ; 6, 7 short-stalked.

Poecilostigma gen. nov.

Forewing : elongate ; costa straight, curved only at base and before apex ; hindmargin curved, not crenulate.

Hindwing : with anal angle well marked, apical angle rounded ; hindmargin slightly elbowed at vein 4, sinuous above.

Frenulum present, but obscure. Structure and neuration as in *Chlorochroma*. Coloration whitish green, with rust-coloured markings.

Type : *Poecilostigma vagabunda* spec. nov.

36. **Poecilostigma periculosa** spec. nov.

Forewing : whitish green, the dark green scaling on a bluish-white ground ; costa grey-brown speckled with dark fuscous ; the lines darker green, mixed with rufous and brown scales ; first from one-fourth of costa to one-third of inner margin, outcurved above and below median vein, the teeth marked with brown on the veins ; outer line from two-thirds of costa to just beyond middle of inner margin, lunulate-dentate, strongly outcurved in midwing, the teeth brown and acute ; a row of black marginal spots at the vein-ends ; fringe yellow. Cell-spot a large blotch of irregular shape, jasper-red edged with black, containing a patch of hoary-grey scales in middle and at top, angled outwards on vein 5.

Hindwing : like forewing ; the cell-mark smaller, triangular, with acute teeth and whitish centre ; the marginal spot at vein 4 large.

Underside bluish white, the cell-marks showing through ; marginal spots black-red.

Palpi beneath, lower half of face, vertex and base of antennae snow-white ; palpi above, upper half of face, tips of antennae, back of crown, and the collar deep red-brown ; thorax and abdomen green, the latter with a rust-red dorsal stripe forking on metathorax.

Underside of abdomen and legs white ; forelegs fuscous reddish.

Expanse of wings : 36 mm.

1 ♀.

In hindwings 6, 7 from end of cell ; 3, 4 short-stalked.

37. **Poecilostigma vagabunda** spec. nov.

Forewing : whitish green ; costa brown, broadest at middle ; a dark spot near base of median vein ; lines dull rust-colour ; first from costa close to base to one-fourth of inner margin, strongly outcurved on each side of the median vein ; outer line from three-fourths of costa, oblique outwards to vein 6, vertical to vein 5, then incurved and oblique to two-thirds of inner margin, dentate outwards on veins ; the inner margin with a rust-coloured streak ; the angulated discocellular marked in rust-colour ; marginal spots rust-colour ; fringe pale green.

Hindwing : similar ; the inner line simply curved, and the discal mark dark green ; marginal spots at veins 1, 4, and 6 larger.

Underside bluish white without markings ; the spots at ends of veins 4 and 6 of hindwing alone marked.

Face and palpi whitish below, dark brown above; vertex, thorax, and abdomen blue green; metathorax with a large brown blotch; middle segments of abdomen with two pairs of brown spots; antennae of ♂ with the shaft greenish, the pectinations brown; of ♀ green at base, then reddish; legs white; forelegs with femora reddish, tibiae olive-green, in the ♂ with a reddish pencil of hairs beneath.

Expanse of wings: ♂, 38 mm.; ♀, 40 mm.

1 ♂, 1 ♀.

Veins 6, 7, and 3, 4 of hindwing stalked.

Pyrrhaspis gen. nov.

Forewing: triangular, costa straight; hindmargin faintly curved, nearly vertical.

Hindwing: with inner margin prolonged, hindmargin curved, anal angle prominent.

Antennae of ♂ bipectinate, apical half or third simple; of ♀ simple; palpi obliquely porrect upwards; third segment longer in ♀ than ♂; tongue and frenulum present; hindtibiae of ♂ with four spurs and a process.

Neuration: as in *Thalassodes* Guen.

Type: *Pyrrhaspis coerulea* spec. nov.

38. **Pyrrhaspis coerulea** spec. nov.

Forewing: pale blue-green; costa ochreous yellow; lines marked by white spots on the veins; first close to base, with spots on median and submedian only; outer from four-fifths of costa to three-fifths of inner margin, sinuous, the spot on vein 4 being displaced outwards; fringe blue-green; cell-spot slightly darker.

Hindwing: without inner line of spots.

Underside uniform bluish white; fringe unspotted.

Face and palpi red-brown above, snow-white in lower half; the brown and white of the face divided by a green line; fillet and antennal shaft white; pectinations bronzy yellow; vertex, thorax, and abdomen blue-green; dorsum with silvery white spots, that on second segment large, the upper half pink; legs ochreous white; forelegs fuscous-tinged.

Expanse of wings: 40 mm.

1 ♂.

The ♂ antennae have only the apical third simple.

39. **Pyrrhaspis punctifimbria** spec. nov.

Forewing: apple-green, with the costa and lines almost the same as in *coerulea*, both lines with the white spot on vein 1 continued as a blotch to inner margin; the spots of the outer line less strongly sinuous, that on vein 4 being scarcely displaced; fringe spotted with dark at the vein-ends below apex, sometimes almost obsoletely.

Hindwing: like forewings, without basal line, the marginal spots more distinct.

Underside whitish green; the fringe of both wings strongly chequered with purplish beyond the dark marginal spots.

Palpi red above, white below; face bright green with a red bar at top; fillet

and antennal shaft white ; pectinations rufous ; vertex, thorax, and abdomen green ; dorsal spots as in *coerulea*.

Expanse of wings : 37 mm.

2 ♂♂, 1 ♀.

The ♂ antennae have the apical *half* simple.

40. **Pyrrhorachis viridula** spec. nov.

Forewing : delicate green ; costa reddish, black-speckled, the inner edge yellow ; hindmargin with a row of contiguous black-speckled purple-red lunules, preceded by a yellow line with silvery white specks between the lunules, and followed by an orange marginal line, with specks of black scales at the vein-ends ; fringe orange and black.

Hindwing : with similar marginal border, the silvery spots between lunules larger.

Underside paler, with the fringes and costa of forewing reddish.

Face and palpi bright red above, pale below ; vertex bright red ; fillet and antennae white ; shoulders and patagia green ; thorax and abdomen deep red with black speckles ; a pale line on first two dorsal segments ; abdomen at sides and beneath ochreous ; forelegs reddish.

Expanse of wings : 16 mm.

1 ♂.

Distinguished from *P. deliciosa* Warr., which it otherwise closely resembles, by the green, not blue, ground-colour.

41. **Rhomborista inquinata** spec. nov.

Forewing : apple-green, rather thinly scaled ; costa with fine short dark brown striae on an ochreous ground ; lines dark purplish brown, more or less interrupted and indistinct ; first from one-fourth of costa to one-third of inner margin, lunulate-dentate, forming deep lunules outwards, two above and two below the median vein, the teeth running far in towards base and marked with a brown and white dash on the three veins, the line really being double with a pale ochreous centre ; cell-spot dark brown, often with another brown spot above it ; outer line at three-fourths, also double, the lunules pointing inwards and the teeth, marked light and dark, much nearer margin, forming a submarginal row of dashes, the top three beneath costa often becoming large spots ; towards costa and between the two lines a lot of brown transverse striae ; a row of marginal brown spots at end of veins ; fringe green with reddish mottlings.

Hindwing : with the inner line single, the outer shown only by the submarginal line of points, the lunules being dark green and obscure, and marked by a dark spot on inner margin and a reddish one below vein 5 ; marginal dots as in forewings, that at vein 4 large ; an oblong dark blotch at anal angle ; extreme base of wing white.

Underside pearly whitish green ; costal region of forewing tinged with pale green, the costal edge white with brown flecks.

Palpi whitish, tinged above with red-brown ; face green, brown above, sometimes wholly brown ; vertex, thorax, and abdomen green, the last with white dorsal spots ; a spot on basal segment and another on metathorax brown ; antennae

speckled fuscous and ochreous ; abdomen beneath and legs cream-colour ; forelegs in front fuscous with pale rings.

Expanse of wings : 39 mm.

3 ♂♂, 4 ♀♀.

42. **Tanaorhinus unipuncta** Warr.

The ♀ of this New Guinea species is a most beautiful insect. Instead of dark green, the wings are deep chocolate, with the central fascia of forewing white thickly dusted with chocolate atoms, the only green parts being a tinge at base, along inner margin at the bottom of the central fascia, and along the hindmargin ; the edge of the basal patch and the submarginal line are whitish, tinged with green. In the hindwing the central and submarginal lines are also whitish. Underneath, the forewing resembles that of the ♂, but the red tints are deeper, less vivid ; the hindwing is wholly different, being almost the same as the forewing, instead of bright yellow and red as in the ♂. Face and front of thorax green ; rest of thorax and abdomen deep chocolate, each segment behind with white dorsal points ; palpi dark chocolate with the tips black.

Expanse of wings : ♀, 78 mm.

2 ♀♀, accompanied by two typical ♂♂.

43. **Thalassodes dorsilinea** spec. nov.

Forewing : pale green, semitransparent, with slight whitish vermiculations ; costa deep yellow ; fringe bright yellow ; two whitish transverse lines ; first near base oblique outwards and straight, often obscure ; the second from just beyond middle of costa to three-fifths of inner margin, also straight.

Hindwing : with outer line only, nearly straight to vein 4, then bent and waved ; fringe yellow.

Underside pale yellowish green, the white lines showing through.

Face and palpi green above, ochreous below ; fillet white ; vertex, thorax, and abdomen green, the last with a fine white dorsal line ; underside of abdomen and legs yellowish ochreous ; fore- and midtibiae and tarsi reddish-tinged.

Expanse of wings : 30—34 mm.

2 ♂♂, 3 ♀♀.

Distinguished by the pale line of dorsum, as in many *Chlorochroma*.

T. chloropis Meyr. is described as having one also ; but in that species the face is ochreous and the insect is larger.

44. **Thalassodes dorsipunctata** spec. nov. and ab. **minor** nov.

Forewing : sea-green, semitransparent ; thickly covered with short white ripplings ; costa finely ochreous yellow ; an obscurely marked oblique white line near base ; outer line from beyond middle of costa to three-fifths of inner margin, straight, but distinctly lunulate-dentate, the teeth marked whiter on the veins ; fringe grey-green, with the tips paler, and minute dark dots at base at the vein-ends.

Hindwing : similar, the marginal dots more prominent ; the outer line distinctly dentate, and parallel to hindmargin throughout.

Underside whitish green.

Face and palpi brown above, ochreous below ; fillet and antennal shaft white ; vertex, thorax, and abdomen green, the last with a row of white dorsal spots.

Expanse of wings: ♂, 44 mm.; ♀, 48 mm.

1 ♂, 3 ♀♀.

Together with these came 6 ♂♂, dated January and February, all in better condition than the others, agreeing with the type-form in the white spots of the dorsum and in all other points, but only 40 mm. in expanse, and without the dark marginal spots at the base of the fringe. For the present I consider them as an aberration merely, which I name ab. *minor*.

45. **Thalassodes nivestrota** spec. nov.

Forewing: dark green, crossed by numerous outwardly oblique white striae, which in places coalesce and form oblique white bands, which are themselves traversed by green strigae; these bands are four in number, one near base, the second before the middle, the third postmedian, forking towards anal angle, and a fourth, smaller, towards apex; costa mainly white, with green striae; a dark green marginal line; fringe green and white.

Hindwing: with two white bands, one from base to outer margin above anal angle, the other towards apex.

Underside white, with the green of the upperside showing through.

Face and palpi green above, white beneath, the terminal segment of palpi dark; vertex and collar white; shoulders and patagia green, edged with white; thorax and abdomen green, with a central white stripe; anal segment, sides, and underneath white; pectinations of the ♂ antennae rufous.

Expanse of wings: 50 mm.

1 ♂, 3 ♀♀.

46. **Thalassodes umbrimedia** spec. nov.

Forewing: dark sea-green, semitransparent; covered with short bluish green vermiculations, which, being fewer in the central area, give it the appearance of a darker fascia; the lines marked only by this difference of tint; the first outwardly oblique and slightly curved from costa close to base to one-fourth of inner margin; the outer denticulate from two-thirds of costa to three-fifths of inner margin, projecting slightly at vein 6 and below middle; fringe green; costa narrowly yellow ochreous.

Hindwing: similar, but the dark green area less defined and visible only before outer line, which is bent below middle, as usual in the genus, and retracted to two-thirds of inner margin; a darker green shade on the discocellular.

Underside whitish green; costa of forewing yellowish.

Face and palpi green above, ochreous below; fillet and antennal shaft white; the pectinations of the ♂ antennae and the apical half of the ♀ shaft yellowish; vertex, thorax, and abdomen green; abdomen beneath and legs ochreous; fore- and midtibiae and tarsi reddish.

Expanse of wings: 36 mm.

1♂, 1 ♀.

SUBFAMILY STERRHINAE.

47. **Chrysocraspeda lilacina** spec. nov.

Forewing: yellow, speckled and striated with bright red; costal area, the space between veins 3 and 4, and a blotch at anal angle lilac; a dull purple-red blotch at base below subcostal vein, followed by a small space of pure yellow below

a slightly curved reddish mark from costa; cell-spot obscure, red, followed by a small yellow spot; a curved deep-red band at two-thirds from subcostal vein to vein 4 and between 2 and 3; the lilac space between 3 and 4 edged above with reddish scales running out into the yellow fringe.

Hindwing: with two or three red spots at base; cell-spot large, yellowish white; a faintly deeper red postmedian line parallel to hindmargin; a blotch at anal angle, the space between veins 3 and 4 and a smaller blotch towards apex lilac; fringe pale yellow, beyond a reddish marginal shade, interrupted by red at the middle angle.

Underside pale yellow; all the lilac patches and the costa and cell of forewing rosy.

Face, palpi, and forelegs bright red; vertex, patagia, and antennae dark purple-red; thorax and abdomen yellow, speckled with blood-red.

Expanse of wings: 22 mm.

1 ♀.

Both wings bluntly angled in middle of hindmargin.

48. **Chrysocraspeda rothschildi** spec. nov.

Forewing: yellow, shaded with pale brownish striae; costal region grey-brown; a few red and brown scales mark the cell-spot; a dark mark below costa at three-fourths and a black spot surrounded with crimson between veins 3 and 4 indicate an outer line; base of wing black followed by a crimson stain; a small black spot on inner margin at one-third, also surrounded with crimson; this seems to indicate the end of a basal line, as a slight dark mark on costa at one-fifth suggests its beginning; a row of small dark dots on margin at end of veins; fringe pure yellow.

Hindwing: with the outer half and fringe as in forewing; the inner half from one-third of costa to two-thirds of inner margin intense black, edged by a broad curved crimson band and containing near base a triangular spot of pure white also edged with crimson; cell-spot minute, oval, white, lying in the black basal area.

Underside whitish yellow, the fringe deeper; costal area of forewing and the spot below vein 4 rosy; base of hindwing dull vinous with a white patch.

Palpi red; face yellow; vertex dark grey; antennae, thorax, and abdomen dark red-brown; anal segment of abdomen, the underside, and legs dull yellow; forelegs reddish.

Expanse of wings: 22 mm.

1 ♂.

The collocation of colours is remarkable. Both wings with rounded hindmargin, that of hindwing slightly protuberant at middle.

49. **Chrysolene aurora** spec. nov.

Forewing: bright rosy, with a dull olive-yellow band from costa just before apex to two-thirds of inner margin; fringe rosy.

Hindwing: with the band central.

Underside rather duller; the inner margins whitish.

Face and palpi deep red; vertex and antennae snow-white; thorax and basal half of abdomen like wings; the anal segments above, the undersurface, and the sides pale ochreous; forelegs reddish.

Expanse of wings: 33 mm.

1 ♀.

In the absence of the ♂ I leave this species in *Chrysolene*, with which it agrees in neuration; but the palpi are longer than in that genus, the scaling much smoother, and the shape of the wings different. Superficially it might easily be taken for an Ennomid.

Eremocentra gen. nov.

I find on examination of two good ♂♂ of the species I called *Brachycola flavareata* from Penang (Nov. Zool. iv. p. 215) that its reference to *Brachycola* is erroneous, the structure of the hindlegs being quite different from that and all others of the allied genera. The femora are not shortened, but slightly larger than the tibiae, and the first segment of the tarsus is as long as the tibia itself; the tibia has no spurs properly so called, but from the end a long slightly curved projection, rough-scaled beneath. In the better preserved specimen, from Sudest Island, the hindfemora and -tibiae are clothed with rosy hairs; the second, lately received from A. S. Meek, comes from the Upper Aroa River, British New Guinea, so that the species appears widely distributed. I propose the above generic name for its reception.

50. **Mesotrophe? rufiplaga** spec. nov.

Forewing: dull straw-colour, with very slight dark dusting; a curved line near base, marked by dark dots on the veins; an outer line at three-fourths, similarly marked; a thin dentate-lunulate grey median shade at two-thirds; cell-spot round, brown; fringe straw-colour, with black dots at base between the veins; beyond the outer line a large pale brick-red blotch on inner margin touching vein 3, and a smaller one beyond the cell, both traversed by the pale submarginal line.

Hindwing: the same; but the cell-spot with a white centre.

Underside speckled with dark; cell-spots in both wings, and in forewing traces of the median shade, outer line, and blotch beyond cell.

Face and palpi pale below, red-brown above; thorax and abdomen like wings; vertex paler.

Expanse of wings: 44 mm.

1 ♀.

Probably a *Mesotrophe*; the ♂ must be waited for.

51. **Perixera? glomerata** spec. nov. and ab. **condensata** nov.

Forewing: putty-coloured, very thickly irrorated with greyish purple atoms, the narrow space immediately beyond outer line alone without speckles; inner line close to base and outer line at five-sixths marked by dark vein-dots; the inner also marked by a very faint grey cloud, forming a rounded projection above and below median vein; the outer with the dots connected by a slight lunulate grey shade; a faint sinuous grey median band; cell-spot linear, blackish; marginal dots black; fringe pale ochreous.

Hindwing: with cell-spot thicker, the line joining dots of outer line and the dots themselves more conspicuous; slight dots at the vein-ends as well as between them.

Underside pale ochreous; forewing thickly washed and speckled with dull rosy, hindwing along costa only; outer and submarginal lines marked towards costa.

Face and palpi deep red above, ochreous below; vertex and antennae cream-colour; thorax and abdomen like wings, the latter with slight dark dorsal spots.

Expanse of wings: 30 mm.

1 ♀.

ab. **condensata** nov.

Forewing: ochreous, coarsely and irregularly dusted with reddish; lines very obscure, marked by reddish vein-dots; first near base, outer strongly curved at five-sixths; marginal spots red, distinct; cell-spot linear, blackish, touching a broad sinuous diffuse fascia of dull vinous red atoms.

Hindwing: similar; the cell-spot lying in the fascia, which projects on veins 3 and 4.

Underside pale straw-colour, with the fascia and outer line marked.

Face and palpi pale beneath, reddish above; vertex and antennae whitish; thorax and abdomen like wings; forelegs reddish in front.

Expanse of wings: 30 mm.

1 ♀.

Somewhat like *Brachycola mediusta* superficially.

This example is somewhat wasted, and in consequence the grey dusting of the type is worn off; but it is evidently an aberration merely.

52. **Perixera? plumbeodisca** spec. nov.

Forewing: dingy yellowish ochreous, speckled with purple and reddish atoms; two or three dark dots close to base; first line fuscous from costa close to base to one-fourth of inner margin, excurved in middle of wing and marked by dark dots on the veins, touching above the median a brownish spot in cell; cell-spot large and round, plumbeous, with a dark central line and edged with purple, lying in the sinus of the fuscous median shade, which curves in beneath it to the origin of vein 1, then runs oblique outwards and straight to middle of inner margin; outer line fine at three-fourths, starting from a fuscous cloudy costal blotch, excurved in middle and marked by blackish dots on veins, dentate-lunulate below vein 4, followed by a grey cloud beyond cell and above inner margin; submarginal line wavy, indistinct; purple-red marginal spots between veins and dots beyond them; fringe ochreous.

Hindwing: with the discal spot large and oval; outer line more dentate, followed by a grey blotch beyond cell.

Underside yellowish straw-colour with the markings rosy and purplish.

Palpi very long, red above; face white, red above; thorax and abdomen like wings; vertex paler; fore- and midlegs glossy reddish.

Expanse of wings: 30 mm.

2 ♀♀.

53. **Perixera subalbescens** spec. nov.

Forewing: whitish stone-colour, thickly and minutely grey-speckled; markings very indistinct; first and outer line marked only by blackish dots on veins; the first near base, marked by three dots in a line; a fourth in cell before the small blackish cell-dot; outer line at five-sixths, the dot on vein 5 displaced basewards, the ground on each side of it purer, not speckled; marginal spots and dots black; fringe whitish; faint traces of a grey median shade beyond the middle.

Hindwing: towards base and costa whiter; three dark dots on submedian and

median veins and the cell-fold indicate an inner line ; cell-spot distinct, black with a small pale centre ; the rest as in forewings.

Underside of hindwing and inner margin of forewing white, rest of forewing suffused and speckled with grey, the costa at base broadly dark grey ; both wings with cell-spots, outer, and marginal lines of spots.

Face and palpi with lower half whitish, upper deep red; legs externally reddish ; vertex, thorax, and abdomen like wings ; abdomen with a reddish stripe on sides of anal segments.

Expanse of wings : 30 mm.

1 ♂.

Nearest to *P. lapidata* Warr. from St. Aignan.

54. **Perixera sublanuginosa** spec. nov.

Forewing : bone-colour, dusted with fine reddish atoms ; costa tinged with grey ; the cross-lines grey ; first near base, marked also by reddish black dots on veins, and by additional dots on costa and subcostal vein nearer base, and on the folds ; a distinct dot at base of wing ; cell-dot small, blackish ; median shade grey, zigzag ; outer line grey, lunulate-dentate, the teeth distinctly marked with red-black vein-dots ; submarginal line pale, rather wide, between two macular grey shades, the inner interrupted ; black marginal dots between veins, and minute red points at their ends ; fringe bone-coloured.

Hindwing : similar, but the cell-spot round, pale, with dark ring.

Underside pale ochreous, in forewings flushed with pale rosy ; the outer line of points and the marginal dots reddish ; base of both wings with a bed of furry hairs to middle, larger in forewings and deeper ochraceous.

Face and palpi ochreous below, dull red above ; vertex, thorax, and abdomen pale ochreous, speckled with reddish and black ; abdomen with row of dark dorsal spots.

Expanse of wings : 26 mm.

2 ♂♂.

Exactly like *P. anulifera* Hmpsn. from Ceylon ; and also agreeing with examples examined from Penang.

The type of *anulifera* being a ♀, it is probable that the hairy clothing of the underside would not be present, or at all events not conspicuous. I have seen one ♂ from Ceylon apparently belonging to *anulifera* which presented no hairy appearance, as far as I remember ; but as my attention was not particularly directed to this point, I may have passed it over.

55. **Pisoraca simplex** spec. nov.

Forewing : bone-colour, greyish along costa, very thickly dappled with pale purplish atoms arranged in striae ; the lines purplish grey, the basal outcurved above and below the median vein, the teeth faintly marked with purplish dots ; a sinuous dentate-lunulate purplish grey median shade at two-thirds ; a lunulate-dentate grey outer line at five-sixths, thickened between the veins internally and marked with dull purplish dots on the teeth ; a marginal line of distinct purple dots between the veins and minute ones beyond them ; fringe paler, ochreous-tinged ; cell-spot grey, very obscure.

Hindwing : with inner line marked from cell to inner margin ; the rest as in forewing ; the lines and markings clearer.

Underside of forewing, except along inner margin, deep rosy, of hindwing whitish ; outer and marginal lines of spots distinct, the latter especially so in forewing, where they are deep red and triangular.

Face and palpi pale below, deep red above ; vertex, thorax, and abdomen like wings, the last stained with reddish.

Expanse of wings : 26 mm.

1 ♂.

Apex of forewing slightly prominent.

56. **Problepsis craspediata** Warr. and ab. **longimacula** nov.

The description in Nov. Zool. iv. p. 222 was made from a single ♂ from Simbang. The comparison of a good series (9 ♂♂, 6 ♀♀) collected by A. S. Meek on the Upper Aroa River, British New Guinea, shows that the aggregation of black scales, which follows the discocellular of the forewing, normally takes the shape of a black spot followed by a black half-circle. In two of the ♂♂, however, these scales form a large oblong black blotch stretching towards, and in one of them touching the outer line, and in this latter case the hindwing also has a black blotch beyond the slender discal mark. They may be distinguished as ab. *longimacula*.

57. **Problepsis transposita** spec. nov.

Forewing : greyish cream-colour ; the costal edge brownish ; first line very faint, erect from one-third of inner margin, not reaching costa ; from inner margin shortly before anal angle a brown band rises, at first parallel to hindmargin, then evenly curved inwards to subcostal vein at two-thirds, where it turns and descends parallel to its outer course, bending inwards at vein 2, to inner margin at three-fifths ; the whole surface of the wing from base below subcostal vein as far as this inner line is spangled with metallic scales, which are thicker and almost hide the brown on the inner line and form a lustrous edge on the inner side of the outer line ; between veins 2 and 4 the ground-colour between the brown shades is pale buff, containing a velvety black roundish centre crossed by vein 3, which is also buff ; this buff space, like the black disc, is flattened above and surrounded by a slight ring of brownish scales ; a submarginal grey line retracted to costa before apex ; extreme hindmargin grey-tinged ; fringe concolorous.

Hindwing : with a central and submarginal curved band, the latter with a lustrous sinuous line along its inner edge, the bands incompletely meeting below vein 7 ; the rest as in forewing.

Underside dull cream-coloured, with the dark markings showing through.

Palpi ochreous, externally dark fuscous ; face brown above, dusted with pale below ; vertex and antennae brown ; thorax, shoulders, and patagia shining white ; abdomen grey-tinged ; underside and legs cream-coloured ; forelegs fuscous in front.

Expanse of wings : ♂, 35 mm. ; ♀, 40 mm.

1 ♂, 1 ♀.

Easily recognised by the difference in the position of the ocelloid spot.

Prostenodes gen. nov.

A development of *Perixera*.

Forewing : in ♂ narrowed, only slightly widening outwards ; in ♀ of normal

shape ; costa hardly curved ; apex rounded in ♂, pointed in ♀ ; hindmargin nearly vertical ; inner margin rather convex in ♂, straight in ♀.

Hindwing : one-third broader than forewings in ♂ ; anal angle squared ; hindmargin subcrenulate, and nearly straight in ♂ from anal angle to vein 6 ; apex rounded.

Palpi of ♂ shorter than in *Perixera* and the allied genera, of ♀ quite as long ; antennae of ♂ bipectinate for two-thirds ; hindtibiae in both sexes with four spurs ; forewings of ♂ in basal half below subcostal vein clothed with rough furry scales.

Neuration as in *Perixera* ; forewing without areole.

Type : *Prostenodes comosa* spec. nov.

In appearance the type species resembles *Pachythalia rotundata* Warr. from Penang, but that, like *Pisoraca*, has only three spurs on the ♂ hindtibia.

58. **Prostenodes comosa** spec. nov.

Forewing : pale wood-brown, in the ♂ more reddish-tinged, thickly dusted with fuscous atoms ; costal area in ♂ broadly pale grey with blackish speckling ; in ♀ concolorous with rest of wing ; a blackish, somewhat linear, cell-spot ; followed by a dentate grey median fascia, narrower in the ♂ and more deeply insinuate below middle ; an outcurved lunulate-dentate outer line, the teeth darker on the veins ; submarginal line paler, more distinct in the ♀ ♀, preceded and followed by grey bands ; cell-spots black ; fringe paler ; in the ♀ there are traces of a twice-curved inner line, which is hidden in the ♂ by the rufous furry scaling.

Hindwing : like forewing ; the cell-spot blacker ; the markings clear in both sexes.

Underside of ♂ deep rosy in both wings, the hindwing only becoming paler towards inner margin ; the cell-spots and all the outer lines deeper ; in ♀ only the forewing are washed with rosy and the hindwing remain ochreous, with the lines reddish.

Palpi pale beneath, reddish above ; face whitish beneath, brown-red above ; vertex and antennae whitish ; thorax and abdomen like wings ; but in the ♂ the shoulders and base of patagia are grey, dark-speckled, like the costal streak ; dorsum red-spotted.

Expanse of wings : 30 mm.

1 ♂, 3 ♀ ♀.

59. **Ptychopoda lividula** spec. nov.

♀. *Forewing :* pale lilac-grey, speckled with darker ; costa yellowish ochreous with lilac-grey striae ; three pale dull olive-yellowish bands ; first, rather obscure, at one-fourth, outcurved from costa to submedian fold ; second median, slightly insinuate beyond cell, bent outwards below median vein ; third from three-fourths of costa to inner margin before anal angle, more wavy, insinuate beyond cell ; some small pale patches along hindmargin ; marginal line dark lilac-grey ; fringe olive-yellowish, slightly grey-chequered.

Hindwing : without basal line, otherwise similar.

Underside much paler, the markings showing through.

Face and palpi dark brown ; vertex and shoulders pale ochreous ; thorax and abdomen like wings.

♂ dark livid grey, the lines narrower but more distinct owing to the darker ground-colour ; fringe dark grey Underside uniform dark grey.

In both sexes the hind and inner margin of forewing are of equal length, but the forewing in the ♂ is narrower, the apex more prolonged, the outer margin more oblique. The hindwing has the inner margin somewhat concave in both sexes; but while the hindmargin in the ♀ is fully rounded, in the ♂ it is nearly straight and the anal angle prominent, clothed beneath with a bed of rough coarse scales.

Expanse of wings: 17 mm.

5 ♀♀, 2 ♂♂.

The ♀ greatly resembles *P. scintillans* Warr. from Australia, the type of which, however, is a ♂, and both are manifestly related to *auricruda* Butler, which Meyrick also records from Australia.

60. **Stibarostoma furcata.**

Perixera furcata, Warr., Nov. Zool. iii. p. 375 (1896).

I have hitherto only seen 2 ♀♀ of this species, the type from Moroka, British New Guinea, and a second from Isabel Island. The ♂, an example of which has just come from Upper Aroa River, British New Guinea, collected by Meek in February 1903, has the palpi of *Stibarostoma*, the hairs above on the thick second joint erect and as it were brushed back.

Subfamily HYDRIOMENINAE.

Aeschrostoma gen. nov.

Distinguished from all other genera of the *Hydriomeninae* by the structure of the palpi; all three segments are clothed with a brush of long hairs porrect and slightly drooping, that on the basal segment not reaching so far as the others, the segments themselves being quite concealed; the frontal tuft is similarly though more shortly clothed; the antennae (♀) are lamellate; the hindmargin of the forewing is slightly, of the hindwing distinctly, crenulate. The genus is related to *Coenocalpe*.

Type: *Aeschrostoma marmorata* spec. nov.

61. **Aeschrostoma marmorata** spec. nov.

Forewing: whitish, tinged and dusted with reddish; a reddish brown central fascia occupies the middle third of the wing, its outer edge angled outwards below vein 4 and insinuate on the submedian fold, its inner edge indented in cell; it is crossed by three darker lines edged and dusted with whitish scales, and margined on both sides by a pale band with dark centre; basal patch reddish, crossed by a pale line in middle; marginal area whitish; submarginal line waved, indistinct except where preceded, at costa, beyond cell, and on submedian fold, by blackish lunules, and followed in each case by a reddish fuscous shade; a dark festooned marginal line; fringe reddish with pale base and chequered with dark beyond veins.

Hindwing: very similar, with a single thick basal line; the dark marginal border broadly interrupted at middle by the pale ground-colour.

Underside suffused, except along inner margin, with vinous red; the cell-spots, the three inner lines, and the subterminal blotches velvety black; the veins dotted alternately with dark and light.

Face, palpi, shoulders, and patagia mixed reddish and grey; the thorax and

basal segments of abdomen paler; abdomen with pale and dark rings, corresponding to the bands of hindwings.

Expanse of wings : 26 mm.

1 ♀.

62. **Anapalta aurifera** spec. nov.

Forewing : olive-green, the markings deeper green ; basal patch dark green, crossed by a pale green line, its outer edge curved between the veins ; band following it similarly curved, pale green with dark middle line ; central fascia with two dark green lines, the first broader ; the middle space narrow, blackish green, forming an annulus on inner margin ; this is followed by five lunulate-dentate green lines, the teeth pointing inwards and marked paler on the veins, the two innermost forming the outer edge of central fascia, the next two the usual pale band following it, which is tinged with yellowish beyond cell ; submarginal line distinctly lunulate-dentate, whitish or yellowish green, preceded by darker shades at costa, beyond cell, and above inner margin ; a slight oblique pale apical dash ; marginal lunules black between the veins ; fringe dark green.

Hindwing : bright orange ; the inner margin broadly, the apex narrowly, and the whole fringe dark olive-green ; marginal line black, waved ; traces of dark lines and a pale submarginal along the dark inner margin.

Underside of forewing olive-fuscous, the cell and a large blotch below costa beyond outer line orange ; costa with pale streaks ; hindwing orange with the inner margin, the hindmargin narrowly, and the fringe, dark olive-green.

Head and thorax olive-green mixed with black ; the metathoracic boss submetallic ; abdomen dark cinereous above and below ; legs blackish with pale rings.

Expanse of wings : 40 mm.

1 ♀.

Palpi upcurved in front of face.

63. **Anticlea subcaesia** spec. nov.

Forewing : ochreous, tinged with grey, or reddish grey ; the basal and inner marginal areas generally suffused with slate-colour ; the markings black ; basal area limited by a curved dentated black band and crossed by another, the space between them slate-colour, and the extreme base rufous ; central fascia with both edges dentate, the inner from before middle of costa to middle of inner margin, the outer from two-thirds of costa to three-fourths of inner margin, rather sharply projecting at veins 6 and 4, inbent between ; the two bands forking above the median and enclosing a pale ochreous space containing the black linear cell-spot on its inner edge and forming annuli below ; pale bands on either side of fascia distinctly dentate, with a darker waved middle line ; submarginal line pale, dentate, preceded by two dark dentate lines and only distinct above the median ; pairs of black marginal dashes at ends of veins with a small pale spot between them and a large pale spot between the veins, those on each side of vein 3 lengthened into dashes ; fringe light and dark slate-colour.

Hindwing : slaty blue, with white dots at the vein-ends, and the fringe deeper.

Underside of both wings uniform dark slaty blue, exactly like the underside of some species of *Arycanda* from New Guinea.

Head and abdomen dark fuscous, varied with paler scales and sometimes slaty-tinted ; thorax, patagia, and metathoracic tuft olive-ochreous or rufous. Underside of abdomen cinereous ; legs blackish with ochreous joints ; pectus black and white.

Expanse of wings : 35 mm.

4 ♀♀.

Easily distinguished by the slaty blue hindwing and underside. The abdomen is stout and heavy ; the palpi prolonged, but not so much as in the South American species of the genus ; the discocellular of hindwing is biangulate, the radial from the lower angulation.

Crasilogia gen. nov.

Forewing of the ♂ and *fore-* and *hindwing* of ♀ as in *Epirrhoë* ; *hindwing* of ♂ abnormal ; the apex rounded, hindmargin straight to end of vein 4, then excised and rounded, the inner margin short ; the upper surface clothed with thick layers of silky hair, which towards the ends of the three median nervules are semi-erect and curled over a blotch of black scales ; the inner margin furrowed beneath ; anal tufts of ♂ enormously developed, expanded and containing a lot of fine woolly down. Palpi porrect upwards, second segment long, third short and decumbent ; antennae simple in both sexes.

Neuration of forewing alike in both sexes ; cell half as long as wing ; discocellular vertical, oblique below ; vein 2 at four-fifths, 3 close before 4 ; radials normal ; 7, 8, 9 stalked, 10 anastomosing with 11 and again with 8, 9 ; hindwing of ♀ normal ; 6, 7 short-stalked ; the discocellular vertical in upper third, oblique in lower two-thirds ; radial from the angle, above the middle ; cell less than half of wing ; in the ♂ the cell is longer than half the wing, broad and prolonged below, the discocellular biangulated, the radial from the lower, outward angulation, and therefore below the middle ; veins 2, 3 and 4 shortened.

Type : *Crasilogia dispar* spec. nov.

64. **Crasilogia dispar** spec. nov.

Forewing : dark olive-fuscous ; basal patch edged by a fine outwardly oblique white line angled basewards on submedian vein ; central fascia edged inwardly by a similarly oblique white line, parallel to the other and irregularly waved ; space between the white lines yellowish traversed by three fuscous lines ; central fascia much broader on costa than on inner margin, its outer edge running from three-fourths of costa to two-thirds of inner margin, with traces of paler and darker lines in it ; cell-spot large, irregularly rounded, black, ringed with white ; the fascia is followed first by a fine white line, irregularly waved and acutely dentate basewards on vein 7, then by a brown line followed by a yellow one edged by two dark lines ; submarginal line white, zigzag, distinct in the dark fuscous marginal area, which grows paler immediately before the margin ; the veins beyond submarginal line concisely pale, with a pair of large square black spots along the margin at their ends ; fringe pale, chequered with olive-fuscous.

Hindwing of ♂ silky white, the fringes white, except beyond the patch of black scales, where they are also blackish ; of ♀ dull greyish orange with the cell-spot and three waved grey lines of the underside showing through ; hindmargin darker, with the veins yellow ; fringe yellowish ochreous, chequered with fuscous.

Underside of ♀ dull ochraceous, the costa of forewing spotted with fuscous, and all the markings dull fuscous ; inner margin paler ; hindwing with cell-spot, a median line, three postmedian waved lines, and the border brownish fuscous ; fringes ochraceous with fuscous chequering ; underside of ♂ much paler ochreous, mixed

with whitish in the hindwings, with the markings as in the ♀, and a dull smoky patch below the black-scaled patch above.

Head, thorax, and abdomen yellowish mixed with olive-fuscous in the ♀, whitish and olive-fuscous in the ♂; the abdomen with pairs of dark white-spotted marks on each segment; face and vertex darker fuscous; palpi ochraceous; legs olive-fuscous, spotted with yellowish in ♀, with whitish in ♂; anal tufts of ♂ ochreous, the woolly down white.

Expanse of wings: 39 mm.

1 ♂, 2 ♀♀.

65. **Gonanticlea sublustris** spec. nov.

Forewing: violet-grey with velvety brown-black markings, these all finely edged with yellow scales; edge of basal patch narrowly dark, oblique from one-sixth of costa to one-fourth of inner margin; central fascia with inner area pale violet-grey, the costal area broadly, the inner marginal narrowly, triangular, limited by two bands of velvety blackish; inner band with its inner edge indented strongly above median, slightly below, its outer nearly straight; outer band sinuous, nearly touching inner band below middle, its outer edge projecting tooth-like at vein 6, bent at vein 4, interrupted by a rufous brown shade between 4 and 6; followed by a band of violet-grey with darker lunulate outer edge, and this by a broader fascia of pale stone-colour, with a similar darker lunulate outer edge, containing above vein 6 two black lunules, the upper running into apex; marginal area brownish grey; marginal line formed of concise thin black lines, separated by the pale veins; fringe with basal half brown, apical half ochreous, chequered with brown beyond the veins; cell-spot black, close to the inner band of central fascia.

Hindwing: purplish fuscous, with black cell-spot, a small oblique black mark on inner margin at two-thirds, and some slight ochreous scales at anal angle; marginal lines thicker; base of fringe yellowish.

Underside purplish fuscous; the basal two-thirds of forewing thickly clothed with hair, which viewed from base is lustrous; fringe brown, mottled at the veins, with base and tips yellowish; hindwing without hairs, more purplish, dusted with ochreous, with velvety black cell-spot and sinuous postmedian line of spots on veins.

Palpi below ochreous, above and externally purplish fuscous, edged with ochreous; face ochreous, speckled with purplish; vertex, collar, shoulders, patagia, and thoracic tufts purplish, edged with ochreous scales; thorax and abdomen purplish grey; dorsal segments with pairs of purplish fuscous spots edged with ochreous; antennae spotted with ochreous; legs purplish fuscous, speckled with ochreous.

Expanse of wings: 35 mm.

1 ♂.

Tripteridia gen. nov.

♂. *Forewing:* triangular; costa strongly arched at base and hardly convex before apex; hindmargin deeply cleft below vein 3, vein 2 abbreviated, running to end of cleft, which is fringed throughout, vein 1 running into the anal lobe, which reaches only half-way up the cleft.

Hindwing: aborted; costa bent and curved downwards to a sharp point, this broad part of the wing traversed by the costal and two subcostals, which are curved downwards and distorted; the hindmargin below these veins deeply cleft and

forming a fringed and rough-haired long middle lobe ; inner margin occupied by a convoluted, thickened, long spatulate lobe separated from the middle lobe by a cleft which runs up to base of wing ; the whole wing rough-haired and the lobes fringed.

Thorax and abdomen crested. Palpi long, much as in *Rhinoprora* Warr. Antennae lamellate, finely pubescent. Hindtibiae with four spurs. Neuration of forewing as in *Tephroclystia*, 10 and 11 stalked, 10 anastomosing with 8, 9. As the specimen is unique, it is inadvisable to denude the hindwing ; as far as can be seen without denudation, the median veinlets traverse the middle lobe, and the submedian the inner lobe.

Type : *Tripteridia novella* spec. nov.

Although the hindwing is trilobed and contorted, the genus appears to be an independent development of *Tephroclystia*, and not connected with *Lobophora* and its allies.

66. **Tripteridia novella** spec. nov.

Forewing: pale green ; the markings brown-black ; basal patch limited by a broadish dark band, angled below costa, and crossed by a fine green band with dark centre ; central fascia with its inner half consisting of a broad band also angled below costa, its outer of two irregular dark lines ; the pale bands on each side of it green with a darker middle line ; a dark triangular costal spot before apex, a second on hindmargin beyond cell and a smaller blotch below above the cleft ; all these markings are plain only above the median vein ; below it they are obscured and partially interrupted by a chocolate-brown shading, which includes the outer edge of the basal patch and the inner half of the central fascia, the outer half of the latter below vein 3 being interrupted by a patch of bluish scales ; a row of black marginal dashes between the veins ; fringe pale green, chequered with fuscous.

Hindwing: greyish ochreous, the hairs darker grey, the inner lobe purplish fuscous.

Underside of forewing pale green, the markings purple, a large purplish blotch filling basal half of wing and running to the cleft, leaving inner margin pale ; hindwing pale greyish ochreous.

Face, palpi, and collar green ; vertex, thorax, and abdomen a medley of green and purplish scales ; legs ochreous ; forelegs purple, tinged with ochreous ; pectus and forecoxae greenish-tinged.

Expanse of wings : 22 mm.

1 ♂.

67. **Xanthorhoë lucirivata** spec. nov.

Forewing: dark fuscous to outer line ; the basal patch dark, with a small patch of glossy grey scales at extreme base ; followed by a broad slightly paler band, of which the outer edge is formed by two grey lines separated by a darker one, the inner grey line faintly reddish-tinged ; central fascia broad, with blackish cell-spot and central sinuous blackish line, its outer half very dark fuscous, the edge projecting below vein 4 towards hindmargin, then dentate-sinuate inwards to four-fifths of inner margin ; edged by first a silvery white line, plainest on costal half, and then by a vinous red band containing two dark lines, all parallel to outer edge of fascia ; submarginal line regularly lunulate-dentate, finely white, preceded above middle by a broad dark fuscous shade, narrowed below middle to thin dark lunules ;

marginal area paler between veins 3 and 4; a faint reddish streak from the red outer band towards apex above vein 6; marginal line waved, black; fringe shining blackish, with base interruptedly paler and a pale patch below vein 4.

Hindwing: similar; the central fascia with two dark bands across it; the lines beyond it wider and clearer.

Underside dull dark greyish fuscous, the lines darker; the outer and submarginal lines forming white spots on the veins, the outer marked by a large pale costal spot; fringe pale between veins 3 and 4.

Head, thorax, and abdomen dark fuscous.

Expanse of wings: 35 mm.

1 ♂, 1 ♀.

When fresh the wings are somewhat glossy.

Subfamily TEPHROCLYSTIINAE.

Adeta gen. nov.

This genus differs from all others of the *Tephroclystiinae* that I have met with by the absence of any areole; the cell of the forewing, which is broad, is only one-third the length of the wing, the discocellular inangulate; vein 2 from just beyond middle of cell, 3 close before 4; radials normal; 7, 11, 10, 9, 8 all stalked from the end of cell; 12 curved downwards and closely approximated for a short distance just after the separation of 7, but not touching. Hindwing rather small, narrow, the hindmargin well rounded, with normal neuration. Palpi upturned in front of face, all three segment thick and squarely cut off at the ends; the forehead with a projecting tuft; hindtibiae with three spurs, two terminal, one median, as in *Megatheca* Warr.

Type: *Adeta semifascia* spec. nov.

68. **Adeta semifascia** spec. nov.

Forewing: dark fuscous on an ochreous ground-colour; basal patch small, dark fuscous, crossed by two or three lines; the markings all more or less vertical; a pale band beyond basal patch narrow, with a waved central line; central fascia very broad, consisting of first a broad dark fuscous band, then two curved lines on a pale ground, followed by a slightly curved lunate-edged dark band; beyond this a narrow pale band with a waved line down it; marginal area dark fuscous with a regularly lunate pale submarginal line through it very near margin; a thin dark marginal line interrupted by large pale spots at the vein-ends; fringe dark fuscous with pale basal line; cell-spot black, in the inner dark band of central fascia.

Hindwing: pale at base; the central fascia with a simple thick dark inner edge, the outer edge well curved.

Underside with all the markings, dark and light, extremely concise and distinct.

Head, thorax, and abdomen fuscous; legs ochreous, the forelegs fuscous-tinged.

Expanse of wings: 22 mm.

3 ♀♀.

In connection with the unusual neuration of this species it may be well to remark that *Gymnoscelis cristata* Warr., which in shape of wings and stoutness much resembles the present insect, at first sight appears to agree with it in neuration, 7, 11, 10, 9, 8 all being stalked together; but here 11 anastomoses with 12.

Of *cristata*, described originally from the Jaintia Hills, I have seen examples from Penang and Port Blair, Andamans, and now again five examples; but all of these, like the three examples of *semifascia* just recorded, are ♀♀.

Aniserpetes gen. nov.

Intermediate between *Chloroclystis* and *Gymnoscelis*, the hindtibia in both sexes having only one middle spur. The neuration is that of *Chloroclystis*, 10 and 11 stalked and 11 becoming coincident with 12. *Adeta*, which also has three spurs only, has all five subcostals stalked together.

Type: *Aniserpetes purpureoviridis* spec. nov.

69. **Aniserpetes purpureoviridis** spec. nov.

Forewing: deep green, the lines purplish, minutely crenulate; the first at two-fifths, curved; second at two-thirds, also curved outwards, bluntly bent on vein 6, and more sharply at vein 4; the green ground-colour is deepened towards each line, and pales off basewards; traces of crenulate cross-lines are visible before each line, one before first line purplish-tinged; the first line is followed by a fine whitish line, touching the cell-spot; submarginal line whitish, regularly dentate, interrupted, like the purplish shade preceding it, between veins 6 and 7 and between 3 and 4; below the median vein a purplish tinge is evident, especially towards anal angle; marginal line fine, interrupted by the pale veins; fringe greenish, tinged with rufous.

Hindwing: green; the outer line and cell-spot black and conspicuous.

Underside dull orange-green, purplish-tinged, with traces of the lines.

Head, thorax, and abdomen olive-green, varied with purplish.

Expanse of wings: 17 mm.

4 ♀♀.

70. **Aniserpetes sordida** spec. nov.

Forewing: dull brownish grey, with very fine black atoms; lines obscure; first curved at one-third, second at three-fifths, projecting on veins 4 and 6, insinuate between; both lines brown and swollen on costa; outer line followed by a pale band with dark centre; submarginal line regularly dentate; all the veins finely sprinkled with black scales; a fine dark marginal line interrupted by pale dashes at the vein-ends; fringe brown, the outer half paler.

Hindwing: similar, the pale band beyond outer line broader; the submarginal line not dentate; a pale marginal spot between veins 3 and 4; the hindmargin is protuberant at middle, and incised below apex and before anal angle.

Underside shining brownish grey.

Head, thorax, and abdomen concolorous; the vertex whitish.

Expanse of wings: 12 mm.

1 ♀.

71. **Chloroclystis pallidivirens** spec. nov.

Forewing: whitish green, with darker green shades, and tinged in parts with reddish; a dark line close to base; first line at one-fourth, outcurved in middle; second at three-fifths, crenulate, bluntly bent on vein 6 and more sharply at vein 4, dark green mixed with reddish scales; the basal and central areas showing traces of some waved green lines; a pale band with darker centre follows the central

fascia; submarginal line dentate, whitish, the teeth between 7 and 8, 4 and 6, 1 and 3 filled up with purplish; a purplish marginal line interrupted at the veins; fringe pale green.

Hindwing: with the outer line median, projecting in middle; the basal area within it tinged sparsely with reddish; the rest as in forewing; hindmargin projecting in middle with a sinus on each side.

Underside whitish, tinged with olive-green, especially towards apex of forewings.

Head, thorax, and abdomen dull greenish.

Expanse of wings: 17 mm.

1 ♀.

72. **Chloroclystis semirasata** spec. nov.

Forewing: pale grey-green, with all the transverse lines oblique outwards to middle, then reversed; first line at two-fifths, second at three-fifths, the space before them reddish fuscous crossed by narrow green lines; submarginal line preceded by reddish-tinged lunules between 7 and 8, opposite the cell, and between 2 and 3, all the lower part of the wing from base to margin below median and vein 2 greenish, the darker markings being erased.

Hindwing: with the outer line strongly marked, blackish, nearly straight; basal area slightly reddish; rest of wing with alternate whitish and pale green lines.

Underside whitish, the forewing tinged with olive-green.

Head, thorax, and abdomen greenish; the anal segment marked above with red.

Expanse of wings: 14 mm.

1 ♀.

73. **Eucymatoge falsidica** spec. nov.

Forewing: pale green, crossed by bands of darker green, tinged with purplish scales; the dark bands are four in number: two narrow, near base, separated by a pale line, and forming the basal patch, the extreme base being pale green; the third represents the usual central fascia, broader on costa than at inner margin, its outer edge projecting on veins 6 and 4 with a sinus between beyond cell; the fourth forms the inner edge of the submarginal line; the central fascia is edged by two glossy white bands centred by a pale green waved line; the submarginal line is shining whitish, obscurely waved, the marginal area beyond it green, containing a short dark streak below costa; marginal line dark purplish, waved; fringe whitish green, chequered with darker; cell-spot dark, in the central fascia; in the ♂ the central fascia is wider than in the ♀, and its edges form dark costal spots.

Hindwing: dull greyish fuscous, the outer margins broadly darker, with pale spots at the vein-ends; fringe pale.

Underside dirty ochreous, in the forewing suffused with cinereous; both wings with three curved dark central lines and broad dark grey hindmargin.

Head, thorax, and abdomen green; the collar, tips of palpi, patagia, and thoracic tuft purplish; anal segment in ♂ ochreous; forelegs fuscous; pectus green.

Expanse of wings: 22 mm.

1 ♂, 1 ♀.

The neuration is peculiar. Vein 11 is connected with 12 by a rather long bar; vein 10 is likewise connected with 11 by a short bar, and afterwards by another short bar with 7, 8, 9.

74. **Gymnoscelis festiva** spec. nov.

Forewing: greyish green first line at one-third, projecting above median, then oblique, preceded above median by a purplish shade, and crossed by two or three whitish lines, the base sometimes darker; outer line at three-fifths, curved to vein 5, then forming a blunt projection to vein 2, and a smaller one below, preceded by a purplish suffusion which pales off into greenish towards first line; both lines finely edged externally with whitish; submarginal line dentate, whitish, preceded by reddish lunules at costa, beyond cell, and above inner margin, and followed by reddish suffusion beyond cell and at anal angle; marginal line fine; fringe pale.

Hindwing: with outer line dark and projecting below median; a dark cell-spot; the rest as in forewing; inner margin and the fringes thereof thickly black-dusted; the submedian interspace pale without markings.

Underside whitish, tinged with greenish on forewing, with the outer line and cell-spots shown.

Head, thorax, and abdomen whitish green.

Expanse of wings: 20 mm.

2 ♀♀.

Mimics *Chloroclystis rufifascia* Hmpsn.

75. **Rhinoprora lineola** spec. nov.

Forewing: purplish brown and grey; the basal patch and central fascia wholly, the band before submarginal line interruptedly, purplish brown; marginal area beyond outer line purplish grey; basal patch and central fascia edged by a very fine white dark-margined line, which on each side of the fascia is followed by an olive-yellow band; in the space beyond basal fascia this band is preceded by a thicker band of mixed brown-grey and whitish scales broadening to costa, and in the outer space is followed by a thick waved brown line; all the dark markings and lines are finely mixed with vinous scales, especially along costa, where the paler markings become red; a line of black marginal lunules; fringe deep, dark purplish, the basal half darker, followed by a darker line in the paler outer half; the whole darker-chequered beyond veins.

Hindwing: rosy ochreous, grey-tinged towards hindmargin, with dark cell-spot and curved central line; marginal lunules and fringe as in forewing.

Underside rufous, suffused with purplish grey, most thickly along hindmargins, and sprinkled with white scales; the lines more or less indicated on costal half of forewing, the cell-spot and central line of hindwing black; submarginal line a row of white spots.

Vertex, face, and palpi internally ochreous mixed with reddish; palpi and frontal cone externally black; thorax and abdomen a mixture of purplish fuscous and reddish scales, the segmental rings purplish with reddish tips; abdomen beneath and all the legs black, mottled with ochreous scales; antennae black.

Expanse of wings: 22 mm.

4 ♂♂, 2 ♀♀.

In this species the basal segment of palpi forms a beak below like the second segment above; and the neuration is that of *Eucymatoge*, 10 anastomosing with 11 and 8, 9; the antennae have thickened angular segments, pubescent in the ♀, in the ♂ with two pairs of fine fascicles from each segment; the anal tuft of ♂ is palpably bifid.

76. **Tephroclystia miranda** spec. nov.

Forewing: pale mauve, without speckling; crossed by three pale green waved bands, edged with darker mauve; first curved near base; second at one-third, bent below costa; third, wider, at two-thirds outcurved in midwing; the ground-colour is deeper from base to second band and in a shade beyond third band, which is widened at costa; cell-spot dark, rather large; fringe glossy mauve.

Hindwing: uniform pearl-grey, darker towards hindmargin.

Underside pearl-grey, darker in the forewing, the markings showing through.

Palpi green; head, thorax, and abdomen mauve. The body of this unique and beautiful specimen has unfortunately become mould-covered, and the colour of head and thorax are not accurately visible.

Expanse of wings: 22 mm.

1 ♀.

Thamnocausta gen. nov.

♂. *Forewing:* broad; hindmargin somewhat protuberant below middle and indented above anal angle; inner margin distinctly convex.

Hindwing: narrow, almond-shaped; inner margin short; hindmargin from anal angle to vein 2 straight, thence rounded. Costal half above uncoloured, with an oval patch of mealy scales beyond upper end of cell, corresponding with a similar area on underside of forewing, as in *Ardonis*, but all the scaling dull, not glossy and nacreous. On veins 1 and 2 a thick clump of hairs before anal angle, that on vein 2 doubled, containing in the hollow between them a bed of mealy scales; ♀ with normal hindwing.

Palpi large, porrected upwards, second segment rough-haired beneath, third small, pointed, decumbent. Antennae simple in both sexes.

Neuration as in *Chloroclystis*; but the cell of hindwing of ♂ broad, triangular; the discocellular biangulate, the radial from the lower outward angulation; the wing beyond the cell and at anal angle below with roughened hairs; in the ♀ the discocellular is straight, and the radial from the centre.

Type: *Thamnocausta malachitis* spec. nov.

77. **Thamnocausta malachitis** spec. nov.

Forewing: green; markings black; a black blotch on costa at base and an erect spot on inner margin represent the basal patch; central fascia represented by two waved bands, each consisting of two black lines, the first two forming a large black costal blotch, the second a smaller one, the bands ending at one-third and two-thirds of inner margin; submarginal line pale, waved, preceded on costa by a black blotch and beyond cell by two black lunules; marginal line black, interrupted, most distinct at the indentation above anal angle; fringe green, chequered with darker beyond veins; costa ochreous between the black spots.

Hindwing: with two curved dark lines forming central fascia, the outer double and projecting at middle; submarginal line obscure, indicated by two green shades; a black marginal lunule before anal angle; in ♂ the lines are wanting; the costal half is ochreous, with the oval patch brown; the tufts ochreous and rufous, the mealy scales between brown and black.

Underside green, shaded with grey in places; the lines black. In the ♂ the oval patch of scales beneath forewing is ochreous; in the hindwing the veins are

black-marked and clothed with rough scales, and there is a patch of rough black-and-white scales at anal angle.

Head, thorax, and abdomen green; second segment of abdomen sometimes with a blackish ring, or black scales; sometimes the tips of palpi, collar, and abdomen fade to ochreous.

Expanse of wings: 26 mm.

1 ♂, 3 ♀♀.

The markings are variable in intensity; in one of the ♀♀ the central fascia is reduced to the two black costal marks, its edges only being shown by black dots; the submarginal line is white and distinct throughout, followed by dark patches at apex, anal angle, and beyond cell.

The species described by me as *Chloroclystis seminotata* (Nov. Zool. v. p. 245) from Mailu, British New Guinea, is very near, and will very likely, when its ♂ is discovered, be found to belong to this genus.

Subfamily TRICHOPTERYGINAE.

78. **Anisocolpia aroensis** spec. nov.

Forewing: greenish ochreous, almost wholly suffused with fuscous tinged in parts with olive and in parts with rufous; the lines darker fuscous, or blackish; basal patch small, greenish ochreous, edged by a blackish line, with an inner black line below median vein; inner edge of central fascia from one-fourth of costa, strongly excurved and forming two blunt projections outwards on subcostal and median veins, sharply angled basewards on submedian fold, then oblique outwards to middle of inner margin; space preceding it crossed by four fuscous bands, the first contiguous above median to basal patch, the second broad, the outer two narrow and parallel to inner edge of fascia; outer edge of central fascia from two-thirds of costa to shortly before anal angle, irregularly oblique outwards to below vein 6, then sharply dentate inwards and outcurved towards inner margin; within each edge are two darker lines; the centre of the fascia above median is pale ochreous and contains the oblique black linear cell-mark on its lower edge; across the fascia between the submedian fold and vein is a streak of black scales; beyond the fascia are four dentate sinuate lines, the first two forming the usual pale band; submarginal line pale, interrupted, followed by a thick dark crenulate line; large broad black marginal spots, the margin between them linearly whitish; fringe chequered light and dark; the space between veins 3 and 4 is greenish ochreous, obscuring but not interrupting the transverse lines; an apical spot slightly paler; the whole quadrate apical space between the pale costal half of central fascia and above vein 4 darker than rest of wing.

Hindwing: dull grey, darkening towards hindmargin; the fringe paler.

Underside dull cinereous, somewhat greenish-tinged; cell-spot and outer line darker; the costa with three pale spaces, at middle, beyond outer line, and at apex.

Palpi speckled, dark fuscous, the tips of all the segments ochreous; face, vertex, thorax, and abdomen olive-green mixed with grey; base of patagia laterally white; basal, middle, and anal segments of dorsum with dark rings; foretibiae and tarsi dark fuscous with pale rings; antennae annulate, olive-green and paler.

Expanse of wings: 37 mm.

1 ♀.

79. **Holorista seminigra** spec. nov.

Forewing: pale shining green, crossed by a succession of olive-green irregularly sinuate and dentated lines; three close to base, five forming a central fascia, the inner two and outer three coalescing on costa into blotches; four beyond, of which the second is thickest, the fourth not dentate and submarginal; a row of large black spots at the vein-ends; fringe pale green; the lines beyond the middle are more strongly dentate and sinuous.

Hindwing: with the costal half whitish, the lower half blackish, the limiting line straight; basal lobe small and semi-erect, the margin below it distorted, the usual three outer lobes ill-defined, the clefts being short, and the lobes overlapping; fringe pale towards costa, blackish below; a curved black pencil of hairs from base of lobe as in *fasciata* Moore; palpi very long, green, the terminal segment darker; antennae blackish; vertex, thorax, and abdomen green. In the ♀ the central fascia is purplish, the third line from base and the second thicker line beyond central fascia purplish-tinged, as is the marginal area.

Underside greenish cinereous, darker in forewing; the lower half of hindwing of ♂ deep black.

Expanse of wings: ♂, 26 mm.; ♀, 29 mm.

1 ♂, 1 ♀.

Subfamily DEILINIINAE.

80. **Aplochlora subflava** Warr.

This species was described from a ♀ only (cf. Nov. Zool. iii. p. 392) from Humboldt Bay, Dutch New Guinea. It was distinguished from *A. vivilaca* Wlk. by the deep yellow underside. In his paper in *Trans. Ent. Soc.* 1902. p. 603. 604. Col. Swinhoe sinks it to *vivilaca*, on the ground of its being faded. I have just seen a ♂ from the Upper Aroa River, British New Guinea, taken by Meek in February 1903, which effectually disproves the correctness of this opinion. The insect in question, except that it has lost the abdomen and hindlegs, is in good condition. Both wings are dull olive-green with rather large purplish cell-spots; the costa of forewing thickly striated with purplish; the hindmargin with three purplish marginal spots below costa; both wings with traces of a postmedian line of purplish striae, incomplete in forewing, curved and entire in hindwing. The underside of both wings is deep dull yellow, becoming red-tinged towards hindmargins. But what separates this ♂ at once is the size and structure of the hindwing: this is disproportionately large for the size of the forewing, and the inner margin is developed into a large flap with a kink on its edge at one-third from base, into which the shortened and contorted submedian veins run; this flap, though coloured green above, like the rest of wing, is hollowed out beneath, whitish, not yellow, in colour, and clothed with pale hairs. The insect is probably peculiar to New Guinea. Besides the original ♀ type from Humboldt Bay I have seen only one other, taken, also by Meek in February, in 1899 at Milne Bay, British New Guinea.

81. **Eugnesia decolorata** spec. nov.

Forewing: cream-colour, dotted with dull reddish fuscous; the two lines grey; the first at one-fourth, vertical, but outcurved above and below median; the second, nearly straight, at two-thirds; both with black dots on the veins and on costa and

inner margin, in the first on the inner edge, in the second on the outer; submarginal line preceded by spots between the veins, the two above and below vein 6 blotched together, that below vein 4 preceded by a grey cloud; the speckling beyond the submarginal sometimes also massed into slight spots on the veins, of which that on vein 6 is always larger and greyer; a black spot at base on median vein, a black discal spot, and black marginal spots; fringe like wings.

Hindwing: similar; the inner line grey without spots; no grey blotch below vein 4.

Underside without speckling, and with the markings grey.

Head, thorax, and abdomen concolorous; the shoulders, the patagia, and each dorsal segment with a pair of black spots; palpi externally blackish; the foretibia and first tarsal segment dark.

Expanse of wings: ♂, 26 mm.; ♀, 30 mm.

1 ♂, 2 ♀♀.

These are identical with the straw-coloured fourth form of *varians* alluded to below.

82. **Eugnesia lineata** Warr.

Like the last species *E. decolorata*, but with darker speckling; the costa of forewings black; the lines all black and concise; the shades before and beyond submarginal line darker, subdentate, and more or less entire; the blotch on vein 6 black; a straight black streak from outer line to hindmargin between veins 3 and 4, and a less marked one along vein 6; all the rest as in *decolorata*, but with the black markings intensified.

Expanse of wings: 34 mm.

2 ♀♀.

This is the form described by me as *Syntaracta varians* ab. *lineata*.

Swinhoe was probably right (cf. *Tr. E. S.* 1902. p. 606) in considering it a distinct species, although his sinking the other two forms to *camptogrammaria* proves to have been premature.

83. **Eugnesia varians** Warr.

In Nov. Zool. i. p. 409 (1894), I described 5 ♀♀ from Gunong Ijau, four of which varied somewhat from one another, as *Syntaracta varians*, differentiating the most marked form as ab. *lineata*. I have not met with another example of any of these forms till now, when the three most variant have turned up among the insects caught by A. S. Meek on the Upper Aroa River, British New Guinea; two of these are represented by ♂♂ as well as ♀♀; and these ♂♂ having perfectly simple antennae, it follows that the species must be transferred to the genus *Eugnesia*. With them came also three examples, all ♀♀, of *Eugnesia correspondens* Warr. described from Luzon, and, except for a single example from Nias Island, only received hitherto from that locality.

Of the form first described, to which must be restricted the original name *varians*, there are three ♂♂ and thirteen ♀♀, the latter very close indeed to *Syntaracta camptogrammaria* Guen., the ♂♂ distinguishable at once by the antennae, the much darker costa, and the more bulging hindwings; they are also more brightly coloured than the ♀♀.

They are all dated February and March, 1903, and measure 32 to 34 mm. in expanse on the average, though small ♀♀ occur of 28 mm.

84. **Ingena lucifera** spec. nov.

Forewing : pearl-grey, iridescent in certain aspects ; the ground-colour being of whitish scales thickly dusted with grey, the darker shades lavender-grey ; costa deep brown ; inner shade obscure, from costa at one-third, bent on median vein and vertical to one-third of inner margin ; outer shade thick and diffuse, its outer edge obscurely dentate, from five-sixths of costa to two-thirds of inner margin ; cell-spot dark grey ; a dentate submarginal line close to margin ; the area beyond it dark grey ; fringe like the margin.

Hindwing : basal shade absent ; cell-spot diffuse ; basal area to outer line darker tinted ; the space between outer and submarginal lines, as in forewing, paler than the rest.

Underside smooth pearly grey, with a lilac tinge ; fringe darker.

Face and palpi dark brown, like costal edge ; vertex, thorax, and abdomen pearl-grey, speckled with dark. Underside of abdomen, pectus, and femora white ; tibiae and tarsi fuscous.

Expanse of wings : 32 mm.

12 ♂♂, 6 ♀♀.

The ♂♂ have a distinct fovea at the base of hindwing as in *Leucetaera*, but though all the subcostals are stalked together as in that genus, there is no anastomosis with 12, 11 only approximating at a point ; I refer it temporarily to *Ingena* with which it agrees in style of marking.

85. **Plectoneura subrubida** spec. nov.

Like *P. albida* Warr., differing from that species in the following points : the costa of forewing is smoky purplish black till just before apex ; the whole hindmargin is purplish black, broad at apex, where it is limited by an oblique pale streak, and narrowing to a point at anal angle ; in *albida* the costa is ochreous yellow, and the hindmarginal shade is slight, reaching to middle of wing only. Underneath, *albida* is white, tinged with reddish, with no dark shades ; in *subrubida* the whole underside is deep rosy ; the costa narrowly, and the hindmargin broadly, black in the forewing. Further the fringe of forewing is purplish black except just at anal angle ; in *albida* it is rufous throughout.

Expanse of wings : 34 mm.

4♂♂.

Along with these came 1 ♂, 6 ♀♀, of *P. albida*, showing that the difference between the species is not sexual only.

Subfamily BRACCINAE.

86. **Arycanda alternata** spec. nov.

Forewings : dull slate-colour, crossed by fine sinuous lines and series of spots, alternately dark slate-colour and blackish ; two curved basal lines, the inner dark slate, the outer marked by black spots on veins ; the middle line, curved outwards above round the small black cell-spot or sometimes touching it, slate-colour ; the line following consists of small black spots ; the next two of somewhat more elongated spots, slate-colour and black ; the submarginal of wedge-shaped spots elongated and almost touching the black marginal dots.

Hindwing : similar ; without the two basal lines.

Underside bluish slate-colour with a broad darker marginal border; the cell-spots round and black.

Head, thorax, and abdomen slate-colour.

Expanse of wings: ♂, 38 mm.; ♀, 44 mm.

7 ♂♂, 5 ♀♀.

87. **Arycanda concussa** spec. nov.

Very much like *A. flexilinea* Warr., differing as follows: the third and fourth lines on forewing are quite straight, the third oblique outwards, the fourth oblique inwards. The distance between them on inner margin twice as great as in *flexilinea*, the fourth passing just outside of the cell-spot, or sometimes through it, and then forming with the third an actual isosceles triangle; the three outer shades all more oblique outwards. The hindwing differs only in having all the inner lines straighter.

Expanse of wings: ♂, 44 mm; ♀, 50 mm.

2 ♂♂, 3 ♀♀.

88. **Arycanda fasciata** spec. nov.

Forewing: slaty blue, of the same tint as *flexilinea* Warr. and *concussa* Warr., all the lines or shades sinuous, parallel to each other and to hindmargin; the outer of the two basal lines and the fourth darker than the rest and enclosing a darker blue central fascia containing the cell-spot and third line; the penultimate shade, which in *flexilinea* and *concussa* is macular, is continuous and merged in the deeper tinted hindmargin.

Hindwing: similar.

Underside with basal half of wings deeper bluish slate-colour than the outer. Head, thorax, and abdomen concolorous.

Expanse of wings: 50 mm.

1 ♀.

89. **Arycanda fritillaria** spec. nov. and ab. **interfusa** nov.

Forewing: pale slate-colour at base and broadly along costa and hindmargin; the inner triangular area pale chocolate-brown; three basal curved lines of large black spots: the first close to base consisting of three spots, the second of four, all these between the veins; the third of three spots, on the veins; a large black cell-spot, just beyond which is a series of seven spots on the veins, the first three oblique outwards and contiguous; in the marginal area are four series of spots, oblique outwards to vein 6, then slanting inwards, the innermost of eight spots on the veins, the other three of spots between the veins, those of the outer two separated only by the veins; a marginal series of black lozenge-shaped marks; fringe slate-colour.

Hindwing: with basal two-thirds chocolate-brown; the outer lines as in forewing; before the black cell-spot only three small black spots on veins, representing third line of forewings.

Underside dull slate-colour, with round black cell-spots on each wing; inner margin and fringe of hindwings pale ochreous.

Head, thorax, shoulders, patagia, and basal segments of abdomen slate-colour, all spotted with black; palpi externally black; abdomen yellow, with black blotches on third and fourth segments and on anal segment of ♂.

Expanse of wings: ♂, 52 mm.; ♀, 60 mm.

8 ♂♂, 6 ♀♀.

In the ♂ for which I propose the name ab. *interfusa* there are only three outer lines; the innermost of the usual four being shifted inwards and forming elongate black blotches on the veins touching the spots of the central line, the topmost spots of the third series, the central and the outer one coalescing to form a large black costal blotch above the cell-mark. In the hindwing the shifted series appears as a series of thin lines on the veins immediately beyond the cell-spot. In all other respects, the aberration agrees with the type-form.

1 ♂.

90. **Craspedosis casta** spec. nov.

Forewing: white, costal region above subcostal vein black; outer half of wing black, its inner edge curved from below middle of costa to four-fifths of inner margin.

Hindwing: white, with broad black hindmargin; the abdominal margin broadly yellow-tinged; fringes of both wings black.

Underside like upper.

Head, palpi, shoulders, and base of patagia black; legs blackish; thorax and rest of patagia white; abdomen yellow both above and below.

Expanse of wings: 48 mm.

1 ♀.

91. **Craspedosis flavicollis** spec. nov.

Forewing: velvety black; a paler broadish fascia near base and an outwardly curved narrow band from four-fifths of costa to two-thirds of inner margin; a large oval hoary grey spot on discocellular; fringe black.

Hindwing: deep black, with an irregularly pentagonal white blotch in the centre.

Underside of forewing dull black with the discal blotch white; of hindwings with the white space more nearly round.

Palpi beneath, lower part of face, shoulders, and base of patagia orange; the rest of the body black; legs and abdomen beneath black.

Expanse of wings: 39 mm.

2 ♀♀.

92. **Craspedosis laticlava** spec. nov.

Forewing: purplish black, with a broad white band from subcostal vein just before middle of wing to vein 1 before anal angle, its edges parallel.

Hindwing: without markings.

Underside the same; a slightly paler patch at anal angle of hindwing.

Head, thorax, abdomen, and legs concolorous; anal tuft of ♂ ochreous.

Expanse of wings: ♂, 48 mm.; ♀, 54 mm.

1 ♂, 2 ♀♀.

Except for the broad white fascia of forewing this species is identical with three others (2 ♂♂, 1 ♀), taken at the same time and place, which I refer to *C. funebris* Warr., the type from Fergusson Island.

93. **Craspedosis nigerrima** spec. nov.

Forewing: deep velvety black; a narrow oblique white streak, at three-fifths from base, from vein 6 to 3; fringe black.

Hindwing: with broad velvety black marginal border, narrowly produced along costal and inner margins to base, which is shortly black; centre of wing shining white.

Underside like upper, but the white markings larger, their edges diffuse; the streak of forewing broader, and running from subcostal vein to vein 2.

Head, thorax, abdomen and legs black; front of forefemora grey.

Expanse of wings: 38 mm.

1 ♂.

The abdomen of this ♂ is slender and elongate, as in *Stenocharta* Warr., but in other respects it agrees with *Craspedosis*, except that the fovea is absent.

Distinguished from *C. ovalis* Warr. by the wholly black abdomen and absence of fovea.

Subfamily ASCOTINAE.

94. **Alcis flaccida** spec. nov.

♂. *Forewing:* dull whitish, dusted with fawn-colour; the lines and markings darker; costa paler, with short fine striae and brownish spots at one-fourth and before one-half; first line at one-fourth, curved outwards above median, darker marked on veins, preceded by a diffuse shade; median shade irregularly dentate-lunulate, outcurved above and nearly touching outer line above inner margin; outer line from two-thirds of costa, vertical to vein 6 with slight dentations on veins 7 and 8, forming a deep outward sinus to vein 4, then oblique inwards to beyond middle of inner margin, forming another larger outward sinus from vein 3 to submedian fold, followed by a cloudy shade; submarginal line dentate-lunulate, pale, the lunules filled in with darker fawn-colour, except between veins 3 and 4; marginal dark spots between veins; fringe concolorous.

Hindwing: without first line; a slight ocelloid cell-spot between inner and outer lines, otherwise as in forewing.

Underside pale stone-colour, with slight greyish submarginal shade in forewing.

Face and palpi pale below, brownish above; vertex, thorax, and abdomen like wings; second segment of abdomen brown with black edges.

♀ with the lines black, the speckling fuscous, and the basal and marginal areas dark fawn, underneath greyer; the submarginal band complete and continued on hindwing; the cell-spots and outer line marked. The smaller and paler ♀ has a broad smoky brown band crossing both wings above, between the inner and median lines.

Expanse of wings: ♂, 44 mm.; ♀, 46—52 mm.

1 ♂, 2 ♀♀.

Ovipositor of ♀ long, exserted.

95. **Alcis papuensis** spec. nov. and ab. **decolor** nov., ab. **maculata** nov., and ab. **ocellata** nov.

♂. *Forewing:* pale ochreous, suffused and sometimes speckled with tawny and grey; costa with fine short black striae; base with a small tawny blotch; first line at nearly one-third, black-brown, angled on subcostal, then curved to near base of inner margin preceded by a diffuse tawny and grey shade; outer line from nearly

two-thirds, angled inwards above and outwards below vein 6, then oblique inwards and straight, but forming a sinus across submedian interval; this is followed by a parallel tawny and grey shade; median line passing inside or touching the black cell-spot and approximated to outer line at inner margin; submarginal line wavy, lunulate, whitish, the lunules above vein 7, between 6 and 4, and below vein 3 filled in with black, interrupted between by pale ochreous; marginal spots black; fringe ochreous, sometimes chequered with darker. Sometimes the pale areas along the submedian interspace become whitish; sometimes a tawny shade runs longitudinally above median and along vein 6.

Hindwing: without first line; the antemedian slightly sinuous, tawny, the postmedian sinuous, dentated, and blackish; the rest as in forewing.

Underside pale ochreous; the forewings tinged with grey; cell-spots and outer lines slightly shown.

Head, thorax, and abdomen pale ochreous; head and thorax often darker, olive-ochreous; abdomen with basal segments often marked with black-brown.

♀ with wings much longer in proportion, suffused throughout with rufous, and marked with hoary grey along cell and submedian interspace and in the submarginal lunules; the only pale ochreous tint remaining being the submarginal line; all the markings as in the ♂, but the shades accompanying the inner and outer lines less conspicuous; the fringe greyer; ovipositor long, exserted.

The form of the ♂ above described was made typical as being nearest to that of the ♀. A second, apparently equally common with the type, may be known as ab. *decolor*; in this all tawny and dark grey shades disappear; the pale ochreous ground-colour is dusted with olivaceous ochreous; the two lines are marked only by dark vein-spots, and the shades accompanying them and the submarginal line are inconspicuous. Of this paler form two less common developments occur: in one, ab. *maculata*, the space between outer and submarginal line below vein 4 and the marginal space beyond, except between 3 and 4, is chestnut-brown; and the shade before first line of forewings and that beyond second line of hindwings on inner margin is of the same colour; the other, ab. *ocellata*, is suffused with rufous, and the cell-spots in both wings have pale centres within brown rings.

Expanse of wings: ♂, 35—40 mm.; ♀, 44—46 mm.

21 ♂♂ of the type-form; 18 ♂♂ of ab. *decolor*; 2 ♂♂ of ab. *ocellata*, and 1 ♂ of ab. *maculata*; and 4 ♀♀ only.

96. **Blepharoctenucha albescens** Warr., Nov. Zool. iii. p. 400.

The description was made from a ♂ and two ♀♀ from S. Java, from Fruhstorfer's collection, taken in 1891, at an altitude of 1500 metres.

In *Trans. Ent. Soc.* 1902. p. 619, Colonel Swinhoe says: "These are South American insects with wrong locality labels on them. There is a ♀ in the B.M. registered San Pedro, Honduras (Fruhstorfer), which is probably the correct locality; they have not the appearance of Eastern insects."

Why the *three* labels in Coll. Rothschild should be wrong and the *one* label in the B.M. right, is not stated.

Among the insects lately received from New Guinea, from the Upper Aroa River, is a pair of *B. albescens* Warr., corresponding exactly with the types from Java; and as all the insects of this collection were sent home ready set, there can be no question about their Eastern origin, or erroneous labels. My friend Colonel Swinhoe must request the authorities at the British Museum to correct theirs.

97. **Elphos exalbata** spec. nov.

Forewing: white with a few grey striae; the basal third, a large square apical space, and a shallow blotch along inner margin at anal angle grey-tinted and speckled and mixed with yellow; first line at one-fourth, black, vertical, forming strong curves above and below the median vein; outer line commencing at two-thirds, dentate outwards and not reaching beyond vein 6, the lower part below vein 2 forming a deep sinus to vein 1 and an oblique line inwards to before middle of inner margin; submarginal line pale grey, only visible through the apical blotch, the white ground-colour invading the central fascia above middle and reaching hindmargin between veins 1 and 3, and the inner margin partially beyond middle.

Hindwing: with costal and hindmargins broadly grey-brown, the bluish-white lunulate submarginal line, the lunules filled up with dark, being uninterrupted, and the commencement of the outer line shown as far as vein 6, the whole interior of the wing being white, sparsely speckled with fuscous grey; on the inner margin the outer line is shown by a grey lunule, and three vein-spots mark the inner line.

Underside with basal two-fifths, apical third, and anal blotch smoky fuscous, the area between them, except along costa, white, without speckling, but with the veins across it black; hindwing white, with broad smoky black marginal border to near middle of costa.

Head and thorax grey; abdomen with basal segments pale grey, becoming yellow towards end; its underside yellow; legs fuscous; pectus ochreous.

Expanse of wings: 82 mm.

1 ♂.

98. **Gasterocome subdivisa** spec. nov.

Forewing: bright pale ochreous, the speckling and markings olive-brown; costa with close striations; a small blotch at base; a broad antemedian fascia with its outer edge curved, formed by a dark line rising from a costal spot; central fascia above middle formed of two blotches, one median, the other postmedian, of which the median is itself often subdivided from below; below middle of one curved triangular blotch, also subdivided on inner margin by a pale line; the outer edge of median patch and inner edge of postmedian formed by the usual median and outer lines; marginal area formed of two patches, through which the pale wavy submarginal line is conspicuous; a broad streak of pale ground-colour runs from base below median vein to hindmargin separating all these markings, the pale ground appearing as a short band near base, an inwardly oblique antemedian band, and a similar band from apex to two-thirds of inner margin, joined at middle by another from beyond middle of costa, forming a Y; the pale spaces are more or less speckled with fuscous and in the ♀♀ tinged with tawny; a row of marginal triangular spots between veins; fringe fuscous, with a dark middle line, and interrupted by ochreous at apex and between veins 3 and 4.

Hindwing: with basal half pale, coarsely fuscous-speckled, with an obscure antemedian and distinct sinuous postmedian dark line with a large ocelloid cell-spot between them; the outer line followed by a broad brown fascia, a pale band of ground-colour, and a marginal brown border containing the whitish submarginal line, which is preceded by black blotches.

Underside duller, with all markings reproduced.

Palpi ochreous, externally brown ; face, vertex, thorax, and abdomen pale ochreous, deeper tinged in the ♀ ; sometimes even in the ♂ the face and vertex are also brownish ; middle of shoulders, middle and tips of patagia fuscous ; a pair of brown lateral spots on the two basal segments of abdomen, which are paler than the rest ; legs ochreous, fuscous-speckled ; fore- and midtibiae and tarsi blackish, with yellow rings at the joints ; subanal tufts dull ochreous.

Expanse of wings : ♂, 46 mm. ; ♀, 44 mm.

8 ♂♂, 4 ♀♀.

99. **Myrioblephara callichlora** spec. nov.

Forewing : bright pale green, finely dusted with olive atoms ; costa ochreous with short grey streaks ; a short line close to base ; inner, median, and outer lines double, marked with rather large black spots on the veins ; the inner more or less filled up with olive scales between the arms ; the median distinct only at costa ; the outer tinged with olive above vein 6, and between veins 3 and 4, this blotch extending to submarginal line, which is preceded by wedge-shaped marks filled up with olive and black scales below costa and beyond cell, and outlined only with olive below middle, followed also by a slight dark lunulate line with a blotch beyond cell ; marginal spots large, black ; fringe pale green, chequered with black beyond veins ; cell-spot small, brownish.

Hindwing : whitish grey, tinged with pale green along inner- and hind-margins ; the lines strongest on inner margin, the antemedian line there being black and double ; the postmedian punctate on veins, its outer arm faint ; the rest as in forewing.

Underside greenish white, tinged with grey in forewing ; all the lines dark grey.

Palpi fuscous ; head and thorax green, with a few olive scales ; abdomen green at base, dark grey in middle, pale ochreous at anal end ; underside ochreous ; forelegs dark fuscous.

Expanse of wings : 26 mm.

5 ♂♂.

Near *M. picta* Warr. from S. Java.

100. **Myrioblephara confusa** spec. nov.

This species agrees with *M. flexilinea* in the main ; in particular the outer line of hindwing projects, as in that species, below middle, having a distinctly sinuous course, not parallel to inner line, and the three lines of forewing are at equal distances ; it differs in the following points : it is altogether much darker and clouded grey, and is without any ochreous tinge whatever, the shades accompanying the inner and outer lines being dark grey and thick ; secondly, the outer line of forewing is evenly curved from the costa without forming the prominent rounded elbow at vein 5 which characterises *flexilinea*. The lines generally are less interrupted, and the inner and outer lines, owing to the grey shade accompanying them, more distinctly double.

3 ♂♂, 2 ♀♀.

101. **Myrioblephara flexilinea** spec. nov. and ab. **albidata** nov. and ab. **fasciata** nov.

Forewing: greyish white, dusted with grey or ochreous grey; the lines blackish or dark grey from dark costal spots, outbent above and incurved on submedian fold, then again oblique outwards; all three at equal distances apart, the inner at one-third, the outer at two-thirds, both accompanied by a parallel shade which is always more or less ochreous; submarginal line pale, wavy, between darker grey clouds; a slightly paler patch below middle of margin; marginal spots large, blackish; fringe pale grey.

Hindwing: with diffuse double antemedian and postmedian dark grey lines, the latter insinuate in cell and projecting on veins 3 and 4, **not** parallel to inner lines; the rest as in forewing; cell-spots of both wings dark grey.

Underside dull dirty grey, with the lines, cell-spots, and outer margin darker.

Head, thorax, and abdomen like wings; palpi externally darker.

Expanse of wings: 26 mm.

13 ♀♀, 4 ♀♀.

Distinguished by the sinuous outcurved second line of hindwing.

One form of the ♂, ab. *albida*, has the ground-colour quite white, and the markings consequently much clearer; the lines at costa black. Another, ab. *fasciata*, has the space between inner and median lines throughout and between inner and outer lines below middle filled up with smoky black on forewing; also the inner half of central space on the hindwing; and the ochreous tints beyond are more widely spread.

102. **Myrioblephara ligdiodes** spec. nov.

Forewing: whitish, speckled with grey and rufous, and towards hindmargin slightly tinged with rufous; first and second lines blackish, curved, parallel and near to each other, and both nearer than usual to the base of wing, the space between them filled up with purplish grey, forming a distinct fascia; outer line marked by a dark costal spot, curved outwards to vein 4 and only slightly oblique inwards below to beyond middle of inner margin, very faintly traceable by rufous scales; the rufous shade following it diffuse and well separated from it; submarginal line wavy, pale, preceded from costa to vein 5 by a curved black shade of lunules and followed by a dark shade between 6 and 4, the apex being left pale like the rest of the marginal area, except for a rufous cloud between veins 2 and 3; marginal spots slender; fringe white, with dark scales below vein 6; cell-spot wanting.

Hindwing: with a double black line near base, continuing the dark fascia of forewings; the two arms of the outer line scarcely traceable; hindmargin tinged with rufous and grey, with a darker waved shade before the indistinct submarginal line.

Underside whitish, suffused in forewing with rufous brown, with a dark line and cloud near base, a slender dark outer line, and a broad smoky black marginal border, which leaves the apex broadly and the hindmargin narrowly pale; hindwing grey-tinged, with broad curved inner and narrow outer line; the dark margin narrower; extreme margin and fringe white.

Face and palpi ochreous grey; collar white; thorax, shoulders, and patagia purplish fuscous; abdomen marked with purplish fuscous on basal half, becoming dull whitish towards end.

Expanse of wings: 29 mm.

1 ♀.

Superficially like the species of the genus *Ligdia*.

103. **Myrioblephara minima** spec. nov.

Forewing: whitish grey, darker speckled, and slightly tinged with fawn-colour; the lines very fine; basal line double, close to base, slightly outcurved above median vein; median line indistinct, except near inner margin, where it is waved and approaches outer line; outer line from two-thirds, nearly vertical, faintly curved from costa to submedian fold, where it is indented, thence vertical, marked on veins with small inwardly projecting black teeth, followed by a slight grey shade; submarginal line whitish, lunulate, between two dark shades, the inner one filling up the lunules and connected with the shade beyond outer line along costa and inner margin and beyond cell; a row of black marginal spots; fringe grey, with slight dark marks beyond veins.

Hindwing: with a black speck at base, thence to the straight antemedian line white, with a few black speckles; the rest of wing grey, and like forewing.

Underside dull fawn-tinged grey, with the lines, cell-spots, and marginal shade darker.

Head, thorax, and abdomen cinereous; first two segments of abdomen above white, with black speckles, like base of hindwing, third and fourth segments blackish, with white rings.

Expanse of wings: 22 mm.

1 ♂.

104. **Myrioblephara muscosa** spec. nov. and ab. **impleta** nov.

Forewing: white, washed with pale olive-ochreous, and covered with dense and short black striae; the lines black; a black spot at base of costa, and a curved black line just beyond running round the fovea, often obscure or obsolete; inner line at about one-third, curved; outer line at two-thirds, outcurved round cell, then sinuous to middle of inner margin; median line, sometimes obscure, strongly curved outwards round the black cell-spot, approaching outer line below middle; space within the bend of outer line nearly always white and generally without speckling; submarginal line, interrupted like the marginal area between veins 3 and 4, indicated by the darker preceding shade, which sometimes fills the lunules up with black, and by the darker marginal striae which follow it, the tips of the lunules showing white; some slight dark marginal marks; fringe chequered ochreous and dark.

Hindwing: generally paler, with two thick dark lines enclosing the dark cell-spot, the outer one sinuous, and an interrupted macular submarginal shade before submarginal line.

Underside like upper, but duller.

Head, thorax, and abdomen olive-ochreous, varied with black; palpi blackish externally; legs dark, ringed and spotted with ochreous.

Expanse of wings: 26—30 mm.

12 ♂♂, 2 ♀♀.

In nine out of the twelve ♂♂ the central and marginal areas, often the basal, are wholly suffused with dark olive and black, leaving only the large fovea and the

white spot within the bend of outer line whitish, the pale band beyond middle with its arm to outer margin being sometimes conspicuously olive-ochreous : this form, which is probably not confined to the ♂♂ only, may be distinguished as ab. *impleta*.

105. **Myrioblephara palumbina** spec. nov.

♂. *Forewing :* pale dull olive-green, speckled with dark ; the markings brown and black ; a small blotch at base ; first line before one-third, angled in cell, then vertical, preceded by a similar line, the space between brown ; outer line at three-fifths, sigmoid, bent outwards beyond cell, then concave to two-thirds of inner margin, followed by a deep brown parallel shade ; median line parallel to outer and generally nearer it than to inner, outbent round the small cell-spot ; submarginal line waved, preceded by a narrow brown shade only distinct at costa and inner margin ; marginal area beyond it deep brown, interrupted at apex and between veins 3 and 4; black marginal spots united by a thin marginal line ; fringe olive and brown.

In the ♀ the ground is pale dove-colour, tinged with olive, or grey, or brown ; the striations and lines all clearer and more defined.

Hindwing : pale towards base, with a faint greenish tinge ; outer line brown, sinuous, sometimes a faint straight antemedian line before the dark cell-spot ; outer half suffused with rosy brown ; the whole thickly striated with dark ; a dark waved submarginal cloud.

Underside grey, tinged with ochreous, olive-green, or grey, and thickly dark-speckled, with the markings irregularly represented; marginal area in ♀ darker, broadly smoky brown.

Head, thorax, and abdomen corresponding to ground-colour of forewing : in the darker ♂ the head and thorax are dark olive-fuscous, the abdomen above cinereous, with a broad black band on second segment ; in the other ♂ only the abdomen is fuscous from the third segment to the end ; in the ♀♀ all are pale except a brown spot on metathorax and mark on second dorsal segment.

Expanse of wings : 35 mm.

2 ♂♂, 4 ♀♀.

The large unscaled fovea and the markings agree with *Myrioblephara*, though the cilia are shorter than in typical species.

106. **Myrioblephara pergrisea** spec. nov.

This species agrees with *M. subtrita* in having the two lines of hindwing parallel to each other, and the upper half of hindwing above median with the markings blurred ; it differs in being wholly suffused with dull grey, especially the basal half of forewing, and in the absence of ochreous shades, the general appearance being thus quite different ; also the middle line of forewing is not nearer the inner, more often, on the contrary, it is approximated to the outer line, especially below middle, where, in fact, all the markings are confused and difficult to follow. It stands in much the same relation to *subtrita* as the dark grey *confusa* does to *flexilinea*.

3 ♂♂, 1 ♀, the ♀ rather smaller.

107. **Myrioblephara subtrita** spec. nov.

Forewing : white, speckled and tinged in places with dark grey ; the lines blackish ; the median line nearer the inner than the outer, the greyish or ochreous grey shade that precedes the inner extended to the median, forming a dark fascia ;

the costal half of wing between median line and outer prominently white; submarginal line wavy, white between two blackish shades; the ochreous or grey shade following outer line darkened into a blotch at middle, especially in the ♀♀, before the clear pale spot on the dark margin; cell-spot and marginal spots black; fringe white, with dark chequering.

Hindwing: white; with double antemedian and postmedian dark lines sinuous and parallel to each other; rest of wing as in forewing; all the markings above the median vein less clear than those below, as if blurred.

Underside pearly whitish, in forewing suffused with grey; the lines and cell-spots dark grey; a broad blackish marginal border, containing a small pale marginal spot at middle of both wings and at apex of forewing.

Head and thorax pale or dark grey, in the females blackish; abdomen white, with two middle segments dark grey.

Expanse of wings: 26 mm.

7 ♂♂, 7 ♀♀; the ♀♀ slighter smaller than the ♂♂.

108. **Myrioblephara vivida** spec. nov. and ab. **brunnea** nov.

Forewing: whitish, slightly speckled with pale grey, the costa darker grey; first line at one-third, dark grey, slightly outbent at median, preceded by a very thick diffuse dark shade; outer line at two-thirds, outcurved to vein 2, where it is indented, thence vertical, followed by a thick grey shade; median line strongly outbent round the dark cell-spot and dentate below, as in *albipunctata*; submarginal line white, wavy between two dark grey shades; a distinct whitish patch on margin below middle; slight dark marginal spots; fringe mottled whitish and pale grey.

Hindwing: with the two arms of antemedian line thick and well separated, the outer arm nearly at middle and touching the cell-spot, both stopping short at the cell; outer line waved, thick and double, approaching submarginal shades, which with the line itself are distinct.

Underside dull cinereous, with the markings distinct; marginal band broad, showing the four dark shades.

Head and thorax dark grey; abdomen grey with white rings; the basal segments whiter, with a black ring beyond metathorax.

Expanse of wings: 26 mm.

2 ♂♂, 2 ♀♀. Of these 1 ♂ must be separated as ab. *brunnea*; all the marking dark olive-brown on a creamy white ground.

109. **Paradromulia anomala** Warr.

A long series, including both sexes of this species, from the Upper Aroa River, British New Guinea, proves it to be extraordinarily variable. I doubt if it can be kept distinct from the type species *ambigua* Warr. from Fergusson Island; while *nigrocellata* from Suer, Mefor, and *lignifascia* from Guadalcanar and Ron Island, probably also *rufibrunnea* from Queensland, will have to be merged in it. Of the 66 specimens received 29 (17 ♂♂, 12 ♀♀) may be referred to the type-form; 3, all ♂♂, represent the ab. *rufigrisea*; while the rest form 7 new aberrations, quite distinct from any previously met with. It is worthy of note that, on the average, the ♀♀ are smaller than the ♂♂ in all the forms, and that they have a white apical spot on the underside of forewings.

Of the ab. *rufigrisea* there are three typical examples, all ♂♂. Of this form

ab. **albigrisea** nov.

is a development; the brown tints of the basal and maginal areas are darker; while the blue-grey of *rufigrisea* gives place to white or bluish white, densely black-speckled, which hue, instead of being restricted to the central area only, is extended below vein 4 to the hindmargin; the cell-mark is a thick brown ring with pale centre.

5 ♂♂, 1 ♀.

ab. **lacteata** nov.

is a further development; the black speckling is either quite absent or very scanty, and except the basal and apical patch of forewing and a slight anal shade the whole wing is bluish white, with the brown cell-mark conspicuous; in the hindwing the whole basal half is white, and sometimes the marginal area below middle; abdomen white, peppered with grey.

1 ♂, 2 ♀♀.

ab. **complicata** nov.

stands somewhat by itself. Here the three black lines and the inner black edge of the submarginal line stand out conspicuously from the ground-colour, which is reddish fawn in the ♂ and whitish, tinged with rufous, in the ♀, and these are crossed in both wings by black streaks from the cell-spot to hindmargin along vein 4.

1 ♂, 1 ♀.

ab. **variegata** nov.

In this the dark and light shades are most mixed up together. The forewing has the large black cell-mark followed by a whitish blotch before the dark blotch following the outer line below costa; before the submarginal line in both wings there is a broader pale sinuous line from inner margins. The underside is much darker, and in this and other respects it approaches the ab. *nigrocellata* from Suer, Mefor.

All the examples, 5 in number, are ♀♀.

ab. **nigrosticta** nov.

This has the whole surface of both wings dark grey-brown, thickly dark-speckled, with no light markings except a fine submarginal line, the usual cross-lines indistinct, and marked only by black spots on veins; but the large round cell-spots and the lunules preceding the submarginal line, with a subapical streak beyond it, are all conspicuously velvety black; the basal segment of abdomen with a broad velvety black ring.

1 ♂, 1 ♀.

ab. **albimaculata** nov.

This form corresponds to the aberration from Fergusson Island called *maculata*, in which the anal blotches in both wings and an apical blotch in forewing are pale ochreous; in the New Guinea form these blotches are white, and other white blotches are developed: one before first line near base, one below costa in the bend of the outer line, a curved fascia beyond first line, and the whole base of hindwing sometimes all in the same example. On the other hand, in two of the dark examples the white blotches at anal angles and apex, though present, are masked and obscured

by dark and partially confluent striae. In the darkest marked specimens the cell-spot is obscured ; where visible it appears as a large ocellus with pale centre ; but in two examples the discal mark is round and black, and these appear to form the transition to ab. *variegata*.

9 ♂♂, 4 ♀♀, of which 2 ♂♂ have the white markings masked, and 2 the cell-spots black and large.

ab. **uniformis** nov.

Forewing : dull grey-brown, without dark or light shades ; costa with yellowish striae, lines marked by black spots on veins ; submarginal line waved, whitish, forming a broader, elongate mark at anal angle ; anal region with a few yellow striae ; fringe concolorous ; discal mark obsolete ; veins slightly dotted with yellow.

Hindwing : the same ; lines visible along inner margin.

Underside either wholly dull grey-brown, or with the basal half paler and large dull black cell-spots.

In one example the forewing is marked with a dull yellowish erect blotch on inner margin before submarginal line and a marginal yellowish blotch between veins 3 and 4, the lower part of submarginal line being plainer on both wings.

3 ♂♂.

110. **Paradromulia fuscimedia** spec. nov.

Forewing : whitish, tinged with pale sepia-brown and striated with fuscous ; the central area dark fuscous-brown ; the lines blackish ; first from one-third of costa, curved to near base of inner margin, generally interrupted below median ; outer line from three-fourths of costa, sinuous, to middle of inner margin, bluntly bent outwards at vein 4, sharply inwards at vein 2, thence vertical, approximated there to a median line which is slightly bent at middle ; all three lines from black costal spots ; outer line followed by a broad, dentate-edged, parallel dark sepia-brown fascia, the dark tint extending inwards as far as the median line, becoming diluted towards costa, where it generally reaches the inner line, and sometimes extends beyond it ; along the outer edge of this shade the white ground-colour stands out clear ; submarginal line whitish, obscure, the preceding lunular spaces partially filled up with pale brown, the two subcostal ones with dark fuscous ; marginal area deeper brown above vein 4, topped by an oblique black dash across vein 6 ; slight black marginal spots ; fringe pale brownish, chequered with paler, and darker tinged above vein 6 ; cell-spot obscured.

Hindwing : without first line ; a dark brown shade before submarginal line, becoming, like the central area, paler before costa ; cell-spot indistinctly ocelloid.

Underside dull whitish ochreous, shaded with pale brownish along costa and more broadly towards hindmargin, leaving the apex of forewing squarely pale ; the dark marks faintly shown ; cell-spots of both wings large, fuscous-brown with the discocellular pale ; fringes of hairs along veins of inner margin of hindwings all ochreous.

Face and palpi brown ; vertex, shoulders, and patagia ochreous, variously stained with darker ; the patagia with a brown middle bar ; abdomen cinereous ochreous, darker along dorsum ; tuft of hindtibia woolly, blackish grey.

Expanse of wings : 52 mm.

5 ♂♂.

111. **Paradromulia purpurea** spec. nov.

Forewing: brown with a purplish gloss, finely striated with darker; first line at one-fourth, angled on subcostal vein, then straight, nearly vertical, to inner margin, not curved inwards towards base, as in *ambigua* Warr., preceded by a dark, more diffuse, shade; outer line from three-fifths of costa, dentate-lunulate, marked darker on the veins, slightly bent outwards at vein 4, but not angled, nor sinuate below middle; middle line from costa near first line, passing through the black elongated cell-spot, below the middle parallel to outer line; between the cell-spot and outer line is a square deep fulvous spot; the shade following outer line is developed beneath costa into a triangular dark blotch stretching towards apex; submarginal line preceded by a dark shade, whitish and more conspicuous above inner margin; a square white apical blotch; a dark marginal festoon; fringe dark brown.

Hindwing: dull tawny; antemedian line straight, postmedian slightly curved, punctulate on veins, the shade beyond it stronger; a dark shade before submarginal line, the area beyond it more purplish; cell-spot annular.

Underside deep purplish grey, towards hindmargin darker, becoming purplish black on forewing before the snow-white apical spot, which is narrowed to vein 6; cell-spot of forewing very large, round, deep black, followed by a whitish space; of hindwing much smaller, oval.

Face brown above, ochreous below; palpi externally brown; vertex ochreous; antennae tawny, spotted with dark; thorax purplish cinereous; abdomen cinereous, purplish-tinged on basal segments.

Expanse of wings: 44 mm.

4 ♀♀.

112. **Paralcis laeta** spec. nov.

Forewing: bright yellowish ochreous; striae and markings black; a small black blotch at base of costa hardly reaching inner margin; a broad oblique curved fascia just beyond; a blotch at middle of costa, containing a pale linear mark on discocellular; a longer, more broken costal blotch at two-thirds, edged inwardly by a black line, and sinuate inwards below middle, accompanied by black striae and spots, to a larger blotch near middle of inner margin; submarginal line lunular, interrupted, preceded by a dark shade inwardly suffused with tawny, and forming at costa two black lunules; marginal area blackish, broadly interrupted at apex and between veins 3 and 4; black marginal lunules; fringe dark, except at apex and between veins 3 and 4.

Hindwing: basal half ochreous, with coarse black speckling and a black ocelloid cell-spot; an indistinctly double black postmedian line; the rest as in forewing.

Underside duller, with the markings reproduced.

Palpi ochreous, externally blackish; head, thorax, and abdomen pale ochreous, yellower in the ♂; the shoulders, patagia, and basal segments of abdomen speckled with black; foretibiae and -tarsi blackish with ochreous joints.

Expanse of wings: ♂, 39 mm.; ♀, 36 mm.

1 ♂, 1 ♀.

113. **Paralcis lithina** spec. nov.

Forewing: pale olive-ochreous, tinged with darker olive, along inner and hindmargin with slight dark speckling; first line black from one-fourth of costa,

sharply angled outwards on subcostal vein, then oblique and below median slightly wavy to inner margin at nearly one-third; preceded by a similarly angled shade within the angle of which is a spot of pale scales, semitransparent; outer line from four-fifths of costa to three-fifths of inner margin, slightly dentate on veins and parallel to hindmargin; the space between the lines in costal half paler; the median line marked by three black longitudinal streaks, one on costa, one on subcostal vein, and the third along vein 6, the last touching a second spot of pale scales also semitransparent, beneath this a round black spot between veins 2 and 3; outer line followed by a dark-edged olive fascia; submarginal line pale, lunulate-dentate and interrupted above vein 4, simple, broad, and uninterrupted below, the upper lunules filled up and followed by darker, the lower half followed by a dark line; a row of contiguous black marginal lunules; fringe olive, crenulate, with darker middle line.

Hindwing: tinged with pinkish; the base pale, followed by a diffuse black band, preceding the black cell-spot; outer line finely dentate, regularly curved; the submarginal preceded by a broad black shade from anal angle to vein 5, followed at anal angle by a short white line.

Underside pale ochreous, speckled with black, the veins yellowish; cell of forewing with a black spot at each end and a long velvety black streak between them touching the two semitransparent spots; traces of a diffuse brown median line towards inner margin of forewing and across basal area of hindwing, followed here by a round black cell-spot; marginal area of both wings beyond the dark crenulate outer line dark chocolate-brown, with the submarginal line showing whitish above inner margin and white-spotted towards costa; fringe brown.

Head and palpi black; collar brown; shoulders, patagia, and thorax pale ochreous, the shoulders in front velvety black, the patagia tinged with olive; abdomen reddish grey, marked with darker on segmental divisions.

Expanse of wings: 44 mm.

9 ♂♂, 8 ♀♀.

The ♀ is wholly dull olive, speckled with fuscous; the inner and outer lines very obscure, marked with black, and the submarginal pale; the costal, basal, and median are as of both wings sometimes slightly paler; the black band near base of hindwing distinct. Underside like the ♂, but without any black marks in cell.

114. **Paralcis ocellata** spec. nov.

Forewing: whitish, tinged with olive-grey or olive-ochreous, thickly striated with darker; the lines fine, blackish, rising from dark costal spots; first from nearly one-third of costa oblique to near base of inner margin, angled below costa; outer line from two-thirds of costa to middle of inner margin, angled on vein 6, and irregularly dentate; median line more obscure, mostly parallel to outer; cell-spot white with greyish ochreous ring; the outer line is followed, as the inner is preceded, by a diffuse shade starting also from a dark costal spot; submarginal line wavy, whitish, the lunules partially filled up with dark; the marginal area with darker marks beyond cell, and interrupted by paler between veins 3 and 4; a fine black marginal festoon; fringe ochreous grey, with the base white between the veins, darker beyond them.

Hindwing: with a dark spot at base; the rest as in forewing, the ocelloid cell-spot placed on the edge of a darker shade and followed by a tawny streak towards margin. In the ♂ the whiter areas of the ♀ are all lost in the darker suffusion.

Underside whitish, tinged and striated with ochreous grey, without markings.

Head, thorax, and abdomen in ♀ whitish, in ♂ greyer, spotted with dark grey; palpi externally, a bar across middle of face, and the basal segment of abdomen darker; tufts of ♂ abdomen ochreous.

Expanse of wings: 30 mm.

1 ♂, 1 ♀.

115. **Paralcis pallidistriga** spec. nov.

Forewing: bright ochraceous, the ground-colour almost wholly obscured by deep purplish grey suffusion; the specklings and markings black; costa marked with close black striae and black spots at the origin of the lines; a short black mark close to base; inner line at one-fourth, rectangularly bent on subcostal, then vertical, twice curved, preceded by a similar but more diffuse shade; outer line dentate and sinuate at three-fifths; median line strongly outcurved towards outer line, and often united with it in a black blotch below middle, touching on the outside a large velvety black cell-spot, the space beyond it fulvous or ochreous, sometimes bright ochreous; a broad oblique band of ground-colour from apex to inner margin before anal angle, preceded on costa by a black blotch and followed below by obscure black contiguous lunules edged by the submarginal wavy line, which is sometimes ochraceous; marginal black spots; fringe, like the marginal area, purplish grey.

Hindwing: tinged with brownish or reddish; of the three lines the first is straight, distinct; the median diffuse, slightly sinuous, touching a pale-centred dark-edged cell-spot; the third marked by vein-spots; the rest as in forewing; inner margin and fringe ochreous.

Underside dull smoky grey, with faint indications of the paler and darker areas.

Head, thorax, and abdomen dark purplish grey, the abdomen becoming cinereous beyond middle; legs and abdomen beneath like underside of wings.

Expanse of wings: 42 mm.

21 ♂♂.

116. **Paralcis umbrilinea** spec. nov.

Forewing: olive-drab, darker speckled, in the ♀ with the underlying ground-colour whitish; the lines black, oblique, the shades also oblique, dark fuscous; first line from one-third of costa, projecting in cell, then obliquely curving inward to near base of inner margin, preceded by a broad dark grey cloud; outer line from two-thirds of costa irregularly oblique to middle of inner margin, dentate-lunulate, both teeth and lunules small; median line from a dark costal spot curved and obscure below costa, becoming plainer below middle, where it is followed by a fuscous shade; outer line followed by a broader, more developed dark shade, parallel with it, and with dentate edges; submarginal line pale, somewhat interrupted, preceded by dark lunules between veins 4 and 6 and followed by an oblique dark streak above 6; cell-spot indistinctly annular; a slight longitudinal streak of dark scales from below it to the submarginal line; black marginal spots between veins united by a fine black festooned line; fringe with a dark middle line.

Hindwing: similar, without basal line and shade; submarginal line and shade uninterrupted.

Underside of ♂ paler, with all the markings as above, but duller; of ♀ quite different: whitish with a faint olive tinge and speckled with dark; the lines fine and threadlike, very faint; a large round black cell-spot in forewing and an oval

one in hindwing; marginal area of forewing blackish towards apex, leaving the apex itself white; of hindwing smoky fuscous.

Head, thorax, and abdomen like wings; face and palpi marked with brown; tips of shoulders and patagia fuscous; a black ring at base of abdomen; the dorsal segments darker.

Expanse of wings: 48—52 mm.

4 ♂♂, 2 ♀♀.

In one of the ♂♂ vein 6 of both forewings is symmetrically forked from halfway to margin.

117. **Poecilalcis nigriscripta** spec. nov.

Forewing: snow-white; lines and markings velvety black; central fascia and hindmargin tinged with chocolate-brown; basal area formed of small blotches of black scales, its edge projecting on submedian fold; central fascia edged inwardly by an outwardly curved black line from one-fourth of costa to one-third of inner margin, outwardly by a sinuous black line from three-fifths of costa to three-fifths of inner margin, sinuate inwards towards inner edge on submedian fold; its centre partially filled up with chocolate-brown, and with an obscure curved median shade; the central space is preceded and followed by a broad pure white band; the outer one is succeeded by a band of irregular black oblong blotches, joined to a black band consisting of a dependent costal blotch, a round one beyond cell, and an erect blotch from vein 3 to inner margin; submarginal line white, broad towards costa, narrower and wavy below; marginal area chocolate-brown, with a black blotch above middle; a row of black marginal lunules between veins; fringe chequered black and white.

Hindwing: pure white, sparsely dark-speckled along costa and hindmargin, with blackish cell-spot, traces of a cloudy submarginal line, containing a dark mark beyond cell, and marginal black spots; fringe pure white.

Underside white; forewing with costal spots and speckling black; marginal area tinged towards apex with chocolate; cell-spot and outer line at costa marked in black, the other markings showing through; hindwing with cell-spots, marginal spots, and speckling black.

Palpi white, externally black; face and vertex white; antennae speckled black and white; shoulders, patagia, and thorax white, blotched with black; abdomen white; legs black and white mottled; pectus white; forecoxae black at base.

Expanse of wings: 37 mm.

1 ♀.

Almost certainly a *Poecilalcis*.

118. **Zygoctenia albisparsa** Warr.

Of this species, described originally from Fergusson Island, a good series has been sent from New Guinea. *Zygoctenia singularis* Swinh., *Tr. E. S.* 1902. p. 620, also described from Fergusson Island, is a synonym.

Subfamily SELIDOSEMINAE.

119. **Casbia albinotata** spec. nov. and ab. **profusa** nov.

Forewing: dark fawn-colour, covered with fine darker striae; costa dark fuscous; three outwardly oblique parallel brownish cross-lines; the first at one-fourth, the second before the middle, the third at two-thirds; the first quite straight,

the second, nearer first than third, slightly waved, the third sinuous; a small black cell-spot between second and third; submarginal line interrupted, represented by a brown curve from subcostal before apex to hindmargin at end of vein 6, and by a parallel curve below, across veins 4 and 3, slightly edged with white in the ♀, and more strongly in the type ♂, which also has a white apical streak; in the other ♂, ab. *profusa*, the apical blotch is enlarged and the lower curve followed by a large square white blotch reaching hindmargin, with smaller white spots above and below it; marginal black spots before fringe marked with white scales, especially in the aberration; in both ♂♂ the lower edge of the dark costal streak is dusted with white scales.

Hindwing: with two obscure curved lines, antemedian and median; the cell-spot white; submarginal marked along the curves by spots of white scales, in the aberration by a square white blotch as well, as in forewing.

Underside pale flesh-colour, the margins with a narrow dark grey shade and distinct black triangular marginal spots; costa and apex of forewing black-speckled; the cell-spot black.

Palpi ochreous; face black-brown; vertex greyer, as is the face in ♀; thorax and abdomen like wings; the shoulders darker in front; anal segments of ♂ pale ochreous.

Expanse of wings: 28 mm.

2 ♂♂, 1 ♀.

Very much like *Casbia rectaria* Wlk. from Australia, but certainly distinct; the fovea in forewing is not immediately below the cell, as Mr. Meyrick describes it in *rectaria*, but below the submedian vein, which is upbent round it, and I can see no fovea in the hindwing; the face is smoothly scaled; vein 11 free, not anastomosing with 12.

120. **Oenoptila flavirupta** spec. nov.

Forewing: dull brown-red, black-speckled; costa narrowly pale in basal half; an irregular deep yellow patch beyond middle stretching from above vein 4 to below vein 2, containing brown-red striae and crossed by the lunulations of the outer line; the lines marked by vein-dots; the first at one-fourth, the dots with pale ends basewards; the outer at two-thirds, the pale ends outwards; across the yellow patch these white dashes are prolonged; cell-spot black; fringe concolorous.

Hindwing: without first line; the yellow patch small, at the base of veins 3 and 4, hardly reaching the spots of the outer line.

Underside deep yellow with dull brown-red margins, speckled and in forewing suffused with the same colour; cell-spots black.

Face and palpi deep brown; thorax and abdomen like wings; fillet and basal third of antennae white; underside of abdomen and legs yellow-ochreous; forelegs brown.

Expanse of wings: 42 mm.

1 ♀.

As in *vulpina* Warr. from the Solomon Islands, vein 11 anastomoses with 12 and 10 with 11 and 8, 9, and the species must be referred to the South American genus *Oenoptila*. The apex of forewing is subfalcate.

Taxilepis gen. nov.

Forewing: elongate; costa curved throughout; apex rectangular; hindmargin vertical to vein 5, protuberant from 5 to 3, then obliquely concave to vein 1.

Hindwing : hindmargin rounded, with an indentation beyond cell.

Abdomen of ♂ with anal tuft and a pair of lateral tufts beneath on penultimate segment ; metathorax tufted ? antennae simple, lamellate ; forehead protuberant ; palpi rough-scaled, erect in front of face, the second segment long, the third short, pointed, thrown forward ; tongue and frenulum present ; hindtibiae swollen, with a pencil of hairs and four spurs ; no fovea in forewing.

Neuration : forewing, cell quite half of wing ; discocellular vertically concave ; first median from before middle, second shortly before third ; radials normal ; 7, 8, 9 stalked from well before end of cell ; 10 and 11 long-stalked : hindwing with costal and subcostal approximated for one-half of cell ; 7 well before end of cell ; medians as in forewing ; no radial.

Wing-scales arranged throughout in long level lines ; scales of the body broad and coarse.

Type : *Taxilepis regularis* spec. nov.

121. **Taxilepis regularis** spec. nov.

Forewing : pinkish ochreous, closely and regularly striated with fuscous ; all the veins pale ; the lines indicated by paler, unstriated bands of ground-colour ; the basal and marginal areas darker than the median ; basal area edged by two or three dark spots followed by paler striae forming a slight curve at one-third ; outer line beyond two-thirds, the paler ground-colour projecting as teeth on the veins into the dark marginal area ; a dark transverse cell-spot ; margin slightly darker before the fringe, which is pinkish ochreous at base, pinkish fuscous beyond, with dark marks beyond veins.

Hindwing : similar, but the lines less distinct.

Underside white, suffused throughout with pink, with darker speckling ; outer line dark, crenulate, with paler edge ; cell-spots and marginal spots black ; hindwing at base white, with the cell-spot and a broad antemedian band across wing of coarse black scales.

Palpi, face, vertex, and shoulders cream-colour, with a few dark scales intermixed ; the palpi externally fuscous ; patagia fuscous ; abdomen pinkish ochreous, with brown speckling ; traces of a red metathoracic tuft ; antennae yellowish, with white basal segment.

Expanse of wings : 26 mm.

1 ♂.

A species and genus without any near allies.

Tolmera gen. nov.

Forewing : narrow, elongate ; costa nearly straight, convex before the rounded apex ; hindmargin oblique, slightly curved.

Hindwing : narrow, both angles and hindmargin rounded ; the anal angle hardly marked.

Antennae of ♂ bipectinate, apical fifth simple, the pectinations diminishing gradually ; forehead prominent ; palpi large, obliquely porrect upwards, rough-haired, the basal segment distinct with pointed tip below, second segment rounded, third smooth, shortly spatulate ; tongue and frenulum well developed ; hindtibia swollen, with a large pencil of hairs and four spurs ; abdomen of ♂ elongate ; metathorax with a bifid tuft ; forewing with large round bladdery fovea above submedian vein.

Neuration : forewing, cell longer than half of wing ; discocellular vertically bi-concave ; first median just beyond one-half, second close before third ; radials normal ; 7, 8, 9 stalked from a little before end of cell ; 10, 11 free ; hindwing, costal and subcostal approximated for one-half of cell ; veins 3 and 7 from before ends of cell.

Type : *Tolmera albibasalis* spec. nov.

The genus is related to *Scionomia* and *Arctoscelia* ; in the large round fovea it agrees with the former, but is separated from both by the pectinated antennae of the ♂.

122. **Tolmera albibasalis** spec. nov.

Forewing : yellowish ochreous, speckled and suffused with fuscous, sometimes so thickly that only the veins and cross-markings remain pale ; costa with pale striae ; the two cross-lines white ; first at one-fourth, outcurved, and bent on submedian fold, passing just outside the fovea ; outer line sinuous, from two-thirds of costa to three-fourths of inner margin, strongly incurved on submedian fold towards first line ; this is followed shortly by a parallel, less distinct, ochreous yellowish line before a broad fuscous fascia formed of contiguous oblong blotches edged outwardly by an irregularly lunulate pale submarginal line ; all the veins yellowish ; vein 6 broadly so across the fuscous fascia, joining a pale oblique apical blotch, below which the marginal area is darker ; cell-spot large, blackish, round ; marginal spots large, black, triangular ; fringe yellowish, mottled with darker beyond the veins ; at base of wing below the costa is a crescentic silvery white spot running into the cell.

Hindwing : shining ochreous, mottled and tinged with grey ; a dark curved postmedian line edged with paler ; hindmargin darker, with traces of a waved submarginal line ; cell-spot dull grey ; fringe ochreous grey, mottled with fuscous.

Underside ochreous, thickly and coarsely mottled with dark fuscous ; the cell-spots, outer lines, and submarginal shades blackish fuscous.

Head, antennae, and thorax yellowish ochreous, mixed and mottled with olive-fuscous, the patagia and metathoracic tuft darker ; abdomen ochreous, unspotted ; abdomen beneath and legs thickly and coarsely spotted with fuscous.

Expanse of wings : 42 mm.

4 ♂♂.

123. **Trochistis carnecostata** spec. nov.

Forewing : pale fawn-colour, slightly pinkish-tinged, with very fine and sparse black atoms ; costa in the ♂ broadly flesh-colour ; in the ♀ simply the costal edge, and not always that, is flesh-colour ; three slightly darker, outwardly sloping, cross-lines, more or less parallel to one another ; the first at one-fourth, the second median touching the black cell-spot, the third at two-thirds ; this is followed by two superimposed spots on veins 3 and 4, yellow with red edges (in two of the ♀♀ these are almost wholly black), and obliquely above them on vein 6 a slight dark mark ; marginal spot small, black ; fringe concolorous.

Hindwing : with two lines only, both curved and parallel ; cell-spot black between them.

Underside cream-colour, black-speckled, and with black marginal spots ; costa of ♂ ochreous flesh-colour.

Head, antennae, and collar brown ; in the ♀ the collar is paler ; thorax and

abdomen like wings; shoulders paler pink; anal segment of ♂ abdomen ochreous; pectus and femora slightly woolly.

Expanse of wings: ♂, 37 mm.; ♀, 35 mm.

2 ♂♂, 3 ♀♀.

The forewing of the ♂ is narrower than that of the ♀.

124. **Trochistis fulviplaga** spec. nov.

Forewing: brownish grey, with a slight reddish tinge and finely speckled with black; the costa pale grey, black-speckled, without any brown or reddish tinge; the inner and outer lines dark fuscous; the first close to base from one-sixth of costa to one-fourth of inner margin, bent on subcostal vein, then straight; outer from two-thirds of costa, below which it is inbent, straight and oblique to close before anal angle; median shade brown, sometimes bent in middle, generally nearer inner than outer line, followed by a narrow oval white cell-spot; outer line followed by two irregular fulvous orange patches one on each side of the median vein, sometimes bright and clear and edged with dark scales, sometimes indistinct and coalescent; often a similarly coloured patch on inner margin at base before first line; small black marginal dots; fringe rufous grey.

Hindwing: with only two lines, indistinct, and both irregularly waved; cell-spot white; fulvous patches as in forewings sometimes extended to anal angle.

Underside whitish ochreous, grey-speckled, with grey outer borders; outer line and costa of forewing also grey; marginal spots black.

Face brown; palpi, vertex, and antennae fuscous: thorax and abdomen rufous grey, like wings; anal segment whitish ochreous, blotched with dark grey.

Expanse of wings: ♂, 35 mm.; ♀, 30 mm.

12 ♂♂, 7 ♀♀.

The ♀♀ are rather paler than the ♂♂; the fulvous patches are sometimes very obscure; in one of the best preserved ♂♂ the white cell-mark of forewing is represented by a black line.

125. **Trochistis scardamiata** Warr.

Of this species, described by me as a *Casbia* (Nov. Zool. v. p. 431), I have hitherto seen only ♀♀, the type specimen from Kei Island, and another from Milne Bay, New Guinea. 5 ♂♂ and 4 ♀♀ are now in the Tring Museum from the Upper Aroa River, British New Guinea, taken between January and April 1903, by A. S. Meek. The ♂♂ are on the average slightly larger than the ♀♀, with the markings somewhat more distinct, the main difference being in the discal spot of forewing, which is large and silvery white, with a small black dot on its lower edge; in the hindwing it remains as in the ♀, a small black dot in a silvery ring. The purplish marginal fascia of the underside is usually much less developed than in the ♀. Further, on the submedian fold of forewing near base there appears a small pale metallic dot, which is not visible in the ♀♀.

Scardamia fasciata Warr., Nov. Zool. iii. p. 296, described from Fergusson Island, and which also occurs in New Guinea, must be transferred to *Trochistis*.

Subfamily SEMIOTHISINAE.

Euippe inferna spec. nov.

Forewing: dull greyish slate-colour, striated with darker; the lines slightly darker, but obscure; the first, near base, marked only by spots on veins; the outer,

dentate-lunulate, from two-thirds of costa to three-fifths of inner margin, the tooth on vein 6 blacker and more sharply defined than the rest; submarginal line pale, wavy; slight traces of a median line; all the lines marked by black dashes on costa, which is spotted with pale ochreous; fringe whitish, mottled with grey beyond veins; cell-spot invisible.

Hindwing: like forewing, but without basal line; a distinct blackish cell-spot near base, preceding antemedian line.

Underside black, the basal half of hindwing purplish grey; the dark lines and cell-spot distinct on hindwing, just traceable on forewing; submarginal line marked with white below costa of forewing and towards costa and at middle of hindwing; fringe white.

Vertex, thorax, and abdomen like wings, the underside and legs also grey; face and palpi black.

Expanse of wings: 35 mm.

2 ♂♂.

127. **Hypephyra plenimargo** spec. nov.

Forewing: pinkish ochreous in central field, the basal and marginal thirds covered with dark purple and olive fuscous scales, the lighter middle third with fuscous striae; the whole dark and light alike lustrous and scintillating; the edges of the dark portions are ragged and undefined, but near the inner edge of the marginal border can be traced a broad olive-brown line; costal edge with yellow spots in the dark portions, and dark in the light; cell-spot crescentic, deep yellow; fringe dark, beyond black marginal spots.

Hindwing: ochreous, clouded with smoky grey and with darker striae in basal half; the marginal half as in forewing, but without any distinct limiting shade; extreme base blackish; extreme hindmargin slightly paler; the whole spangled with lustrous scales.

Underside deep yellow to beyond middle; marginal area smoky black, the apex of forewing and hindmargin of hindwing slightly yellow; forewing below median vein with a cloud of grey striae from base to near middle; a dark spot on submedian vein and costa of hindwing just before middle.

Face and palpi black; collar grey-brown; thorax purplish black; abdomen cinereous: all with lustrous scales.

Expanse of wings: 42 mm.

1 ♀.

128. **Petrodava gibbosa** spec. nov. and ab. **rubra** nov. and ab. **intensa** nov.

♂. *Forewing:* pale olive, speckled with black, the lines and shades olive-rufous; first line at one-fourth, angled in cell, and again on vein 1; median line from beyond middle, angled on vein 6, then waved, to middle of inner margin; both these lines preceded by a shade of varying size and intensity; cell-spot small, blackish; outer line from three-fourths, bent above 6, to three-fourths of inner margin, slightly wavy, followed by a shade dentate outwardly, the teeth sometimes black-marked; fringe rufous, with pale tips.

Hindwing: without first line; the antemedian sinuous before the conspicuous black cell-spot; the postmedian curved, followed by a dentate-edged shade.

This is the palest and simplest form ; a second, ab. *rubra*, is wholly rufous instead of olive : in both there is sometimes a black blotch from costa to vein 6 in the postmedian shade of hindwing. Each of these paler forms is liable to intensification by the lines and shades darkening to deep fuscous or blackish, ab. *intensa*.

Underside of pale form yellow, tinged with reddish fulvous, and with the lines red ; of the dark form intensified by various shades of rich brown, red, and yellow. The ♀ is always darker and more strongly marked than the ♂.

Head, thorax, and abdomen in the pale form pale olive-ochreous, but varying according to the coloration of the wings ; sides of shoulders, base of costa, palpi, and pectus always bright red.

Expanse of wings : 40—44 mm.

21 ♂♂, 9 ♀♀.

Forewing with apex produced, subfalcate ; hindmargin strongly bowed at middle, especially in the ♀, where the apex is more produced and the hindmargin more deeply sinuate beneath ; hindwing truncate at apex ; hindmargin produced at vein 7, and crenulate, slightly in ♂, deeply in ♀ ; costal and subcostal veins of hindwing swollen at base into a kind of fovea ; cell of hindwing half the length of wing.

Subfamily ENNOMINAE.

Antarchia gen. nov.

Forewing : elongate ; costa curved throughout ; apex slightly produced ; hindmargin sinuate.

Hindwing : triangular ; anal angle rectangular ; apex rounded ; hindmargin nearly straight.

Antennae simple, lamellate ; palpi upcurved, second segment thick, rough-haired, third short, pointed, deflexed. Tongue and frenulum present.

Neuration : forewing, cell one-third of wing ; discocellular vertically concave ; first median at two-thirds, second and third from end of cell ; radials normal ; 7, 8, 9 stalked from close before end, 10 just before them ; 11 out of 12, 10 anastomosing shortly with 11 : hindwing, costal shortly approximated to subcostal, veins 3 and 7 just before angles of cell ; no radial ; all the veins straight. Scaling fine and close.

Type : *Antarchia subrubescens* spec. nov.

129. **Antarchia subrubescens** spec. nov.

Forewing : straw-colour, with a faint flesh-coloured tint along inner margin and a flesh-coloured submarginal shade distinct only towards anal angle ; fringe flesh-colour.

Hindwing : with the submarginal band complete and distinct throughout ; a slight flesh-coloured tinge towards hindmargin ; fringe deeper.

Underside flushed with pale rosy ; costa and apical area of forewing with sparse brown dots.

Palpi below red ; apex of second segment and the third blackish ; face black ; vertex and antennae brown ; thorax and abdomen like wings, abdomen pink-tinged towards anal segments ; pectus and forefemora dull rosy ; (legs broken).

Expanse of wings : 48 mm.

1 ♀.

130. **Capasa bifurcata** spec. nov.

Forewing : deep purple, with two brown lines becoming blackish on costa, as in *incensata* Wlk., but the outer line different; first line from near middle of costa, below which it is curved, to before middle of inner margin ; the second from three-fourths of costa, at first running outwards, but bent and oblique to inner margin much sooner than in *incensata*, in which the outer line points direct to the apex, while here it is much more nearly parallel to hindmargin ; the lines are wider apart on inner margin, and the green interval therefore broader ; this green colour runs up along first line to middle of cell, ending in a sinuate tongue, the outer edge ending on vein 2; before the first line the cell is dull fulvous and the costa above it purplish.

Hindwing : with the central green band broad and sinuous, the costal and inner margin from it to base bright yellow.

Underside as in ♀♀ of *incensata*, but the purplish grey marginal border of forewing is uninterrupted ; while in the hindwing it is restricted to a small blotch at apex and streak at anal angle.

Palpi, abdomen beneath, and all legs orange; face, thorax, and dorsum deep purple ; vertex, collar, and antennae grey.

Expanse of wings : 39 mm.

1 ♀.

This ♀ came with a long series of the ordinary *incensata* ; in size it corresponds with the ♂♂ of that species, the ♀♀ being in all cases larger ; the six examples of ♀ *incensata* were all more or less worn, whereas the present specimen is quite fresh. Whether rightly a distinct species or an abnormal development of *incensata* must be left to future determination.

131. **Gonophaga straminea** spec. nov. and ab. **abrupta** nov. and **brunneata** nov.

Forewing: straw-colour, either quite pale, or washed with fulvous brown, and more or less speckled with fulvous ; first line from one-third of costa, right-angled on the subcostal vein, vertical to submedian, then oblique inwards, marked by dark vein-spots, and often preceded by a brown shade ; cell-spot annular ; a slightly outcurved median shade below the cell-spot, rarely visible above it; an outer sinuous shade from two-thirds of costa, its lower half generally obscured, but, where visible, parallel to median shade ; from three-fourths of costa a brown line obliquely curved outwards to vein 6, there sharply angled and oblique inwards to before middle of inner margin, becoming irregularly double below the angle, and widening, often ending in an oblong black-brown blotch, and crossing the lower parts of the median and outer lines; submarginal line waved, generally indistinct, but mostly ending at anal angle in an upright blackish blotch ; marginal area always paler at the middle; a row of black spots between the veins before the margin.

Hindwing : with a brown straight basal line and another antemedian, passing inside the discal annulus, which is sometimes prominent; a dentate-lunulate curved postmedian line, and a brown pale-edged submarginal line running straight from anal angle to margin between veins 4 and 6, there bent to the end of vein 8, and generally interrupted into spots.

Underside pale straw-colour in basal half, heavily and coarsely speckled with brown ; outer half grey-brown, with a bluish grey apical blotch, preceded by a pale

fulvous patch ; the lines very variable in intensity ; the cell-spots always distinct, ringed with brown-black.

Head, thorax, and abdomen straw-colour, speckled with brown ; the shoulders always more or less brownish.

In some instances the marginal space beyond the oblique line of forewing, except at middle of hindmargin, and the space between basal and antemedian lines of hindwing, are overlaid with grey-brown or black-brown, and the middle segments of the abdomen are banded with the same colour ; this form, ab. *abrupta*, occurs in both sexes ; in the other form of the ♀, ab. *brunneata*, the whole of both wings is suffused with fulvous brown, the oblique line is very obscure, being represented only by dark spots on the veins, and the marginal area beyond the outer sinuous line is dark brown ; in these cases, as in most of the ♀♀, the submarginal line is more plainly marked.

Expanse of wings : 50 mm.

9 ♂♂, 11 ♀♀.

This and the following species differ from *G. albipuncta* and *subpulchra* Warr. in having the submarginal line of hindwing bent at the margin above vein 4, whereas in those species the same line runs straight from above anal angle to the end of vein 8. The ♂♂ of the present species are, moreover, structurally differentiated by the possession of a prominent lobe at the base of the inner margin of hindwing beyond a double semidiaphanous furrow.

In markings, coloration, and contrast between the sexes in the ordinary form they bear a great resemblance to *Anisographe dissimilis* Warr., from which the outline of the hindwing will at once separate them.

132. **Gonophaga subgriseata** spec. nov.

Forewing : greyish fawn-colour, speckled with blackish ; the costa with fine and short black striae ; a dark spot at base of cell ; first line strongly curved from one-fifth of costa to near base of inner margin, marked by black spots on veins and on the two folds ; outer line from quite four-fifths of costa, oblique outwards but very indistinct to vein 7, there bluntly angled, and sinuous inwards to before middle of inner margin, red-brown and double, the outer arm subdentate on veins, and followed by a grey parallel shade which is broadened to margin above vein 4 ; submarginal line much interrupted, represented by blackish wedge-shaped marks, plainest beyond cell and at submedian fold ; some black dots along margin between the veins ; cell-spot white, ringed with brown.

Hindwing : with a thick straight red-brown antemedian line, finely and semicircularly curved inwards round the black-ringed white cell-spot ; a postmedian nearly straight, crenulated line followed by a grey shade ; a thick brown submarginal double line with paler centre from anal angle to hindmargin above vein 4, where there is a white spot in it, there bent and interrupted to apex at vein 8, the dark inner arm running straight to the tooth at vein 7.

Underside of both wings white, heavily speckled and striated with black to beyond middle, with a white dark-ringed cell-spot and thick red-brown median line not reaching either margin ; marginal area with a greyish fawn submarginal band preceded by a curved series of dark brown vein-spots and externally edged with darker ; the extreme margin, as well as apex and costal area, dove-grey.

Head, thorax, and abdomen pale grey ; base of shoulders darker ; a pair of dark spots on second dorsal segment ; legs pale grey, speckled with fuscous.

Expanse of wings : 52 mm.

1 ♀.

Distinguished from all the other species by the antennae of the ♀ being shortly bipectinate, the pectinations with an apical bristle.

133. **Gonophaga subpulchra** Warr., Nov. Zool. iv. p. 400.

The type, described from Mackay, Queensland, was a ♀, and till lately I had only seen one other example of the species, a ♂ from Sudest Island. Now, in the collection from the Upper Aroa River, British New Guinea, made by A. S. Meek, there come 6 ♀♀ and 1 ♂. The ♂ differs from the ♀ on the underside in having the whole outer area fawn-colour instead of dark brown, and in wanting the large white apical patch. Of the ♀♀ three are typical, the other three represent two distinct forms of aberration.

ab. **innotata** nov.

This form is without markings except the submarginal line of hindwing ; the other lines being replaced by obscure dots on veins.

1 ♀.

ab. **nigromaculata** nov.

This form develops a large velvety black blotch on inner margin of forewing at the base of the outer line.

2 ♀♀, one of which combines the characteristics of the two aberrations.

In the ♂ original description the upper half of hindmargin of forewing is said to be subcrenulate : it should be noted that the crenulation is very slight and confined to the end of vein 6. The antennae of the ♂ are shortly and evenly pectinated, with simple apex.

134. **Heterodisca ignea** spec. nov.

Forewing : fiery coppery, with blackish striae ; the lines exactly as in *H. scardamiata*, the first from one-fourth of costa to before middle of inner margin, the outer from five-sixths of costa to beyond middle of inner margin ; but, instead of the lustrous line, marked by black and white dashes on the veins, the white ends pointing inwards in the first and outwards in the second line ; cell-spot dark with a few pale scales inside ; no continuous marginal line, but slight marks of black white-dusted scales between the veins ; fringe concolorous, with conspicuous white chequering beyond veins.

Hindwing : similar ; the line central, marked with dashes only.

Underside smoky ochreous, washed with brown and freckled with grey ; the lines showing through ; the curved lines of dark spots, which are obscure above, here marked in black ; a streak of whitish scales to apex above vein 7 and the base of fringes white-scaled ; the white chequering more distinct.

Head, thorax, base of abdomen, pectus, and forefemora fiery red ; rest of abdomen violet with paler segmental rings ; hindlegs drab ; fore- and midtibiae and tarsi dark fuscous.

Expanse of wings : 40 mm.

1 ♂.

135. **Heteromiza robusta** spec. nov.

♂. *Forewing:* deep brick-red, slightly glossy, thickly speckled with dark atoms; the costa pale to middle; first line at one-fourth, indistinct, bent on subcostal, marked by small black and white dots on veins; outer line oblique from close before apex to three-fifths of inner margin, very deep red, outwardly edged with lustrous white; submarginal line dull lustrous, zigzag; fringe glossy pink; cell-spot black.

Hindwing: similar, without basal line, the oblique line central. In both wings the space preceding the oblique line is deeper red than the outer.

Underside uniform deep red; forewing with dark oblique line and a faint lustrous marginal shade; hindwing with the latter only; both wings with black cell-spots.

Face, palpi, and shoulders dull crimson; thorax and abdomen brown-red; anal segments paler, somewhat glossy; pectus, legs, and abdomen beneath crimson.

♀ with the red duller and browner; towards the costa and beyond the oblique line mixed with whitish and much more glossy. Underside of forewing with both lines marked, the oblique line narrowly double and the apex grey-black; hindwing with the line shown, and a curved crenulate line beyond it. Thorax and abdomen glossy pinkish grey.

Expanse of wings: 35 mm.

1♂, 1♀.

136. **Therapis pallidilinea** spec. nov.

Forewing: pale olive-grey, with slight dark dusting; the base of wing tinged with pinky brown; basal and median lines starting from costa as brown outwardly oblique streaks; the first from one-fourth of costa to one-fourth of inner margin, bent in cell and continued to inner margin as a whitish line, marked on the outside by blackish dots on the veins; median line very indistinct below the bend; outer line from three-fourths of costa to just beyond middle of inner margin, whitish, with dark dots on veins internally, bent below costa and above inner margin; marginal area beyond it and below vein 6 suffused with pinkish fulvous, or, in one instance, with dark brown and fuscous scales; submarginal line indicated below costa by two or three white lunules, preceded by fulvous blotches, indistinct below vein 6; fringe dark.

Hindwing: violet-grey, with a pink tinge; a dark straight antemedian line, continuing the median of forewing; a crenulate, paler edged, dark grey postmedian line; fringe dark brown; inner margin paler, with dark speckles and the lines dark.

Underside of forewing duller; the oblique outer line showing through only, but with a curved dark outer line parallel to the median, of which traces are apparent in the lower half of upperside; hindwing dove-grey, whiter towards inner margin and base, in one instance yellowish, speckled with brown, with the antemedian line to vein 6, the cell-spot, the postmedian line, and a shade beyond it, and a macular submarginal shade, all reddish brown.

Head, thorax, and abdomen olive-grey; the tops of shoulders, vertex of head, and face tinged with yellowish.

Expanse of wings: 39—42 mm.

3 ♀♀.

Agrees in neuration with the type-species *Therapis evonymaria* Schiff. in wanting vein 10 of the forewing.

Along with the above 3 ♀ ♀ came a fourth, much smaller (30 mm. only) and very different in appearance, which at first sight seemed distinct, but which I prefer to describe as

ab. **notata** nov.

Forewing: pale bluish grey; the basal and median lines both distinct, brown and wavy; no distinct pale outer line, but its course can be traced, much more strongly sinuous than in the type-forms, by the series of brown vein-spots along its inner edge; before the white submarginal lunules is a thick chocolate-brown oblique streak from costa to vein 6, and the whole outer margin below it is filled with a roundish diffuse chocolate-brown patch; two marginal chocolate-brown lunules before the fringe in the subapical excision.

Hindwing: bluish grey, with the two lines somewhat obscure, the postmedian much nearer the hindmargin than in the typical form.

Underside of forewing dull, with only the costal and marginal areas blue-grey, and the three white subapical lunules distinct: hindwing blue-grey throughout, with all the usual markings chocolate-brown; some chocolate-brown marks on the middle segments of abdomen above.

Subfamily PROSOPOLOPHINAE.

Anosiodes gen. nov.

Forewing: costa convex at base and before apex, faintly inflexed between; apex rounded; hindmargin nearly straight and vertical.

Hindwing: with both angles rounded; the hindmargin only slightly curved.

Antennae (♀) simple; palpi with second segment rough-haired, obliquely porrect upwards in front of face, third as long as second, smooth and slender, bent at an angle; tongue and frenulum present.

Neuration: forewing, cell half as long as wing; discocellular, vertical, faintly inangulated; first median nervule at two-thirds, second shortly before third; radials normal; 10, 7, 8, 9 stalked from before angle of cell, 11 from cell, anastomosing strongly with 12, 10 with 11, and again with 8, 9: hindwing, costal and subcostal approximated for one-half of cell, both swollen at base; 7 before end of cell; medians as in forewing; no radial.

Type: *Anosiodes hybrida* spec. nov.

137. **Anosiodes hybrida** spec. nov.

Forewing: pale green, with purplish fuscous markings; those before the middle oblique outwards, those beyond oblique inwards; an oblique straggling streak from base of costa along submedian vein; a black streak along inner margin beneath submedian; a black sinuous lunulate line from near base retracted to one-third of inner margin; a broad band from costa before one-third to middle of inner margin, interrupted, except along its inner edge, below vein 2; beyond middle a broader band, narrowed and sinuous below median, linearly uniting with the inner edge of the preceding band on vein 2 and joining outer edge of the blotch on inner margin; the inwardly oblique pale band following is edged externally by a strongly

zigzag line, internally solid ; submarginal line slightly sinuous, interrupted between 3 and 4, preceded and followed by dark shades, the hindmargin becoming irregularly green ; fringe dark.

Hindwing : blackish, with six irregular fulvous yellow blotches, three on veins 6 and 7, the first at their origin, the third marginal, the second half-way between ; the other three similarly placed on veins 2, 3, and 4, the marginal one long and narrow.

Underside blackish ; forewing with a yellowish V-shaped mark at middle of costa, some yellow marks along hindmargin, and a O-shaped yellow mark at apex, with black centre ; hindwing as above.

Palpi beneath yellow, apex of second segment and the third dark ; face yellow ; vertex fuscous ; collar greenish ; shoulders purplish in middle, edged with greenish ; patagia greenish in middle, edged with purplish ; thorax green ; abdomen cinereous ; legs fuscous, mottled with yellowish.

Expanse of wings : 39 mm.

1 ♀.

A species without apparent affinities, strongly suggestive of the *Noctuidae*.

Phrudophleps gen. nov.

Forewing : costa strongly curved at base, slightly at apex ; hindmargin deeply crenulate, somewhat prominent at vein 4, more oblique below ; inner margin fringed with broad-tipped hairs in basal half.

Hindwing : with rounded apex and hindmargin, the latter insinuate before anal angle, which is shortly squared.

Forehead rough-haired, with projecting tuft ; palpi with second segment rough-haired, obliquely upturned before face, terminal segment, long, smooth-scaled, porrect ; antennae (♀) thick, lamellate ; metathorax tufted ; tongue and frenulum present.

Neuration : forewing, cell half the length of wing ; discocellular vertically concave ; first median nervule just beyond one-half, second close before third ; lower radial absent, scarcely even represented by a fold, upper radial from upper end of cell ; 7, 8, 9 stalked from before end ; 10 and 11 long-stalked : hindwing, costal and subcostal shortly approximated near base, 6, 7 long-stalked ; discocellular and medians as in forewing ; no radial.

Type : *Phrudophleps viridis* spec. nov.

138. **Phrudophleps viridis** spec. nov.

Forewing : white, covered with bright green confluent striae which mostly obliterate the ground-colour ; costa with short dark green specks ; central fascia with the edges dentate-lunulate, darker, being mixed with blackish green, the lunules externally filled in with white ; inner edge at one-fourth, marked by a white costal spot, one between median and submedian veins, and a smaller one below ; outer edge at two-thirds, sinuate inwards below middle ; a large white spot on costa, beyond cell, and in submedian interval, with smaller dots between ; marginal area darkened at middle by a deep green shade, containing two white submarginal lunules below costa, above and below vein 7, and two marginal lunules above and below vein 3 ; dark green marginal lunules between veins ; fringe pale green, chequered with dark green beyond veins ; tips of the hair-scales of fringe along inner margin dark green ; cell-spot large and white.

Hindwing: whitish, washed with green; a broad light and dark green shade along hindmargin, the fringe being pale green; inner margin with a yellowish green tinge.

Underside whitish, green-tinged, with the markings showing through; marginal area greener, blackish green towards apex of forewing; hindwing more plainly mottled with green, and with a large blackish cell-spot and dark marginal spots preceded by whitish ones.

Head and thorax green, speckled with pale; terminal segment of palpi dark green; abdomen above ochreous, covered with olive-green scales, below deep green; all the legs green, pale-spotted; fore- and midtibiae and tarsi dark fuscous; antennae fuscous.

Expanse of wings: 26 mm.

1 ♀.

This is another species standing quite by itself.

PRELIMINARY DIAGNOSIS OF A NEW GENUS AND SPECIES OF KANGAROO.

BY THE HON. W. ROTHSCHILD, PH.D.

Dendrodorcopsis gen. nov.

This genus is closely allied to both *Dorcopsis* and *Dendrolagus*, and in many respects stands intermediate. It differs from both in its much more hairy rhinarium and very short claw to middle toe of hind-foot, which is concealed by the hair of the foot above and only exceeds the pad of the toe in length by 6 millimeters. The naked pad of hind-foot large, strongly rugose and extending up the back of hind-legs as in *Dendrolagus*. Hind-leg much longer than fore-leg, as in *Dorcopsis*. Tail considerably shorter than body, covered with short, flat, and straight hair as in *Macropus*. Mr. Oldfield Thomas has examined the skull of this curious new kangaroo, and finds that its essential generic characters (especially the absence of canine teeth) do not differ from those of true *Macropus*. This makes the genus much more interesting, as the external generic characters show almost conclusively that it is arboreal as well as rock-haunting in its habits, which facts would account for its modified outward resemblance to the Philanders and Tree-kangaroos, while it nevertheless retains the essential macropine cranial characters.

Dendrodorcopsis woodwardi spec. nov.

Size larger than *Dendrolagus bennetti*, ears long and very hairy. Colour above and below sooty brownish black, fore-legs and lower half of hind-limbs and tail deep black. Total length 1530 mm. Tail 700 mm; head and body 830 mm.; hind-foot 250 mm.; ear 80 mm.

Hab. Granite Ranges, Head of South Alligator River (Type No. 170—1046, 17, v. 1903).

Collected by J. T. Tunney.

NEW ORIENTAL ANTHRIBIDAE.

By DR. K. JORDAN.

1. **Mecotropis spilosa** spec. nov.

♂. Eye sinuate, frons sulcate. Structurally the same as *marmoreus* (1894) Jord., but conspicuously different in colour. Black and clayish grey above, the two colours strongly contrasting, forming sharply marked confluent spots, the black colour prevalent; head and rostrum with a broad mesial vitta, divided behind by a black elongate mesial spot. Pronotum, inside the space encircled by the carina, with twelve spots, three mesial ones merged together to a forked spot, the lateral ones irregularly angulate, the mesial one situated in front of the carina elongate-triangular. Underside bluish grey and black, the colours as sharply contrasting as above; abdominal segments 1 to 4 spotted with black and grey, the grey spots merged together at the apices of the segments and the black ones at the bases.

Hab. Palawan, January 1898 (W. Doherty).

One ♂.

The insect reminds one of *coelestis* (1898) Jord., and *pantherinus* (1857) Thoms., but differs from both in the structure of the rostrum and the shape of the eye.

2. **Mecotropis crassicollis** spec. nov.

♂. Black; body covered with a dense ochraceous clay tomentum, chequered with black (or brown) and grey; tips of antennal segments 3 to 8, bases of tarsal ones and underside of tibiae white.

Rostrum half as long again as apically broad, deeply sulcate in middle, the sulcus being prolonged to occiput; two grooves before eye and a third one starting from lower edge of eye; the carina bordering the upper groove continued to apex of rostrum. Eye entire. Prothorax wider than in all the other species, obviously rounded-dilated; notum with broad mesial depression from near apical edge to base, the depression divided by a mesial elevation, which reaches neither apex nor carina; the carina strongly rounded laterally. Elytra short, depressed along the suture; the interspaces of the stripes of punctures slightly convex. Transverse groove in front of forecoxae deep, widest in middle. Intercoxal process of mesosternum rounded, about as broad as long. Anal sternite bidentate.

Length, 16 mm.*; elytra, 10½ mm.; breadth, 6 mm.

Hab. Palembang, Sumatra, one ♂ (*type*); another ♂ from Pontianak, Borneo. In the structure of the rostrum it agrees best with *coelestis* (1898) Jord.

3. **Sintor dicyrtus** spec. nov.

♀. Black, entirely clothed with a slaty pubescence; club of antenna and on each elytrum a large basal tubercle and three small postmedian spots (one dorsal and two sublateral, these last minute) black, a subapical patch on each elytrum and two series of lateral dots on the abdomen brown, but very indistinct. Rostrum rugosely punctured, less than twice as long as broad, dorsally with a prominent mesial carina which terminates on occiput and does not quite reach the apical

* Head and rostrum is in all cases excluded.

margin, and with an indication of a raised line laterally; ventrally with three carinae, which converge behind. Prothorax shorter than in *bicallosus*, densely punctured; carina evenly and slightly concave above. Elytra similar to those of *bicallosus*, but shorter, less depressed behind and less narrowing apicad, the basal tubercle larger and the humeral prominence more acute, the punctured stripes less deep.

Length, 10 mm.

Hab. Palembang, Sumatra.

Two ♀♀.

4. **Sintor orthus** spec. nov.

♀. Similar to *quadrilineatus*, smaller, antenna and femora rufous, tibiae and tarsi rufescent, rostrum shorter and broader, with the mesial depression less sharply marked and the carinae indistinct, the prothorax shorter and less depressed behind, elytra less conical, more convex, the two dorsal vittae of the elytra entirely separate from one another, beginning at the side of the scutellum; anal segment simple.

Length, 6 mm.

Hab. Malacca (Ribbe).

One ♀.

5. **Sintor quadrimaculatus javanus** subsp. nov.

Differs from *quadr. quadrimaculatus* in the elytra bearing, instead of the postmedian dorsal spot, a larger black lateral patch, which reaches up to stripe 3 or 4 and is widest at lateral margin.

Hab. Malang, Java (*type*), and Mt. Tengger, 4000 ft. (Fruhstorfer).

One pair.

6. **Sintor infernus** spec. nov.

♀♂. Similar to *quadrilineatus* (1839) Fahrs.; dorsal carina of pronotum less evenly concave, being slightly angulate in middle; vitta situated in third interspace of elytrum reaching suture close to scutellum, not at basal fifth as in *quadrilineatus*, lateral line extended right to the tip of the elytrum, no double dot at apex; anal segment simple; underside of body more densely pubescent white.

Hab. Nias (*type*), and Borneo.

One pair.

7. **Sintor biplaga** spec. nov.

♀. Black; a lateral vitta on head and pronotum, a thin mesial line on the latter, the unpair interspaces of the elytra, the tibiae (except black tips), and the greater part of the underside of the body buff-pink; interspaces 1, 2, 4, 6, and 8 of the elytra more greyish, shoulder-angle, an oblique band running from base laterad, ending behind shoulder at stripe 6 or 7, a large, transverse, rounded spot, extending from stripe 2 to lateral edge, black, like head, prothorax, club of antenna and tarsi.

Rostrum broad, not obviously dilated at apex, longitudinally impressed, mesial line cariniform from middle to near apex. Antennal segments 1 to 5 brown, 6 to 8 rufous, 8 little longer than broad. Eye small, long. Prothorax broader

than long, carina rather widely separate from basal edge. Elytra strongly convex, short, not cuneiform. Sterna and abdomen coarsely punctured. First segment of foretarsus not larger than second and third together.

Length, 6 mm.

Hab. Khasia Hills, Assam.

One ♀.

8. **Sintor fasciatus** spec. nov.

♂♀. Black, densely pubescent clayish grey, club of antenna and a broad postmedian band across the elytra brown-black; the edges of the band irregular, Rostrum short, half as long again as broad, stout, not impressed, mesially obtusely carinate, beneath without mesial carina. Prothorax little longer than broad, convex, somewhat rounded at sides, punctured, carina nearly straight above, abruptly terminating laterally behind middle, close to subbasal carina above. Elytra short, strongly convex, cylindrical, punctate-striate. Prosternum coarsely punctured. First protarsal segment little longer than the second and third together.

Length, 6½ mm.

Hab. Taipeh, Formosa.

Four specimens.

9. **Apatenia clavicornis** spec. nov.

♀. Black; antenna (except club) rufous; a subbasal grey pubescent ring of tibiae and the tarsi rufescent; femora, meso-metasternum and abdomen spotted with brown-black; rostrum and head black-brown, a mesial line on frons and occiput, interrupted by a black dot, and a spot behind eye clayish grey; pronotum variegated with black and clayish grey nearly as in *toliana* (1898) Jord.; the alternate interspaces of elytra tesselated with black and clayish grey; pygidium clayish grey, with brown mesial vitta.

Rostrum twice as broad as long, densely rugate-punctate like head, somewhat depressed at base, without distinct carina above, bicarinate below. Antenna short, club broad, peculiar, segment 9 semicircular, 10 still shorter and broader than 9, somewhat sinuate distally, 11 subcircular, rounded-truncate. Prothorax punctate; angle of carina completely rounded, the lateral carina very faintly sinuate in dorsal aspect, the thorax widest close behind end of lateral carina. Elytra little broader than prothorax, nearly cylindrical, slightly depressed at suture, subbasal callosity rather prominent.

Length, 7 mm.

Hab. Toli-Toli, North Celebes, 11. xii. 1895 (Fruhstorfer).

One ♀.

In *toliana* the prothorax is widest before the base at the curvature of the carina.

10. **Apatenia milnei** spec. nov.

♀. A large species. Blackish brown, legs rufous, except a postmedian ring and the base of the femora, which are black; pubescence of underside buffish grey, long pile of legs and pubescence of upperside more yellow; pronotum and alternate interstices of elytra chequered with brown, a lateral median patch and a lateral posthumeral dot black; abdomen marked on each side with two rows of black-brown spots.

Rostrum twice as broad as long, densely pubescent, with trace of a short mesial carina, mesially impressed beneath. Antennal segments with a few apical bristles, segment 8 half the length of 3, 9 = 10 = 11 = twice 8 and about twice as long as broad, 9 and 10 pear-shaped, 11 ovate. Prothorax obviously punctured like head, carina nearly straight above, strongly rounded at sides, not forming an angle, side of thorax simply rounded before base in dorsal aspect. Elytra broader than prothorax, planate from suture to fourth stripe, interstices 3 and 4 raised into a prominent rounded tubercle before declivous apex; middle of base convex, but not tuberculate. Pygidium a little longer than broad. Intercoxal process of mesosternum rounded.

Length, 11 mm.

Hab. Milne Bay, Brit. New Guinea.

One ♀, received from Messrs. Standinger and Bang-Haas.

11. **Apatenia phaeura** spec. nov.

♂. Similar to *A. pallidiceps* (1895) Jord. from British New Guinea. Eyes rather closer together. Sides of prothorax less extended grey. Elytra without tubercles in apical half; basal convexity less prominent, and declivous apex and pygidium uniformly clayish grey. Antenna and legs rufescent.

Length, 6 mm.

Hab. Kapaur, Dutch New Guinea (W. Doherty).

A. phaeura, *pallidiceps*, *insignis*, and the following *pustulata* are perhaps all geographical forms of one species.

12. **Apatenia pustulata** spec. nov.

♀. Also close to *A. pallidiceps*. Antenna and legs rufous, the latter annulated with black-brown. Carina of rostrum practically absent, being vestigial only in apical half. Occiput coarsely rugate-punctate. Pronotum different in pattern; antescutellar buff spot continued to near middle, bordered with black, a transverse oblique spot at each side of middle line and several lateral spots also black, more or less obviously edged with grey. Elytra nearly as in *insignis* (1895) Jord., marked with a large apical sutural black spot and with fewer black dots in sutural interspace; the two dorsal anteapical tubercles as in *insignis*, different in position from *pallidiceps*; the inner one situated in third interspace, as high as the median tubercle which stands in the same interspace; the outer tubercle smaller, situated in the fifth interspace, more frontal in position than the inner one. Abdomen with three rows of partly confluent black-brown spots on each side.

Antennal segments 6 to 8 very short.

Hab. Dammer I., Banda Sea, xii. 98 (H. Kühn).

One ♀.

13. **Apatenia olivacea** spec. nov.

♂. Black, uniformly covered with a greyish olive pubescence, a subapical spot on tibiae black; antenna rufescent; no long pile on legs and underside. Rostrum more than twice as broad as long, with a trace of a mesial carina at base. Antennal segments 9 and 10 pear-shaped, truncate at apex, 9 longer than 3 and than 7 + 8. Prothorax punctured like head, slightly uneven on disc, little wider at angle of carina than in middle, angle of carina 90°, not rounded, lateral carina nearly

straight in dorsal as well as lateral view, dorsal carina also straight ; sides of pronotum with traces of black dots. Elytra also with vestigial dots, besides three black tufted tubercles on each elytrum, situated in the third interspace, the first behind base, the second in middle, the third before the nearly vertical apex.

Length, 4 to 5 mm.

Hab. Woodlark I., 3. iv. 1897 (A. S. Meek).

One ♂.

14. **Apatenia tenuis** spec. nov.

♂. Similar in appearance to small specimens of *A. riduata* (1859) Pasc., but much narrower. Rostrum more than twice as broad as long, without carina. Frons anteriorly narrower than in *riduata*, and eye more prominent. Eleventh segment of antenna elliptical, pointed. Prothorax longer than in *viduata*, more uneven above, deeper depressed in middle of disc, with four discal globosities ; lateral angle of carina less than 90°, with the tip rounded, projecting laterad in dorsal view, the thorax in front of this angle less sinuate than in *viduata* ; dorsal carina convex, mesially distinctly angulate ; apex of prothorax comparatively broader than in *viduata* ; basal mesial spot grey. Elytra variegated with black, the spots not distinct in certain lights, no large black postmedian discal patch ; stripes deep ; subbasal callosity prominent ; a small median tubercle in third interspace and several raised dots before declivous apex black. Underside pubescent grey, the pubescence denser laterally on mesosternum and proximally on metasternal episternum ; sides of breast and abdomen spotted with brown.

Length, 5½ mm.

Hab. Palembang, Sumatra.

One ♂.

In *viduata* the rostrum is longer than broad and mesially carinate.

15. **Apatenia gracilis** spec. nov.

♂. Black-brown ; antenna, base of femora, a subbasal ring of tibiae, apex of femora and of tibiae, and all tarsi more or less pale rufous, clothed with a luteous grey pubescence. Rostrum more than twice as long as broad, with a short slight basal carina. Frons narrow, being only one-fourth the width of the rostrum, pubescent grey like rostrum, the grey area trisinuate behind, the occiput being brown, except a short anterior mesial line and a curved spot at eye. Eighth antennal segment not quite twice as long as broad, segment 11 as long as 9, broadest in middle ; first and second segments paler than the others. Prothorax one-third broader than long, laterally shallowly sinuate before the angle of the carina, coarsely punctate, slightly depressed on disc before middle, a mesial vitta from base to middle and a lateral discal median dot luteous, anterior half of disc and sides luteous grey, with brown spaces, a subapical brown arch (convex in front) interrupted by an apical mesial luteous grey line ; dorsal carina straight, lateral carina extended beyond middle, angle a little more than 90°. Scutellum grey. Elytra very little wider than prothorax, very slightly depressed at suture, gradually narrowing from base to near apex, the latter evenly rounded ; alternate interspaces luteous grey, tesselated with black, apical half of third interspace with three black prominent subtuberculiform dots. Pygidium longer than broad, with two luteous grey vittae separated from one another by a thin brown mesial line. Underside

grey, spotted with brown laterally. Abdomen flattened mesially; anal segment sinuate.

Length, 4½ mm.

Hab. Fergusson, Entrecasteaux Is. (A. S. Meek).

One ♂.

16. **Habrissus indicus** spec. nov.

♂♀. Differs from *H. tibialis* in the following particulars: rostrum longer, much more deeply concave laterally before the eye; end-segment of antenna luteous; pronotum blackish-brown, with grey markings; brown postmedian band of elytra narrower than in *H. tibialis*; pygidium longer; anal sternite of ♂ less impressed; metasternal patch of combs of ♂ larger; tooth at end of mid-tibia of ♂ shorter; first tarsal segment entirely luteous, pubescent grey, fourth segment entirely brown-black.

Hab. Khasia Hills, Assam.

Two ♂♂, two ♀♀.

The metasternal ♂-mark consists in this species and *tibialis* of transverse rows of flat spines which lie close upon the metasternum, each row resembling a comb. While in *tibialis* there is a small patch of combs on each half of the sternite, *indicus* possesses one large undivided mesial patch of combs.

17. **Habrissus rugiceps** spec. nov.

♀. Blackish-brown, pubescence of upperside dark olive-brown; alternate interspaces of elytra tesselated black and grey; underside pubescent grey; tibiae black with whitish ring; third and fourth tarsal segments rufous.

Rostrum twice as broad as long, rugate, without carina. Occiput longitudinally rugate, with mesial carina, which is suddenly abbreviated anteriorly between the eyes. These widely separate, the frons being half as broad as the rostrum. Prothorax rugate-punctate, carina gradually curved laterally, but not becoming longitudinal. Elytra almost gradually declivous from base to apex, subbasal convexity prominent.

Length, 6 mm.

Hab. Perak.

One ♀.

18. **Acorynus rhodius** spec. nov.

♀. Closely resembling in colour *Litocerus picturatus*, but differing as follows: the three carinae of rostrum heavier, the lateral ones obliquely continued to apical angles of rostrum. Antenna much shorter, segment 10 less than half as long again as broad, but half the length of 9. Prothorax broader than in *L. picturatus*, dorsal carina angulate in middle, slightly biconvex, lateral carina longer, discal vitta broad, not interrupted. Elytra also broader than in *L. picturatus*, somewhat differently marked: a subbasal ovate spot, a spot occupying humeral angle, a lateral ring behind shoulder, an elongate submedian spot on interstice 4, occupying only half of 3 and of 5, two dots in front of this spot, a sutural spot behind middle, a transverse anteapical band extending from margin to margin, narrow, convex on each elytrum, produced backwards at suture, not forwards, a sublateral median

spot and a tiny external apical dot black-brown. Pygidium truncate like the anal sternite, brown in middle.

Length, 9½ mm.

Hab. Pontianak, Borneo.

One ♀.

19. **Acorynus tolianus** spec. nov.

♂. Rostrum, head and prothorax brown-black, apex of pronotum and elytra, and underside rufescent. Antenna brown, rufous towards base. Legs entirely pale rufous. Underside, rostrum and head, scutellum, pygidium, and markings of pronotum and elytra pubescent yellow. Pronotum with three straight vittae, the lateral ones broad, incompletely separated from the pubescence of the underside. A broad basal marginal band to elytra, dilated below shoulder and near suture, joined to a subbasal spot which stands between stripes 1 and 4 ; behind this spot a small dot and larger rounded spot ; at basal third of suture a transverse spot, not interrupted at suture, between interspaces 3 of the two elytra, produced backwards on third stripe, joining a square median spot which expands between second and sixth interspace ; an elongate sutural spot before declivous apex, isolated ; a sutural and a lateral apical spot, joined together ; two nearly square lateral spots, one before, the other behind middle, the second produced along margin to near apical spot. Pygidium slightly brown in middle.

Rostrum with three abbreviated sharp dorsal carinae, the lateral ones slightly converging at end. Eyes longer than broad, close together in front, but not touching each other. Segment 10 of antenna half as long again as broad, 9 shorter than 3 and only one-third longer than 8. Prothorax broad, rounded-angulate before base, no coarse puncturation, antemedian sulcus present, but not sharply impressed, dorsal carina feebly biconvex. Elytra convex, depressed at suture, basal callosity feeble, sides somewhat rounded. Prosternum impunctate. Metasternum with brown lateral spot on sternite. Abdomen and tibiae unarmed.

Length, 8 mm.

Hab. Toli-Toli, N. Celebes, xi. xii. 1895 (Fruhstorfer).

One ♂.

20. **Acorynus ligatus** spec. nov.

♂. Blackish-brown, somewhat rufescent ; pubescence of underside grey, not very dense. Upperside marked with clay-colour : rostrum, cheek and a dorsal stripe along eye ; three straight vittae on pronotum, the lateral ones broad ; a sutural vitta on elytra, occupying basal third, then dividing into two broader stripes, one on each elytrum, these stripes running obliquely backwards and laterad to outer apical angle of elytrum, the sutural vitta connected at basal edge with an irregular humeral vitta which extends to middle of elytrum, a few dots between the two vitta, and one on second stripe at apical fifth ; suture edged with clay from near oblique band to near apex. Antenna and legs rufescent. Pygidium clay, with brown mesial vitta.

Rostrum short ; carinae feebly marked, abbreviated. Segments 9 to 11 of antenna nearly as long as the others together, 8 conical, shorter than 10, this one-third of 9, the latter nearly equalling 5 to 8 together. Eyes well separated, a little longer than broad. Prothorax conical, with almost straight sides, not distinctly punctured ; dorsal carina straight ; pubescence as dense as on elytra,

concealing the structure more or less. Punctures of prosternum fine. Tibiae unarmed.

Length, 8 mm.

Hab. Samar, Philippines, 6. vii. 1896 (J. Whitehead).

One ♂.

Near *obliquus* (1897) Jord. from Sumatra ; club of antenna much longer, eyes much wider separate, and pattern of elytra different.

21. **Acorynus leptis** spec. nov.

♂. Similar to *melanopus*, but a little longer and narrower; markings clayish. The three dorsal carinae of rostrum interrupted beyond middle and then continued to apex, the lateral ones slightly diverging. Eye more prominent than in *melanopus*, a little longer than broad, subemarginate above, with the adjacent anterior portion of the occiput depressed. Base of antenna rufescent. Prothorax similar in shape to that of *sporadis* ; puncturation less obvious ; dorsal carina evenly but very slightly concave ; three mesial spots and a discal dot as in *melanopus*, a broad lateral vitta which is separated from the pubescence of the underside by a posteriorly furcate subapical brown spot. Scutellum clayish grey. Elytra dispersedly striped with short clayish lines nearly all situated in the punctured stripes ; three rather larger spots on each elytrum : one lateral just behind shoulder, the second discal, median, oblique, from interstice 3 to 5, and the third lateral postmedian. Pygidium clayish-grey, with brown mesial vitta. Underside clayish grey ; apex and a median patch on femora black ; tibiae black, with broad antemedian rufous ring which is clayish grey pubescent ; first segment of tarsi also rufous, with large apical grey patch ; midtibia of ♂ with slightly curved apical tooth ; prosternum nearly smooth.

Hab. Palembang, Sumatra.

Two ♂♂.

22. **Acorynus sporadis** spec. nov.

♂ ♀, Black, greater portion of antenna and of tibiae and tarsi rufous. Upperside with a black-brown tomentum, and spotted with luteous grey. Rostrum and cheek luteous grey ; occiput with or without small lateral spot. Three interrupted vittae on pronotum and three basal spots as continuation of these vittae, besides a lateral spot at lateral carina, or the lateral vittae not interrupted and broader than the mesial one. Scutellum black-brown. Elytra without spots upon suture, all the spots very small, 13 to 16 on each elytrum, the basi-limbal one the largest; a dot behind middle on fourth interspace rather larger than those nearest to it. Underside grey or clayish ; abdomen with a series of oblique brown lateral lines, which are not always distinct.

Rostrum with three prominent dorsal carinae, the middle one prolonged to apex. Eyes nearly contiguous in ♂, prominent in both sexes. Occiput coarsely punctate like pronotum, with fine mesial carina anteriorly. Antennal segment 10 one-third the length of segment 9. Prothorax conical, with straight sides ; no antemedian transverse sulcus ; dorsal carina very slightly concave, lateral angle very strongly rounded. Prosternum coarsely punctured, abdomen densely but rather finely punctured. Anal sternite of ♀ subsinuate, with small mesial apical tubercle. Midtibia of ♂ with apical tooth.

Length, 8 to 9 mm.

Hab. Sumatra and Borneo.

Two subspecies:

a. **A. sporadis sporadis.**

♂♀. Lateral vitta of pronotum interrupted; the lateral plates of the meso- and metasternum more or less obviously edged with brown-black, and the brown-black oblique streaks of the abdomen distinct.

Hab. Palembang, Sumatra.

One ♂ four ♀♀.

b. **A. sporadis luteus** subsp. nov.

♀. Dots of upperside and pubescence of underside deeper clay-colour; lateral vitta of pronotum not interrupted; dots of elytra rather more numerous than in the preceding; brown markings of underside indistinct.

Hab. Borneo: Pontianak (*type*), and Kuching (October).

Five ♀♀.

23. **Acorynus melanopus** spec. nov.

♂♀. In appearance like *sporadis* but smaller, deeper black, with the antenna slightly rufescent, and the pubescence of the underside and the dots of the upperside grey. Carinae of rostrum as prominent as in *sporadis*, but the mesial ones less distinct in apical half and the lateral ones converging distally and again slightly curving laterad at end. Eye almost circular. Prothorax shorter than in *sporadis*, more rounded laterally in middle, with an antemedian discal dot; lateral markings as in *sporadis sporadis*. Dots of elytra more numerous. Legs black; femora pubescent grey, apex and a middle patch black; tibiae with narrow grey antemedian ring; first tarsal segment with large grey apical patch; tooth at end of midtibia (♂) straight; anal sternite of ♀ rounded, without tubercle.

Length, 6½ mm.

Hab. Palembang, Sumatra.

Four ♂♂, one ♀.

24. **Acorynus cordiger** spec. nov.

♀. Similar to *apicalis*; apical fourth of elytra and pygidium densely pubescent buff, this patch somewhat heart-shaped. Larger than *apicalis*; rostrum somewhat longer, the apical portion of the mesial carina more distinct and longer. Segment 10 of antenna over half the length of segment 9, while it is only one-third the length of 9 in *apicalis*. Dorsal carina of prothorax more straight and the lateral carina longer. Rostrum and head densely pubescent buff, except a brown spot on occiput. Pronotum and basal half of elytra greyish brown, area in front of buff anal patch broadly brown; about ten indistinct spots on pronotum and six in basal half of each elytrum also brown; a few minute dots in and behind middle of elytrum buff; elytra deeper depressed at suture than in *apicalis*. Underside olivaceous, without the buff spots of *apicalis*; first segment of tarsi all greyish buff; segments 2 to 4 brown-black.

Length, 10½ mm.

Hab. Java.

One ♀.

25. **Acorynus lewisi** spec. nov.

♂♀. Rufous brown, antenna (except brown club) and legs (except tarsal segments 2 to 4, which are brown) pale rufous. Rostrum, cheek and underside of

body densely pubescent yellow-buff; markings of upperside the same colour: occipital border to eyes; three straight vittae on pronotum; scutellum; on each elytrum a line from base to beyond middle, beginning at scutellum and ending in second interstice, a kind of band composed of single short lines situated between shoulder and middle of subsutural line, a line running from lateral margin before middle obliquely to second interstice, continued in this interstice backwards to near apex of wing and joining here a lateral line which extends forward as far as apex of second abdominal segment, being curved upwards at frontal end, the whole line resembling the figure 6; basal and lateral humeral edge of wing also yellow-buff.

Rostrum with three dorsal carinae, which are heavy in basal half, the lateral ones vanishing in apical half of rostrum, the mesial one obsolescent from middle to apex. Eye slightly longer than broad. Frons in ♂ anteriorly about the width of the first antennal segment, in ♀ half as broad again. Prothorax conical, broader than long, minutely punctured above, practically smooth, with a transverse antemedian sulcus; dorsal carina slightly biconvex, being concave in middle, lateral angle completely rounded. Elytra short, gradually narrowed from shoulder, suture rather strongly depressed. Anal sternite rounded.

Length, 10 mm.

Hab. Kuching, N. Borneo, xi. 1900.

Two ♂♂, one ♀, received from the Sarawak Museum. Named in honour of Mr. J. E. A. Lewis, who has collected most of the Anthribidae contained in the Sarawak Museum.

26. **Litocerus anna** spec. nov.

♀. Similar to small specimens of *paviei* (1891) Lesne; rostrum without dorsal carina, coarsely punctured. Eyes separate. Pronotum finely granulose, with dispersed large punctures laterally; no distinct transverse antemedian sulcus; a mesial vitta narrowed in front and again before carina clayish, a small discal dot and traces of lateral spots grey; elytra less coarsely punctate in the stripes than they are in *paviei*, an indistinct basal patch behind scutellum and a more distinct and larger one behind middle buffish grey, common to both elytra, behind the second patch there is a dot situated in the third interspace.

Hab. Kina Balu, N. Borneo.

Two ♀♀.

27. **Litocerus cryptus** spec. nov.

♂♀. Similar to *L. sellatus* (1859) Pasc., but differs in the following characters: transverse sulcus of pronotum much less impressed, the lateral angle of the pronotal carina less rounded, the lateral dots minute, while the mesial spot before the scutellum and the one before the carina are conspicuous; subbasal patch of elytra grey like the thoracical dots, not clayish as in *sellatus*, wider behind and extended frontad at the suture, reaching scutellum, the transverse portion interrupted or constricted; tibiae with grey antemedian ring; first segment of abdomen of ♂ armed with a tubercle.

Hab. Perak.

Two ♂♂, one ♀.

28. **Litocerus khasianus** spec. nov.

♂♀. Black, pubescence of underside clayish olive, upperside spotted with clayish buff; side of rostrum, cheek, frons, upper edge of eye, a mesial line on

pronotum, narrowed at sulcus, two minute discal dots one behind the other, three lateral spots, namely one elongate, apical, the second behind it, also elongate, but shorter, the third broader, situated at lateral carina, three basal spots, the mesial one large, the lateral one minute ; spots of elytra small, dispersed, the median one situated between stripes 2 and 5 or 6 the largest, subquadrangular, four double spots at suture : one square behind scutellum, the second before middle, the third minute, behind middle, the fourth before apex ; on a level with these sutural spots are four limbal ones, and on the interspaces stand several discal dots ; a basal adhumeral spot is forked ; a triangular lateral spot on pygidium ; and an antemedian ring on tibiae, all clayish buff ; tarsi not ringed with buff.

The three dorsal carinae of rostrum abbreviated in middle. Frons very narrow in both sexes. Eye elongate, oblique. Pronotum with transverse sulcus, strongly punctured laterally ; angle of carina rounded, lateral carina straight, oblique. Elytra coarsely punctate-striate. First segment of tarsi long. Abdomen of ♂ with tubercle on first segment. Antennal segments 5, 6 and 7 of ♂ compressed, resembling segment 8, but being narrower.

Length, 7 to 8½ mm.

Hab. Khasia Hills, Assam.

A series.

29. **Litocerus leucopsilus** spec. nov.

♀. Black, pubescence of underside greyish white. Rostrum, cheek and a thin mesial line on occiput and the following markings on pronotum and elytra white. Pronotum : three spots behind carina ; three mesial ones, the first linear, the other two mere dots ; two discal ones before middle and behind each another, which stands at the carina, two linear lateral ones, almost joined together ; dorsally of the hinder end of the anterior lateral line a dot ; a minute dot also in front of the first discal spot. Each elytrum with about thirty dots which are nearly evenly distributed, the median lateral ones more or less linear, two postmedian dots in stripes 2 and 3 confluent. Tibiae with two white rings ; apical half of first tarsal segment also white.

Rostrum with three abbreviated carinae. Eyes subcircular, not close together, very little oblique. Pronotum densely punctured, except in middle ; with transverse antemedian sulcus ; angle of carina completely rounded. Pygidium short, almost semicircular.

Length, 7 mm.

Hab. Khasia Hills.

One ♀.

Similar to *khasianus*, easily differentiated by the numerous white dots of the upperside, the two white rings of the tibiae, the white apical half of the first tarsal segment, the completely rounded lateral angle of the pronotal carinae and the short pygidium.

30. **Litocerus kuehni** spec. nov.

♂. Brown-black, slightly rufescent here and there ; underside of body spotted with grey laterally. Head, a broad mesial vitta on pronotum, constricted in middle, followed by a separate basal spot, a large basal area on elytra, extending from shoulder to shoulder, occupying at suture the basal fourth, a conspicuous postmedian spot between punctured stripes 1 and 6, a number of minute spots before apex and most of the punctures of stripes 7 to 9, the pygidium, except middle, a subbasal and

a subapical spot on the femora, a ring before middle of tibiae, and the base of tarsal segments 1 and 2 luteous, covered with a clayish buff pubescence.

The three dorsal carinae of rostrum stopping in middle. Frons parallel. Eye nearly circular. Pronotum minutely, but visibly punctured, with a very few inconspicuous clayish dots, besides the mesial vitta ; on each side of the vitta there is a transverse arched sulcus, convex in front, the two sulci separate ; lateral angle of carina rounded. Stripes of elytra deep. Abdomen (♂) mesially depressed, without tubercle.

Length, 8 mm.

Hab. Dammer I., Banda Sea, December 1898 (H. Kühn).

One ♂.

Similar to *inermis* (1895) Jord., from North Luzon, but easily distinguished by the interrupted transverse pronotal sulcus, of which the two halves are arched, by the absence of large confluent lateral markings from the pronotum, the depressed middle of the abdomen, etc.

31. **Hucus striatus** spec. nov.

♂ ♀. Brown, femora and tibiae more or less rufous, antennal segments 1 to 8 of ♀ also rufescent. Rostrum vertical, somewhat bent backwards, finely granulate-punctate, with two slightly marked carinae on each side between eye and dilated apical part. Eye circular, feebly truncate beneath, encircled with a luteous pubescence, which forms a spot on frons and extends a little along the mesial line of the rostrum; cheek grey. Antenna of ♂ more than twice the length of the body, black, segment 9 grey, except apex ; segment 1 prolonged, clubbed, a little shorter than 3, this not quite so long as 4, $4 = 5 = 6 = 7$, $8 = 3$, 9 about half the length of 4 and four times as long as 10, this twice as long as broad, 11 shorter than 9, about twice as long as 10 ; antenna of ♀ reaching basal third of elytra, segment 1 about one-fourth shorter than 3, this a very little longer than 4, $5 = 6 = 7 < 4$ and > 8. Prothorax very short, conical, finely granulate-punctate above, with three straight dorsal luteous grey lines, the lateral ones parallel with the sides, a further line at each side not separated from the grey pubescence of the under surface ; carina forming a lateral angle of 90°, the tip of the angle rounded off. Elytra convex, more strongly so than in *lateralis* (1895) Jord., finely striated, the alternate interstices with thin luteous grey line, the three discal lines of each elytrum very distinct ; the lines connected basally by a nebulous grey pubescence and in middle by a transverse grey band which reaches laterally to the fourth line ; suture grey at base ; interstices dark brown in front of and behind the transverse band. Pygidium luteous grey. Underside all grey. Second and third tarsal segments black beneath.

Length, 3½ to 4 mm.

Hab. Tambora, Sambawa, April—May 1896 (W. Doherty), *type*, ♂ ; Sapit, Lombok, April 1896 (Fruhstorfer), ♀.

One pair.

32. **Hucus persimilis** spec. nov.

♂ ♀. Similar to the preceding, but the carinae of the rostrum more prominent, the mesial line of the pronotum thinner, and the lateral ones broader and less sharply marked. All the dorsal interstices of the elytra with short luteous grey lines behind the base and before the apex, the postbasal streaks forming a distinct

transverse band, none of the lines complete from base to apex, except that situated in third interspace, the posterior transverse band, broader than in *striatus*, and farther backwards in position, continued laterad by some short streaks.

Hab. Queensland.

One ♂, four ♀♀.

33. **Mecocerina guttata** spec. nov.

♂. Brown-black, densely covered with a grey pubescence. Two broad dorsal vittae on prothorax, and a small lateral antemedian dot; eight spots on each elytrum, a dorsal row of four larger ones, the first postbasal, and a limbal row of four smaller ones, the first humeral; tip of tibiae and of first tarsal segment and the whole second to fourth tarsal segments brown-black.

Rostrum somewhat *Cedus*-like, mesially grooved, apically flattened, the two dorsal carinae (one on each side) somewhat converging in middle, then strongly diverging, obsolescent towards apex. Frons as in *xenoceroides*. Antenna nearly three times the length of the body, thin, second segment short, tenth longer, more than twice the length of eleventh, its extreme base and the apical half of ninth white. Prothorax short, transversely sulcate before middle, carina slightly convex dorsally, semicircularly curved frontad laterally. Elytra similar in shape to those of *xenoceroides*. Process of mesosternum and the abdomen as in *xenoceroides*; prosternum rather obviously convex in middle.

Length, 6½ mm.

Hab. Toli-Toli, North Celebes, 11. xii. 1896 (Fruhstorfer).

One ♂.

34. **Mecocerina amabilis salomonis** spec. nov.

♂♀. In structure the same as *M. amab. amabilis* (1859) Pascoe. Prothorax with broad lateral black-brown vitta which is abbreviated behind, besides the two dorsal vittae. Elytra marked with black-brown as follows: a large subbasal dorsal spot connected with an elongate lateral humeral patch by means of a small subbasal spot; a transverse median band, nearly interrupted in third interstice, laterally not reaching margin of wing, the sutural spot further backwards than the discal portion of the band, a large subapical rounded area on each elytrum, including two or three elongate spots of the ground-colour, and either touching suture or separate from it.

Hab. Solomon Is.: Florida, January 1901 (Meek and Eichhorn), *type*, and Tulagi (Woodford).

Three ♂♂, one ♀.

In the ♀ the antenna (club excepted) is rufous.

35. **Mucronianus (?) khasianus** spec. nov.

♀. Differs from *Mucronianus rufipes* in the structure of the rostrum and the pygidium. Black; segments 6 to 8 of antenna grey; rostrum, cheek, upper edge of eye and a mesial occipital triangular vitta greyish clay. A mesial vitta on pronotum, with which is connected at carina a small pointed oblique spot, a discal dot, and a broad lateral vitta indistinctly centred with brown, clay-colour; basal half of elytra clay, including many black spots, which are more or less confluent;

then follows a transverse black band ; and finally a clay area occupying apical fourth of elytra. Pygidium uniformly clay-colour. Underside slightly paler pubescent than markings of upper ; a spot on metasternal episternum, apex of tibia and of first tarsal segment, and tarsal segments 2 to 4 brown-black.

Rostrum coarsely punctured ; with indication of mesial carina; a heavy dorso-lateral carina from eye to middle, then curving laterad and becoming obsolescent; laterally of this carina the rostrum is grooved. Antennal groove large, rounded. Eye subtruncate beneath, a little more convex than in *rufipes*. Frons canaliculate, slightly wider than in *rufipes*. Antennal segments much broader than in that species, club elongate-ovate. Prothorax rather longer than in *rufipes*, conspicuously punctured. Pygidium rounded, not mucronate.

Length, 8 to 9 mm.

Hab. Khasia Hills, Assam.

Two ♀ ♀.

36. **Xenocerus basilanus** spec. nov.

♂. Black, slightly olivaceous above ; bases of antennal segments 4 and 5, underside of body, and legs grey, sides of sterna clayish buff; a lateral vitta over head and pronotum, a broad oblique band behind shoulder from base to outer margin of elytrum, a short vitta on suture, beginning at basal fourth and dividing in middle on each elytrum into an obliquely transverse band, and a short sutural apical streak clayish buff ; pygidium paler buff, black in middle. In structure similar to *rufus* (1894) Jord., prothorax broader, elytra more depressed at suture.

Hab. Basilan, Philippines, February—March 1898 (W. Doherty).

One ♂.

37. **Xenocerus rufus vidua** subsp. nov.

♀. Differs from *X. rufus rufus* (Borneo) in the antenna being for the greater part grey (club excepted), in the elytra being marked by a transverse line before the apex, and in the skeleton of the legs not being rufescent.

Hab. Palembang, Sumatra.

One ♀.

38. **Xenocerus dohertyi mortiensis** subsp. nov.

♂ ♀. Differs from *doh. dohertyi* (Batjan) in the two discal streaks of the elytrum being each reduced to a short linear spot situated halfway between base and transverse band, and in the apical line being replaced by a triangular spot.

Hab. Morty (Wallace).

A series.

39. **Xenocerus kuehni** spec. nov.

♂. Allied to *X. cinctus* (1894) Jord., narrower ; thorax longer ; vittae much broader ; lateral vitta of thorax and elytra of a beautiful red except here and there at the edges ; the transverse band of the elytra united to the lateral vitta.

Hab. Kendani, S.E. Celebes (H. Kühn).

One ♂.

40. **Xenocerus henricus** spec. nov.

♂♀. Allied to *X. puncticollis* (1894) Jord., but the dorsal carina of the pronotum laterally much more sinuate and the pattern of the elytra very different ; a transverse postmedian band expanded between the fourth stripes, sharply truncate laterally, produced into a short tooth behind on the suture and into a long pointed sutural projection in front, this projection not extending farther frontad than the basal third of the suture ; each elytrum with a vitta from base to near middle, the vitta widened near its basal end, not curving towards scutellum at the basal margin of the elytrum. As in *puncticollis*, there is no lateral vitta on the elytrum.

Hab. Kalidupa, Toekan Bessi Is. (H. Kühn).

A long series.

41. **Xenocerus aluensis atratus** subsp. nov.

♂♀. Black above, not clayish ; lines as in *al. aluensis*, but discal one of elytrum interrupted, the broader and shorter adhumeral portion being separate from the discal portion.

Hab. Florida I., Solomon Is., January 1901 (Messrs. Meek & Eichhorn).

Two ♂♂, one ♀.

42. **Xenocerus aluensis rubianus** subsp. nov.

♀. Colour of upperside olivaceous clay as in *al. aluensis* ; sutural vitta much broader than in the Alu form, especially behind, more extended backwards, not so deeply divided ; transverse band short ; basal discal line connected in its middle by a bar with the sutural vitta, as in *X. conjunctus* (1895) Jord. ; sublateral line absent.

Hab. Kulambangra, Rubiana, Solomon Is., March 1901 (Messrs. Meek & Eichhorn).

One ♀.

43. **Xenocerus speracerus sudestensis** subsp. nov.

♂. Differs from the Woodlark form in the following points : sutural vitta much broader, extending beyond the first stripe of punctures, incised 3 mm. from scutellum, suture slightly edged with grey between vitta and apex, no lateral line on eighth row of punctures, no transverse apical line, but a limbal mark before middle ; a broad, irregular ring encircling humeral angle and joined to the basidiscal line, which itself is connected with the sutural vitta in the type-specimen.

Hab. Sudest I., Louisiade Archipelago, April 1898 (A. S. Meek).

Two ♂♂.

44. **Xenocerus birmanicus** spec. nov.

♀. Close to *X. saperdoides* from Java, the two being perhaps subspecies of one species. Markings of upperside more yellow. Antennal segments 1 to 6 quite black. Discal basal vitta of elytra not connected with sutural one at basal margin, posteriorly not obliquely prolonged to the lateral margin and not connected with the transverse band, a short isolated line (or a trace of a line) before middle on stripe 9 ; sutural vitta not reaching apex. Tips of tibiae, of first and fourth tarsal segments, and nearly the whole second segments black.

Hab. Burma.

Three ♀♀.

45. **Xenocerus lateralis annulifer** subsp. nov.

♂♀. Fourth segment of antenna of ♀ twice the length of the fifth, both strongly compressed, eighth and upperside of seventh white ; antenna of ♂ black. Mesial vitta of pronotum broad, lateral one vestigial. A white ring on each elytrum from suture to shoulder, open in front, a transverse band behind middle, oblique on each elytrum, produced forward upon suture, reaching short basal sutural vitta or not ; no lateral vitta or only a vestige of it. Pygidium with two minute white basal dots. Underside and legs black.

Hab. Kapala Madang, Buru (H. Kühn).

Two pairs.

The half-ring at the base of each elytrum distinguishes this subspecies abundantly from the Amboina form *X. lat. lateralis* (1894) Jord., of which we have now two ♂♂ and one ♀.

46. **Xenocerus spilotus** spec. nov.

♂. Antenna as in *variabilis* (1860) Pasc. Prothorax slenderer than in that species, with three narrow white vittae, which are prolonged over the occiput; spots of elytra grey, nearly all isolated : one at base above shoulder, an indistinct one below shoulder, a larger one occupying basal fourth of suture, its basal half nearly confined to the sutural interspace, its distal half expanded to the third line of punctures, another sutural spot behind middle, also narrow in front and wide behind, but almost completely separated at the suture ; a halfmoon-shaped spot at lateral margin at basal fourth, a subquadrangular one on disc before middle, a smaller spot in the same interspace close to hinder edge of second sutural spot, a triangular spot just before the second discal one, but more lateral, and a small spot before apex between lines 6 and 7. Pubescence of pygidium and underside grey ; pygidium with narrow black mesial vitta.

Hab. Malang, Java.

One ♂.

47. **Xenocerus russatus** spec. nov.

♂♀. Similar to medium-sized and small specimens of *X. everetti* (1894) Jord. ; slenderer, the dark parts of the tomentum of the upperside more russet ; the lateral carina of the prothorax distinctly curved upwards in middle of thorax : segments 2 to 5 of antenna of ♂ with a dense fringe of short fine ciliae beneath.

Hab. Borneo : Kuching, iv. 1902 (*type*), Kina Balu, Baram R., and Dutch Borneo.

A series.

The small ovate groove present in the ♂ of *everetti* at the apex of the second antennal segment is found also in *russatus* ♂.

48. **Xenocerus mamillatus** spec. nov.

♀. Rufescent; tomentum of upperside brown, of underside buff. Three vittae on head and pronotum, and the following markings on the elytra buff: a broad sutural vitta extending to apex, but restricted to the sutural interspace in apical fourth, the sutural edge itself remaining of the ground-colour from near scutellum to near declivous apex ; from this vitta branches off a broad and short streak which ends at the tip of a rather prominent anteapical tubercle, and close to the vitta at

basal fifth stands a triangular spot, a mesial line from base to middle, situated on line 4, curving near base to line 5, a sublateral line from shoulder to apex, composed of four parts, the second partition a little nearer the edge than the first and third, and the apical partition widened to a spot, a line at the lateral edge from base to apex. Pygidium buff, except a triangular mesial vitta. A lateral spot on metasternum and a continuous lateral series of spots on abdominal segments 1 to 4 brown. Legs rufous, not spotted. Antennal segments 1 to 8 buff, fringe of underside of segments 2 to 6 black, segments 9 to 11 rufescent.

Structure of antenna as in *saperdoides*. Rostrum sulcate in middle, the sulcus bordered at each side by a high carina. Pronotum not punctured. Elytra flattened above, with a horizontal tubercle before declivous apical portion.

Hab. Pontianak, Borneo.

One ♀.

Differs from all the species of *Xenocerus* in the presence of a tubercle on the elytrum before the apex.

49. **Basitropis armata** spec. nov.

♂. Brown-black, tibiae and tarsi rufous ; pronotum and elytra densely marmorated with clay colour, some patches of the ground-colour bare of luteous pubescence—namely, one laterally near apex of pronotum, another before middle of elytrum at side-margin, a third behind middle near suture, and a fourth before apex ; underside clay-colour, a patch on upperside of hindfemur, base of tibiae, and a small subapical spot on mid- and hindtibae brown. Antenna brown-black, except the last two segments and the lower angle of the ninth.

Rostrum as long as broad, with prominent mesial carina, which vanishes on frons ; upper edge of antennal groove strongly curved upwards ; puncturation of head feeble. Antenna gradually widening from segment 5, segment 8 nearly three times as broad as long. Prothorax about as long as broad, dispersedly punctured ; sides shallowly sinuate before base. Elytrum coarsely punctate-striate in basal half, more finely in apical half. Metasternum mesially impressed, with a tubercle at each side of the impression. Abdominal segments 1 to 3 impressed mesially, anal segment truncate-rounded. Anterior tibia dilated at apex into a large triangular tooth and a second smaller one, separated from one another by a longitudinal groove. Midtibia similarly armed, but the teeth much smaller.

Length, 14 mm.

Hab. Malang, Java.

One ♂.

This is the only species known to me in which the metasternum and the midtibia (♂) are provided with an armature.

50. **Basitropis platypus** spec. nov.

♀. Brown-black, very densely dotted and marmorated with a dark luteous pubescence ; no large brown patches ; abdomen with small brown side-spots. Rostrum longer than basally broad, widest before middle, transversely depressed at base, mesially carinate in apical two-fifths, longitudinally punctate-rugate like frons. (Antenna broken, segments 1 to 6 only preserved.) Prothorax widest at base, a little broader than long ; puncturation feeble. Elytrum much shorter than in *armatus* ; punctured stripes distinct. Prosternum smooth anteriorly in middle.

Anal sternite truncate-sinuate. Second and third segments of all tarsi broader than in the other species of *Basitropis*, being dilated somewhat as in *Rawasia*.

Length, 12 mm.

Hab. Penang.

One ♀.

Easily recognised by the rostrum and tarsi.

51. **Basitropis hamata** spec. nov.

♂ ♀. In colour similar to *lutosus* (1895) Jord., the luteous pubescence rather more restricted. Shorter than *lutosus*, agreeing in proportions better with *nitidicutis*. Rostrum densely punctured, with a distinct mesial carina. Antenna of ♂ dilated from segment 7, segment 8 half as wide again as long ; club of ♀ consisting only of three segments, segment 8 being only a little broader than 7. Prothorax widest behind middle, feebly sinuate before base, puncturation rather dense and coarse. Elytrum punctate-striate, lateral stripes distinct. Prosternum punctured all over, abdominal segments 1-3 impressed in ♂, anal sternite convex in ♂, the apical margin rounded in both sexes. Foretibia dilated at apex into a single large tooth in ♂, slightly dilated in ♀.

Length, 8 to 11 mm.

Hab. Calcutta,

Three ♂♂, two ♀♀.

52. **Basitropis affinis** spec. nov.

♂ ♀. In shape and colour similar to *lutosus*, the luteous pubescence denser and the brown median space on the elytrum larger. Rostrum as in *lutosus*, mesially grooved in basal half. Antenna of ♂ dilated from segment 7, segment 8 twice as broad as long, segments 9 to 11 broader and shorter than in *lutosus*, in which the club consists of only three segments ; antenna of ♀ with a club of three segments, but segment 8 also dilated, being decidedly broader than in *lutosus*, as are segments 9 and 10. Prothorax and elytrum similar in structure to those of *lutosus*, but shorter; puncturation much feebler than in *hamata*, being obsolescent laterally on the elytrum. Prosternum smooth anteriorly in middle. Abdomen mesially impressed in ♂, last segment sinuate, the sinus also distinct in ♀. Tibiae of ♂ not long-hairy as they are in *lutosus* ; anterior tibia curved, slightly but distinctly dilated at apex on inner side, the dilatation much feebler than in *hamata*.

Length, 8 to 12 mm.

Hab. Andaman Is., a series ; also from Sumatra and Celebes.

The ♂ is easily distinguished from *lutosus* by the tibiae and antenna ; but the ♀ ♀ of the two species come so close that it requires careful comparison to find the differences in the antenna. We have *lutosus* from Luzon and Sambawa.

53. **Basitropis ingratus** (1859) Pascoe.

♂ ♀. Short and stout. Brown-black, sparsely spotted with a luteous grey pubescence, which forms a subbasal and a subapical band on the elytra, both bands being much broken and the proximal one generally separated into dots ; tibiae grey, with a large brown patch at the base. Rostrum and head densely and very coarsely punctured ; the former very short, with a mesial groove at the base. Antenna short, rufescent, segment 8 wider than 7 in both sexes, especially in ♂,

but much narrower than 9. Prothorax broader than long, widest in or before middle ; puncturation finer and less dense than that of head. Elytra very strongly punctate-striate from base to apex. Legs peculiar in both sexes, the fore- and hindtibiae being dilated at end on the upperside into a triangular projection ; first segment of tarsi very short.

Length, 6 to 7 mm.

Hab. Queensland, from various places ; West Australia.

54. **Basitropis maculata** spec. nov.

♀. Black-brown ; a superciliary stripe on head, prolonged to apex of rostrum, a thin mesial spot on occiput, a widely interrupted mesial vitta and several dots on pronotum, a spot behind shoulder of elytrum, a short basal dash in third interspace, a transverse spot behind middle, a discal spot before apex and a sutural spot before middle, besides a number of minute dots, on underside a lateral spot on prosternum, another at apex of metasternum, a lateral spot on segments 1 to 4 of abdomen, and apex of fifth segment luteous grey. Legs also luteous grey, upperside of femora, and a large ring between middle and apex of tibiae brown. Club of antenna luteous grey.

Rostrum and head coarsely punctured ; the former not quite twice as broad as long, with a very thin interrupted mesial carina. Club of antenna consisting of three segments, but segment 8 also somewhat dilated (♀). Prothorax very coarsely and densely punctured, broadest at base, as long as broad, slightly sinuate before base. Punctate stripes of elytrum distinct. Prosternum with large punctures all over, except at meral suture, which extends from coxal cavity upwards.

Length, 9 mm.

Hab. Pengalengan, West Java, 4000 ft. (Fruhstorfer, 1893).

One ♀.

Resembles *pardalis* (1895) Jord., of which I know only a ♂, but is very different in pattern.

55. **Basitropis humeralis** spec. nov.

♀. Brown-black ; antenna, tibiae and tarsi rufescent. Upperside with the following luteous grey markings : a stripe along eye, a short mesial line on occiput, another at apex of pronotum, three lateral dots on pronotum, namely one apical and two median, an irregular subbasal patch near shoulder of elytrum, three small marginal dots from basal fourth to middle, a narrow band of confluent dots before apical declivity, some confluent dots before apex, and a few tiny dots dispersed over the elytrum. On the underside, the pubescence of the middle of the sterna is lutescent ; abdominal segments 1 to 3 with a grey lateral spot ; episternum of metasternum also partly grey. Pubescence of legs luteous grey, thinnest on basal two-thirds of femora.

Rostrum twice as broad as long, densely and coarsely punctured like head, with mesial groove at base. Antennal club consisting of three segments. Prothorax half as broad again as long, very densely punctured. Stripes of elytrum not strongly impressed, except the sutural one, the punctures small.

Length, 9 mm.

Hab. Tulagi, Solomon Is. (Woodford).

Three ♀♀.

56. **Basitropis diluta** spec. nov.

♂♀. Brown-black ; legs and antenna rufous, middle of femora black. Upper- and underside densely pubescent grey, the pubescence of the pronotum and of a median area on the elytrum clay-colour, brown ground-colour almost completely concealed, an ill-defined spot in middle of elytrum, situated within the clay area, and shoulder-angle brown. Rostrum less than twice as broad as long, being obviously longer than in *B. peregrinus* (1859) Pascoe; sides parallel ; a narrow mesial groove at base. Antenna of ♂ gradually widened from segment 7, segments 7 and 8 distinctly asymmetrical, especially 8; club of ♀ with three segments. Prothorax a little longer than broad, sides nearly parallel from base to middle, puncturation rather fine and dispersed. Stripes of elytrum feebly impressed, except the sutural one. Punctures of prosternum sparser anteriorly in middle than towards the coxae. Foretibiae without distinct apical tooth. Abdomen of ♂ not impressed, anal segment rounded.

Length, 9 mm.

Hab. Mailu, July 1895, and Moroka, October 1895, British New Guinea (Anthony).

One ♂, two ♀♀.

57. **Basitropis rotundata** spec. nov.

♂♀. Similar in colour to *B. affinis*. Short, upperside strongly convex. Rostrum short ; prothorax rather strongly rounded at the sides, especially in ♂ ; tibiae simple. Antenna of ♂ gradually dilated from segment 7.

Length, 6 to 8 mm.

Hab. Palembang, Sumatra, *type* ; North Borneo, Palawan.

Nine specimens.

Easily distinguished from *nitidicutis* by the unicolorous tibiae.

Note. *Basitropis nitidicutis* (1855) Jekel = *mucidus* (1859) Pascoe = *dispar* (1891) Sharpe = *brevis* (1897) Jord.

J.G Keulemans del et lith. Mintern Bros. imp.

1. PYRRHOPLECTES EPAULETTA ♂. 2. PACHYCEPHALA MOROKA R. & H.
3. HETEROMYIAS ARMITI de Vis

J.G. Keulemans del et lith. Mintern Bros. imp

1. EAFA MACULATA. R & H. 2 MYZOMELA BATJANENSIS Hart.
3. MYZOMELA KÜHNI Rothsch. 4. BILL, from above, of EAFA MACULATA

BRITISH MUSEUM
Z D
NATURAL HISTORY

NOTES ON PAPUAN BIRDS.

By the Hon. WALTER ROTHSCHILD, Ph.D., and ERNST HARTERT.

(*Continued from Page* 231.)

[For the localities mentioned in this article see the "Introduction" to this series of Notes in Nov. Zool. 1901 pp. 55—61, and the maps, Pls. II. and III., in the same volume of this Journal. The former portions of this series are to be found as follows: Vol. VIII. pp. 55—88 (Introduction, *Pittidae*, *Psittaci*), and pp. 102—162 (*Columbae*, *Megapodiidae*, *Rallidae*, *Limicolae*, *Alcedinidae*); *Anteà*, pp. 65—116 (*Paradiseidae*, *Corvidae*, *Laniidae*, *Dicruridae*, *Oriolidae*, *Artamidae*, *Sturnidae*), and pp. 196—231 (*Meropidae*, *Coraciidae*, *Podargidae*, *Caprimulgidae*, *Cypselidae*, *Campephagidae*, *Nectariniidae*, *Dicaeidae*, the genus *Myzomela*, *Motacillidae*, *Sylviidae*, *Timeliidae*). We hope to continue the subject shortly.]

(Plates XIII & XIV.)

Since the appearance of the last portion of these notes we have received one more collection from New Guinea, *i.e.* a number of skins from Avera, on the Aroa River, to the north of Redscar Bay, north-west from Port Moresby, made by the indefatigable collector Albert S. Meek and his brother-in-law Mr. Eichhorn. The specimens are mentioned hereafter in their places; species of the families formerly dealt with will be discussed in future, if they call for special remarks.

We are obliged to Dr. Julius von Madarász, of Budapest, for the loan of some interesting *Meliphagidae*, mostly from German New Guinea.

XXVI. MELIPHAGIDAE.

1. **Gliciphila modesta** Gray.

Glyciphila modesta G. R. Gray, *P. Z. S.* 1858. pp. 174, 190 (Aru).

♂ ♀, Cedar Bay, Queensland, 16. i. 1894. A. S. Meek coll.

♂ ♀, Cape York, Queensland, 18, 20. vii. 1898. A. S. Meek coll., Nos. 1961, 1982.

1 ♀, "Australia," 1876. Walter Chamberlain coll.

3 ♂♂, Fergusson Island, D'Entrecasteaux group, 3, 16, 17. vi. 1897. A. S. Meek coll., Nos. 525, 630, 631. No. 525: "Iris hazel, feet flesh-colour, bill brown." Nos. 630, 631: "Iris dark brown, feet and bill light brown."

1, British New Guinea, 1898. E. Weiske coll.

2 ♂♂, Wokan, Aru Is., 4, 5. x. 1900. H. Kühn coll., Nos. 2654, 2655.

1 ♂, Trangan, Aru Is., 18. ix. 1900. H. Kühn coll., No. 2653. "Iris reddish brown, feet pinkish grey, bill pale brown."

2. **Glycichaera fallax** Salvad.

Glycichaera fallax Salvadori, *Ann. Mus. Civ. Gen.* xii. p. 335 (1878).
Sericornis sylvia Reichenow, *J. f. O.*, 1899.* p. 118 (Friedrich Wilhelmshafen).

1 ♀, 1 sex? Dorey, October 1896, June 1897. W. Doherty coll. "Iris dull white, feet slaty blue, bill brown."

1 ♂, 2 ♀♀, Kapaur, December 1896. W. Doherty coll.

2 ♂♂, 1 ♀, Takar, October, November 1896. W. Doherty coll.

1, Mt. Maori, near Humboldt Bay, January 1899. J. Dumas coll.

* "*Sericornis sylvia*" is nothing but *Glycichaera fallax*.

3 ♂♂, 3 ♀♀, Mysol, 11, 27, 30. i., 1, 5, 8. ii. 1900. H. Kühn coll. (Kühn describes the iris as ash-grey, yellowish grey, greyish brown, black, vermilion!!) Nos. 1821, 1938, 1996, 1997, 1999, 2022.

3 ♂♂, Sungey Bark, Kobroor, Aru Is., 22, 26. viii. 1900. H. Kühn coll., Nos. 2326, 2335. "Iris yellowish white, white, dark red."

1 ♂, Wokan, Aru Is., 30. ix. 1900. H. Kühn coll., No. 2693. "Iris white."

1 ♂, Friedrich Wilhelmshafen, Kaiser Wilhelmsland, 19. i. 1898. Tappenbeck coll.

3. **Glycichaera poliocephala** Salvad. (?).

Glycichaera poliocephala Salvadori, *Ann. Mus. Civ. Gen.* xii. p. 336 (1878 : Andai).

1 ♀, Milne Bay, British New Guinea, 2. ii. 1899. A. S. Meek coll., No. 2238. "Iris light brown, feet slate-blue, bill light brown."

This specimen differs from our series of *G. fallax* in its more greyish, less olive upper surface and more distinctly greyish chin and upper throat. The sides of the head are lighter and more greyish.

4. **Oedistoma pygmaeum** Salvad.

Oedistoma pygmaeum Salvadori, *Ann. Mus. Civ. Gen.* vii. p. 952 (1875 : Arfak).

3 ♂♂, 1 ♀, Kapaur, December 1896, February 1897. W. Doherty coll. "Iris dark brown, feet blackish grey, bill black, pale below, gape orange."

2 ♂♂, 1 ♀, Mysol, 29, 30. i., 4. ii. 1900. H. Kühn coll., Nos. 2000, 2001, 2002. "Iris brown, feet dark grey, bill black."

1, Mt. Cameron, 8. ix. 1896. A. S. Anthony coll.

1, Mt. Gayata, Richardson Range, 2000—4000 feet. Purchased from McIlwraith, 1898.

1 ♂, Avera, Aroa River, 25. i. 1903. A. S. Meek coll., No. A. 89. "Iris light brown, bill and feet slate."

5. **Oedistoma meeki** (Hartert).

Anthreptes meeki Hartert, Nov. Zool. iii. p. 239 (1896 : Fergusson Island).

Differs at a glance from *Oedistoma pygmaeum* by its larger size (bill and wing), clear ash-grey head and hindneck and whitish grey throat and foreneck.

♂, Fergusson Island, 6. x. 1894. A. S. Meek coll. (*type*).

2 ♂♂, 2 ♀♀, Fergusson Island, 4, 5, 22. x. 1884, ix. 1894. A. S. Meek coll.

1 ♂, 3 ♀♀, Fergusson Island, 21. v., 2. vi. 1897. A. S. Meek coll., Nos. 334, 473, 502, 503. "Iris light brown, feet dark blue, bill black, base of mandible light."

1 ♀, Goodenough Island, 11. xii. 1896. A. S. Meek coll., No. 40.

6. **Melilestes megarhynchus** (Gray).

Ptilotis megarhynchus G. R. Gray, *P. Z. S.* 1858. p. 174 (Aru Islands).

1 ♂, 1 ♀, 1 ?, Mysol, 4, 6, 10. ii. 1900. H. Kühn coll., Nos. 2004, 2010, 2041. "Iris orange, feet ash-grey, bill black."

♂, Momos, Waigiu, 28. x. 1883. "Length 250 mm. Iris red, tarsus blue-grey, bill black. Ex coll Guillemard.

♂, ♀, Waigiu, 28. xi. 1902, 6. i. 1903. Waterstradt coll.

4 ♂♂, 1 ♀, Kapaur, October, December 1896, January, February 1897. W. Doherty coll. "Iris orange, feet blue-grey, bill black."

1, Andai. (Ex Bruijn.)

2 ♂♂, Mt. Arfak, 1879. Bruijn coll.

1 ♂, Terfia, October, 1896. W. Doherty coll.

3 ♂♂, 1 ♀, Takar, October, November 1896. W. Doherty coll.

1 ♂, Mt. Maori, January 1899. J. M. Dumas coll.

1 ♀, Stephansort, 15. xii. 1898. E. Nyman coll.

1 ♂, Milne Bay, 18. iii. 1899. A. S. Meek coll., No. 2389. "Iris reddish brown, feet slate-blue, bill black."

1, British New Guinea, 1898. E. Weiske coll.

3 ad. 1 jun., Upper Aroa River, 3000—7000 feet, August, September 1899. E. Weiske coll.

1 juv., Mt. Victoria, 5000—7000 feet, April—June 1896. Native coll.

3, Wokan, Aru Island, 7. x. 1900. H. Kühn coll. "Iris orange-red, feet greyish blue, bill black."

1, Wokan, Aru Is., 2. vi., 1896. C. Webster coll. (From spirits.)

1 ♂, Sungey Bark, Kobroor, 27. viii. 1900. H. Kühn coll.

1 ♂, Wanambai, Kobroor, 2. ix. 1900. H. Kühn coll.

1, Wanambai, Kobroor, 1. vii. 1896. C. Webster coll. (From spirits.)

1 ♂, 2 ♀♀, Avera, Aroa River, 21. i., 2. ii., 21. iii. 1903. A. S. Meek coll., Nos. A 33, 178, 444. "Iris reddish yellow, feet slate-blue, bill vandyke-brown."

7. **Melilestes novaeguineae** (Less.)

Cinnyris novaeguineae Lesson, *Voy. Coqu., Zool.* i. p. 677 (1828 : Dorey).

4 ♂♂, 2 ♀♀, Mysol, 17, 18, 29. i., 4. ii., 1900. H. Kühn coll., Nos. 1823, 1826, 1985, 1987, 1990, 1992. "Iris coffee-brown, feet ashy, bill black."

1, Waigiu. Guillemard coll.

1 "♀," Waigiu, 1. xii. 1902. Waterstradt coll.

3 ♂♂, 1 ♀, Ansus, Jobi, April—May 1897. W. Doherty coll.

1 ♂, 1 ♀, Marai, Jobi, April 1897. W. Doherty coll.

1 ♀, Keboi, Jobi, November 1896. W. Doherty coll. "Iris chestnut, feet greyish blue, bill blackish."

7 ♂♂, 6 ♀♀, Kapaur, December 1896, January, February 1897. W. Doherty coll.

3 ♂♂, 2 ♀♀, Dorey, October 1896, June 1897. W. Doherty coll.

2 ♂♂, Arfak, April 1875, 1879. Bruijn coll.

1 ♂, Tana Mera, October 1896. W. Doherty coll.

1, Mt. Maori, January 1899. J. M. Dumas coll.

1 ♂, Fly River, 10. vii. 1877. D'Alberti's coll., No. 288.

3 ♂♂, Sungey Bark, Kobroor, 24, 26, 27. viii. 1900. H. Kühn coll., Nos. 2375, 2378, 2380.

2 ♂♂, 1 ♀, Wokan, Aru Is., 26, 27. ix., 1. x. 1900. H. Kühn coll., Nos. 2660, 2661, 2663.

1 ♀, Wokan, Aru Is., 2. vi. 1896. C. Webster coll. (From spirits.)

1 ♂, Trongan, Aru Is., 14. ix. 1900. H. Kühn coll., No. 2662.

8. **Melilestes polioptera** Sharpe.

Melilestes polioptera Sharpe, *Journ. Linn. Soc., Zool.* xvi. pp. 318, 438 (1882 : "Astrolabe Mts.").

3 ad., 1 juv., Eafa district, 1898, British New Guinea, "1000—3000 ft." A. S. Anthony coll.

1 ♂, 1 ♀, Mt. Cameron, 7000 ft. A. S. Anthony coll. "Iris brown, feet light brown, bill black."

1, Upper Aroa River, 3000—7000 ft., August—September 1899. E. Weiske coll.

1 ♀ ad., 1 ♀ juv., Avera, Aroa River, 24, 25. i. 1903. A. S. Meek coll., Nos. A 73, 88. "Iris brown, feet and bill black."

9. **Melilestes iliolophus iliolophus** Salvad.

Melilestes iliolophus Salvadori, *Ann. Mus. Civ. Gen.* vii. p. 951 (1875: Miosnom).
Melilestes affinis, *l.c.* p. 952 (1875: Arfak).

On comparison of our specimens, of six specimens from Dutch New Guinea, ten from British New Guinea and two from Jobi, it appears to us impossible to corroborate Count Salvadori's alleged differences between *M. iliolophus* and *affinis*. We have, however, no specimens from Miosnom.

1 ♂, 1 ♀, Ansus, Jobi, April—May 1897. W. Doherty coll. "Iris deep chestnut, feet slaty blue, bill black, gape lemon-yellow."

2 ♂♂, 1 ♀, 1 ♀ ?, Arfak. Bruijn coll. 1879.

2, Mt. Maori, near Humboldt Bay, January 1899. J. M. Dumas coll.

3 ♂♂, 1 ♀, Avera, Aroa River, Brit. New Guinea, 17, 23, 28. ii. 1903. A. S. Meek coll., Nos. A 66, 241, 277, 326. "Iris light brown, feet slate-blue, bill black."

2, British New Guinea, 1898. Emil Weiske coll.

1 ♀, Mt. Gayata, Richardson Range, 2000—4000 ft. E. Weiske coll.

2 ♂♂, 1 ♀, Mt. Cameron, 7000 ft., August—September 1896. A. S. Anthony coll. "Iris brown, feet pale blue, bill black."

10. **Melilestes iliolophus fergussonis** Hart.

Melilestes fergussonis Hartert, Nov. Zool. iii. p. 237 (1896: Fergusson Island).

1 ♂, Fergusson Island, October 1894. A. S. Meek coll., No. 15. (*Type.*)

2 ♂♂, 2 ♀♀, Fergusson Island, October 1894. A. S. Meek coll.

♀, Fergusson Island, 6. vi. 1897. A. S. Meek coll., No. 560.

♂, Goodenough Island, 4. xii. 1897. A. S. Meek coll., No. 72.

11. **Melilestes** spec. ?

1 ♀, Mafor, May 1897. W. Doherty coll.

This *female* is immature, but differs considerably from *M. novaeguineae*, to which it may belong. It is, however, in such bad condition that it is impossible to identify it satisfactorily.

12. **Melipotes gymnops gymnops** Scl.

Melipotes gymnops Sclater, *P. Z. S.* 1873. p. 695. Pl. 56 (Hatam, Arfak).

6 ♂♂, 1 ♀, Arfak, 1875. Bruijn coll. (Specimens *i*, *m*, *v*, *y*, *z*, *g'*, *v'* of Salvadori's list on p. 318 of vol. ii. *Orn. Pap.* etc.

3 ♀♀, Hatam, Arfak, 23. 26. vi., 4. vii. 1875. Beccari coll. (Specimens *f'*, *p'*, *s'* of Salvadori's list, p. 318, *t.c.*)

2 ♀♀, Hatam, 1879. Bruijn coll.

2 ♂ juv., without exact locality. (? Arfak.)
1 ad., 1 juv., without exact locality. (? Arfak.)
1 ♂, without exact locality. (? Arfak.)
3, Arfak. Burke coll.

13. **Melipotes gymnops fumigatus** Mey.

Melipotes fumigatus Meyer, *Zeitschr. f. ges. Orn.* iii. p. 22 (1886 : "Hufeisengebirge").
Melipotes atriceps Grant, *Bull. B. O. Club* v. p. 15 (December 1895 : Owen Stanley Mts.). (Very poor description, more a hindrance than an aid to science.)

6 ad., 1 juv., Owen Stanley Mts., 3000—7000 ft., 1896—1897. Native coll.

3 ♂♂, 2 ♀♀, 2 sex?, Mt. Cameron, 5000—7000 ft., 1896. A. S. Anthony coll. "Iris dark red, feet pale blue, bill black."

1 ad., Mt. Scratchley. A. S. Anthony coll.

1 ♀, Avera, Aroa River, 7. iii. 1903. A. S. Meek coll., No. A 380. "Iris dark reddish brown, feet pale chalky blue, bill black."

14. **Melidectes torquatus torquatus** Scl.

Melidectes torquatus Sclater, *P. Z. S.* 1873. p. 694. Pl. 55 (Arfak).

1 "♀," Arfak. From Bruijn's hunters. "No. 14."
1 without locality, but evidently from Bruijn's hunters.

15. **Melidectes torquatus emilii** Mey.

Melidectes emilii Meyer, *Zeitschr. ges. Orn.* iii. p. 22 (1886 : "Hufeisengebirge").

1, Hunstein coll. (marked "Typus" in the author's own handwriting).
1, "No. 130," Goldie coll.
1 without label.
♂, 1 ♀, British New Guinea.
2 ♂♂, Mt. Cameron, Owen Stanley Range, 5000—7000 ft., August 1896. A. S. Anthony coll. "Iris brown, feet pale blue, bill blue."

3 ♂♂, 3 ♀♀, Avera, Aroa River, 23, 30, 31. i. 1903, 4, 17. iii. 1903. A. S. Meek coll., Nos. A 54, 55, 159, 160, 355, 428. "Iris dark brown, feet slaty blue, bill chalky blue."

16. **Melirrhophetes leucostephes** Mey.

Melirrhophetes leucostephes A. B. Meyer, *Sitzungsber. k. Ak. Wissensch. Wien* lxx. p. 110 (Arfak).

7, without locality. Bruijn's preparation.

1 ♀, Hatam, Arfak, 6. vii. 1875. Bruijn coll. (Specimen *k* of Salvadori's list in *Orn. Pap.* ii. p. 320).

1 ♂, 4 ♀♀, Arfak, 1879. Bruijn coll.

17. **Melirrhophetes ochromelas ochromelas** Mey.

Melirrhophetes ochromelas Meyer, *l.c.* p. 111 (Arfak).

1, Arfak. From Bruijn's hunters.

1, without label, seems to approach *M. o. batesi* in the colour of the supra-ocular stripe and tips of the ear-coverts.

1, Ambernch River. J. M. Dumas coll. Also approaching *M. o. batesi*.

18. **Melirrhophetes ochromelas batesi** Sharpe.

Melirrhophetes batesi Sharpe, *Nature* vol. 34. p. 340 (1886: British New Guinea); Sharpe in Gould's *B. N. Guinea* pt. xxii. Pl. X. (1886).

1 ♂, 2 ♀♀, Avera, Aroa River, 1, 27. ii. 1903. A. S. Meek coll., Nos. A 118, 170, 312; No. A 170 (♀). Has the supra-ocular stripe as pale as in *M. o. ochromelas*. A bigger series might prove *M. o. batesi* to be imaginary.

3, Mt. Owen Stanley, 3000—7000 ft., 1894—1895.

1, " Mt. Cameron, 5000—6000 ft."

1 ♂, 1 ♀, Aroa River, 4000 ft., August 1899. E. Weiske coll. " Iris black, feet white, bill pale blue."

19. **Melirrhophetes belfordi** De Vis.

Melirrhophetes belfordi De Vis, *Ann. Rep. Brit New Guinea* 1889 (Birds) p. 3 (1890: Mt. Knutsford) (cf. Nov. Zool. 1897. p. 369).

1 ♂, Eafa district, 5000—6000 ft., October 1895. A. S. Anthony coll. " Iris brown, feet grey, bill dark brown."

1 ♂, Oriori district. A. S. Anthony coll.

3, between Mts. Musgrave and Scratchley, 5000—6000 ft. A. S. Anthony coll.

1 ♂, Mt. Cameron, 6500 ft., 2. viii. 1896. A. S. Anthony coll.

1 ♀, Mt. Cameron. Native coll.

1 ♂, 1 ♀, Mt. Owen Stanley, 5000—7000 ft., April—June 1896. A. S. Anthony coll.

4 ♂♂, Mt. Owen Stanley, 3000—5000 ft. Native coll. 1897.

20. **Melirrhophetes fusca** (De Vis).

Acanthochoera fusca De Vis, *Ann. Rep. Brit. New Guinea* for July 1896—1897 (Birds) p. 86 (1898: Mt. Scratchley) (cf. Nov. Zool. 1897. p. 369).

2, Mt. Scratchley. A. S. Anthony coll.

2, between Mts. Musgrave and Scratchley. A. S. Anthony coll.

2 ♂♀, Mt. Knutsford, 11,000 ft., August 1898. A. S. Anthony coll. " Eye, bill and feet black.

1, Mt. Knutsford, 11,000 ft.

5, Mt. Owen Stanley, 3000—5000 ft. Native coll. 1897.

21. **Stigmatops argentauris** (Finsch).

Ptilotis argentauris Finsch, *Abh. Nat. Ver. Bremen* ii. p. 364 (1870; locality uncertain!)

Our examples from the Aru Islands are certainly quite different from *S. ocularis*, which also occurs on the Aru Islands, as shown by the specimens in the British Museum. The specimens from Aru before us seem to agree perfectly with Dr. Finsch's diagnosis.

♂ ad., Manien, Aru Is., 19. xi. 1897. H. Kühn coll., No. 347. " Iris coffee-brown, feet plumbeous, bill black."

♂♀ jun., Afara, Barkai I., Aru S.E., 25. xi. 1897. H. Kühn coll., Nos. 351, 352.

♂ jun., Wokan, 7. x. 1900. H. Kühn coll., No. 2729.

♂♀ jun., Dobbo, Aru, February 1897. W. Doherty coll.

22. **Ptilotis analoga analoga** Rchb.

Ptilotis analoga Reichenbach, *Handb. Spec. Orn.* "Meropinae," p. 103. tab. 467 (1852. Ex Hombron & Jacq. "Ptilotis analogue." *Voy. Pôle Sud*, Pl. XVII.).

♂♀, Ramoi, New Guinea, 5, 9. ii. 1875. Beccari coll. (Specimens *t*, *u* of the list of specimens in *Orn. Pap.* ii. p. 329.)

♂, May 1877, Amberbaki. Laglaize coll. (Ex Bruijn.)

1, Dutch New Guinea. From Bruijn's hunters.

♀, "Côte septentr., 136° 30′—137° long." Bruijn coll.

2 ♂♂, 3 ♀♀, Takar, October 1896. W. Doherty coll. "Iris deep brown, feet slaty-blue, claws black, bill blackish."

2 ♂♂, 3 ♀♀, Dorey, October 1896. W. Doherty coll.

3 ♂♂, 1 ♀, Kapaur, November—December 1896. W. Doherty coll.

♀, Batanta, July 1875. Bruijn coll. (Specimen *j'* of the list in *Orn. Pap.* ii. p. 329.)

♂, Tana Mera, October 1896. W. Doherty coll.

2 ♂♂, 1 ♀, Ron I., November 1896, June 1897. W. Doherty coll.

♂, Terfia I., October 1896. W. Doherty coll.

3 ♂♂, 4 ♀♀, Mysol, January 1900. H. Kühn coll., Nos. 1827—1832, 1931.

2 ♀♀, Simbang, German New Guinea, 6. viii. 1899. E. Nyman coll. "Iris weiss" (!) (Both marked "No. 37.")

♀, Ansus, Jobi, April 1874. Bruijn coll. (Specimen *n'* of the list in *Orn. Pap.* ii. p. 329.)

3 ♂♂, 4 ♀♀, Jobi, April 1897. W. Doherty coll.

♂, Hall Bay, British New Guinea, 10. vii. 1875. D'Albertis coll. (Specimen *o''* in *Orn. Pap.* ii. p. 330.)

♂, Nicura, Lix coll., 22. vii. 1897.

3, Kotoi district, British New Guinea, August 1898. A. S. Anthony coll.

2, Dobbo, Aru, June 1896. C. Webster coll.

♂, Giabu lengan, Aru Is., 22. vi. 1873. Beccari coll.

2 ♂♂, Sungey Bark, Aru Is., 21, 24. viii. 1900. H. Kühn coll., Nos. 2061, 2355.

1 ♂, Dobbo, Aru Is., 14. viii. 1900. H. Kühn coll., No. 2356.

2 ♂♂, Wanambai, Aru Is., 31. viii. 1900. H. Kühn coll., Nos. 2357, 2359.

1 ♂, 2 ♀♀, Wokan, Aru Is., September, October 1900. H. Kühn coll., Nos. 2642, 2643, 2644.

2 ♂♂, Trangan, Aru Is., 13, 19. ix. 1900. H. Kühn coll., Nos. 2640, 4647.

1, Cedar Bay, 1, Bartle Frere Mts., 4, Cape York, 6, Sudest I.

1 ♂, Kapaur, February 1897. W. Doherty coll. Aberration with white auricular patch.

23. **Ptilotis analoga orientalis** A. B. Mey.

Ptilotis orientalis A. B. Meyer, *J. f. O.* 1894. p. 92 (S.E. New Guinea, exact locality not known).

2, Mt. Cameron, 6500—7000 ft., July—August 1896. A. S. Anthony coll.

4, Mt. Gayata, Richardson Range. E. Weiske coll.

"2 ♂♂, 3 ♀♀," Avera, Aroa River, January—March 1903. A. S. Meek coll., Nos. A 27, 71, 72, 200, 392. "Iris light grey (dark brown), feet blue slate (pale slate), bill black."

Ptilotis analoga orientalis is clearly a subspecies of *Pt. analoga analoga*, though differing conspicuously by its spotted undersurface.

Sharpe (*Zool. Coll. H.M.S. Alert*, p. 19) hasfirst differentiated between what he called *P. analoga* and *P. notata*, and one of us (Nov. Zool. 1898. p. 527, 1899. p. 426) found them quite confirmed in the Tring Museum. It was, however, a mistake (as suggested by one of us in Nov. Zool. 1898. p. 527) to accept the names *analoga* and *notata* for them, because the "Ptilotis analogue" of Hombron & Jacquinot on which *Ptilotis analoga* of Reichenbach and *Ptilotis similis* Jacquinot & Pucheran are based, is doubtless the form with slenderer bill, unspotted rump, and square yellow auricular patch, *notata* thus becoming a synonym of the same. The bird formerly called *analoga* by Sharpe (and by one of us in Nov. Zool. 1898) has no name. It is, however, closely allied to *P. aruensis* Sharpe, with which it agrees in the short, wide bill, black-spotted rump and general appearance, only the auricular patch is strongly elongated. We believe it to be a subspecies of *aruensis*, and we will therefore call it *P. aruensis sharpei*.

24. **Ptilotis aruensis aruensis** Sharpe.

Ptilotis aruensis Sharpe in *Zool. Coll. Aert* p. 19 (1884 : Aru).

♂ ♀, Sungey Bark, Kabroor, Aru Is., 22. viii., 20. ix. 1900. H. Kühn coll. "Iris brownish grey (greyish brown), feet dark ash-grey (steel-grey), bill black."

Bill short and wide at base. Rump with dusky spots. Auricular patch square.

25. **Ptilotis aruensis sharpei** subsp. nov.

Ptilotis analoga Sharpe in *Zool. Coll. Aert* p. 19 (1884) ; Hartert, Nov. Zool. 1898. p. 527, but not *P. analoga* Rchb. !

♂, Arfak, from Bruijn's hunters.

♂, Batanta, June 1875. Bruijn coll. (Specimen *c'* of the list of specimens of *Ptilotis analoga* in *Orn. Pap.* etc. ii. p. 329.)

♀, Batanta, 30. vi. 1875. Beccari coll. (Specimen *a'* of the list of specimens of *Ptilotis analoga* in *Orn. Pap.* etc. ii. p. 329.)

♂ ♀, Waigiu, 13. i., 18. ii. 1903. Waterstradt coll.

1, Takar, October 1896. W. Doherty coll. "Iris deep brown, feet slaty blue, claws blackish. Bill blackish, gape ochreous."

♂, Dorey, October 1896. W. Doherty coll. (Type of *P. a. sharpei*.)

♂, Ansus, Jobi, April 1897. W. Doherty coll.

5 ♂ ♀, Fergusson I., D'Entrecasteaux group, September—November 1894. A. S. Meek coll.

♂, Fergusson I., 5. vi. 1897. A. S. Meek coll., No. 540.

2 ♀ ♀, Goodenough I., D'Entrecasteaux group, 11, 12. xii. 1896. A. S. Meek coll., Nos. 38, 49.

The Budapest Museum has it from Erima in German New Guinea.

Differs from *P. analoga analoga* (= *notata*) in its shorter and wider bill, elongated instead of square auricular yellow patch, the rump being varied with dusky, lateral rump-feathers tipped with white. Differs from *P. aruensis aruensis* in the elongated auricular yellow tuft !

26. **Ptilotis montana** Salvad.

Ptilotis montana Salvadori, *Ann. Mus. Civ. Gen.* xvi. p. 77 (1880—Arfak mountains).

2, from unknown locality. Bruijn's skins.

1 ♂, Kapaur, January 1897. W. Doherty coll.

There can be no doubt, in our opinion, that *Ptilotis albonotata* Salvadori is

merely an aberration of *P. analoga analoga* with white instead of yellow auricular patch. Not only is there no other difference between the two supposed species, but they occur together, and we have several examples with a yellowish white or whitish yellow auricular patch, and have a specimen with yellow auricular feathers tipped with white.

The case is different with *P. montana*. Its distribution is not quite clear, as Doherty obtained it at Kapaur, where also the so called *P. albonotata*, an aberration of *P. analoga*, was collected. Salvadori, however, mentions *P. montana* only from the Arfak mountains, while *analoga* was the form he had from the Arfak coast. As it is we must recognise *P. montana* as distinct, differing from *P. analoga analoga* in its deeper and more olive upperside and wings and white or very pale whitish sulphur yellow, not bright yellow, auricular patch.

27. **Ptilotis versicolor versicolor** Gould.

Ptilotis versicolor Gould, *Proc. Zool. Soc.* 1842. p. 136 (Australia).

2 ad., "Torres Straits."

28. **Ptilotis versicolor sonoroides** Gray.

Ptilotis sonoroides G. R. Gray, *P. Z. S.* 1861. p. 428 (Waigiu).

♂ ♀ ad., ♂ jun., Yamna I., October 1886. W. Doherty coll. "Iris dark brown, feet iron-grey, bill black, gape yellowish."

♀, Karanton I. (near Sorong), 27. vi. 1875. Bruijn coll. (Specimen *g* of Salvadori's list, *Orn. Pap.* etc. ii. 335).

♂, "Mysol" (bought from Whitely).

5 without locality, but evidently from Bruijn's hunters.

1 without label, preparation unknown.

29. **Ptilotis flavescens germana** Rams.

Ptilotis germana Ramsay, *Proc. Linn. Soc. N. S. Wales* iii. pp. 2, 39 (1878).

1 ad., Laroki R., S.E. New Guinea. O. C. Stone coll.

30. **Ptilotis salvadorii** Hart.

Ptilotis salvadorii Hartert, Nov. Zool. iii. p. 531 (1896—Owen Stanley Mts.).
Ptilotis lacrimans De Vis, *Ibis* 1897. p. 382 (Mt. Scratchley and Wharton Range).

1 ad., Mt. Victoria, Owen Stanley Range, 5000—7000 ft., April—June 1896. (*Type.*)

3, Mountains of the Kotoi district, 11,000 ft., August 1898. A. S. Anthony coll.

1 ad., Mt. Victoria, Owen Stanley Range, 5000—7000 ft.

♂, Aroa River, 4000 ft., August 1899. E. Weiske coll. "Iris brown, feet yellow, bill black."

2, between Mts. Musgrave and Scratchley, 5000—6000 ft. British New Guinea.

31. **Ptilotis praecipua** Hart.

Ptilotis praecipua Hartert, Nov. Zool. iv. p. 370 (1897—between Mts. Musgrave and Scratchley).
(?) *Ptilotis perstriata* De Vis, *Rep. Brit. N. Guinea* for 1896-7. p. 86 (1898: Wharton Range).

♂ ad., between Mts. Musgrave and Scratchley, 5000—6000 ft. A. S. Anthony coll. (*Type*).

1, Upper Aroa River, 3000—7000 ft., August—September 1899. E. Weiske coll.

2, probably from Mt. Goyata, certainly Weiske's prepar.

♂, Avera, Aroa River, 27. iii. 1903. A. S. Meek coll., No. A 308). "Iris cloudy-yellow, feet chalky-blue, bill black."

♀, Mt. Knutsford, "11,000 ft.," 18. viii. 1898. A. S. Anthony coll.

1, Moroka district, 3000—6000 ft.

1, Mt. Owen Stanley, 1897, 3000—5000 ft.

2 ♂♀, between Mts. Musgrave and Scratchley, 5000—6000 ft. A. S. Anthony coll.

32. **Ptilotis cinerea** Scl.

Ptilotis cinerea Sclater, *P. Z. S.* 1873. p. 693 (Arfak : *typ. loc.* Hatam).
Ptilotis marmorata Sharpe, *Journ. Linn. Soc. London* xvi. p. 438 (1882 : Astrolabe Mts., Goldie coll.).

Ptilotis marmorata is the same as *P. cinerea*. The specimens with unspotted undersurface are immature. This is distinctly shown by one of our specimens, which has a uniform underside, while a fresh-growing feather shows the broad whitish tip. The figure on Pl. IV. *Cat. B. Brit. Mus.* ix. is shocking, as it represents blackish instead of whitish feather-tips on the breast.

2 ♀ imm., Arfak. Bruijn coll.

1 imm., Arfak. Bruijn coll.

1 ad. without label, but evidently Bruijn's coll., probably Arfak.

2 ad., Mountains of British New Guinea. Purchased from McIlwraith in London. Weiske's skins.

1 nearly ad., "Mt. Gayata, Richardson Range, 2000—4000 ft." Purchased from McIlwraith in London.

1 ad., "Upper Brown River." Purchased from McIlwraith in London.

♀ ad., Kotoi district, 4000 ft., 16. viii. 1898. A. S. Anthony coll.

1 ad., Moroka district, 3000—6000 ft. Purchased from McIlwraith in London.

4 ♂♂, 2 ♀♀, Avera, Aroa River, January 1903. A. S. Meek coll., Nos. A 16, 17, 61, 93, 119, 143. "Iris bluish grey (dirty ivory, ashy), bill black, feet light blue-slate (bluish slate)."

33. **Ptilotis plumbea** Salvad.

Ptilotis plumbea Salvadori, *Ann. Mus. Civ. Gen.* (2) xiv. p. 151 (1894).

4, Aroa River. Emil Weiske coll.

2, probably from Mt. Gayata, Richardson Range. E. Weiske coll. (preparation).

34. **Ptilotis chrysotis chrysotis** (Less.).

Philedon chrysotis Lesson, *Voy. Coqu. Zool.* i. p. 645. Pl. 21 *bis* (Dorey) (1826—1828).

♀, Dorey, March 1874. Bruijn coll. (Specimen *b* of Salvadori's list, *Orn. Pap.* ii. p. 347.)

4 ♂♂, Dorey, October 1896, June 1897. W. Doherty coll. "Iris sepia, feet bluish grey, bill black."

♀, Arfak, 1. v. 1875. Bruijn coll. (Specimen *u* in Salvadori's list, *Orn. Pap.* ii. p. 347.)

♀, Andai, 7. iv. 1875. Beccari coll. (Specimen *i* of Salvadori's list, *Orn. Pap.* ii. p. 347.)

♂ (?), Andai, 1872. D'Albertis coll. From spirits! (Specimen *k* of Salvadori's list, *Orn. Pap.* ii. p. 347.)

1, Andai. From Bruijn's hunters.

2 ♂♂, Mansinam, May 1875. Bruijn coll. (Specimens *l*, *m* of Salvadori's list, *Orn. Pap.* ii. p. 347.)

♀, Wa Samson, 26. ii. 1875. Beccari coll. (Specimen *d'* of Salvadori's list, *Orn. Pap.* ii. p. 348.)

♂♀, Mysol, 23. i., 11. ii. 1900. H. Kühn coll., Nos. 1932, 2040.

7 ♂♂, 2 ♀♀, Kapaur, December 1896, January—February 1897. W. Doherty coll.

1, not quite ad., shows wide rufous edges to the wing-coverts.

1, quite young, Mt. Maori, near Humboldt Bay, January 1899.

35. **Ptilotis chrysotis fusciventris** (Salvad.).

Xanthotis fusciventris Salvadori, *Ann. Mus. Civ.* vii. p. 947 (1875 : Batanta).

♀, Momos, Waigiu, 27. x. 1883. H. Guillemard coll. "Iris brown, bill black, tarsus greyish blue."

3, Waigiu, November—December 1902. J. Waterstradt coll.

36. **Ptilotis chrysotis filigera** Gould.

Ptilotis filigera Gould, *P. Z. S.* 1850. p. 278. Pl. 34 (N. Australia).

3, "Cape York."

♂♀, Cape York, 21, 28. vii. 1898. A. S. Meek coll. "Iris brown, feet slate, bill black."

We know typical *filigera* only from North Queensland.

37. **Ptilotis chrysotis saturatior** subsp. nov.

Exactly like *P. c. filigera* from Cape York, but the upperside, especially the crown, of a deeper tint, the abdomen slightly browner and less distinctly spotted, with pale buffy tips to the feathers, and generally a deeper blackish line under the eyes.

♂♀, Wanambai, Kobroor, 1, 2. ix. 1900. H. Kühn coll., ♂, No. 2425 (type of *P. f. saturatior!*); ♀, No. 2426.

♀, Sungey Bark, Kobroor, Aru Islands, 26. viii. 1900. H. Kühn coll., No. 2428.

♂♀, Wokan, 26. ix., 4. x. 1900. H. Kühn coll., Nos. 200, 201. "Iris blackish brown, feet bright bluish ash-grey, bill black."

♂, Trangan, Aru Is., 16. ix. 1900. H. Kühn coll., No. 260.

1, Wanambai, 22. vi. 1896. Capt. Webster coll., 193. (From spirits!)

2, Wokan, Aru Is. Beccari coll. (Nos. *f'*, *g'* of Salvadori's list, *Orn. Pap.* ii. p. 346.) (From spirits!)

38. **Ptilotis chrysotis visi** Hartert.

Ptilotis visi Hartert, Nov. Zool. iii. p. 15 (1896 : Mailu district).

1 "♂," Mailu district, Brit. New Guinea, July—August 1895. "Eye dark brown, feet grey, beak black." A. S. Anthony coll. (*Type!*)

3, Mailu district, July—August 1895. A. S. Anthony coll.

2 ♀♀, Oriori district, British New Guinea, 10. i., 2. ii. 1896. A. S. Anthony coll.

2 ♂♂, 2 ♀♀, Milne Bay, January—February 1899. A. S. Meek coll., Nos. 2192, 2276, 2294, 2320.

2 ♂♂, Fly River, June 1876. D'Albertis coll.

♂♀, Hall Bay, S. New Guinea, 10, 11. v. 1875. D'Albertis & Tomasinelli coll. (Specimens *q*, *r* of Salvadori's list of "*Xanthotis filigera*," *Orn. Pap.* ii. p. 346.)

3 ♂♂, Naiabui, August—September, 1877. D'Albertis and Tomasinelli coll. (Specimens *u*, *v*, *x* of Salvadori's list of "*Xanthotis filigera*" in *Orn. Pap.* ii. p. 346.

♀, Nicura, 21. vii. 1893. Lix coll.

1, "Pt. Moresby." Goldie coll., Gerrard's label.

1, Mt. Gayata, Richardson Range, 2000—4000 ft. Purchased from McIlwraith in London.

1 ♂, 2 ♀♀, Avera, Aroa River, 28. i., 23. ii., 9. iii. 1903. A. S. Meek coll. "Iris brown, bill black, feet blue-slate."

The specimens from the Fly River, from Hall Bay, Naiabui, Nicura, Mt. Gayata and from the Aroa River have darker heads, darker moustaches and a much less rufous tinge on the upperside and wings. All the rufous specimens, however, show by their wide cinnamon edges to the remiges and rectrices that they are more or less immature. In several of our specimens, where these edges are wide and conspicuous, fresh feathers appearing are dark brown without cinnamon outer edges, exactly as in the birds from the Fly River, Hall Bay, Naiabui, Nicura and Mt. Gayata.

39. **Ptilotis chrysotis madaraszi** subsp. nov.

Differs from the adult *P. c. visi* by the conspicuous black line running from the base of the lower jaw under the eyes to the ear-coverts, a generally larger bill and wing.

It inhabits the coast of the Huon Gulf in Southern Kaiser Wilhelm's Land.

♂ ad., Simbang, 7. ix. 1899. E. Nyman coll. (*Type.*)

2 ♂♂, 1 ♀, Simbang, August 1899. E. Nyman coll.

The Hungarian National Museum in Budapest has a specimen from Simbang, collected by Biro.

40. **Ptilotis chrysotis meyeri** (Salvad.).

Ptilotis meyeri Salvadori, *Ann. Mus. Civ.* vii. p. 947 (1875 : Jobi).

1 ♂, Ansus, Jobi, April 1897. W. Doherty coll.

8 ♂♂, Marai, Jobi, April 1897. W. Doherty coll.

3 ♂♂, 2 ♀♀, Takar, October 1896. W. Doherty coll.

It reaches as far as Friedrich Wilhelmshafen and Erima in German New Guinea. Biro coll., Mus. Budapest.

♂ ad., Stephansort, 20. xii. 1899. E. Nyman coll.

The bills of the Kaiser Wilhelm's Land examples are partly, but not all, rather larger.

Our new *P. c. madaraszi* is so near to *meyeri*, and connects the latter so stupendously with *P. c. visi*, that we must put *meyeri* as a subspecies of *filigera*. *P. c. meyeri* differs from *P. c. madaraszi* (adult) by the more greyish underside, inconspicuous blackish line under the eyes and somewhat less powerful bill. The young of *P. c. meyeri* (? and *P. c. madaraszi*) are like the adult, only with broad rufous edges to wings and tail, but not all over rufous.

41. **Ptilotis spilogaster** Grant.

Ptilotis spilogaster Grant, *Ibis* 1896. p. 251 ("Port Moresby"? errore).

♂ ♀, Fergusson Island, October 1894. A. S. Meek coll.

♂ ♀, Fergusson Island, 10, 13. vi. 1897. A. S. Meek coll., Nos. 588, 601. "Iris brown, feet pale blue-slate (light chalky blue), bill black."

♂, Goodenough Island, D'Entrecasteaux group, 12. xii. 1896. A. S. Meek coll., No. 46.

Mr. Grant described *P. spilogaster* from two specimens collected by Mr. A. Goldie, said to be from Port Moresby and the Astrolabe Mountains. Considering the numerous errors in the localities indicated on the specimens collected by Mr. Goldie, and that the only certain localities known for *P. spilogaster* are Fergusson and Goodenough, we are convinced that this form is entirely confined to the D'Entrecasteaux Is.

The very wide stripe beyond the eye and spotted abdomen make *P. spilogaster* a very conspicuous form.

42. **Ptilotis polygramma** Gray.

Ptilotis polygromma Gray, *P.Z.S.* 1861. p. 429 (Waigiu).

2 ♂♂, 1 ♀, December 1902. J. Waterstradt coll.

2 ♂♂, 3 ♀♀ (all more or less immature), January 1900. H. Kühn coll., Nos. 1795, 1805, 1890, 1891, 2018.

1 Mt. Victoria, Owen Stanley Range, 5000—7000 ft., April—June 1896 (Nat. coll).

1 ♂, Suku, British New Guinea, 31. viii. 1898. A. S. Anthony coll.

1 ♀, Oriori, British New Guinea, 15. i. 1896. A. S. Anthony coll.

1 ♀, Mt. Cameron, Owen Stanley Range, 3000 ft., 16. viii. 1896. A. S Anthony coll.

5, Mt. Gayata, Richardson Range, 2000—4000 ft. E. Weiske coll.

2 ♂♂, 2 ♀♀, 2 juv., Avera, Aroa River, 17, 21, 23. i. 1903. A. S. Meek coll., Nos. A 21, 22, 24, 29, 65, 242.

1, Ambernoh River. J. Damas coll.

1, Mt. Maori, near Humboldt Bay, January 1899. J. Damas coll.

The Budapest Museum received it from the Sattelberg, in German New Guinea.

This pretty little bird differs in style of coloration from all other forms of the genus *Ptilotis*. We have not, however, attempted to separate it, because there do not seem to be important structural differences. We have also not separated *Xanthotis* from *Ptilotis*, because if this is done some more splitting becomes necessary, as the species with fully feathered sides of the head (*cinerea*, *plumbea*, *praecipua*, *finschi*, and others) would have to be separated with even more reason from *Ptilotis* or *Xanthotis* than these two latter genera from each other.

43. **Ptilotis finschi** spec. nov.

Above warm brown with the feathers darker in the middle, rump somewhat brighter and more uniform, feathers of crown very dark in the centre, edged with olive-brown. Rectrices brown with rufous-olive borders, inner webs below with cinnamon edges. Wings warm brown, outwardly edged with yellowish olive, inwardly very widely bordered with bright cinnamon. Under wing-coverts bright cinnamon. Under surface brown, throat and middle of underside paler, more yellowish brown. Wing 93½, tail 76, tarsus 23·1, bill only 16 mm. The small bill, entirely feathered sides of head, and absence of any yellow spots behind the ear-coverts and any elongated feathers there, make this bird very conspicuous. In its general build and these characters it agrees with *P. fulvocinerea* and *proxima* (which may be the same?), which we do not possess, but the colour is quite different.

One specimen from the mountains of British New Guinea, Weiske's preparation, purchased from McIlwraith and McEacharn in London. (*Type.*)

A skin from Milne Bay in the Leyden Museum seems to belong to this same species, which is named in honour of Dr. Otto Finsch.

44. **Eafa maculata** gen. et spec. nov. (Pl. XIV., fig. 1.)

Eafa gen. nov.

Differs from *Ptilotis* and allied genera by the form of its bill, which is not longer than the head and very wide, not running into a sharp point, but rounded off, just before the tip, with a small indentation on each side (see figure on Pl. XIV.) Nostrils in a long groove reaching nearly to the middle of the bill, protected by a soft operculum. The culmen is nearly straight for its basal half, well curved at its distal half. First primary tapering, not quite half the length of the second, which is 1 cm. shorter than the third; the fourth and fifth are about 2 mm. longer than the third, about equal, and form the tip of the wing. Tail very slightly rounded off, about two-sevenths of the length of the wing. Feet strong, tarsus long. Coloration peculiar.

Eafa maculata spec. nov.

Bill (in skin) brown. Upperside deep olive-brown, with brownish white fringes to the feathers of the head and neck, and somewhat triangular whitish tips to those of the back, rump and tail-coverts; the rump is slightly more greenish and more uniform, the whitish tips being less distinct, the upper tail-coverts much more greenish. Wing-coverts dark brown with greenish edges and faint whitish tips. Quills dark brown with yellowish green outer edges and whitish inner borders. Rectrices deep brown with greenish outer borders, the outermost pair with a large white patch, about 12 mm. long, on the inner web, and a small white tip, the next three pairs with white tips, decreasing in extent from 6 to 2 mm. Underside dark olive-brown with large, more or less roundish, white tips to the feathers, under tail-feathers dark olive-brown with wide whitish borders and tips. Under wing-coverts and axillaries white with dark brown shaft-streaks. Feet (in skin) blackish brown. Wing 75, tail 53, tarsus 19·5, bill from end of feathering 16, just before indentation near tip fully 2 mm. wide.

One specimen, collected in the Eafa district in British New Guinea (Owen Stanley Range) between 1000 and 3000 ft. elevation by A. S. Anthony, purchased from Messrs. McIlwraith and McEacharn in London. Type (No. E 61) in Mus. Tring.

45. **Philemon novaeguineae novaeguineae** (S. Müll.).

Tropidorhynchus Novae Guineae S. Müller, *Verh. Nat. Gesch. Ned. Ind., Land- en Volkenkunde*, p. 153 (W. coast New Guinea).

2 ♂♀ ad., Ron Island, November 1896, July 1897. W. Doherty coll.

1 jun. without label, but evidently from Bruijn's hunters.

1 ♀ ad., Batanta, July 1875. Bruijn coll. Specimen q^2 of Salvadori's list in *Orn. Pap.* ii. p. 359).

1 bought by Bruijn from a hunter coming from Salwatti and Waigiu.

2, ♂♀, Salwatti, May—June 1875. Bruijn coll. (Specimens a^3 and u^2 of Salvadori's list, *l.c.* p. 359.)

1 "♀," 1 ♂? Mysol, January 1900. H. Kühn coll., Nos. 1912, 1913. "Iris bright red, feet plumbeous (blackish plumbeous), bill black."

1 ♀ juv., Mysol, 31. i. 1900. H. Kühn coll., No. 1971. "Iris coffee-brown."

2, "♂♀," Waigiu, 4, 11. i. 1903. J. Waterstradt coll.

2 ♀♀, Dorey, 1. iv., 4. vi. 1875. Bruijn coll. (Specimens x, c^1 of Salvadori's list, *l.c.* p. 359).

2 ♂♂, Dorey, October 1896. W. Doherty coll.

4 ♀♀, Dorey, June 1897. W. Doherty coll. "Iris chestnut, outwardly greyish, bill and feet black, naked skin on head black."

1 ♀, Kapaur, December 1896. W. Doherty coll.

1 said to be from the Ambernoh River (?). Collected by J. Dumas.

1 said to be from Mt. Maori. Collected by J. Dumas. (Both these latter are somewhat small. They were bought from Mr. van Duivenbode, they have no original labels, and their localities were given by word.)

2 ♂♂, Hall Bay, 17. iv., 9. vii. 1875. D'Albertis and Tomasinelli coll. (Specimens f^3 g^3 of Salvadori's list, *l.c.* p. 360.)

1 ♂, Collingwood Bay, 28. vi. 1897. A. S. Meek coll., No. 670. "Iris very dark red."

2 ♀♀, Giabu-lengau, Aru Is., 8, 15. v. 1873. Beccari coll., Nos. s^3 t^3 of Salvadori's list, *l.c.* p. 360.

1 ♀, Lutor, Aru Is., 20. vi. 1873. Beccari coll. (No. u^3 of Salvadori's list, *l.c.* p. 360.)

1 ♀ juv., Dobbo, Aru Is., 17. xii. 1883. Guillemard coll.

1 ♂, Wokan, Aru Is., 5. xii. 1883. Powell coll.

4 ad., Dobbo, Aru Is., 6. vi. 1896. C. Webster coll.

2 ♂, Dobbo, Aru Is., 28. xi. 1897. H. Kühn coll., Nos. 332, 333. "Iris chocolate-brown."

1 ♂, Wokan, Aru Is., 26. ix. 1900. H. Kühn coll., No. 2586.

2 ♀♀, Wanambai, Kobroor, Aru Is., 1, 2. ix. 1900. H. Kühn coll., Nos. 2433, 2434. "Iris dirty coffee-brown."

Dr. A. B. Meyer has separated the Aru form under the name of "*Tropidorhynchus aruensis*," but we are not able to separate it. None of the characters

given by its describer hold good. The lighter colour of the crown (and body) is due to the age of the feathers, freshly moulted specimens being dark, worn ones light. This is illustrated by moulting specimens before us. The bill is not longer, the hump generally not larger. It is true that some individuals have exceptionally large humps at the base of the bill, but they are reached by some examples from Ron and Dorey.

46. **Philemon novaeguineae subtuberosus** Hart.

Philemon novaeguineae subtuberosus Hartert, Nov. Zool. 1896. p. 238 (Fergusson, Meek coll.).

1 ♂ ad., Fergusson Island, 9. x. 1894. A. S. Meek coll.

2 ♂♂, 1 ♀, Fergusson Island, October 1894. A. S. Meek coll.

2, ♂♀, Fergusson Island, 20. v., 10. vi. 1897. A. S. Meek coll., Nos. 317, 580. "Iris brown (dark brown), feet pale bluish slate (dark bluish grey), bill black."

1 ♀, Goodenough Island, December 1896. A. S. Meek coll., No. 25.

47. **Philemon novaeguineae jobiensis** Mey.

Philemon jobiensis A. B. Meyer, *Sitzber. Ak. Wiss. Wien* lxx. p. 113 (1874: Jobi).

3 ♂♂, 1 ♀, Marai, Jobi, April 1897. W. Doherty coll.

3 ♂♂. Ansus, Jobi, May 1897. W. Doherty coll.

1 ad., Konstantinhafen. Rehn coll. (Received in exchange from Berlepsch.)

1 ♂, Stephansort, 22. i. 1899. E. Nyman coll.

1 ♀, Kafu, May 1884. Bruijn coll. (Wing moulting, size doubtful.)

6 "♂♂," 1 "♀," Takar, October 1896. W. Doherty coll. "Iris grey-brown, feet dark grey, bill, bare skin on head black."

1 said to be from the Ambernoh River. J. Dumas coll. (Purchased from Mr. van Duivenbode.)

The Takar specimens are very small, but some are not quite adult, others apparently wrongly sexed (?). We therefore refrain for the present from separating them from *jobiensis*.

We believe that we are perfectly justified in considering *jobiensis* to be a subspecies of *novaeguineae*. The specimens of *P. n. novaeguineae* said to be from the Ambernoh River and Mt. Maori have no original labels and their locality is therefore doubtful. So far we have no proof of *Ph. jobiensis* and typical *novaeguineae* coming from the same place.

48. **Philemon meyeri** Salvad.

Philemon meyeri Salvadori *Ann. Mus. Civ. Gen.* xii. p. 339 (1878: Rubi).

1, Mt. Cameron, Owen Stanley Range, August—September 1896. A. S. Anthony coll.

1 juv., "Fly River," purchased from H. Whitely.

1, "N.E. coast of Dutch New Guinea." J. Dumas coll.

1 ad., 1 juv., "Ambernoh River." J. Dumas coll.

1 ♀ ad., Konstantinhafen, 8. i. 1895. Kubary coll.

49. **Pycnopygius stictocephalus** (Salvad.).

Pycnonotus? stictocephalus Salvadori, *Ann. Mus. Civ. Gen.* ix. p. 34 (1876: Naiabui, British New Guinea).

One specimen obtained at Wanambai, Aru, by Capt. C. Webster, 23. vi 1896, skinned from spirits, agrees in every way with the description of *P. stictocephalus*. The upper throat is blackish brown with whitish shaft-streaks to the feathers.

50. **Euthyrhynchus flavigula** Schleg.

Euthyrhynchus flavigula Schlegel, *Ned. Tijdschr. Dierk.* iv. p. 40 (1871: W. of Geelvink Bay).

1 ♂, Andai, 3. xi. 1883. Guillemard coll. "Iris gamboge, bill horn-colour, tarsus slate-blue."

1 ♂, Takar, November 1896. W. Doherty coll. "Iris pale creamy, feet pale purplish, bill blackish above, pale corneous below, commissure ochreous."

These two birds agree well with the description and figure of *E. flavigula*. We have no material to prove the identity or otherwise of *E. flavigula* and *E. griseigula*.

51. **Euthyrhynchus fulviventris** (Rams.).

Plectorhyncha fulviventris Ramsay, *Proc. Linn. Soc. N.S.W.* 1882. p. 718 (Mts. S.E. New Guinea).

1 ♂, Mt. Cameron, 13. viii. 1896. A. S. Anthony coll. "Iris deep brown, feet whitish, bill grey."

♂ ?, Milne Bay, 20. ii. 1899. "Iris brown, feet light lavender, bill light brown, base dark brown."

E. fulviventris can only be a subspecies of one of the northern forms, but the nomenclature of the latter is not clear to us.

52. **Euthyrhynchus fulvigula meyeri** Salvad.

Euthyrhynchus meyeri Salvadori, *Ann. Mus. Civ. Gen.* xxxvi. p. 97 (1896: Moroka).

1 ♂, 3 ♀♀, Mt. Cameron, 6000 ft. 20, 26. viii. 1896. A. S. Anthony coll.
3 Eafa district, 1000—3000 ft. Purchased from McIlwraith & Co.
1 ♂ Avera, Aroa River, 12. iii. 1903. A. S. Meek coll., No. A 405.
"Iris kid-fawn, feet pale chocolate, bill dark brown and slate."

XXVII. ZOSTEROPS.

1. **Zosterops novaeguineae** Salvad.

Zosterops novaeguineae Salvadori, *Ann. Mus. Civ. Gen.* xii. p. 341 (Arfak).

3 ♂♂, 1 ♀, Hatam Arfak, 1879. Bruijn coll.
1 ♂, Wokan, Aru Is., 26. ix. 1900. H. Kühn coll. "Iris greyish brown, feet ash-grey, bill black."

2. **Zosterops minor** Mey.

Zosterops albiventer minor A. B. Meyer, *Sitzber. Ak. Wiss. Wien* lxx. p. 115 (1874: Jobi).
Zosterops aureigula Salvadori, *Ann. Mus. Civ. Gen.* xii. p. 340 (1878: Jobi).

2 ♂♂, Ansus, Jobi, May 1897. W. Doherty coll.

2 ♂♂, 1 ♀, Marai, Jobi, May 1897. W. Doherty coll. "Iris red-brown, feet bluish-grey, bill blackish."

The white ring round the eyes is only indicated in this species.

3. **Zosterops crissalis** Sharpe.

Zosterops crissalis Sharpe, *Cat. B. Brit. Mus.* ix. p. 165 (1884: Astrolabe Mts.).

2, Mt. Cameron, 31. vii., 8. viii. 1896. A. S. Anthony coll.

2 ♂♂, Kotoi district, Brit. New Guinea, 4000 ft., 12. viii. 1898. A. S. Anthony coll.

1, Moroka district, Brit. New Guinea, 3000—6000 ft. (Native coll.?). Purchased from McIlwraith and McEacharn.

2, Mountains of British New Guinea. E. Weiske coll.

3 ♂♂, 3 ♀♀, Avera, Aroa River, 21, 28, 31. i., 1. ii., 4, 14. iii. 1903. A. S. Meek coll., Nos. A 25, 140, 166, 175, 353, 416.

4. **Zosterops chrysolaema** Salvad.

Zosterops chrysolaema Salvadori, *Ann. Mus. Civ. Gen.* vii. p. 954 (1880 : Arfak).

2 ♂♂ ad., Kapaur, December 1896. W. Doherty coll. "Iris red-brown."

Resembles *Z. minor*, but has a wide white ring round the eyes, black lores, darker crown and altogether darker and more brownish green upperside.

5. **Zosterops delicatula** Sharpe.

Zosterops delicatula Sharpe, *Journ. Linn. Soc.* xvi. p. 318 (Astrolabe Mts., Goldie coll.).

1, Kotoi district, 1898. A. S. Anthony coll.

1, Moroka district, 3000—6000 ft.

2, between rivers Laroki and Vanapa, British New Guinea. E. Weiske coll. 1899.

1, Mt. Gayata, 2000—4000 ft. E. Weiske coll.

1 ♂, Milne Bay, 9. ii. 1899. A. S. Meek coll., No. 2284. "Iris brown, feet slate, bill black."

4 ♂♂, 3 ♀♀, Fergusson Island, 29, 31. v., 2, 3. vi. 1897. A. S. Meek coll., Nos. 449, 471, 508, 509, 512, 517, 519.

6. **Zosterops meeki** Hart.

Zosterops meeki Hartert, Nov. Zool. v. p 528 (1898 : Sudest I.).

1 ♂ ad., Sudest Island, Louisiades, 18. iv. 1898. (No. 1753.) *Type.* A. S. Meek coll.

1 ♀ ad., Sudest Island, 18. iv. 1898. A. S. Meek coll., No. 1754.

Differs from *Z. delicatula* chiefly in the entirely white underside.

7. **Zosterops hypoxantha** Salvad.

Zosterops hypoxantha Salvadori, *Atti. Acc. Tor.* xvi. p. 623 (New Britain).

1, New Ireland. Missionary coll.

2, New Hanover, February 1897. Capt. C. Webster coll. (Ex spirits !)

8. **Zosterops fuscicapilla** Salvad.

Zosterops fuscicapilla Salvadori, *Ann. Mus. Gen.* vii. p. 955 (Arfak).

3 ♂♂, 3 ♀♀, Hatam, Arfak Mts., 1879. Bruijn coll.

1 without label, Bruijn's preparation.

9. **Zosterops chloris** Bp.

Zosterops chloris Bonaparte, *Consp. Av.* i. p. 398 (1850 : Banda). See anteà, pp. 249, 250.

6 ♂♂, 2 ♀♀, Pulu Babi, Aru Is., 23. ix. 1900. H. Kühn coll. "Iris chocolate (deep coffee-brown, greyish coffee-brown), feet bluish ash-grey (ash-grey, bright ash-grey), bill black, base of mandible grey."

10. **Zosterops pallidipes** De Vis.

Zosterops pallidipes De Vis, *Rep. Brit. New Guinea* 1888-89 p. 60 (1890 : Rossel I.).

6 ♂♂, 3 ♀♀, Rossel I., Louisiade group, January, February, March 1898. Nos. 1245, 1374, 1470, 1503, 1505, 1507, 1539, 1547, 1549.

11. **Zosterops aignani** Hart.

Zosterops aignani Hartert, Nov. Zool. vi. p. 210 (Aignan I.).

1 ♂ ad., St. Aignan I., Louisiades 7. xii. 1897. A. S. Meek coll., No. 1132. (*Type !*)

3 ♂♂, 4 ♀♀, St. Aignan, September, November, December 1897. A. S. Meek coll., Nos. 723, 968, 969, 971, 972, 1057, 1197.

XXVIII. HIRUNDINIDAE.

1. **Hirundo rustica gutturalis** Scop.

♂ Pegan (Pigen) in the St. Davids, Mapia, or Freewill group, October 1896. "Iris deep brown, bill and feet black."

(72 skins from other localities.)

2. **Hirundo javanica** Sparrm.

4 ♂♂, 1 ♀, Kapaur, January 1897. W. Doherty coll.

1 ♂, 1 ♀, Mysol, 8, 12. ii. 1900. H. Kühn coll., Nos. 2011, 2024.

1 ♂, Collingwood Bay, 26. vi. 1897. A. S. Meek coll., No. 650.

1 ♂, 1 ♀, Fergusson Island, 30. v. 1897. A. S. Meek coll., Nos. 458, 460.

1 ♀, Mariri, Aru Is., 23. xi. 1897. H. Kühn coll., No. 348. (39 from other localities.)

3. **Hirundo tahitica** Gm.

1, N. coast of New Britain (Neu Pommern). Kubary coll. (7 from other localities.)

XXIX. MUSCICAPIDAE.

1. **Peltops blainvillii** (Less. & Garn.).

Eurylamus blainvillii Lesson et Garnier, *Ferussac Bull. Sc. Nat.* xi. p. 302 (1827: Dorey).

1 ♂, Mysol, 21. xi. 1883. R. F. Powell coll.

2 ♂♂, Mysol, 25. i., 7. ii. 1900. H. Kühn coll., Nos. 1930, 2019. "Iris dark vermilion, bill and feet black."

2 ♂♂, 1 ♀, Kapaur, 3000 ft., December 1896. W. Doherty coll.

1 ♂, Sorong, June 1872. D'Albertis coll., No. 239. (Specimen *b* of Salvadori's list, *Orn. Pap.* ii. p. 9.)

2, ♂ ♀, Arfak, June 1874. Bruijn coll. (Specimens *k*, *l* of Salvadori's list, *Orn. Pap.* ii. p. 9.)

2 ♂♂, Arfak, 24. iv., 8. v. 1875. Bruijn coll. (Specimens *n*, *q* of Salvadori's list, *l.c.*)

2, ♂ ♀, Arfak, 1879. Bruijn coll.

1, Humboldt Bay. J. M. Dumas coll.

1, German New Guinea. Cotton & Webster coll.

1 ♀, 2 ♂♂ (?), Stephansort, German New Guinea, December 1898, December 1899. Nyman coll.

4 ♂♂, 2 ♀♀, Milne Bay, 1, 9, 17. ii., 8. iv. 1899. A. S. Meek coll., Nos. 2223, 2224, 2283, 2349, 2447, 2448.

2 ♂♂, 1 ♀, Sogere, Owen Stanley Mts., October—November 1885 (1750—2000 ft.). H. O. Forbes coll., Nos. 6, 41, 185.

1, West of Port Moresby, April 1896. A. S. Anthony coll.

1 ♂, 1 ♀, Oriori district, 2. ii. 1896. A. S. Anthony coll.

1, Mt. Cameron, 8. ix. 1896. A. S. Anthony coll.

3 ♂♂, 1 ♀, Avera, Aroa River, 21, 30. i., 9, 27. ii. 1903. A. S. Meek coll., Nos. A 28, 152, 224, 311.

Peltops minor de Vis, Rep. New Guinea for 1893, p. 2, is doubtless based on a young and apparently partially aberrant specimen. Our specimens from British New Guinea average in no way smaller, and the largest of all, with a wing measuring 115 mm., is among them.

2. **Monarcha inornata inornata** (Garn.).

Muscicapa inornata Garn., *Voy. Coqu. Zool. Atlas* Pl. xvi. fig. 2 (1826 : Dorey.) (This is the oldest name, not *cinerascens* Temm.)

1 ♂, 3 ♀♀, Mysol, 9—21. i. 1900. H. Kühn coll., Nos. 1790, 1790, 1879, 2012.

1, Tifore, August 1875. Bruijn coll. (Specimen *u* of Salvadori's list in *Orn. Pap.* ii. p. 15.)

1, Amboina, November 1873.

4 ♂♂, 1 ♀, Yamna Island, October—November 1896. W. Doherty coll.

1 ♀, Credner I., 22. xi. 1880. Th. Kleinschmidt coll., No. 586.

1 ♀ ?, Nanuha (?) I., near New Britain. Th. Kleinschmidt coll.

2, "New Ireland." Missionary coll.

2 ♂♂, Sudest I., 6, 19. iv. 1898. A. S. Meek coll., Nos. 1683, 1764.

2 ♂♂, 3 ♀♀, St. Aignan I., September, November, December 1897. A. S. Meek coll., Nos. 1000, 1006, 1009, 1059, 1195.

4 ♂♂, 2 ♀♀, Rossel I., January, February, March 1898. A. S. Meek coll., Nos. 1253, 1259, 1385, 1388, 1461, 1581.

The Yamna birds are indistinguishable. Meyer's *fuscescens* (type from Yamna) undoubtedly based on immature birds.

3. **Monarcha inornata geelwinkianus** Mey.

Monarcha geelwinkianus A. B. Meyer, Sitzungsber & Abh., *Ges. Isis* 1884, Abh. i. p. 23 (Misori Jobi).

3 ♂♂, 1 ♀, 3 unsexed, Mayfor, May—June 1897. W. Doherty coll.

The deeper chestnut-brown abdomen and lighter grey distinguish this form well from typical *inornata*. It rather resembles another form, *i.e. M. i. kisserensis*, from the South-East and South-West Islands.

4. **Monarcha melanopsis** (Vieill.).

Muscicapa melanopsis Vieillot, *Nour. Dict.* xxi. p. 450 (1818), nine from Australia.

1 ♀, Mt. Cameron, Owen Stanley Range, 2000 ft., 19. viii. 1896. Anthony coll.

1, Nicura. Lix coll.

1, British New Guinea. Goldie coll.

2 ♂♂, 2 ♀♀, Milne Bay, February, April 1899, November 1898. A. S. Meek coll., Nos. 2147, 2338, 2476, 2486.

3 ♂♂, 1 ♀, Fergusson Island, September 1894, May—June 1897. A. S. Meek coll., Nos. 236, 600.

2 ♂♀, Sudest Island, April 1898. A. S. Meek coll., Nos. 1697, 1783.

1 ♀ jun., Trobriand Island, 13. iii. 1895. A. S. Meek coll.

This specimen has (Nov. Zool. 1896, p. 241) been recorded as *Monarcha inornata*, but we believe now that it is a young specimen of *M. melanopsis*, though it is hardly possible to say for certain which it may be, the young *M. inornata* and *melanopsis* being apparently indistinguishable.

2 ♂♂, 1 ♀?, Goodenough Island, December 1896. A. S. Meek coll., Nos. 68, 69, 73.

1 ♂, 2 ♀♀, Simbang, German New Guinea., August—September 1899. Nyman coll.

5. **Monarcha periophthalmicus** Sharpe.

Monarcha periophthalmicus Sharpe, *Journ. Linn. Soc. London, Zool.* xvi. pp. 318, 430 (1882 : S. E. New Guinea).

Probably only a subspecies of *M. frater*.

1 (apparently not quite adult, with black spots all over the pileum). Mountains of British New Guinea, 1894. Anthony coll.

1 "♀," Oriori district, 19. i. 1895. A. S. Anthony coll.

3 ♂♂, 3 ♀♀, Avera, Aroa River, 19, 20, 21. i., 26. ii., 19. iii. 1903. A. S. Meek coll., Nos. A 8, 15, 23, 307, 424, 435. "Iris light brown, bill and feet dark slate-blue."

6. **Monarcha frater** Scl.

Monarcha frater Sclater, *P. Z. S.* 1873. p. 691 (Arfak, Hatam).

1, Mt. Maori, near Humboldt Bay, January 1899. J. Dumas coll.

7. **Monarcha melanoptera** Gray.

Monarcha melanoptera Gray, *P. Z. S.* 1858 p. 178 (Louisiades Is.).

7, St. Aignan, 2, Rossel I., Louisiades. A. S. Meek coll.

8. **Monarcha guttula** (Garn.).

Muscicapa guttula Garn., *Voy. Coqu., Zool.* i. 2 p. 591 Pl. 16 f. 2 (1828 : Dorey).

1 ♂, Mysol, 8. ii. 1900. H. Kühn coll., No. 2015.

1, Andai, 1872. D'Albertis coll. (Specimen *b* of Salvadori's list in *Orn. Pap.* ii. p. 22.)

1 ♀. Andai, June 1874. Bruijn coll. (Specimen *c* of the above list.)

1 ♀, „ „ „ „ „ (Specimen *e* of the above list.)

3 ♂♂, 1 ♀, Takar, October 1896. W. Doherty coll.

1 ♀, Ansus, Jobi, April 1874. Bruijn coll. (Specimen *t* of the above list.)

2 ♂♂, 1 ♀, Ansus, Jobi, April 1897. W. Doherty coll.

1, Mariati, Sorong, 24. vi. 1875. Beccari coll. (Specimen *l* of the above list.)

1 ♂, Sattelberg, German New Guinea, 29. vi. 1899. E. Nyman coll.

1 ♂, Simbang, 30. viii. 1899. E. Nyman coll.

1 ♂ jun., Collingwood Bay, 10. vi. 1899. A. S. Meek coll., No. 2594. "Iris dark brown, bill and feet slaty-blue."

1 ♂ ad., Milne Bay, 18. iv. 1899. A. S. Meek coll., No. 2477.

1 ♂, Kone district, British New Guinea, June 1898. A. S. Anthony coll.

1, British New Guinea. E. Weiske coll.

1, Fly River (fide Whitely.)

1 ♂, 1 ♀, Sudest I., Louisiades, 23. iii., 2. iv. 1898. A. S. Meek coll., Nos. 1593, 1649.

1 ♂, 2 ♀♀, 2 ♂ juv., Fergusson I., 4, 10. x., 18, 22. xii. 1894, 18. vi. 1897. A. S. Meek coll., No. 640.

1 ♂, 1 ♀, Goodenough I., 2, 9. xii., 1896. A. S. Meek coll.

3 ♂♂, St. Aignan I., 31. vii., 5. viii., 5. ix. 1897. A. S. Meek coll., Nos. 727, 753, 965.

1 ♂, Trangan, 16. ix. 1900. H. Kühn coll., No. 2621.

1 ♀, Dobbo, Aru, February 1897. W. Doherty coll.

1, „ „ 28. v. 1896. C. Webster coll.

2 ♂♂, 1 ♀ juv. Sg. Bark, Kobroor, Aru Is., 20, 21, 22. viii. 1900. H. Kühn coll., No. 2267, 2282.

1 ♀, Wokan, Aru, 28. ix. 1900. H. Kühn coll., No. 2623.

1 ♂, 1 ♀, Waigiu, 16, 17. xii. 1902. J. Waterstradt coll.

1 ♂, Batanta, July 1875. Bruijn coll. (Specimen *q* of Salvadori's list, *Orn. Pap*, ii. p. 22.)

1, " Ambernoh River." J. Dumas coll.

9. **Monarcha leucotis** Gould.

Monarcha leucotis Gould, *P. Z. S.* 1850. p. 201 (Australia.)

6 specimens from Australia.

We have not received this species from the Louisiades. Possibly the occurrence there is erroneously recorded.

10. **Monarcha chalybeocephalus chalybeocephalus** (Garn.).

Muscicapa chalybeocephalus Garn., *Voy. Coqu., Zool., Atlas* Pl. XV. fig. 1 (♀) (1826 : New Ireland !).

5 ♂ ad., 2 ♀ juv., New Ireland. Missionary coll.

1 ♂ ad., 1 ♀ juv., New Britain 1886. Kubary coll.

1 ♂ ad., Mountains of British New Guinea. A. S. Anthony coll.

1 ♀, Brown River 1898. E. Weiske coll.

1 ♂ juv., Port Moresby (fide Gerrard).

1 ♂ ad., Milne Bay, 19. iv. 1899. A. S. Meek coll., No. 2483. "Iris dark brown, feet black, bill slate-blue."

1 ♂ ad., Sariba I., 17. vii. 1900. A. S. Meek coll., No. 2701.

2 ♂ ad., 1 ♂ juv., Simbang, German New Guinea, 19, 23. viii. 1899. E. Nyman coll.

1 ♂ ad., 1 ♂ juv., Stephansort, December 1899. E. Nyman coll.

1 ♂, 1 ♀ ad., Takar, October—November 1896. W. Doherty coll.

1 ♂, 1 ♀, Ramoi, 4, 5. ii. 1875. Beccari coll. (Specimens *r* and *i'* of Salvadori's list, *Orn. Pap.* ii. p. 33.)

1 ♂ ad., Andai, 2. vi. 1875. Beccari coll. (Specimen *k* of the above list.)

4 ♂ ad., Dorey, June 1897. W. Doherty coll.

1 ♂, 1 ♀, Dorey, 16. iv. 1875, August 1874. Bruijn coll. (Specimens *a'*, *b* of Salvadori's list.)

1 ♂, 1 ♀ ad., Kapaur, November 1896, January 1897. W. Doherty coll. "Iris deep brown, bill pale blue, tip and commissure narrowly black, feet dull blue."

1 ♂ ad., Marai, Jobi, April 1897. W. Doherty coll.

1 ♂, Asna, Jobi, April 1897. W. Doherty coll.

1 ♂, 1 ♀, Ansus, Jobi, April and May 1897. W. Doherty coll.

4 ♂♂, 2 ♀ ad., Ron I., June—July 1897. W. Doherty coll.

1 ♀, "Kordo" 1879. Bruijn coll.

1 ♂, Yamna I., 1879. Bruijn coll.

8 ♂ ad., 6 ♀ ad., 1 ♂ juv., Mafor, October 1896, May—June 1897. W. Doherty coll.

3 ♂♂, 2 ♀♀, Mysol, 10, 11, 12, 15, 18. i. 1900. H. Kühn coll., Nos. 1813, 1815, 1816, 1817, 1818. "Iris dark coffee-brown, feet dark ash-grey, bill ash-grey with black tip."

1 ♂, Mysol, November 1883. H. Guillemard coll. ("Length, 180 mm.")

1 ♂, 1 ♀, Waigiu, 30. xi., 15. xii. 1902. J. Waterstradt coll.

11. **Monarcha chalybeocephalus** subsp.

2 ♂♂, 1 ♀, Fergusson Island, September, October 1894. A. S. Meek coll.

1 ♂, 1 ♀ ad., Goodenough Island, 19. xii. 1896. A. S. Meek coll., Nos. 87, 88).

2 ♂ ad., 1 ♀, Trobriand Is. (one with large black chin-spot), 18. iii., 15. v. 1895. A. S. Meek coll.

1 ♂ ad., Woodlark Island, 3. viii. 1895. A. S. Meek coll.

3 ♂♂, 3 ♀♀, Woodlark Island, 19, 24. iii., 16, 26, 28, 29. iv. 1897. A. S. Meek coll., Nos. 136, 155, 221, 229, 233, 236.

These specimens were recorded by Hartert as *M. chalybeocephala*, with the remark that some had a larger bill. Rothschild considers the size of the

beak so much larger that he would rather unite them to *M. chalybeocephalus lucidus*, but as our specimens of true *lucidus* from the Louisiades have on an average still larger bills, we have agreed to leave the actual status of these birds undecided.

12. **Monarcha chalybeocephalus lucida** (G. R. Gray).

Myiagra lucida Gray, *P. Z. S.* 1858. pp. 176, 192 (Louisiade Is.).

6 ♂♂, 3 ♀♀, St. Aignan, 4, 21, 23, 31, 24. viii., 3. ix. 1897. A. S. Meek coll., Nos. 750, 751, 752, 870, 875, 935—937, 956.

3 ♂♂, 3 ♀♀, Sudest Island, 23. iii., 1, 6, 9, 14, 17. iv. 1898. A. S. Meek coll., Nos. 1592, 1638, 1682, 1698, 1728, 1751.

This subspecies is only known from the Louisiades. It differs only by its larger bill.

13. **Monarcha chalybeocephalus rufolateralis** (Gray).

Piegorhynchus rufolateralis Gray, *P. Z. S.* 1858. pp. 177. 192 (Aru Is.).

3 ♂♂, 2 ♀♀, Wokan, Aru Is., 17. viii., 25. ix. 1900. H. Kühn coll., Nos. 2603, 2270, 2272, 2274, 2275. "Iris blackish brown, feet greyish black, bill dark bluish grey with black tip, gape 'mennigroth.'"

1 ♂ ad., Sg. Barkai, 20. ii. 1900. H. Kühn coll, No. 2271.

1 ♂ juv., Wanambai, Kobroor, 31. viii. 1900. H. Kühn coll., No. 2273.

14. **Monarcha verticalis** Scl.

Monarcha verticalis Scl., *P. Z. S.* 1877. p. 99. Pl. XIX. ("Duke of York Is.").

2, New Ireland. (Missionary coll.)

15. **Monarcha menadensis** (Quoy & Gaim.).

Muscicapa menadensis Quoy et Gaimard, *Voy. Astrol.* p. 176. Pl. III. fig. 3 (1833).
Monarcha dichrous auctorum.

1, New Guinea (?) Beccari coll. (Specimen *c* of Salvadori's list, *Orn. Pap.* ii. p. 29.)

1, "Mt. Maori, near Humboldt Bay, January 1899. J. M. Dumas coll.

1 ♀, Simbang, German New Guinea, 31. viii. 1899. E. Nyman coll.

1 ♀, Collingwood Bay, 17. vi. 1899. A. S. Meek coll., No. 2623. "Iris dark brown, bill and feet slate-blue."

1, Mt. Cameron, 8. ix. 1896. A. S. Anthony coll.

2 ♂♂, 1 ♀, Kapaur, December 1896, January, February 1897. W. Doherty coll.

16. **Monarcha axillaris** Salvad.

Monarcha axillaris Salvadori, *Ann. Mus. Civ. Gen.* vii. p. 921 (Arfak).

3 ♂ ad., Avera, Aroa River, 2, 5, 16. ii. 1903. A. S. Meek coll., Nos. A 181, 206, 239. "Iris dark brown, bill chalky blue, feet dark slaty blue."

1 ♀ (or immature), Moroka district, British New Guinea, 3000—6000 ft.

17. **Monarcha chrysomela chrysomela** (Less.)

Muscicapa chrysomela Lesson, *Voy. Coqu., Zool.* i. p. 344 (New Ireland).

2 ♂ ad., New Ireland. (Missionary coll.)

18. **Monarcha chrysomela kordensis** Mey.

Monarcha kordensis Meyer, *Sitzungsber. k. Akad. Wiss. Wien* lxix. p. 202 (1874 : Mysori).

1 ♂ ad., Kordo, 1879. Bruijn coll.

19. **Monarcha chrysomela aurantiacus** Mey.

Monarcha melanonotus aurantiacus A. B. Meyer, *Abh. & Ber. Mus. Dresden* 1890-91, Art. 4. p. 9 (1892 : Kafu and Stephansort).

1 ♂ ad., Wensudu, N. coast, 139°, November 1896. W. Doherty, purchased from native.

2 ♂♂, 2 ♀♀, Takar, October 1896. W. Doherty coll. "Iris very deep brown, feet blue-black, bill slaty-blue, culmen and commissure black."

1 ♂ ad., Stephansort, 3. i. 1899. E. Nyman coll.

This form differs from *M. c. melanonotus* in its slightly smaller size and deeper yellow colour. This is also noticeable in the *females*, which have a brighter abdomen and somewhat less of the olive tint on the breast. In size this subspecies is somewhat intermediate between *melanonotus* and *aruensis*.

20. **Monarcha chrysomela melanonotus** Scl.

Monarcha melanonotus Sclater, *P. Z. S.* 1877. p. 100 (New Guinea).

4 ♂ ad., Andai, June 1874, 7. iv., 19, 29. v. 1875. Bruijn coll. (Specimens *b*, *d*, *e*, *i* of Salvadori's list, *Orn. Pap.* ii. p. 39.)

1 ♂, Arfak, 1879. Bruijn coll.

4 ♂ ad., 2 ♂ juv., 1 ♀, Kapaur, December 1896. W. Doherty coll.

6 ♂♂, 1 ♀? Mysol, 10, 13, 14, 15, 20, 22, 25. i. 1900. H. Kühn coll., Nos. 1785—1789, 1882, 1929.

1 ♂, Mysol. H. Guillemard coll. November 1883. Length 158 mm.

2 ♂♂, 3 ♀♀, Waigiu, December 1892. J. Waterstradt coll.

1 ♀, Salwatti I., 1879. Bruijn coll.

21. **Monarcha chrysomela aruensis** Salvad.

Monarcha aruensis Salvadori, *Ann. Mus. Civ. Gen.* vi. p. 309 (1874 : Aru).

1 ♂, Sg. Bark., Kobroor, 22. viii. 1900. H. Kühn coll.

2 ♂♂, Wanambai, Kobroor, 4. iii., 1. ix. 1900. H. Kühn coll., Nos. 2429, 2431.

1 ♂, 1 ♀, Wokan, Aru, 26, 30. ix. 1900. H. Kühn coll.

5 ♂♂, Avera, Aroa River, 24. i., 23, 28. ii, 1, 7. iii. 1903. A. S. Meek coll., Nos. A 75, 278, 327, 332, 382.

2 ♂♂, Brown River, 1898. E. Weiske coll.

3 ♂♂, Mailu district, July 1895. A. S. Anthony coll.

1 ♀, Kotoi district, August 1898. A. S. Anthony coll.

1 ♂, Oriori district, 19. i. 1896. A. S. Anthony coll.

1 ♂, Nicura. Lix coll.

3 ♂ ad., 1 ♂ juv., Milne Bay, 19. i., 4, 14. ii. 1899. A. S. Meek coll., Nos. 2190, 2252, 2257, 2322.

3 ♂ ad., 3 ♀♀, Fergusson I., September—October 1894. A. S. Meek coll.

1 ♂, Fergusson I., 14. v. 1897. A. S. Meek coll., No. 249.

1 ♂, 1 ♂ juv., Goodenough I., 11, 14. xii. 1896. A. S. Meek coll., Nos. 43, 81.

2 ♂♂, 1 ♀, 1 ♂ juv., Simbang, Huon Gulf, August 1899. E. Nyman coll.

1 ♂ ad., Sattelberg, 11. vii. 1899. E. Nyman coll.

22. **Monarcha rubiensis** (Mey.)

Tchitrea rubiensis A. B. Meyer, *Sitzungsber. k. Akad. Wiss. Wien* lxix. p. 494 (1874 : Rubi).
Bathmisyrma (!) *rufum* Reichenow, *Orn. Monatsber.* 1897. p. 161 (Oberlauf des Gogol, Kaiser-wilhelmsland).

1 ♂ ad., near Humboldt Bay. J. Dumas coll.

1 ♀, Bismarck Gebirge, 4. vii. 1899. (Ramu Expedition 141A.)

Professor Reichenow states that his specimen was in full moult, and yet founds a new genus principally on the strongly graduated tail, describing the outer rectrices as half as long as the centre ones. In all the other known specimens, however, the outer tail-feathers are only a few millimetres shorter, certainly not more so than in the *females* of *M. chalybeocephala*, therefore the supposed generic character was entirely due to moult. Although the vibrissae on the gape are actually longer and thicker than in most of the other *Monarchae*, they are in proportion to the size of the species not larger than in *M. chrysomela*.

23. **Arses telescophthalmus telescophthalmus** (Garn.).

Muscicapa telescophthalmus Garn., *Voy. Coqu., Zool.* i. p. 593. pl. 18 (1828 : Dorey).

1 ♂, Dorey, 14. iv. 1875. Bruijn coll. (Specimen *a* of Salvadori's list, *Orn. Pap.* ii. p. 44.)

3 ♂♂, 1 ♀, Dorey, June 1897. W. Doherty coll.

1 ♂, Dorey, October 1896. W. Doherty coll.

1 ♂, Arfak, July, from Bruijn's hunters.

1 ♂, 1 ♀, Andai, 18, 21. v. 1875. Bruijn coll. (Specimens *e* and *q* of Salvadori's list.)

1 ♀, Andai, 1872. D'Albertis coll. (From spirits! Specimen *a* of Salvadori's list.)

1 ♀, Sorong, 23. vi. 1875. Bruijn coll. (Specimen *u* of Salvadori's list.)

1 ♀, Warbusi, 24. iii. 1875. Beccari coll. (Specimen *t* of Salvadori's list.)

2 ♂♀, "Ambernoh River." J. Dumas coll.

2 ♂♂, 4 ♀♀, Kapaur, December 1896. W. Doherty coll.

1 ♂, Triton Bay, 25. vii. 1900. Capt. C. Webster coll. (From spirits!)

2 ♂♂, 1 ♀, Mysol, 16, 18, 22. i. 1900. H. Kühn coll., Nos. 1769, 1770, 1893. '♂, Iris darkest brown (black), eyelid ultamarine-blue, feet dark bluish grey, bill ash-grey."

1 ♂, New Guinea (probably Arfak peninsula). (Ex Coll. Elwes. Small white patch on nape, aberration.)

The specimens from Mysol, as shown by their size, are this form, not *batantae*. The ♀ has the breast also dark, not as pale as in *batantae*, the crown, however, is rather pale, maybe due to immaturity.

24. **Arses telescophthalmus batantae** Sharpe.

Arses batantae Sharpe, *Notes Leyden Mus.* i. no. 5. p. 20 (Batanta).

2 ♂♂, 2 ♀♀, Batanta, 23. x. 1883 (2 without dates). From the *Marchesa* Expedition.)

1 ♂, 1 ♀, Batanta, 20, 22. x. 1883. Guillemard coll.

2 ♂♂, 2 ♀♀, Waigiu, December 1902, January 1903. J. Waterstradt coll.

This subspecies differs from *A. t. telescophthalmus* in being considerably larger, the *female* in having a lighter breast and lighter slaty-grey crown. Dr. Finsch (*Notes Leyden Mus.* xxii. p. 56) unites the two forms erroneously. It is true that Dr. Sharpe's alleged difference of the colour of the eyelids is apparently not constant, but the other differences remain. Dr. Finsch denies the larger size, but gives the measurements of *batantae* as: ♂ wing 84—92, ♀ 84—87; of *telescophthalmus* ♂ 80—86, ♀ 76—82 mm. This clearly confirms a difference in size in our opinion!

25. **Arses telescophthalmus aruensis** Sharpe.

Arses aruensis Sharpe, *Notes Leyden Mus.* i. no. 5. p. 21 (Aru). A very distinct subspecies.

2 ♂♂, 1 ♀, Sungei Bark, Kobroor, Aru Is., 24, 26. viii. 1900. H. Kühn coll., Nos. 2367, 2382, 2389. "Iris coffee-brown, eyelids ultamarine, feet steel-grey (dark bluish grey)."

1 ♀, Wanambai, Kobroor Island, Aru Is., 4. iii. 1900. H. Kühn coll., No. 2370.

1 ♂, 2 ♀♀, Sungei Bark, Kobroor, 20. viii. 1900. H. Kühn coll., Nos. 2366, 2369, 2387.

2, ♂♀, Wanambai, Kobroor, 23. vi. 1896. C. Webster coll. (From spirits.)

26. **Arses telescophthalmus henkei** Mey.

Arses Henkei A. B. Meyer, *Zeitschr. Ges. Orn.* iii. p. 16 (1886: Astrolabe Mts.).

1 ♂ ad., 1 ♀, 1 ♂ juv., Mountains of the Kotoi district, British New Guinea 4000 ft., August 1898. Anthony coll.

1 ♀, Oriori district, January 1898. Anthony coll.

1 ♂, Mt. Cameron, Owen Stanley Range, August—September 1896. Anthony coll.

2 ♂♂, Mt. Victoria, 1894. A. S. Anthony coll.

1 ♂, 1 ♀, between rivers Laroki and Vanapa, 1897. E. Weiske coll.

2 ♂♂, 1 ♀, Brown River, 1898. E. Weiske coll.

1 ♀, Nicura. Lix coll.

1 ♂, Sogeri, Owen Stanley Mts., 14. xii. 1885. H. O. Forbes coll.

1 ♂, Hall Bay, 14. v. 1875. D'Albertis. (Specimen *p* of Salvadori's list, *Orn. Pap.* ii. p. 46.)

3 ♂♂, 3 ♀♀, Avera, Aroa River, January, February, March 1903. A. S. Meek coll., Nos. A 9, 322, 390, 400, 417, 459.

3 ♂♂, Milne Bay, October, November 1898, February 1899. A. S. Meek coll., Nos. 2113, 2127, 2322. "Iris brown, feet slate, bill bluish slate."

2 ♂♂, 1 ♀, Collingwood Bay, 29. vi. 1897. A. S. Meek coll., Nos. 680, 681, 682. The ♀ has the whole abdomen pale cinnamon.

1 ♂, 3 ♀♀, Simbang, August 1899. E. Nyman coll.

1 ♀, Sattelberg, 3. vii. 1899. E. Nyman coll.

All specimens from British New Guinea and the Huon Gulf district appear to belong to *A. t. henkei*. This form differs in the ♂ by having a black chin-spot of very variable size, but always smaller than in *A. t. aruensis*, in the ♀ by a more rufous-cinnamon upperside, when adult. The abdomen is generally white, but sometimes it is tinged with buff or cinnamon, and in our ♀ from Collingwood Bay it is quite pale cinnamon. This would be Salvadori's

A. orientalis (*Ann. Mus. Gen.* (2) ix. p. 566. 1890), but we cannot possibly consider this as being a different species, the characters assigned to it not being constant, no *male* being known to belong to it, no separate geographical distribution being recognisable. *A. fenicheli* Madarász (*Aquila* i. p. 92, 1894) from German New Guinea, described from a single *female*, seems also to belong to *henkei*, the paler crown probably being due to nonage. We cannot either make out how *A. lauterbachi* Reichenow (*Orn. Monatsber.* v. p. 161, 1897, described from one *female*) should differ from the aberration described by Salvadori as *A. orientalis* in 1890. The back of *A. t. henkei* ♀ is rather brighter rufous-cinnamon than in *A. t. aruensis* ♀, the bird described and figured by Meyer being immature, as shown by moulting specimens in our collection.

27. **Arses insularis** (Mey.).

Monarcha insularis A. B. Meyer, *Sitzungsber. k. k. Akad. Wien* lxix. p. 395 (1874: Jobi).

4 ♂♂, 2 ♀♀, Marai, Jobi I., April 1897. W. Doherty coll.
1 ♂, 1 ♀, Ansus, Jobi I., April 1897. W. Doherty coll.
5 ♂♂, 4 ♀♀, Takar, October—November 1896. W. Doherty coll.
2 ♂♂, 2 ♀♀, near Humboldt Bay. J. M. Dumas coll.
2 ♂♂, Constantinhafen. Kubary coll.
1 ♂, Stephansort. E. Nyman coll.

28. **Rhipidura tricolor** (Vieill.).

Muscicapa tricolor Vieillot, *Nouv. Dict.* xxi. p. 430 (1818: Timor, errore!).

1 ♀, Momos, Waigiu, 25. x. 1883. H. Guillemard coll. "Iris brown, bill and feet black."
1 ♀, Batanta, 20. x. 1883. H. Guillemard coll. "Length 220 mm."
1, Mysol. Wallace coll. (Ex Bartlett coll.)
1 ♂, 1 ♀, Mysol, 11, 28. i. 1900. H. Kühn coll., Nos. 1768, 1914.
1 ♂ juv., Mansinam, 16. vii. 1875. Beccari coll. (Specimen *k* of Salvadori's list, *Orn. Pap.* ii. p. 51.)
1 Manaswari I., off Dorey, 12. xi. 1883. H. Guillemard coll. "Length 215 mm."
1 ♂, Mafor I., May 1897. W. Doherty coll.
2 ♀♀. Korrido, October 1896. W. Doherty coll.
1 ♀, Ansus, Jobi, May 1897. W. Doherty coll.
1 ♂, East Kurudu (east of Jobi), October 1896. W. Doherty coll.
1 ♂, 1 ♀, Kapaur, February 1897. W. Doherty coll.
1 ♂, 1 ♀, Friedrich Wilhelm's Hafen, 14. x. 1899. E. Nyman coll.
1 ♂, Simbang, 13. viii. 1899. E. Nyman coll.
1 ♀, Duke of York Island. F. Hübner coll. (Native name "Napali.")
2 ♂♂, New Britain. (Purchased from the "Linnaea.")
1 ♂, New Britain, 6. v. 1886. Kubary coll. (Native name "Anarir.")
1 ♂, 1 ♀, Fergusson Island, 8. vi. 1897. A. S. Meek coll., Nos. 572, 573.
2 ♂♂, 1 ♀, Dobbo, Aru Is., February 1897. W. Doherty coll.
1 Dobbo, Aru Is., 28. v. 1896. C. Webster coll. (From spirits.)
1 ♂, Maniem I., Aru Is., 19. xi. 1897. H. Kühn coll., No. 346.
1 ♀, Trangan, Aru Is., 19. ix. 1900. H. Kühn coll., No. 2590.
45 from other localities.

29. **Rhipidura threnothorax** S. Müll.

Rhipidura threnothorax S. Müller, *Verh. Land- en Volk.* p. 185 (1844: Lobo).

1 ♀, Kapaur, December 1896. W. Doherty coll. "Iris very dark brown, bill and feet black, lower mandible pale horn-colour.

1 ♂, Mt. Maori, near Humboldt Bay, 3000 ft., January 1899. J. M. Dumas coll.

1, Humboldt Bay. J. M. Dumas coll.

1, British New Guinea, 1898. E. Weiske coll.

30. **Rhipidura maculipectus** Gray.

Rhipidura maculipectus Gray, *P. Z. S.* 1858, pp. 176, 192 (Aru Is.).

3 ♂♂, Wokan, Aru Is., 24. ix. 6. x. 1900. H. Kühn coll., Nos. 2731, 2733. "Iris blackish brown, bill and feet black."

1 ♂, 1 ♀, Trangan I., Aru Is., 13, 19. ix. 1900. H. Kühn coll.

1 ♀, Wanambai, Kôbroor, 4. iii. 1900. H. Kühn coll., No. 2284.

1 ♂, Dobbo, Aru Is., February 1897. W. Doherty coll.

31. **Rhipidura leucothorax** Salvad.

Rhipidura leucothorax Salvadori, *Ann. Mus. Civ. Gen.* vi. p. 311 (1874: Hatam, Arfak).

1 ♂, Kapaur, February 1897. W. Doherty coll.

2 ♂♂, 2 ♀♀, Dorey, June 1897. W. Doherty coll.

5 ♂♂, 1 ♀, Takar, October 1896. W. Doherty coll. "Iris dark brown, feet blackish with white soles, bill black, mandible pale horn-colour."

3 ♂♂, 1 ♀, "Ambernoh River." J. M. Dumas coll.

1 ♀, Stephansort, 21. xii. 1898. E. Nyman coll.

1 ♂, Fly River, 24. viii. 1877. D'Albertis coll., No. 521. (Specimen *y* of Salvadori's list in *Orn. Pap.* ii. p. 59.)

1, Kotoi district, August 1898. A. S. Anthony coll.

The ♀ from Stephansort is distinctly paler above. A series might reveal its distinctness as a subspecies (?).

32. **Rhipidura kordensis** Meyer.

Rhipidura kordensis A. B. Meyer, *Sitzungsber. k. k. Akad. Wiss. Wien* lxx. p. 201 (1874: Mysori).

♂, "Kordo," 1879. Bruijn coll.

♂, Biak, October 1896. W. Doherty coll. "Iris brown, bill and feet black."

33. **Rhipidura setosa setosa** (Q. & G.)

Muscipeta setosa Quoy et Gaimard, *Voy. Astrolabe* i. p. 181 pl. 4 fig. 4 (1830: New Ireland).

(Cf. Nov. Zool. 1898. p. 525.)

1, New Ireland. Collected by a missionary.

1, Ralum, New Britain, 9. i. 1894. Capt. C. Webster coll. (From spirits.)

1 ♂, 3 ♀♀, Duke of York Is., May, September, October, 1880. Th. Kleinschmidt coll.

1 ♂, Mioko, 7. v. 1880. Th. Kleinschmidt coll.

34. **Rhipidura setosa gularis** Müll.

Rhipidura gularis S. Müller, *Verh. Land- en Volkenkunde* p. 185 (1839–44 : Lobo, Utanata).

(Cf. Nov. Zool. 1898. p. 525.)

2 ♂♂, 4 ♀♀, Mysol, January 1900. H. Kühn coll., Nos. 1804, 1926, 1927, 1928, 1933, 1989. "Iris dark brown (dark coffee-brown), feet dark plumbeous (blackish), bill black."

1 ♂, Waigiu, 12. xii. 1902. J. Waterstradt coll.

1 ♂, Dorey, 16. iv. 1875. Bruijn coll. (Specimen *m* of Salvadori's list, *Orn. Pap.* ii. p. 62. Salvadori confounded *setosa* and *gularis*. They are, however, easily distinguished.)

1 ♂, Dorey, June 1897. W. Doherty coll.

1 ♂, 1 ♀, Dorey, October 1896. W. Doherty coll. "Iris deep chestnut, bill and feet black."

1 ♀, Sorong, 24. iv. 1875. Bruijn coll. (Specimen *x* of Salvadori's list, l.c.)

1 ♀, Arfak, 10. v. 1875. Bruijn coll. (Specimen *r* of Salvadori's list, l.c.)

1 ♂, Mansema (Arfak), 27. v. 1875. Bruijn coll. (Specimen *o* of Salvadori's list, l.c.)

1 ♂, Hatam, Mt. Arfak, 1879. Bruijn coll.

2 ♂♂, 1 ♀, Ron Island, July 1897. W. Doherty coll.

1 ♂, Takar, North New Guinea, October 1896. W. Doherty coll.

3 ♂♂, 2 ♀♀, Kapaur, December 1896. W. Doherty coll.

1 ♂, Kapaur, February 1897. W. Doherty coll.

1 Triton Bay, 24. vii. 1896. Capt. C. Webster coll., No. 270.

1 ♀, Ansus, Jobi Is., April 1874. Bruijn coll. (Specimen *z* of Salvadori's list l.c.)

3 ♂♂, 2 ♀♀, Ansus and Marai, Jobi Island, April 1897. W. Doherty coll.

2 ♂♂, Simbang, German New Guinea, August 1899. E. Nyman coll.

1 ♂, 1 ♀, Fergusson Island, 2. x., 29. xii. 1894. A. S. Meek coll.

1 ♀, Goodenough Island, 4. xii, 1899. A. S. Meek coll., No. 12.

1 ♂, Naiabui, 12. viii. 1875. D'Alberti's coll. (Specimen *g* of Salvadori's list, l.c.)

35. **Rhipidura setosa nigromentalis** Hart.

Rhipidura setosa nigromentalis Hartert, Nov. Zool. 1898. pp. 525, 526 (Sudest Island).

1 ♂ ad., Sudest Island, Louisiades, 13. iv. 1898. A. S. Meek coll., No. 1721. (Type of *R. s. nigromentalis.*)

3 ♂♂, Sudest Island, March, April 1898. A. S. Meek coll., Nos. 1610, 1673, 1720.

3 ♂♂, 3 ♀♀, St. Aignan Island, Louisiades, August—September 1897. A. S. Meek coll., Nos. 756, 757, 878, 909, 966, 967.

36. **Rhipidura hyperythra** Gray.

Rhipidura hyperythra Gray, *P. Z. S.* 1858. pp. 176, 192 (Aru).

3 ♂♂, 2 ♀♀, Sungey Bark., Kobroor, Aru Is., 22, 23, 25. viii. 1900. Heinr. Kühn coll. "Iris and feet brownish black, bill black, mandible pale ochreous." Nos. 2270, 2271, 2276, 2277, 2280.

1 ♀, Tana Mera, October 1896. W. Doherty coll. "Iris dark brown, feet pale brown, bill above black, below yellowish horn."

1, near Humboldt Bay. J. M. Dumas coll.

3, Mt. Maori, near Humboldt Bay, January 1899. J. M. Dumas coll.

1, Kotoi district, British New Guinea, August 1898. A. S. Anthony coll.

1, British New Guinea. E. Weiske coll.

4 ♂♂, 1 ♀♀, Avera, Aroa River, January, February, March 1903. A. S. Meek coll., Nos. A 108, 309, 393, 419, 420. "Iris dark brown (light brown), feet smoky brown (dark brown), bill above dark brown (black), below amber (light brown, horn-colour)."

37. **Rhipidura rufidorsa** Mey.

Rhipidura rufidorsa A. B. Meyer, *Sitzungsber. k. Akad. Wiss. Wien* lxx. p. 200 (1874: Rubi, Jobi).

2 ♂♂, Ansus, Jobi, April 1897. W. Doherty coll.

2 ♂♂, 1 ♀, Marai, Jobi, April 1897. W. Doherty coll. "Iris deep brown, feet dull brownish, bill dull sepia."

1 ♂, Keboi, near Jobi, November 1896. W. Doherty coll.

1, Mt. Maori, January 1899. J. M. Dumas coll.

2 ♂♂, 1 ♀, 2 unsexed, Kapaur, December 1896, January 1897. W. Doherty coll.

2 ♂♂, 1 ♀, Mysol, January, February 1900. H. Kühn coll., Nos. 1788, 1993, 1994. "Iris dark brown (blackish), feet dark plumbeous, bill brown, mandible pale yellowish."

1 "♀ juv.," Collingwood Bay, 13. vi. 1899. No. 2600. "Iris dark brown, feet dark brown, bill dark brown, light brown underneath."

38. **Rhipidura squamata** Müll.

Rhipidura squamata S. Müller, *Verh. Nat. Gesch. Ned. Ind., Land- en Volkenkunde* p. 184 (1839–44: Banda!)

3 ♂♂, Pulo Babi (Pig Island), Aru Is., 23. ix. 1900. H. Kühn coll.

These specimens seem inseparable from the typical Banda birds. We have been able to compare 24 examples from Banda, Soa, Little Key, Kilsoein, Manggoer, Taam and Maar Islands.

39. **Rhipidura auricularis** De Vis.

Rhipidura auricularis De Vis, Report New Guinea for 1889 (Birds), p. 2 (1890: Musgrave Range).

2, Aroa River. E. Weiske coll.

1 ♂, Aroa River, 5000 feet, January 1900. E. Weiske coll.

40. **Rhipidura atra** Salvad.

Rhipidura atra Salvadori, *Ann. Mus. Civ. Gen.* viii. p. 922 (1875: Hatam, Arfak).
Rhipidura fallax Ramsay, *P. Z. S.* 1884. p. 580 (Astrolabe Range).
Rhipidura cinnamomea A. B. Meyer, *Zeitschr. ges. Orn.* 1886. p. 17 (Hufeisengebirge).
Rhipidura meyeri Büttikofer, *Notes Leyden Mus.* xv. pp. 81, 82, 113-15 (1892).

While fully agreeing with Büttikofer that *Rhipidura brachyrhyncha* is different from the red *females* of *Rh. atra* (*cinnamomea* and *meyeri*), we cannot distinguish two races of cinnamon *females*, those from Dutch New Guinea being like those from the British colony. Nor can we share Büttikofer's doubts that the red birds are really the *females* of the black ones, but we fully agree

with Salvadori's conclusions as put forth *Ann. Mus. Civ. Gen.* xxxvi. pp. 24—27. Not only the adult *females*, but also the young birds are cinnamon.

1 ♂ ad., Hatam, Arfak, 28. vi. 1875. Bruijn coll. (Specimen *e* of Salvadori's list, *Orn. Pap.* ii. p. 72. Type of *Rh. atra* marked "Typus!" by the author.)

1 ♀, "Ambernoh River." J. M. Dumas coll.

1 ♀, Mt. Cameron, Owen Stanley Range, 12. viii. 1896. Anthony coll.

1 ♂, Moroka district, British New Guinea, 3000—6000 ft. Purchased from McIlwraith & McEacharn.

1 ♂ ad., 1 ♂ juv., moulting from the cinnamon to the slate-coloured plumage, Aroa River. E. Weiske coll. (Not sexed by the collector.)

2 ♂♂, 1 ♀, Avera, Aroa River, 21. ii., 10. 14. iii. 1903. A. S. Meek coll., Nos. A 264, 394, 418. ♂ & ♀: "Iris dark brown, feet smoky brown, bill above black, below light horn-colour." One of the *males* shows three cinnamon feathers, evidently remains from the juvenile plumage, on the rump.

All our examples, except the two unsexed ones from Weiske and the unsexed one from Dumas, are correctly sexed, the black ones as *males*, the cinnamon ones as *females*.

41. **Myiagra atra** Mey.

Myiagra atra A. B. Meyer, *Sitzungsber. k. k. Akad. Wiss. Wien* lxix. p. 498 (1874: Mafor).

11 ♂ ad., 1 ♂ jun., 7 ♀♀, Mafor, May and June 1897. W. Doherty coll. "♂, Iris very deep brown, bill pale blue, nostrils, tip and commissure slenderly black, feet black." "♀, Iris very deep brown, bill pale blue, tip and commissure, and outer half of culmen slenderly black, feet black."

1 ♂, Korrido, 1879. Bruijn coll.

42. **Myiagra nitida** Gould.

Myiagra nitida Gould, *P. Z. S.* 1837. p. 142 (Australia).
Myiagra nupta Hartert, Nov. Zool. 1898. p. 526 (Sudest Island).

2, ♂♀, Sudest Island, Louisiades, 16. iv. 1898. A. S. Meek coll., Nos. 1738. 1739. (No. 1738 ♂ type of *M. nupta*.)

2 ♂♂, 1 ♀, St. Aignan, Louisiades, August and December 1897. A. S. Meek coll., Nos. 686, 754, 1153.

1 ♂, Woodlark Island, 9. iv. 1897. A. S. Meek coll., No. 207.

1 ♂ juv., 1 ♀, Goodenough I., D'Entrecasteaux Is., 14, 21. xii. 1896.

3 ♂ ad., 1 ♂ juv., 1 ♀, Fergusson Island, May, June 1897. A. S. Meek coll., Nos. 247, 295, 424, 450, 532.

We cannot separate specimens from the Louisiades and D'Entrecasteaux group from those of Australia, whence we have two adult *males*, one young *male* and two *females*.

43. **Myiagra latirostris** Gould.

Myiagra latirostris Gould, *P. Z. S.* 1840. p. 172 (N. Australia).

1, Dobbo, Aru Is., 8. vi. 1896. Capt. C. Webster coll. (From spirits.)

2 ♂♂, Wokan, Aru Is., 7. x. 1900. H. Kühn coll., Nos. 2727, 2728. "Iris dark coffee-brown, feet black, bill dark steel-grey with black tip."

44. **Muscicapa griseisticta** (Swinh.).

2 ♂♂, Pigeu Island in St. David's or Mafia group, north of Dutch New Guinea, October 1896. W. Doherty coll.

45. **Megalestes albonotatus** Salvad.

Megalestes albonotatus Salvadori, *Ann. Mus. Civ. Gen.* vii. p. 770 (1875 : Mt. Arfak).

2, Arfak. From Messrs. James Veitch & Sons, collected by Bourke. (Purchased from Gerrard.)

2 ♂♂, 1 ♀, Mt. Cameron, 6000—7000 ft., 10, 22. viii. 1896. A. S. Anthony coll. "Iris, bill and feet black."

1 ♂, Aroa River, 5000 ft., January 1900. E. Weiske coll.

1, Upper Brown River. E. Weiske coll.

1 ♂ ad., Avera, Aroa River, 28. i. 1903. A. S. Meek coll., No. A 131. "Iris light brown, bill and feet black."

1 ♂ juv., Avera, Aroa River, 24. ii. 1903. A. S. Meek coll., No. A 284. "Iris iron-grey, bill and feet black."

This young bird has its plumage above and below mixed with pale cinnamon feathers, evidently showing that the young in first plumage is pale cinnamon all over. The genus *Megalestes* should be kept separate from *Poecilodryas*, chiefly on account of its broader and flatter bill.

46. **Heteromyias armiti** (De Vis).

(Pl. XIII., fig. 3.)

Poecilodryas armiti De Vis, Report Brit. New Guinea (Birds) p. 3 (spec. 33) (1894 : Mt. Maneao).

1, Mt. Cameron, 8. ix. 1896. A. S. Anthony coll.

1, Upper Brown River. Emil Weiske coll.

2 ♂♂, 2 ♀♀, Avera, Aroa River, May, June 1903. A. S. Meek coll., Nos. A 488, 515, 540, 594. "Iris brown, feet (light) horn-colour, bill black (with light tip and gonys)."

47. **Petroica bivittata** De Vis.

Petroica bivittata De Vis, *Ibis* 1897. p. 97 (Mt. Scratchley : one ♀).

2 ♂♂ (one marked ♀ erroneously), 1 ♀, Mt. Knutsford, 11,000 ft, 20. viii. 1898. A. S. Anthony coll. "Iris brown-black, bill black, feet black."

The *males* have the upperside, throat and chest black, with a slight gloss. The wings agree with De Vis' description, except that the primary coverts have *no* white bar. The tail, of which no mention is made in De Vis' description, is black, the outer pair of rectrices with a huge wedge-shaped white mark occupying the greater part of the distal half, the following two with small white tips. Abdomen, under tail-coverts, under wing-coverts and axillaries white, the bases of the feathers white. The *female* is not black, but slate-colour, the outer rectrices have the outer web and tip only white, otherwise like the *male*.

We presume that this is De Vis' *P. bivittata*, as no other *Petroica* from New Guinea is known to us, although he describes the primary coverts as having a white bar, and makes no mention of the tail!

48. **Pratincola caprata caprata** L.

1 ♂ juv., Avera, Oroa River, 24. ii. 1903. A. S. Meek coll., No. A 287. "Iris dark brown, feet black, bill vandyke-brown."

This bird belongs evidently to the small race, which reaches along the Sunda Islands to the Moluccas, but is new to New Guinea.

49. **Pratincola caprata atrata** Kelaart.

Pratincola atrata Kelaart apud Blyth, *Journ. As. Soc. Bengal* xx. p. 177 (Ceylon). (About the correct name of this form see Oates, *B. India* ii. p. 61.)
Poecilodryas aethiops Scl., *P. Z. S.* 1880. p. 66. Pl. VII. fig. 1 (New Britain, Brown coll.).

We have one example obtained on Mt. Scratchley. Neither we nor Dr. Sharpe, whom we showed the bird, are able to separate it from the South Indian and Ceylonese large form of *P. caprata*, the *P. c. atrata*, or from the type of "*Poecilodryas aethiops*." There is also a *female* in the British Museum (or young bird) agreeing with the ♀ of the *Pratincola!* We cannot understand why this bird has been placed in the genus *Poecilodryas*, neither can we understand its most remarkable, incredible distribution: Ceylon and South India on the one, New Britain and New Guinea on the other hand. It is possible that a series may show that the South Indian and Papuan birds differ slightly from each other, but so far we have found no difference whatever.

50. **Poecilodryas bimaculatus** (Salvad.).

Myiolestes (?) bimaculatus Salvadori, *Ann. Mus. Civ. Gen.* vi. p. 84 (1874: Putat, New Guinea).

2 ♂♂, 1 ♀, 1 sex not marked, Mt. Cameron, 3000 ft., August—September 1896. A. S. Anthony coll.

4 ♂♂, 1 ♀, Avera, Aroa River, 20, 23, 28. ii., 2. iii. 1903. A. S. Meek coll., Nos. A 258, 259, 283, 325, 337. "Iris burnt umber, bill and feet black."

1 ♂, 2 sex unknown, Mt. Maori, 3000 ft., January 1899. J. M. Dumas coll.

1, Dutch New Guinea. Bruijn coll.

51. **Poecilodryas hypoleuca** (Gray).

Petroica hypoleuca Gray, *P. Z. S.* 1859. p. 155 (Dorey).
Poecilodryas minor A. B. Meyer, *Sitzungsber. Ges. Isis, Dresden* 1884. p. 27.

1, Triton Bay, 25. vii. 1896. Capt. C. Webster coll. (From spirits.)

3 ♂♂, 1 ♀, Kapaur, December 1896, February 1897. W. Doherty coll. "Iris dark brown, feet purplish black, bill black."

2 ♂♂, 1 not sexed, Dorey, June 1897. W. Doherty coll.

"♀, Waigama, 11. v. 1867." (? From Bruijn's hunters.)

1 ♂, 2 ♀♀, Waigiu, November 1902, January 1903. J. Waterstradt coll.

1 ♂, Mysol, 31. i. 1900. H. Kühn coll., No. 2009. "Iris bright brown (coffee-brown), feet greyish black, bill black."

5 ♂♂, 3 ♀♀, Takar, October—November 1896. W. Doherty coll.

1 (♀), Brown River, Brit. New Guinea, 1898. E. Weiske coll.

1 (♀), trade-skin from the Berau Peninsula.

P. minor is evidently founded on *females* and immature specimens of *P. hypoleuca*. We have two specimens agreeing fully with Meyer's diagnosis, one of which is from Arfak, the other from the Brown River, British New Guinea.

52. **Poecilodryas brachyurus** (Scl.).

Leucophantes brachyurus Scl., *P. Z. S.* 1873. pp. 691. 692. Pl. LIII. (Andai, erroneously stated as coming from Hatam).

2 (not sexed), Ambernoh River. J. M. Dumas coll.

53. **Poecilodryas leucops albifacies** Sharpe.

Poecilodryas albifacies Sharpe, *Journ. Linn. Soc. Lond., Zool.* xvi. pp. 318. 432 (1882: S.E. New Guinea).
Monarcha viridis De Vis, *Report N. Guinea* p. 3. sp. 30 (1894).

1 ♀, Aroa River, 3000 ft., August 1899. E. Weiske coll.

2 ♂♂, 3 ♀♀, Avera, Aroa River, January, February, March 1903. A. S. Meek coll. Nos. A 148, 151, 202, 267, 437. "Iris dark brown, feet lemon-yellow, bill black above, horn-colour below."

1 ♀, Oriori district, January 1896. A. S. Anthony coll.

1 ♂, Mt. Cameron, 7000 ft., 20. viii. 1896. A. S. Anthony coll.

1, S.E. New Guinea. A. Goldie coll.

1, between rivers Laroki and Vanapa. E. Weiske coll.

2, British New Guinea. E. Weiske coll.

4, Sogeri district, Owen Stanley Mountains. H. O. Forbes coll.

2 ♂♂, 1 ♀, Cape York, Queensland, July—August 1898. A. S. Meek (Eichhorn) coll., Nos. 1992, 2077, 2091. "Iris dark brown, feet (light) horn-colour, bill black (vandyke brown)."

It is somewhat doubtful if the Cape York examples are typical *albifacies*. Their throat is widely white, more than usually in *albifacies*, which has mostly only the chin white. The bills are almost quite black in two, light at base in one only, but even in the latter less than in most *albifacies* from New Guinea.

We have no specimen of *P. leucops leucops* from the Arfak Peninsula.

54. **Poecilodryas leucops melanogenys** Mey.

Poecilodryas melanogenys A. B. Meyer, *Abh. & Ber. Mus. Dresden* 1892–93. Art. 3. p. 12 (Sattelberg).
Poecilodryas salvadorii Madarász, *Orn. Monatsber.* viii. p. 1 (January 1900 : Sattelberg !).

♂, Sattelberg, 2, 5. vi. 1899. "Iris brown." Dr. E. Nyman coll.

The white forehead without black central line, the greater extension of the black from the sides of the head towards the throat and entirely yellow throat are well-marked peculiarities which characterise this subspecies. The less distinct cap and brighter colour above and below, however, are not constant, nor is the bill less black than in typical *albifacies* from S.E. New Guinea.

P. salvadorii Mad. is of course a synonym of *melanogenys*, and it is a pity that Dr. Sharpe admitted it as a separate species in the *Hand-list* (iii. p. 236), as a comparison of Dr. von Madarász's diagnosis would have shown him the truth at once.

55. **Poecilodryas cyanus cyanus** (Salvad.).

Myiolestes (?) *cyanus* Salvadori, *Ann. Mus. Civ. Gen.* vii. p. 394 (1875 : Hatam, Arfak).

1 ♂ ad., Hatam, Arfak, 5. vii. 1875. Beccari coll. (Specimen *k* of Salvadori's list, *Orn. Pap.* ii. p. 90.)

1 ♀, Hatam, Arfak, 1875. Bruijn coll.

This form is only known from the Arfak mountains, and Mr. Sharpe's locality, S.E. New Guinea, of course refers to the following form. This mistake would have been avoided by the proper use of trinomials.

56. **Poecilodryas cyanus subcyanea** De Vis.

Poecilodryas subcyanea De Vis, *Ibis* 1897. p. 377 (S.E. New Guinea).
Poecilodryas cyanus salvadorii Rothsch. & Hart., *Bull. B. O. C.* xi. p. 26 (February 1900: Mts. Cameron, Scratchley, etc.).
Poecilodryas cyanopsis Sharpe, *Hand-list* iii. p. 235 (1901: nomen emend. for *P. salvadorii*, which name had already been used in January 1900 by Madarász).

1 ♂, Mt. Cameron, 7000 ft., 15. viii. 1896. A. S. Anthony coll. "Iris brown, feet and bill black." Type of *P. c. salvadorii* R. & H.)

1 ♀, Mt. Cameron, 7000 ft., 15. viii. 1896. A. S. Anthony coll.

1 ad., 1 juv., Mt. Scratchley. (The young in first plumage is slate-colour with buff shaft-lines and large rusty-cinnamon tips to the feathers of the body, wings and tail blackish, wing-coverts like the feathers of the back.)

1 ad., Kotoi district, August 1898. A. S. Anthony coll.

1 ad., Eafa district, 1000—3000 ft. A. S. Anthony coll.

1 immature, Aroa River. Emil Weiske coll.

2 ad., Mountains of British New Guinea. Emil Weiske coll.

1 ♂ ad., 1 ♀ ad., Avera, Aroa River, 4, 5. iii. 1903. A. S. Meek coll., Nos. A 359, 360.

1 ad., Ambernoh River, Dutch New Guinea. J. M. Dumas coll.

57. **Poecilodryas sigillata** De Vis.

Poecilodryas sigillata De Vis., *Ann. Rep. Brit. New Guinea, Birds* p. 59 (1890: Mt. Victoria).
(Dr. Sharpe in *Hand-list* iii. p. 235. No. 13 says that *Poecilodryas minor* A. B. Meyer, 1884, is, according to Finsch, in litt., the same as *P. sigillata*. If Dr. Finsch really said this, he can never have read the descriptions of either, for *P. sigillata* is entirely black, except the greater part of the innermost secondaries, which are white; while *P. minor* has the under surface white, and is, in fact, nothing but *P. hypoleuca* ♀ and juv.).

1, Mt. Scratchley.

3 ♂♂, 1 ♀, Mt. Knutsford, 11,000 ft. ("barometer reading"), 8, 18, 20, 21. viii. 1898. A. S. Anthony coll. "Iris, bill, feet black."

1 (?) near Port Moresby. (Purchased in London.)

58. **Poecilodryas placens** (Rams.).

Eopsaltria placens Ramsay, *Proc. Linn. Soc. N. S. Wales*, iii. p. 272 (1879: S.E. New Guinea, Goldie River, Broadbent coll.).
Poecil. flavicincta Sharpe, *Ann. Mag. Nat. Hist.* (5) iii. p. 313 (1879: S.E. New Guinea).

1 ♂, 2 ♀♀, Mt. Cameron, 3000 ft., 15, 16. viii. 1896. A. S. Anthony coll. "Iris brown, feet yellow, bill black."

1, Kotoi district, August 1898. A. S. Anthony coll.

1, Brown River, 1898. Emil Weiske coll.

59. **Microeca papuana** A. B. Meyer.

Microeca papuana A. B. Meyer, *Sitzungsber. Ges. Isis* 1875. p. 74 (Arfak).
Microeca viridiflava Rothsch. & Hartert, *Bull. B. O. C.* xi. pp. 26. 44 (1900: Mt. Cameron).

6, Aroa River, December 1899—January 1900. E. Weiske coll.

1 ♀, Aroa River, 4000 ft., December 1899. E. Weiske coll. "Iris and bill black, feet yellow."

1 ♂, Avera, Aroa River, 6. iii. 1903. A. S. Meek coll., No. A 376.

1 ♀, Mt. Cameron, 6500 ft., 1. viii. 1896. A. S. Anthony coll. (Type of *M. vividiflava*.

1, Kotoi district, August 1898. A. S. Anthony coll.

1, Eafa district, 1000—3000 ft., 1898. A. S. Anthony coll.

1 ♀, Hatam, 5. vii. 1875. Beccari coll. (Specimen *g* of Salvadori's list in *Orn. Pap.* ii.)

60. **Microeca flavovirescens** Gray.

Microeca flavovirescens Gray, *P. Z. S.* 1858. p. 178 (Aru).
? *Microeca punctata* De Vis, *Report* 1894. p. 3 (juv.).

1, Wanambai, Aru Is., 25. vi. 1896. Capt. C. Webster coll. (From spirits.)

1 ♂, Wokan, Aru Is., 26. ix. 1900. H. Kühn coll.

1 ♂, Sungey Bark, Kobroor, 21. viii. 1900. H. Kühn coll., No. 2299. "Iris coffee-brown, bill black, lower mandible and feet ochreous."

5 ♂♂, 1 ♀, Kapaur, December 1896–February 1897. W. Doherty coll.

1 ♂, Jobi Island, 10. xi. 1883. H. Guillemard coll. "Length 158 mm. Iris brown, upper bill black, lower bill and tarsus flesh-colour."

1 ♂, 1 sex ?, Marai, Jobi I., April 1897. W. Doherty coll.

1 ♂, Ansus, Jobi I., April 1897. W. Doherty coll.

1, British New Guinea, 1. ii. 1896. A. S. Anthony coll.

1 ♀, Avera, Aroa River, 15. iii. 1903. A. S. Meek coll., No. A 422.

1 ♂ ad., 1 ♂ juv., Milne Bay, Brit. N. Guinea, 2, 6. ii. 1899. A. S. Meek coll., Nos. 2242, 2263.

61. **Microeca flavigaster** Gould.

Microeca flavigaster Gould, *P. Z. S.* 1842. p. 132 (Port Essington, Australia).
Microeca flaviventris Salvad., *Ann. Mus. Civ. Gen.* xii. p. 324 (1878: nom. emend. of *flavigaster*).

2 ♂♂, 1 ♀?, Cape York, Queensland, 16, 17. vi., 1. viii. 1898. A. S. Meek (Eichhorn) coll. "Iris and bill brown, feet black." Nos. 1804, 1817, 2058.

1 ♀, Nicura, Brit. N. Guinea, 23. vii. 1893. Lix coll.

2, Mountains of British New Guinea. E. Weiske coll.

62. **Microeca griseiceps griseiceps** De Vis.

Microeca griseiceps De Vis, *Report* 1894. p. 3 (Mt. Maneao).

3 ♂ ad., 1 ♂ juv., 1 ♀, Avera, Aroa River, 4, 25. ii., 11, 23. iii. 1903. A. S. Meek coll., Nos. A 199, 298, 397, 398, 453. "Iris dark brown, feet golden yellow, upper mandible black, lower yellow." Wings 69, 68, 69; ♀, 66 (worn); tails all 54 mm.

63. **Microeca griseiceps occidentalis** subsp. nov.

Differs from *M. g. griseiceps* by its larger size, by the flanks being somewhat less washed with olive, and a buffy brown tinge on the chest. The crown is somewhat browner, less greyish. Wing 74, tail 58 mm.

♂, Arfak, "Warmendi," 24. i. 1876. From Bruijn's hunters. (Type of *M. g. occidentalis*.) No. B. 124.

64. **Gerygone palpebrosa** Wall.

Gerygone palpebrosa Wallace, *P. Z. S.* 1865. p. 475 (Aru).

1 ♂, Wokan, Aru Is., 27. ix. 1900. H. Kühn coll. "Iris brownish red (burnt sienna), feet bluish grey, bill black."

1 ♂, Sungey Bark, Kobroor, Aru Is., 29. viii. 1900. H. Kühn coll., No. 2316.

1 ♂, Aru Is., 1866. Von Rosenberg coll. (Exchanged from the Leyden Museum.)

1 ♂, Wanambai, Aru Is., 24. v. 1896. Capt. C. Webster coll. (From spirits.)

1 ♀, Trangan I., Aru Is., 19. ix. 1900. H. Kühn coll., No. 209.

1 ♂, Waigiu, 3. i. 1903. J. Waterstradt coll.

1 ♂, 1 ♀, Mysol, 22. i. 1900, 7. ii. 1900. H. Kühn coll., Nos. 1937, 2037.

1 ♂, Humboldt Bay, Maori Mts., 8000 ft., January 1899. J. Dumas coll.

1 ♂, 2 ♀♀, Kapaur, December 1896. W. Doherty coll. "Iris bright scarlet (red)."

1 ♀, Takar, November 1896. W. Doherty coll.

3 ♂♂, Avera, Aroa River, 2, 5, 31. i. 1903. A. S. Meek coll., Nos. A 167, 342, 366.

1 ♂, Aroa River, 3000 ft., August 1899. E. Weiske coll.

1 ♂, Mt. Gayata, Richardson Range, 2000—4000 ft. E. Weiske coll. (according to preparation).

65. **Gerygone wahnesi** (Mey.).

Pseudogerygone wahnesi A. B. Meyer, *Orn. Monatsber.* 1899. p. 144 (Bongu, German New Guinea).

1 ♂ ad., Marai, Jobi, April 1897. W. Doherty coll. "Iris deep brown, feet blackish, bill black."

Differs from *G. palpebrosa* in its sooty black crown (deeper black on forehead), slightly paler yellow abdomen and slightly longer wings and generally a little larger size. Wing 57 mm. The white nasal patches are not larger than in *G. palpebrosa*.

66. **Gerygone chrysogaster** Gray.

Gerygone chrysogaster G. R. Gray, *P. Z. S.* 1858. pp. 174. 191 (Aru).

1 ♀, Aru Is., 1866. V. Rosenberg coll., No. 627. (Exch. from Leyden.)

1 ♂, 2 ♀♀, Sg. Wanambai, 4. iii., 31. viii. 1900. H. Kühn coll., Nos. 2332, 2333, 2334.

1 ♀, Wanambai, Aru Is., 28. vi. 1896. C. Webster coll. (From spirits.)

1 ♂, 1 ♀, Trangan, Aru Is., 12, 13. ix. 1900. H. Kühn coll., Nos. 269, 270.

1 ♀, Dobbo, Aru Is., February 1897. W. Doherty coll.

1 ♂, Dobbo, Aru Is., 27. v. 1896. C. Webster coll. (From spirits.)

1 ♂, 4 ♀♀, October, November 1896. W. Doherty coll.

5 ♂♂, Jobi Island, April, May 1897. W. Doherty coll.

1 ♂, Tana Mera, N. New Guinea, October 1896. W. Doherty coll. "Iris whitish scarlet (brownish red in an Aru bird), feet pale brown, bill blackish."

1 (not sexed), Kotoi district, August 1898. A. S. Anthony coll.

1 ♂ juv. (?), Collingwood Bay, 5. vi. 1899. A. S. Meek coll., No. 2570.

67. **Gerygone cinereiceps** (Sharpe).

Pseudogerygone cinereiceps Sharpe, *Nature* xxxiv. p. 3 (1886 : S.E. New Guinea).

1 (not sexed), Mountains of the Kotoi district, British New Guinea, August 1898. A. S. Anthony coll.

1 ♀, Avera, Aroa River, 4. ii. 1903. "Iris dull red, feet dark slate, bill black." A. S. Meek coll., No. A 197.

68. **Gerygone neglecta neglecta** Wall.

Gerygone neglecta Wallace, *P. Z. S.* 1865. p. 475 (partim—Waigiu tantum !).
Cryptolopha waigiuensis Hartert, *Bull. B. O. Club* xiii. p. 70 (1903 : Waigiu).*

2 ♂♂, 2 ♀♀, Waigiu, December 1902. J. Waterstradt coll.

69. **Gerygone neglecta notata** Salvad.

Gerygone notata Salvadori, *Ann. Mus. Civ. Gen.* xii. p. 344 (1878 : Wa Samson, New Guinea).

The yellowish outer edges of the greater wing-coverts vary in extent, and are sometimes not very noticeable.

♂♀, Sorong, New Guinea, 30. i., 2. ii. 1865. Dr. Bernstein coll. (Exchanged from the Leyden Museum.)

2, Maori Mts., 3000 ft., January 1899. J. M. Dumas coll.

2 ♂♂, 1 ♀, Mysol, 28. i., 8. ii. 1900. "Iris dark chocolate-brown (brownish red), feet pale (bright) plumbeous, bill brown (brownish), mandible pale (whitish) with dark tip." H. Kühn coll., Nos. 1936, 1998, 2021.

70. **Gerygone neglecta dohertyi** subsp. nov.

Like *G. neglecta neglecta*, without yellowish patches on the greater wing-coverts, but decidedly less greenish, more russet-brownish, above. The tail is broader and the blackish anteapical patches appear to be generally less distinct. Same size as that of *G. n. neglecta*.

1 ♂ ad. Kapaur, January 1897, No. T 1161. Type of *G. n. dohertyi*.

6 ♂♂, 1 ♀, 1 not sexed, Kapaur, December 1896, January, February 1897. W. Doherty coll. "Iris crimson."

71. **Gerygone conspicillata conspicillata** (Gray).

Microeca conspicillata Gray, *P. Z. S.* 1859. p. 156 (Dorey).

2 ♂♂, Kapaur, December 1896. January 1897. W. Doherty coll.

♀, Kurudu, October 1896. W. Doherty coll. "Iris deep brown, feet blackish, bill black."

* I am quite willing to admit that the birds I called *Cryptolopha waigiuensis* are not only the same as *Gerygone neglecta*, but are really better placed in the genus *Gerygone*. Nevertheless the two genera are closely allied, and should stand close together. The only differences between the two genera that I can appreciate are the shape of the tail, which is more or less rounded in *Gerygone* with blackish anteapical patches, more or less square or emarginate in most *Cryptolopha* (except in *supercilliaris* and *schwaneri*, which differ also in other ways). Then the bill is comparatively shorter in *Cryptolopha*, and there are very often striking median stripes on the crown. In any case the birds called *Gerygone poliocephala*, *G. maforensis* and *G. giulianettii* are doubtless *Cryptolophae*. The latter is in fact, closely allied to *C. kinabaluensis* and *trivirgata*, of which it may be a subspecies. It is therefore clear that my remarks (*Bull. B. O. C.* xiii. p. 70) about the occurrence of the genus *Cryptolopha* in the Papuan region are perfectly correct, although I wrongly described the bird from Waigiu as a *Cryptolopha*. The whitish inner edges on the outer retrices of *giulianettii* are also characteristic for *Cryptolopha*.—E. Hartert.

1 Kotoi district, British New Guinea, August 1898. A. S. Anthony coll. (Sides of head rufous, perhaps aberration or another form ?).

1 ♂, 2 ♀♀, Fergusson Island, September 1894, January 1895. A. S. Meek coll.

5 ♂♂, Fergusson Island, May, June 1897. A. S. Meek coll., Nos. 325, 376, 490, 474, 624.

1 ♂, Cape York, Queensland, 23. vi. 1898. A. S. Meek coll., No. 1860.

1 ♂, Cedar Bay, Queensland, 16. i. 1894. A. S. Meek coll.

72. **Gerygone conspicillata rosseliana** Hart.

Gerygone rosseliana Hartert, Nov. Zool. vi. p. 79 (1899 : Rossel I.).

3 ♂♂, 1 ♀, Rossel Island, January—February 1898. A. S. Meek coll., Type no. 1382.

73. **Gerygone conspicillata onerosa** Hart.

Gerygone rosseliana onerosa Hartert, Nov. Zool. vi. no. 2. (1899 : St. Aignan).

3 ♂♂, 1 ♀, St. Aignan Island, August—September 1897. A. S. Meek coll., Type no. 964.

74. **Gerygone conspicillata ramuensis** Rchw.

Gerygone ramuensis Reichenow, *Orn. Monatsber.* 1897. p. 26 (Ramu, German New Guinea).

A very distinct form, but not more so than *rosseliana* and *onerosa*, and evidently also a form of *conspicillata*.

1 (not sexed), Friedrich Wilhelm's Hafen, 29. i. 1898. Tappenbeck coll.

2 ♀♀, Friedrich Wilhelm's Hafen, 12, 17. x. 1899. E. Nyman coll. "Iris roth."

75. **Gerygone brunneipectus** (Sharpe).

Pseudogerygone brunneipectus Sharpe, *Notes Leyden Mus.* i. p. 29 (1878 : nomen nudum) : *Cat B Brit. Mus.* iv. p. 221 (1879 : Aru Is.).

1 (not sexed), Manien I., Aru Is., 19. xi. 1897. H. Kühn coll.

1 ♂ ad. Dobbo, Aru Is., 11. viii. 1900. H. Kühn coll. "Iris bright reddish brown, feet reddish plumbeous, bill black."

76. **Gerygone cinerea** Salvad.

Gerygone (?) *cinerea* Salvadori, *Ann. Mus. Civ. Gen.* vii. p. 958 (1875 : Arfak).

1, Ambernoh River. J. M. Dumas coll.

1, Eafa district, 1000—3000 ft. (Purchased from Messrs. McIlwraith, McEacharn & Co., London).

♂, Aroa River, 3. vi. 1903. (No. A 600.) A. S. Meek coll. "Iris dark brown, bill and feet dark slate."

77. **Eugerygone rubra** (Sharpe).

Pseudogerygone rubra Sharpe, *Notes Leyden Mus.* i. 1879. p. 30 (1879 : Arfak Mts.).

1 "♀" (evidently wrongly sexed), Mt. Cameron, Owen Stanley Range, 15. viii. 1896. "Iris brown-black, feet light brown, bill dark brown." A. S. Anthony coll.

This specimen agrees perfectly with the descriptions given by Drs. Sharpe and Finsch. It has a distinct white line across the base of the forehead, as originally described by Dr. Sharpe, while Dr. Finsch thinks this is saying too much. The tail is imperfect. According to Finsch this would be the second known example in Europe. The wings are a little damaged by shots, but I measure them 62—63 mm.

1 ♂ (in moult), Avera, Aroa River, 3. vi. 1903. (No. A 598.) "Iris dark brown, feet smoky yellow, bill black and smoky brown."

The tail is black, the two outer rectrices with wide white tips. The white line on the forehead is conspicuous.

? " ♀," Mountains of Kotoi district, August 21st, 1898. A. S. Anthony coll. Above olive-green, a yellowish line across the base of the forehead, ear-coverts yellowish buff with paler shafts, underside pale yellow, washed with olive-greenish on the sides. Wings without a white bar, tail consisting of three feathers only, none of which has any white. We do not know if this is the *female* of *E. rubra*, but it agrees with the latter in its dimensions and has a peculiar pale yellow line across the base of the forehead, reminding one of the white line there in *E. rubra*.

78. **Cryptolopha* poliocephala** (Salvad.).

Gerygone (?) *poliocephala* Salvadori, *Ann. Mus. Civ. Gen.* vii. p. 960 (1875 : Arfak)

1 ♀, Arfak, 23. v. Bruijn coll.

79. **Cryptolopha giulianettii** (Salvad.).

Gerygone giulianettii Salvadori, *Ann. Mus. Civ. Gen.* (2) xvi. p. 81 (1896: Moroka).

4, Aroa River, British New Guinea. E. Weiske coll.

80. **Cryptolopha maforensis** (Mey.).

Gerygone maforensis A. B. Meyer, *Sitzungsber. kk. Akad. Wissensch. Wien* lxx. p. 119 (1874 : Mafor).

Gerygone (?) *maforensis* Salvadori, *Orn. Pap.* ii. p. 103.

2 ♂♂, Mafor, May 1897. W. Doherty coll.

81. **Aethomyias spilodera spilodera** (Gray).

Entomolphila (?) *spilodera* G. R. Gray, *P. Z. S.* 1859. p. 155 (Dorey).

2 ♂♂. Dorey, October 1896. W. Doherty coll.

1 ♂, Takar, November 1896. W. Doherty coll.

2, near Humboldt Bay. J. M. Dumas coll.

1, Mt. Maori, near Humboldt Bay, January 1899. J. M. Dumas coll.

82. **Aethomyias spilodera guttata** Sharpe.

Aethomyias guttata Sharpe, *Journ. Linn. Soc., Zool.* xvi. p. 432 (1882 : S.E. New Guinea).

4 ♂♂, 1 ♀, Avera, Aroa River, February—March 1903. A. S. Meek coll., Nos. A 324, 360, 443, 447, 455. "Iris dull red (light red, ♀ pale chocolate), feet smoky slate (smoky brown), bill light brown (horn-colour)."

Some of the typical *spilodera* (Dorey) are hardly distinguishable from *guttata*.

* See footnote p. 473. Salvadori (*Orn. Pap.* ii. p. 103) remarks already that this is not a typical *Gerygone*, but resembles closely *Abrornis polyogenys*, our present *Cryptolopha polyogenys*, which is quite true.

83. **Machaerirhynchus nigripectus** Schleg.

Machaerirhynchus nigripectus Schlegel, *Ned. Tijdschr. Dierk.* iv. p. 43 (1871 : New Guinea)

♂ ad. (moulting), Arfak (e Museo Guillemard).

♂ (moulting), Arfak, 28. iv. 1875. Bruijn coll. (Specimen *g* of Salvadori's list, *Orn. Pap.* ii. p. 110.)

♀, Arfak, 27. iv. 1875. Bruijn coll. (Specimen *o* of Salvadori's list.)

♀, Arfak. Bruijn coll. (Specimen *x* of Salvadori's list.)

2 ♀♀, Hatam, Arfak, 27. vi., 1. vii. 1875. Beccari coll. (Specimens *q*, *r* of Salvadori's list.)

1 ♂, 3 ♀♀, 2 juv., Arfak. Bruijn coll.

2 juv. Arfak mountains.

1 ♂, 2 ♀♀, Mt. Cameron, 6500 ft., August 1896. A. S. Anthony coll.

2 ♂♀, Mt. Scratchley. A. S. Anthony coll.

1 ♂, 2 ♀♀, Mountains of Kotoi district. A. S. Anthony coll.

1 ♀, Avera, Aroa River, 21. i. 1903. A. S. Meek coll., No. A 26. "Iris light brown, feet dark smoky brown, bill black with whitish tip."

Specimens from S.E. New Guinea seem to be mostly a little brighter yellow.

84. **Machaerirhynchus xanthogenys xanthogenys** Gray.

Machaerirhynchus xanthogenys Gray, *P. Z. S.* 1858. pp. 176. 192 (Aru).

1 ♂, Mountains of the Kotoi district, August 1898. A. S. Anthony coll.

1 ♂, 2 juv., Brown River, Mountains of British New Guinea. E. Weiske coll.

2 ♂♂, Milne Bay, 15. xi. 1898, 3. ii. 1899. A. S. Meek coll., Nos. 2152, 2245. "Iris brown."

4 ♂♂, 2 ♀♀ (? juv.), Avera, Aroa River, February, March 1903. A. S. Meek coll., Nos. A 43, 302, 304, 363, 383, 399

We had no Aru specimens to compare.

85. **Machaerirhynchus xanthogenys albifrons** Gray.

Machaerirhynchus albifrons Gray, *P. Z. S.* 1861. pp. 429. 434. pl. 43. fig. 1 (Mysol

1 ♂, Mysol, 1. ii. 1900. H. Kühn coll., No. 1988. "Iris black, feet dark ashy, bill black with white spot before the tip."

2 ♂♂, Waigiu, 13, 24. xii. 1902. J. Waterstadt coll.

1 ♂, Kapaur, February 1897. W. Doherty coll.

1 ♀, Takar, October 1896. W. Doherty coll.

2 ♂♂, Dutch New Guinea. Bruijn coll.

86. **Chenorhamphus grayi** (Wall.).

Todopsis grayi Wallace, *P. Z. S.* 1862. p. 166 (New Guinea).

1, near Humboldt Bay. J. M. Dumas coll.

1, near Ambernoh River. J. M. Dumas coll.

87. **Todopsis cyanocephalus cyanocephalus** (Quoy & Gaim.).

Todus cyanocephalus Quoy et Gaimard, *Voy. Astrolabe* i. p. 227. Pl. V. 4 (1830 : Dorey).

2 ♂♂, 2 ♀♀, Dorey, June 1897. W. Doherty coll. "♂, Iris deep brown, feet dull brown, bill black."

4 ♂♂, 2 ♀♀, Kapaur, December 1896. W. Doherty coll.

1 ♂, Terfia Island, October 1896. W. Doherty coll.

2 ♂♂, Triton Bay, July 1896. Capt. C. Webster coll. (Ex spirits.) (Being out of spirits the colour of the back cannot be seen nicely.)

88. **Todopsis cyanocephalus dohertyi** subsp. nov.

The *male* apparently not distinguishable from that of *T. c. cyanocephalus*, but the *female* with back and wing-coverts conspicuously darker and more chestnut. (*Type:* ♀, Takar, November 1896.) (No. T 247.)

Hab. Takar, on the northern coast of Dutch New Guinea.

3 ♂ ad., 1 ♂ juv., 4 ♀♀ ad., Takar, October—November 1896. W. Doherty coll.

89. **Todopsis cyanocephalus bonapartii** Gray.

Todopsis bonapartii Gray, *P. Z. S.* 1859. p. 156 (Aru).

4 ♂♂, 2 ♀♀, Wokan, Aru Is., September—October 1900. H. Kühn coll.

1 ♂, Sungej Wanambai, Kobroor I., Aru Is., August 1900. H. Kühn coll., No. 2283.

1 ♂, Kone district, June 1898. A. S. Anthony coll.

3 ♂♂, Brown River, British New Guinea, 1898. E. Weiske coll.

2 ♂♂, Naiabui, September 1875. D'Albertis coll., Nos. 494, 497. (Specimens *n*, *q* of Salvadori's list, *Orn. Pap.* ii. p. 116.)

1 ♀, Nicura, British New Guinea, 20. vii. 1893. Lix coll.

The blue of the back in the *males* differs conspicuously from that of the former.

90. **Todopsis cyanocephalus misorensis** Mey.

Todopsis misorensis A. B. Meyer, *Sitzber. k. Akad. Wien* lxix. pp. 74, 79 (1874 : Misori).

1 ♂ ad., 1 ♂ juv., 1 ♀ ad., 1 ♀ (?) juv., "Kordo," 1879. Bruijn coll.

1 ♂ ad., Korrido, October 1896. W. Doherty coll. "Iris dark brown, feet blackish, bill black."

The *males* are like those of *T. c. bonapartii*, but the wing measures 1 to 2 mm. shorter. The *females* have the crown more purplish than those of the former.

91. **Todopsis wallacii** Gray.

Todopsis wallacii G. R. Gray, *P. Z. S.* 1861. pp. 429, 434. Pl. 43. fig. 2 (Mysol).

4 ♂♂, 2 ♀♀, Mysol, January—February 1900. H. Kühn coll., Nos. 1792 1793, 1794, 1983, 1986, 2016. "Iris greyish-brown (chocolate-brown, coffee-brown, dark brown), feet pale yellowish-brown (pale ochreous, pale bright brown), bill black with white tip."

1 ♂, Milne Bay, 10. ii. 1899. A. S. Meek coll., No. 2292.

2 ♂♂, Avera, Aroa River, 5, 21. iii. 1903. A. S. Meek coll., Nos. A 365, 442.

1 (not sexed), Mountains of British New Guinea. Weiske coll.

3 ♂♂, Kapaur, December 1896, January 1897. W. Doherty coll.

2 ♂♀, Wokan, Aru Is., 27. ix. 1900. H. Kühn coll.

We see absolutely no difference between specimens from Mysol, New Guinea, and the Aru Is.

92. **Malurus alboscapulatus** Mey.

Malurus alboscapulatus A. B. Meyer, *Sitzber. k. Akad. Wien* lxix. p. 496 (1874 : Arfak Mts.).

1 ♂ ad., Arfak, June 1874. Bruijn coll. (Specimen *b* of Salvadori's list, *Orn. Pap.* ii. p. 120.)

3 ♂♂ ad., 4 ♀♀ ad., 1 ♀ immat., 1 quite young., Takar, October—November 1896. W. Doherty coll. (The young bird is sooty-brown all over, without any white at all. Salvadori describes a pullus (sex ?) as white below.

1 ♂, Stephansort, 22. xii. 1898. E. Nyman coll.

1 ♂ ad., 1 ♂ immat., 1 ♀ ad., Simbang, 22, 25. viii., 1. ix. 1899. E. Nyman coll.

1 "♀," Friedrich Wilhelms Hafen, 17. x. 1899. E. Nyman coll.

It is with some hesitation that we identify this last specimen with *M. alboscapulatus*. It agrees fully with the description of *M. naimii* Salvadori, which he afterwards considered to be the *female* of *alboscapulatus*. Doherty's and Nyman's carefully sexed specimens, however, show doubtless that the *female* resembles the *male*, except that it is slightly smaller (wing about 2 mm. shorter) and less glossy, more sooty-black, and the wings brownish instead of pure black. On the other hand, a specimen of the following subspecies from Sogere (Forbes coll.) is below mixed black and white. What then are the birds with white underside ? They can hardly belong to a different species, nor are they, in the face of the pullus from Takar, the young ; nevertheless Salvadori describes a pullus from Naiabui as white below. (Perhaps the *female* is dimorphic.)

93. **Malurus alboscapularis naimii** Salvad & d'Alb.

Malurus naimii Salvadori & d'Albertis, *Ann. Mus. Civ. Gen.* vii. p. 827 (1875 : Mon, S. New Guinea).

The name *naimii* must be used for the southern race, though based on a bird with white underside, unless the latter belong to a different species.

Southern birds are smaller : wing in the *males* from Arfak and Takar 50—51, in those from German New Guinea 49—51, in those from British New Guinea only 47–48 mm.

4 "♂♂" (1 apparently a ♀), Milne Bay, October—November 1898, January 1899. A. S. Meek coll., Nos. 2100, 2159, 2160, 2205. "Iris brown (dark), bill and feet black."

1 ♂, Collingwood Bay, 29. vi. 1897. A. S. Meek coll., No. 683.

1 ♂, Avera, Aroa River, 3. iii. 1903. A. S. Meek coll., No. A 349.

1 (not sexed), Kotoi district, August 1898. Anthony coll.

1, Mountains of British New Guinea. (Native coll.)

1 "♀," Sogere, 26. x. 1885. Dr. H. O. Forbes coll., No. 65.

DICAEIDAE (*anteà* p. 216), add :

Oreocharis arfaki (Meyer).

Parus (?) *arfaki* A. B. Meyer, *Sitzungsber. Isis Dresden* 1875 (Arfak).

5, Arfak Mountains, 25. v. (and no dates). From Bruijn's hunters. (One marked ♀?).

2 ♀♀, Arfak Mts.

3 ♂♂, Avera, Aroa River, 26. iii. 1903. A. S. Meek coll., Nos. A 463, 465. "Iris dark greyish brown (dark grey), feet smoky-brown, bill black."

1 ♂, Mt. Scratchley. Native coll.

2 between Mts. Musgrave and Scratchley, 5000—6000 ft.

1 ♂, Kotoi district, 4000 ft., 15. viii. 1898. A. S. Anthony coll.

The *female* is very different. The upperside is green, crown like the back, chin, throat and chest grey, ear-coverts and sides of head grey with white spots ; sides yellow with dark bars, middle of abdomen greyish white with grey bars, lower part uniform buff, under tail-coverts yellow. These may be young birds and *females*.

The systematic position of this remarkable bird with its tit-like appearance is hardly finally settled, but we know at present no other place for it than among the *Dicaeidae*.

LANIIDAE (*anteà* p. 108), add :

Pachycephala poliosoma (Sharpe).

Pachycephalopsis poliosoma Sharpe, *Journ. Linn. Soc. Zool.* xvi. p. 381 (1882: Astrolabe Mts., Goldie coll.).

2 ♂♂, 2 ♀♀, 2 not sexed, Mt. Cameron, August—September 1896. A. S. Anthony coll. "Iris dark brown, feet light grey, bill brown."

1, Mt. Scratchley. Native coll.

1, Moroka, 5000 ft., November 1885. H. O. Forbes coll., No. 156.

1, between rivers Laroki and Vanapa, 1894. E. Weiske coll.

3 ♂♂, 3 ♀♀, Avera, Aroa River, 22, 27, 30, 31. i., 1, 17. ii. 1903. A. S. Meek coll., Nos. A 44, 114, 153, 165, 174, 240. "Iris dirty ivory white, feet slate-blue, bill black."

Monachella mülleriana (Schleg.).

Muscicapa Mülleriana Schlegel, *Ned. Tijdschr. Dierk.* iv. p. 40 (1871 : New Guinea, Lobo and northern peninsula).

1 ♂, Triton Bay, 24. vii. 1896. Cayley Webster coll. (From spirits.)

1 ♀, Dutch New Guinea. Bruijn coll.

3 ♂♂, 2 ♀♀, Mt. Arfak, Praffi, 1879. Bruijn coll.

1, "Astrolabe Mts." A. Goldie coll.

1 ♀, Mailu district, 19. vii. 1895. A. S. Anthony coll. "Eye, bill and feet dark brown."

1, Kotoi district, August 1898. A. S. Anthony coll.

1, between rivers Laroki and Vanapa, 1897. E. Weiske coll.

3 ♂♂, 1 ♀, Avera, Aroa River, 24, 25. ii., 3. iii. 1903. A. S. Meek coll., Nos. A 289, 290, 291, 350. "Iris dark brown, bill and feet black."

TIMELIIDAE (cf. *anteà* p. 228), add:

Sericornis olivacea Salvad.

Sèricornis olivacea Salvadori, *Ann. Mus. Civ. Gen.* xxxvi. p. 100 (1896: Moroka).
Sericornis pusilla Rothsch. & Hart., *anteà* p. 228 (Mt. Gayata).

1 ♂, Mt. Cameron, 6000 ft., 6. viii. 1896.

2 ♂♂, 2 ♀♀, Avera, Aroa River, February—March 1903. A. S. Meek coll., Nos. A 180, 251, 412, 439.

1, Mt. Gayata. (Type of *S. pusilla*.)

The new material from Avera, Aroa River, has convinced us beyond doubt that our *S. pusilla* is a (probably somewhat immature) *female* of *S. olivacea*.

Two birds, one marked ♂, the other not sexed, collected by J. M. Dumas at the Ambernoh River and Mt. Maori, seem to belong to this neighbourhood, but are much whiter underneath. One is young, the other in moult, almost without tail-feathers. These two birds are not sufficient to decide what they really are, but they are probably a new form of a *Sericornis*.

(*To be continued.*)

DESCRIPTION OF A NEW SPECIES OF GAZELLA.

BY THE HON. W. ROTHSCHILD, PH.D.

(Plate XV.)

Gazella albonotata spec. nov.

This gazelle is nearest to *G. rufifrons*, and occurs in portions of the same country as the latter.

It differs from *G. rufifrons* in having the nose and lower half of the central face-stripe black with a slight mixture of rufous hairs instead of bright rufous sandy. Face-stripe from eye to nostril white instead of buff. Area between tear-duct and lips dark buff, strongly mixed and shaded with black instead of pale buffy rufous. Head and neck pale isabelline instead of rufous buff. Upper half of face and forehead pale rufous mixed with white, almost entirely white between the horns. Horns wider spread and more recurved backwards than in *G. rufifrons*, the points more turned inwards, the rings deeper cut and more conspicuous. Habitat: East Bank of White Nile (type from 40 miles north of Kero or Kiri).

1. *Gazella rufifrons Gray.*

2, 3, 4. *Gazella albonotata Rothsch.*

SOME NEW OR UNFIGURED LEPIDOPTERA.

By the Hon. WALTER ROTHSCHILD and Dr. K. JORDAN.

(Plates XI. & XII.)

PAPILIONIDAE.

1. **Papilio weiskei** Ribbe, *Insekten-Börse* p. 308 (1900) (Aroa R.); Grose-Smith, *Rhop. Exot., Pap.* xxi. f. 1. 2 (♂) (1902).

(Pl. XI. f. 4. ♂, 5. ♀.)

Mr. A. S. Meek found a fine series of *males* of this magnificent insect, but only one *female*. The two sexes differ very conspicuously in colour, the markings of the proximal half of the forewing and the two spots of the hindwing, on the upper side, being green in the *female*. The fringe of the hindwing is white between the veins in the *male*, and more or less red in the *female*. Our series of *males* exhibits some variation in the tint of the markings of the upperside, the basal area of the forewing especially being in some specimens greenish blue, while it is normally reddish purple.

Hab. Upper Aroa River, British New Guinea (A. S. Meek & Eichhorn).

NYMPHALIDAE.

2. **Hypanartia splendida** Rothschild, Nov. Zool. x. p. 309. n. 2 (1903) (Peru).
(Pl. XI. f. 8. ♂.)

HESPERIIDAE.

3. **Choaspes illuensis ornatus** subsp. nov. (Pl. XI. f. 2. ♂.)

♂ ♀. Upperside of head, thorax and proximal abdominal segments metallic bluish green, rest of abdomen and breast olivaceous black, first and second segments of palpus and a large patch on underside of abdomen orange-red; legs with some metallic scales.

Wings, *upperside*, metallic bluish green at base, gradually shading off into greenish blue; fringe of hindwing and a broad border to abdominal margin, not reaching base, deep chrome.

Underside blue-black, heavily streaked with metallic bluish green between the veins; anal area of hindwing, upwards to R^3, or a little beyond, deep chrome, proximally washed with a beautiful orange-red; within this area a series of three or four black dots.

Length of forewing: 28—32 mm.

Hab. Kapaur, Dutch New Guinea, February 1897 (W. Doherty), *type*; Upper Aroa River, British New Guinea, January to April 1903 (A. S. Meek & Eichhorn); a series.

This form differs from that described and figured by Ribbe, *Iris* xiii. p. 334. t. 6. f. 1. ♂ (1900), in the palpus being deeper red, and in the abdominal part of the orange-red area of the underside of the hindwing being truncate.

4. **Choaspes hemixanthus** spec. nov. (Pl. XI. f. 3. ♂.)

♂ ♀. Head and anterior portion of thorax bluish green, this colour gradually shading into olive-buff and yellowish buff; first and second segments of palpus, excepting the black hairs and the upperside of the second, and underside of abdomen buff-yellow; breast greenish black; tibia and tarsus of foreleg buffish, of mid- and hindlegs olivaceous.

Wings, *upperside*.——Forewing: bluish green, pale buffish between cell and hinder margin; veins blue-black; fringe olive-black.——Hindwing: pale glossy green at base, black from costal edge to R^1, the black area distally produced backwards and here shaded with pale green scales, rest of wing straw-yellow, changing into maize-yellow at distal and abdominal margins.

Underside.——Forewing: like upperside, but posterior area from base to near distal margin cream-colour, and the veins heavily streaked with blue-black.——Hindwing: costal area down to R^1 and base up to M^1 like forewing, rest of wing maize-yellow, this area sharply defined.

Length of forewing: 26 mm.

Hab. Upper Aroa River, British New Guinea, January to April 1903 (A. S. Meek & Eichhorn); a series.

SPHINGIDAE.

5. **Eurypteryx shelfordi** Rothschild & Jord., Nov. Zool. ix. Suppl. p. 813 (1903) (N. Borneo).
(Pl. XI. f. 1. ♀.)

The *type* of this fine Sphingid is now in the Tring Museum. We feel very grateful to R. Shelford for having given us the specimen in exchange for other *Sphingidae*.

6. **Xylophanes rhodochlora** Rothschild & Jord., *l.c.* p. 700. n. 653 (1903) (Peru).
(Pl. XI. f. 15. 16. ♂.)

ARCTIIDAE.

7. **Clerckia thoracica** iid., *l.c.* viii. p. 410. n. 4 (1901) (Humboldt Bay).
(Pl. XI. f. 6. ♂.)

8. **Clerckia omissa** iid., *l.c.* p. 409. n. 1 (1901) (Guadalcanar).
(Pl. XI. f. 7. ♀.)

9. **Meteugoa fasciosa** iid., *l.c.* p. 424. n. 37 (1901) (Isabel I.).
(Pl. XI. f. 9. ♂.)

COSSIDAE.

10. **Xyleutes zophoplecta** Turner. (Pl. XI. f. 10. ♂, Townsville.)

We have received this insect under the above name, but cannot find the description.

11. **Xyleutes doddi** Rothschild, Nov. Zool. x. p. 306 n. 1 (1903) (Townsville).
(Pl. XI. f. 11. ♂.)

12. **Xyleutes striga** id., *l.c.* p. 307. n. 2 (1903) (Townsville).
(Pl. XI. f. 12. ♂.)

13. **Xyleutes molitor** id., *l.c.* n. 3 (1903) (Townsville).
(Pl. XI. f. 13. ♂.)

14. **Xyleutes eluta** id., *l.c.* p. 308. n. 4 (1903) (Brisbane).
(Pl. XI. f. 14. ♀.)

ZYGAENIDAE.

15. **Mydrothauma ada ada** Butler, *Proc. Zool. Soc. Lond.* p. 122 t. 6. f. 1 (♂) (1892) (N. Borneo).
(Pl. XII. f. 39. ♀, North Borneo.)

The type of *ada* (in the British Museum) has the metallic distal area of the forewing separated into two patches, while in the ♀ here figured the patch is not divided.

16. **Hydrothauma ada jucunda** subspec. nov. (Pl. XII. f. 40. ♀.)

♀. Head above as in *ada*, but yellow behind eye. Pronotum red like head, blackish in middle.

Wings, *upperside*.——Forewing less elongate than in *ada*, the narrow metallic band thinner and farther away from the base, standing nearer the blue distal area; the apex of the wing black.——Hindwing: a transparent spot behind cell near base; the distal transparent spot smaller than in *ada*.——On the *underside* the metallic distal area of the forewing is much smaller in *jucunda* than in *ada*.

Hab. Batu I., west of Sumatra (H. Raap).

One ♀.

17. **Hydrothauma ada javana** subsp. nov.

♂. Smaller than the two ♀♀ figured. Pronotum less extended red than in *jucunda*. The apex of the forewing, above, more broadly black than in *ada jucunda*, the upper portion of the golden patch more reduced than in the two preceding forms, the antemedian band nearly as in the Bornean subspecies. The hindwing has a transparent basal spot like *jucunda*, but the transparent distal spot is absent. On the underside there is on both wings at the end of the cell a blue metallic spot, which is larger than the respective spot in the other subspecies, and the distal margin of the hindwing is more extended metallic.

Length of forewing: 18 mm.

Hab. Sukabumi, Java (Prillwitz).

One ♂.

18. **Heterusia ligata** spec. nov. (Pl. XII. f. 22. ♂.)

♂. Body olive-black above, partly metallic green-blue (strongly rubbed in the only specimen at disposal); underside dirty creamy buff; upperside of legs metallic.

Wings olive-black, paler below than above; an orange-yellow band crossing

both wings from middle of costal margin of forewing to anal angle of hindwing, slightly paler beneath than above.

Clasper armed with a long, horizontal, finger-like, pointed process, which bears a heavy pointed tooth near the base. Neuration as in *Heterusia*, excepting R^2 and R^3 of the forewing not being stalked together.

Length of forewing : 22 mm.

Hab. Holnicote Bay to Owen Stanley Mts., British New Guinea (Rohu).

One ♂.

19. **Heterusia regina** spec. nov. (Pl. XII. f. 23. ♂.)

♂. Head, legs, breast and underside of abdomen metallic bluish green, pronotum greenish blue ; mesonotum orange-yellow ; rest of upperside olive-black, with some blue metallic scaling ; end of abdomen below dirty creamy buff.

Wings, *upperside*, black.——Forewing : a large triangular basal area and a middle band reddish orange, connected with one another at hinder margin ; a subapical band of short metallic blue streaks.——Hindwing : an orange marginal band as prolongation of the median band of the forewing ; fringe black.

Underside.——Forewing : costal margin green-blue from base beyond middle ; basal patch of upperside not present below ; median band as above, but paler.——Hindwing : costal and abdominal margins and a broad basi-discal mesial streak metallic blue ; marginal band paler than above, creamy in front, narrowed to a point behind.

Neuration essentially as in *Heterusia*.

Clasper as in the preceding species, but devoid of the large subbasal tooth.

Length of forewing : 27 mm.

Hab. Holnicote Bay to Owen Stanley Mts., British New Guinea (Rohu).

One ♂.

20. **Doratopteryx xanthomelas** spec. nov. (Pl. XI. f. 16a. ♀.)

♀. Body and wings ochraceous orange, forewing from apical third of cell to apex and hindwing from apical fourth of wider proximal part of wing to tip of tail black ; antenna brown.——Forewing with a very small orange dot at apex of cell ; four subcostals, the first close before apex of cell, the other three stalked together, the last standing near the cell ; R^2 closer to R^3 than to R^1 ; the cross-vein D^3 transverse ; M^1 midway between R^3 and M^1.——Hindwing : wider proximal part about 12 mm. long and 1½ to 2 mm. broad, widest near base, tail about 10 mm. long, feebly dilated at tip ; neuration not constant, five longitudinal veins, the first and third extending to base, the others obsolete proximally, the first and second well developed also in the tail, giving off some side branches.

Hab. Longa River, Angola, November 1899 (Penrice).

Two ♀ ♀.

In *D. torta* (1887) Butler vein M^1 of forewing stands much closer to M^2 than to R^3, and D^3 is longitudinal, appearing as a direct prolongation of M, and being nearly as long as the section M^1—M^2 of M. In *D. nemopteridia* R^2 and R^3 of the forewing are close together.

GEOMETRIDAE.

21. **Milionia pumilio** Rothschild, *l.c.* vi. p. 70. n. 9 (1889) (Sumba). (Pl. XII. f. 17. ♀.)

22. **Milionia assimilis** id., *l.c.* iv. p. 510. n. 7 (1897) (New Hanover).
(Pl. XII. f. 18. ♀.)

23. **Milionia dulitana** id., *l.c.* iv. p. 510. n. 6 (1897) (Borneo).
(Pl. XII. f. 24. ♀.)

24. **Milionia mediofasciata** id., *l.c.* iii. p. 328. n. 7 (1896) (New Guinea).
Milionia dubiosa id., *l.c.* iv. p. 511. n. 7 (1897) (New Guinea).
(Pl. XII. f. 26. ♂ ; 27. ♀.)

The series of specimens of either sex procured by Mr. Meek at the Upper Aroa River, British New Guinea, proves that *mediofasciata* and *dubiosa* are really ♀ and ♂ of the same species. The dichromatism is quite constant, all the ♀♀ having a black abdomen and a red-banded hindwing, all the ♂♂ a clayish abdomen and yellow-banded hindwing.

25. **Milionia macrospila** Jordan, *ibid.* x. p. 315. n. 2 (1903) (Aroa R.).
(Pl. XII. f. 28. ♂.)

The ♀ is similar, but has the abdomen and hindwing more clayish.

26. **Milionia paradisea** id., *l.c.* p. 316. n. 3 (1903) (Aroa R.).
(Pl. XII. f. 33. ♂.)

27. **Milionia websteri** Rothschild, *l.c.* iv. p. 511. n. 10 (1897) (New Hanover).
(Pl. XII. f. 29. ♂ ; 36. ♀.)

28. **Milionia dysphanioides** id., *l.c.* iii. p. 327. n. 15 (1896) (Fergusson I.).
(Pl. XII. f. 30 ♂.)

29. **Milionia flaviventris** id., *l.c.* iii. p. 327. n. 16 (1896) (New Guinea).
(Pl. XII. f. 35. ♂.)

We have a series of both sexes of this peculiar species from British New Guinea, Aroa River, and neighbouring mountainous districts.

30. **Milionia distorta** spec. nov. (Pl. XII. f. 19. ♂.)

♂. Body and legs black, glossy blue in side-view ; abdomen yellow from second to seventh segments, excepting middle of underside and bases of second and third tergites.

Wings black above and below ; forewing long, costal margin elbowed in middle, cell broad ; hindwing reduced, ovate.——*Upperside :* forewing metallic blue at extreme base ; a large orange-red area from base beyond cell, becoming yellow distally, reaching distal margin between M^1 and SM^2, the extreme costal and abdominal edges of the wing remaining black, the area sinuate before end of SM^2, and centred by a large ovate, black spot.——Hindwing unicolorous.

Underside : the orange-red area of the forewing reduced, the wing being black from cell to hinder margin, the black central spot forming part of this black area.

Length of forewing : 31 mm.

Hab. Upper Aroa River, British New Guinea (A. S. Meek and Eichhorn).

Two ♂♂.

31. **Milionia obiensis** Rothschild, *l.c.* v. p. 417. n. 6 (1898) (Obi).
(Pl. XII. f. 3 1♂.)

32. **Milionia eichhorni** spec. nov. (Pl. XII. f. 32. ♂.)

♂ ♀. Similar to *M. rawakensis* and *meeki*, but the forewing devoid of the large red basal area found in these species, the black distal marginal border of the hindwing not separated into spots, and the meso-metanotum black, not yellow. From the various subspecies of *M. zonea* the present species is easily distinguished by the broad black border to the hindwing.

Hab. Upper Aroa R., British New Guinea (A. S. Meek and Eichhorn).

Several specimens.

33. **Bordeta furcata** spec. nov. (Pl. XII. f. 20. ♀.)

♀. Head, thorax, first abdominal tergite and wings black; abdomen clay-colour; legs clayish olive.

Wings, *upperside*.——Forewing: a broad orange-red band extending from beyond middle of costal margin to outer margin, sinuate behind, the projection of the band situated proximally of the sinus continued backwards by a slaty line; a white spot on disc behind base of M^1 encircled with slate-colour.——Hindwing: a broad clayish ochreous band from costal vein to abdominal margin; within black marginal border there is a spot of a darker clayish ochreous colour.

Underside similar to upper, slaty line situated before hinder angle of forewing just vestigial, and clayish ochreous submarginal spot of hindwing joined to the discal area.

Length of forewing: 25 mm.

Hab. Upper Aroa River, British New Guinea (A. S. Meek and Eichhorn).

One ♀.

AGARISTIDAE.

34. **Immetalia eichhorni** Rothschild & Jord., *l.c.* viii. p. 406. n. 19 (1901) (Isabel I.).
(Pl. XII. f. 38. ♂.)

35. **Immetalia diversa** spec. nov. (Pl. XII. f. 24. ♂, 25. ♂.)

♂ ♀. Similar to *I. meeki huonis* Rothsch. (1897), the band of the forewing broader and more proximal in position, the inner edge of the band crossing cell proximally of point of origin of M^2. This band is in ♂ either white (*type*) or pale orange; in the ♀ ♀ it is pale orange. The band of the hindwing, above and below, is more reduced than in *huonis* and *meeki*, but slightly wider in the ♀ ♀ than in the ♂ ♂.

Hab. Upper Aroa River, British New Guinea (A. S. Meek and Eichhorn).

36. **Immetalia meeki keiana** subsp. nov.

♂. Band of fore- and hindwing of nearly the same colour, that of the hindwing being slightly paler than in *meeki meeki*. On the forewing the band is narrowed at both ends, as it is in many specimens of *I. longipalpis*. On the hindwing it is about as wide as in *meeki*, but does not extend anteriorly beyond SC^2. The fringe at the apices of both wings is white, being on the hindwing feebly yellowish, reminding one of *I. bernsteini*.

Hab. Great Key I. (H. Kühn).

One ♂.

This ♂ is of particular interest, as ♂ ♂ with an orange band on both wings are

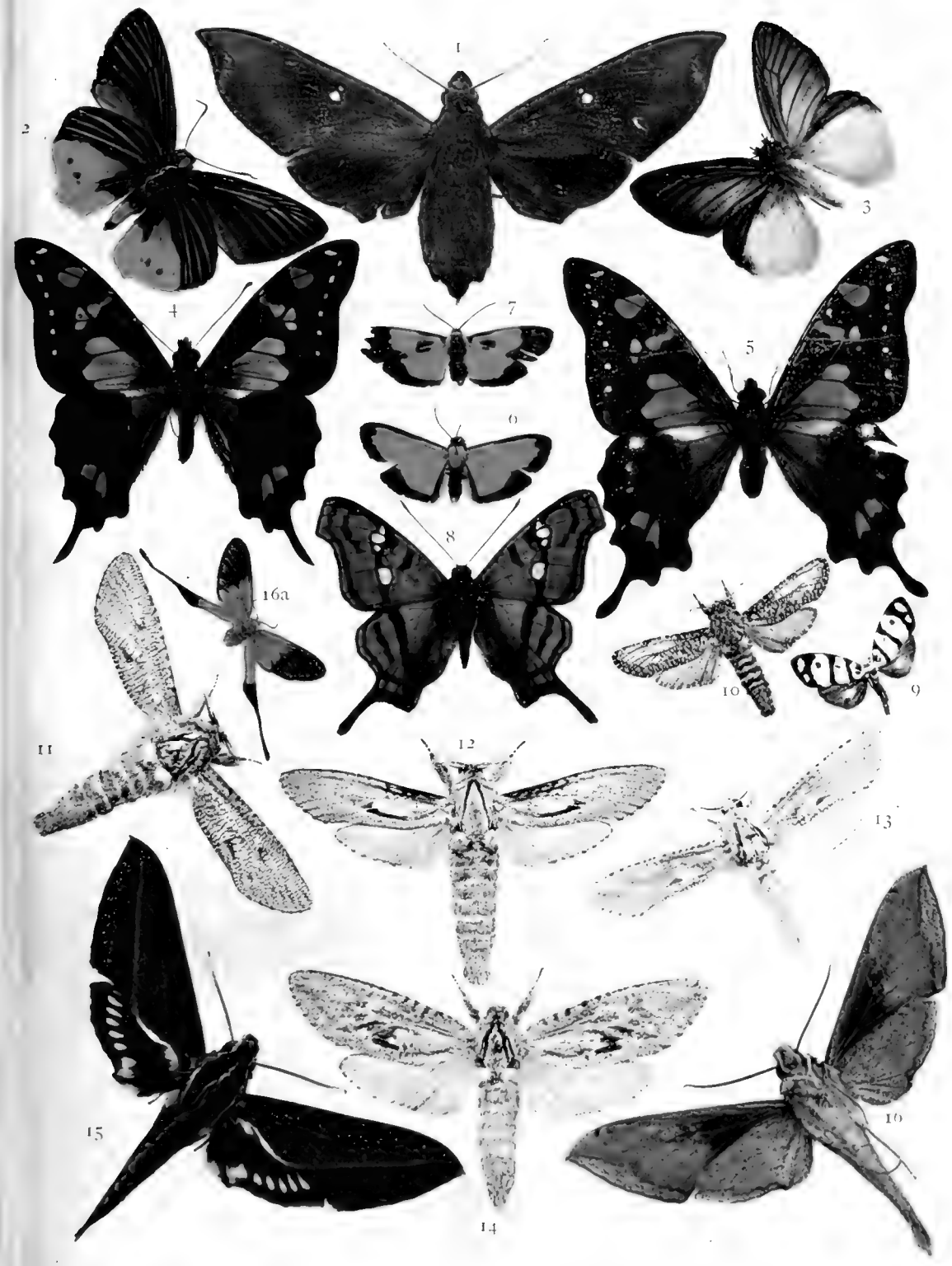
EXPLANATION OF PLATES XI. AND XII.

Plate XI.

Fig. 1. *Eurypteryx shelfordi* ♀ . . . . . p. 482
„ 2. *Choaspes illuensis ornatus* ♂ . . . . . p. 481
„ 3. „ *hemixanthus* ♂ . . . . . p. 481
„ 4. *Papilio weiskei* ♂ . . . . . p. 481
„ 5. „ „ ♀ . . . . . p. 481
„ 6. *Clerckia thoracica* ♂ . . . . . p. 482
„ 7. „ *omissa* ♀ . . . . . p. 482
„ 8. *Hypanartia splendida* ♂ . . . . . p. 481
„ 9. *Meteugoa fasciosa* ♂ . . . . . p. 482
„ 10. *Xyleutes zophoplecta* ♂ . . . . . p. 482
„ 11. „ *doddi* ♂ . . . . . p. 483
„ 12. „ *striga* ♂ . . . . . p. 483
„ 13. „ *molitor* ♂ . . . . . p. 483
„ 14. „ *eluta* ♀ . . . . . p. 483
„ 15. *Xylophanes rhodochlora* ♂ . . . . . p. 482
„ 16. „ „ . . . . . p. 482
„ 16a. *Dorcatopteryx xanthomelas* ♀ . . . . . p. 484

Plate XII.

Fig. 17. *Milionia pumilio* ♀ . . . . . p. 484
„ 18. „ *assimilis* ♀ . . . . . p. 485
„ 19. „ *distorta* ♂ . . . . . p. 485
„ 20. *Bordeta furcata* ♀ . . . . . p. 486
„ 21. *Argyrolepidia aurea* ♂ . . . . . p. 487
„ 22. *Heterusia ligata* ♂ . . . . . p. 483
„ 23. „ *regina* ♂ . . . . . p. 484
„ 24. *Immetalia diversa* ♂ . . . . . p. 486
„ 25. „ „ ♂ . . . . . p. 486
„ 26. *Milionia mediofasciata* ♂ . . . . . p. 485
„ 27. „ „ ♀ . . . . . p. 485
„ 28. „ *macrospila* ♂ . . . . . p. 485
„ 29. „ *websteri* ♂ . . . . . p. 485
„ 30. „ *dysphanioides* ♂ . . . . . p. 485
„ 31. „ *obiensis* ♂ . . . . . p. 485
„ 32. „ *eichhorni* ♂ . . . . . p. 486
„ 33. „ *paradisea* ♂ . . . . . p. 485
„ 34. „ *dulitana* ♀ . . . . . p. 485
„ 35. „ *flaviventris* ♂ . . . . . p. 485
„ 36. „ *websteri* ♀ . . . . . p. 485
„ 37. *Phalaenoides resplendens* ♂ . . . . . p. 487
„ 38. *Immetalia eichhorni* ♂ . . . . . p. 486
„ 39. *Hydrothauma ada ada* . . . . . p. 483
„ 40. „ „ *jucunda* . . . . . p. 483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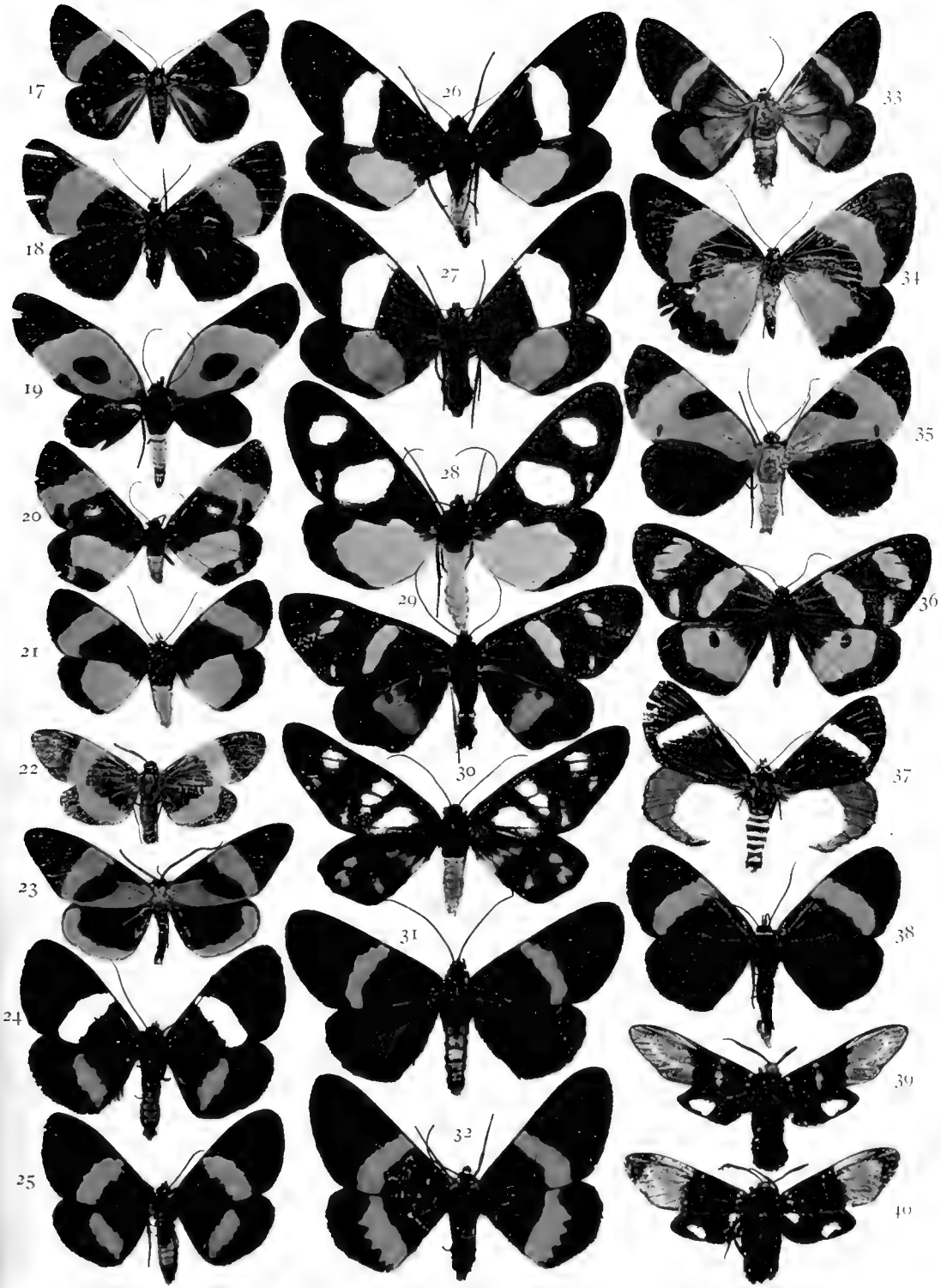
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not known from Dutch New Guinea, while the band of both wings is orange in the ♂♂ from the Northern Moluccas (*bernsteini*), and from the south-eastern parts of New Guinea (*meeki*). We have elsewhere suggested that *bernsteini*, *longipalpis*, *huonis* and *meeki* are geographical races of the same insect. The present insect confirms this belief. *I. diversa*, described above, is possibly a mountain form of the same species. We have as yet not found any structural differences between the insects mentioned.

37. **Phalaenoides resplendens** spec. nov. (Pl. XII. f. 37. ♂.)

♂. Head black, a spot at each side of frons, and a line behind eye continued to antenna, white ; first segment of palpus, breast, a lateral spot on prothorax, hairs of femora and tip of abdomen orange ; second segment of palpus black at sides, edged with yellow above, clothed with a mixture of black, white and yellow scales beneath. Thorax above and abdomen blue-black, the latter ringed with bluish white ; underside of abdomen bluish grey-white.

Wings blue-black. *Upperside.*——Forewing : a white band beyond cell, from costal margin to M^2, straight, continued beyond M^2 by a small dash, which is parallel with the distal margin of the wing ; some glaucous blue scales near the band, veins distally streaked with glaucous blue.——Hindwing very strongly glossy ; a large white area, rounded anteriorly and distally.

Underside of both wings glossy blue, but much less glossy than the upperside of the hindwing ; bases streaked with glaucous blue.——Forewing : no blue lines on veins in distal area of wing ; white band broader than above.——Hindwing : white area slightly edged with glaucous blue.

Length of forewing : 25 mm.

Hab. Upper Aroa River, British New Guinea (A. S. Meek and Eichhorn).

One ♂.

38. **Burgena reducta** spec. nov.

♂. Similar to *splendens*. White spots of frons and the yellow colour of pronotum, breast and abdomen, and the band of the hindwing much reduced. *Upperside* of both wings strongly glossy ; white cell-spot of forewing larger than in *splendens*, the discal patch situated near lower angle of cell also larger, consisting of three streaks ; the yellow band of the hindwing either reduced to an ill-defined spot situated at abdominal margin (♂), or to a narrow ill-defined band (♀) which extends from abdominal margin to apex of cell. On the *underside* the yellow band is rather broader and longer than above.

Hab. Kulambangra, Rubiana, Solomon Islands, February 27th, 1902 (Meek and Eichhorn).

One pair.

39. **Argyrolepidia aurea** Jordan, Nov. Zool. x. p. 312. n. 1 (1903 (Aroa River). (Pl. XII. f. 21. ♂.)

40. **Scrobigera vacillans taeniata** subsp. nov.

♂♀. Markings of forewing white, the three mesial spots of *vac. vacillans* (South Celebes) merged together into a complete band, which is very slightly curved. Band of hindwing of ♂ deeper orange and wider than in *vac. vacillans* ; fringe of ♀ white only at apex.

Hab. Sawangan, North Celebes.

Four ♂♂, one ♀.

SOME NEW AFRICAN PAPILIOS.

BY THE HON. WALTER ROTHSCHILD, PH.D., AND KARL JORDAN, PH.D.

1. **Papilio dardanus polytrophus** subsp. nov.

A VERY variable and small form, which in the ♂ is distinguished by the black band of the upperside of the hindwing being similar to that of West African *dardanus*, by the posterior portion of this band (situated at abdominal margin) including a spot of the ground-colour, which spot is either isolated or is connected with the pale marginal anal spot; further by the black spot at anal angle being reduced, and by the clasper bearing a prominent tooth above the sawblade-like harpe, as is the case in the East and South African forms, the tooth being absent from the West African *dard. dardanus* and also from the form inhabiting the Comoro Islands. In Kaviroudo *dardanus polytrophus* intergrades with *dardanus dardanus* in colour and structure. We shall more fully enter into this question at another place. The *female* sex of *polytrophus* is more variable than that of any other form of *dardanus*. The specimens agree partly very closely with individuals from the lowland districts of British and German East Africa (*P. d. tibullus*). The three submarginal spots R^3—SM^2 of the forewing are generally prominent and often rounded, and the submarginal spots of the hindwing are also well marked. A comparison of the various ♀-forms with such from other localities will be given elsewhere. The most interesting form is that in which the markings of the forewing are pale straw-colour (paler than the ground-colour in the *male*), and are enlarged and merged together, occupying the greater proportion of the wing, a curved costal patch and the outer marginal area remaining black, the wing thus somewhat resembling that of the ♀♀ of *P. dardanus meriones* (Madagascar) and *P. d. antinorii* (Abyssinia).

Hab. Kikuyu Escarpment, British East Africa (W. Doherty).

A long series.

2. **Papilio sosia** spec. nov.

♂. Intermediate between *P. bromius* and *nireus*. The band of the upperside of the wings varying much in width individually, narrow-banded specimens resembling *P. nireus nireus*, and broad-banded ones *P. bromius bromius*. The narrow-banded individuals can be distinguished from *P. nir. nireus* by the band of the hindwing being proportionally wider behind cell, extending close to base of vein M^2, the portion M^1—(SM^1) of the blue-green band being longer than in *nireus*, reaching farther basad, further by the presence of a more or less complete series of blue-green submarginal dots on the upperside of the forewing, and by the rounded claspers and bipartite harpe. The broad-banded specimens differ from *P. bromius bromius* in the longer tail, the shorter blue-green streak M^2—(SM^1) of the upperside of the hindwing and in the harpe. There are no white postdiscal patches on the underside of the forewing, or only traces of such patches.

Clasper rounded as in *bromius*, not triangular as in *nireus*. Harpe with two pointed processes, the one horizontal, slender, long, curved at end, more or less sparsely dentate at apex; the other projecting horizontally from the edge of

the first, proximal, triangular, resembling a large tooth. The harpe is individually variable, there being often several small acute teeth at the edges of the processes.

Hab. Sierra Leone to Uganda.

In the Tring Museum 24 ♂♂ from : Sierra Leone (*type*) ; Accra, Gold Coast ; Akassa, Niger ; Kassai R., Congo Free State; Bumba, Congo Free State, June 10th, 1899 (Dr. Ansorge) ; Upoto, Congo ; Fajao, Unyoro, July 1897 (Dr. Ansorge) ; Msarosaro, Uganda, December 28th, 1896 (Dr. Ansorge).

This species is mixed up in collections with *bromius* and *nireus*. We have as yet no *female*.

3. **Papilio bromius cyclopis** subsp. nov.

Papilio pseudonireus, var.?, Butler (*non* Felder, 1865), *Proc. Zool. Soc. Lond.* p. 633. n. 15 (1895) (Kasungu Mt.).

Papilio pseudonireus, id., *l.c.* p. 839. n. 104 (1896) ; id., *Ann. Mag. N. H.* (6). xviii. p. 75. n. 28 (1896).

♂. This insect has nothing to do with *P. nireus pseudonireus*, which is confined to Somaliland and Abyssinia, but it resembles it a little in the band of the forewing being reduced. *P. bromius cyclopis* differs from *brom. brontes* in the blue band of the upperside being much narrower, the reduction being most pronounced in the costal region of the forewing. The blue spots at the upper angle of the cell of the forewing reduced to dots ; spot in cell near lower angle short and narrow ; no dot in angle of cellule R^1—R^2 ; patch M^1—M^2 only 4 mm. long. Extreme base of cellule M^1—M^2 of hindwing black, blue streak M^2—(SM^1) not reaching cell ; blue spots R^1—R^2 very small, not touching one another ; blue postdiscal spots R^2—R^3 and M^1—M^2 not completely divided. Postdiscal spots of underside of hindwing white, not divided at the internervular folds.

Clasping organs as in *P. bromius brontes* and *brom. bromius*.

♀. Not known to us.

Hab. Kasungu Mt., Nyika, Nyassaland, 7450 ft. (R. Crawshay).

4. **Papilio phorcas nyikanus** subsp. nov.

Papilio phorcas, Butler, *Proc. Zool. Soc. Lond.* 1896. p. 839. n. 105 (1897).

♂. Similar to *P. phorcas ansorgei* from British East Africa, the green spot $SC^{4.5}$—R^1 of the upperside of the forewing much smaller, this spot being smaller than the triangular spot SC^3—$SC^{4.5}$ (in both sexes according to Butler), spot R^1—R^2 present but small ; no submarginal spots on the forewing above, except the subapical one, but a series of prominent submarginal spots on the hindwing. Distal marginal area of the underside deeper brown than in *ansorgei* and the internervular black discal streaks of the hindwing heavier. Harpe similar to that of *ansorgei*, but with less teeth.

Hab. Kasunga Mts., Nyika, Nyassaland, March 1896 (Crawshay).

The four subspecies of *P. phorcas* fall into two groups according to the development of the sexual armature. The subspecies *P. ph. phorcas* inhabiting the North-Western district, from Sierra Leone to the Niger, has a harpe which is produced at the apex into an acute spinelike process. There is, moreover, generally one spinelike tooth farther proximal, rarely several teeth. In the other three subspecies—*P. ph. congoanus* from Kamerun, Congo, Uganda, *P. ph.*

ansorgei from British East Africa, and *P. ph. nyikanus* from Nyassaland—the harpe remains distally a low ridge which is nearly parallel to the edge of the clasper and bears numerous teeth at and near the point of curvature. The ridge is raised into a slight lobe before curving dorsad. It is very remarkable that the individuals from the Congo to Kamerun contrast so strongly in the harpe with those found farther north and agree with the eastern ones.

The two forms of the dimorphic *female* of *P. phorcas* have the same sexual armature : see Nov. Zool. iii. p. 592 (1896).

NOTE ON *UROPLATES FIMBRIATUS LICHENIUS* SUBSPEC. NOV.

BY THE HON. W. ROTHSCHILD, Ph.D.

(Plates III., IV.)

ON October 25th, 1902, I received alive an extraordinary Gecko from Madagascar, which turned out to be a form of *Uroplates fimbriatus*. It lived till July 1903, and shed its skin several times. The very beautiful eye is shown on the plates. The most remarkable observations we were able to make were that it used the fringe round the lower jaw, legs and tail, to cling to the glass or branches in its cage in the same manner as all Geckos use the toe membranes. The tail is also prehensile, and the animal can hang free suspended by the tail by folding the sides of the tail round a branch. As the first specimen received differed markedly from the description in the "Catalogue of Lizards in the British Museum," which describes the colour as reddish brown, closely covered with black spots, while this specimen is in addition, as the figure shows, variegated with large lichen-like patches of white, I propose to call this form *Uroplates fimbriatus lichenius*. I must, however, do this with a reservation, as I have received another specimen in August 1903, which is intermediate between my *U. f. lichenius* and true *U. fimbriatus* ; therefore, although I treat the white spotted form for the present as a subspecies, it remains very uncertain, till we get properly dated and localised material, whether it is really a subspecies or only an aberration.

I append Mr. A. W. Head's note on the fundus oculi, figured on Plate IV.

"The fundus oculi of the right eye is magnified 18 diameters. The colour of the retina is a bright orange-red, stippled all over with a darker tint, giving it a granular but very translucent appearance. Standing out at right angles to the retina, and entirely covering the disc, is a well developed cone-shaped pecten, but without plications, of a dark chocolate-brown colour, its base spreading out, and fringed all round with irregular tufts of lighter brown pigment, embedded in small patches of light orange, which has the appearance of the orange red of the fundus having been brushed off. The process extends well towards the lens, and gradually becomes darker and more sharply defined towards the apex, which is curved. I have been unable to trace any opaque nerve fibres in this species."

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UROPLATES FIMBRIATUS LICHENIUS.

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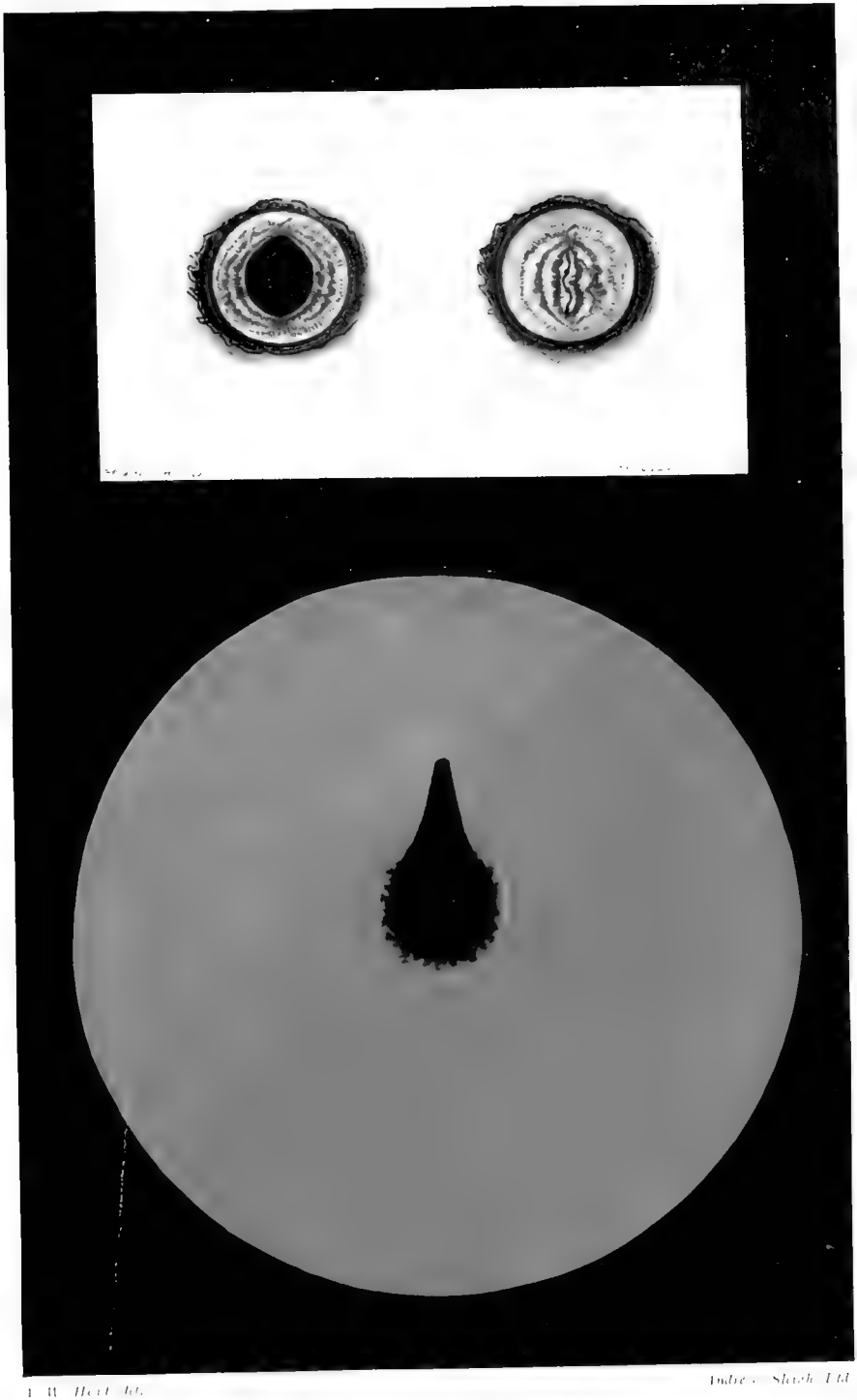

L. H. Hait, lith. Indica Sketch Ltd

Eyes of Uroplates fimbriatus lichenius.

Left eye, double size, open (night) and closed (day.

Fundus oculi, erect image, magnif. 18 diam.


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LEPIDOPTERA COLLECTED BY OSCAR NEUMANN IN NORTH-EAST AFRICA.

By the Hon. WALTER ROTHSCHILD, Ph.D., and KARL JORDAN, Ph.D.

THE more important portion of the Lepidoptera of which we publish here the first instalment of a report has been collected by Herr Oscar Neumann during his expedition through Schoa, the Arussi country, etc., southward to Lake Abbaja, and thence westward to the Sobat River, an affluent of the Nile. Herr O. Neumann travelled in company of Baron Carlo von Erlanger from Zeyla to Harar, and thence west- and northwards to Adis-Abeba. Then the two explorers separated. The Lepidoptera obtained during this joint expedition being also in the Tring Museum, we have deemed it advisable to enumerate them together with those collected by O. Neumann farther west. It must therefore be understood that the specimens dated from February to August 1900 were collected during the expedition of "von Erlanger and Neumann," and those of a later date by O. Neumann alone. Since the material is carefully dated, it forms a valuable addition to our knowledge of the Lepidopterous fauna of the countries traversed, having enabled us to compare minutely a good proportion of the forms inhabiting these North-Eastern districts of tropical Africa with specimens from other parts of the Aethiopian Region and from India. A summary of the results of our research on these Lepidoptera will be given at the end of the report on the collection.

As a list of species and varieties from a certain district is of value for the student of geographical distribution and for the systematist only, if the names under which the forms are recorded are really those which apply to the species and varieties of that particular country, we have endeavoured to avoid mistakes in identification as far as possible by a more detailed study of the North-East African Lepidoptera and their allies from other countries than is generally the case in works of this kind. The consequence is that we have been able to characterise a number of new forms hitherto unknown or misidentified, and to correct mistakes committed by previous authors. Sometimes we have had to work right through a genus in order to find the correct names for the Abyssinian forms. In such cases we have given a kind of preliminary revision of the respective genus. We have also added some new non-Abyssinian forms of such genera as we had to deal with in this paper. Only the forms collected by O. Neumann, either alone or together with Baron von Erlanger, are enumerated under consecutive numbers.

In order to understand the relationship of one faunistic region with another, in our case of the "Abyssinian" fauna with the faunae of East and of West Africa and of India, it is necessary to study the geographical distinctions presented by the individuals from the various countries. We know from experience how very puzzling lists of names of Lepidoptera with localities of capture can become to the student, if the compiler of the list has neglected the geographical distinctions and identified the insects carelessly. Such lists obscure the composition of the

fauna, and therefore, instead of being a contribution to our knowledge of the insects and their distribution, hamper the student in understanding the facts of distribution, variation and evolution, which stand all in very close connection.

We have shown in various places that geographical variation is very different from non-geographical (seasonal, individual) variation. The geographical variation is the beginning of the ramification of one species into more. From it has resulted the enormous variety of existing species, each breeding true. The result of individual and seasonal variation is di- or polymorphism within a species, each form reproducing itself and the others, or the result may be modification of one species into one other. Geographical varieties differ in various degrees. They represent various steps in the evolution of daughter-species. Whoever studies the distinctions of geographical varieties closely and extensively will smile at the conception of the origin of species *per saltum*. For he will find that in the large majority of cases the geographical distinctions are minute, and he will see further that there is a complete gradation from geographically separate varieties of a species which are very distinct from one another in colour, pattern and structure in all individuals, to geographically separate portions of a species which do not exhibit any distinctions. It is just this prevalence of minuteness in the geographical distinguishing characters which gives us the best insight into the working of evolution. Hence it is of the highest importance to demonstrate wherever one can the prevalence of minute distinctions in geographically separate portions of a species—a demonstration which depends entirely on the intensity and minuteness of the research of the specialist in the systematics of the respective group of animals.

The quantitatively small difference between geographical varieties does not suffer in interest from its smallness. For the minuteness of the distinction demonstrates directly that the variety is not the result of selection (by enemies) in the ordinary sense. The differences between the Abyssinian variety of *Argynnis hyperbius* and the North Indian variety become perceptible only on close comparison, and cannot possibly be of direct selection-value. The more such geographical races (= subspecies) characterised by minute distinctions are pointed out, the more direct selection is eliminated from the initiatory factors of evolution. As variation is the basis of evolution, the intimate knowledge of the products of variation within the species is the only safe substructure for theories on evolution.

Therefore we claim the detailed study of the variation of the species to be one of the main objects of the modern systematist, who will look upon the varieties always as indicating change, the change in characters taking (or having taken) place either in connection with a change of the environment or without it. Having this in mind, the student of insects will *a priori* be an unbeliever in the occurrence of species over wide areas without the species being split up in the physiographically different and separated districts into geographical varieties, and he will require a special explanation if a wide distribution without corresponding change in characters is observed. When we saw that the Oriental *Argynnis hyperbius* was recorded from Abyssinia, we were convinced, without having seen specimens from that country, that the Abyssinian individuals differed from Oriental ones. Why? Because we knew Abyssinia to be a faunistic district inhabited by many specialities, and because we knew *Argynnis hyperbius* having developed in the Oriental Region into a number of easily recognised subspecies (= geographical varieties). It would be anomalous if the Abyssinian individuals were not different.

On receiving O. Neumann's material we saw at once that our supposition was correct.

This being our standpoint, nobody can wonder that we are true to it also in the present memoir. If there are geographical distinctions known to us, we record them ; and in order to prevent the record from being forgotten or overlooked, and hence lost to science, we give a name to the geographical variety, however minute the distinction may be.

We have been blamed severely for occupying this standpoint, and acting in accordance with it, by Dr. Pagenstecher in his paper on the butterflies collected during Baron von Erlanger's expedition after von Erlanger and O. Neumann had separated.* Though we hold Dr. Pagenstecher in too high esteem to answer him by a mere personal counter-attack, we judge it ill-advised to be again entirely silent, as we were when Professor Aurivillius, in his great work on African Rhopalocera, misrepresented our views on the nomenclature of varieties.† We take the opportunity given to us by Dr. Pagenstecher, not of repudiating a blame by blaming, but of answering the criticism by contrasting the aims, methods and results of two schools of entomologists—if we may employ the term "school" in this connection—leaving it to the reader to decide whether Dr. Pagenstecher is right or wrong in his appeal for "simplification."

First let us consider for a moment the nomenclature of geographical forms. Aurivillius and Pagenstecher disapprove strongly of the method we follow in naming such varieties. The former says that he agrees with Staudinger in designating geographical varieties in contradistinction to other varieties as *var.* We maintain that the term *var.* has been used and is in use for different kinds of varieties, and that therefore its restriction to one single kind, namely, the geographical variety—leads to confusion. Aurivillius himself, in *Rhopalocera Aethiopica*, furnishes a great many instances which justify our contention entirely. He gives on p. 39 *Amauris echeria* as occurring, besides in Kamerun and Fernando Po, from Cape Colony northwards to British East Africa ; and *A. echeria* var. *albimaculata* as inhabiting practically the same East African countries. On p. 54 we find *Mycalesis dorothea* recorded from Sierra Leone and its var. *melusina* from the same place ; on p. 55 *Mycalesis golo* from Kamerun and the Congo, and var. *violascens* from the Congo. And similarly the "species" and their "vars." occur together, according to Aurivillius, in the case of *Mycalesis vulgaris* and var. *angulosa* and var. *tolosa* ; *Mycalesis nebulosa* and var. *agraphis* ; *Henotesia strigula* and var. *subsimilis* ; *Acraea acrita* and var. *charibula* ; *Acraea braesia* and var. *regalis* : *Charaxes tiridates* and var. *mixtus* ; *Appias isokani* and var. *dubia* (both from Mombasa only !) ; *Teracolus ione* and var. *phlegyas* ; etc., etc.

These "vars." can surely not be geographical varieties. Sometimes Aurivillius employs the term "var. geogr.," thus showing that "var." is not even for himself sufficiently precise. In fact, the term "var." is, as contended by ourselves, used by Aurivillius and others for all kinds of varieties (individual, seasonal, and geographical). This is the reason why we have dropped it altogether. We thought at first to replace "var." by "subsp." as a term for the geographical variety = subspecies, but felt convinced that the application of "subsp." would soon become as indiscriminate as that of "var.," and therefore decided otherwise. To emphasize also nomenclatorially the great distinction between the geographical

* *Jahrb. Nass. Ver. Nat.* lv. p. 121 (1902).

† *Rhopalocera Aethiopica* p. 25 ; in *Kongl. Sv. Nat. Ak. Handl.* xxxi. 5 (1898) (issued 1899).

and the non-geographical variety, we have adopted the convenient method of adding the name of the geographical variety to that of the species without putting "var.," or "var. geogr.," or "subsp." between the two names, exactly as in the case of genus and species. The formula for a species is *Papilio dardanus*. We are accustomed to this formula, knowing at once when seeing a similar formula (*Precis octavia*, *Amauris echeria*) that *Papilio* means a genus, and *dardanus* a species of this genus. Nobody will insist on *Papilio* spec. *dardanus*. The corresponding formula for the Abyssinian variety of *dardanus* is *dardanus antinorii*, the formula telling us at a glance that *dardanus* is a species and *antinorii* one of its geographical varieties. Why do some authors insist on the longer formula, *dardanus* var. *antinorii* or *dardanus* var. geogr. *antinorii*? There is no reason underlying the objection to *dardanus antinorii*— it is only habit. Some older writers on vertebrates object to "trinomials," and we see that Dr. Pagenstecher does the same. We can very well understand Ornithologists like Saunders, Dresser, Sharpe, etc., finding "trinomials" cumbersome, these authors having been accustomed only to names for genera and species. Habit is stronger than reason. However, that Sclater, one of the fathers of the science of geographical distribution, writes disparagingly of the study of geographical variation is a fact which is beyond our understanding. But we are yet more astonished that Entomologists, and above all Lepidopterists, make three names the basis of an objection. There are thousands and thousands of forms of insects with three names, and neither Pagenstecher nor Aurivillius have really any objection to these "trinomials," for they employ them. The formulae *Papilio dardanus* var. *antinorii* and *Papilio dardanus antinorii* are surely both trinominal. The second formula has, however, the great advantage of contrasting much more conspicuously with the formulae for non-geographical varieties, and it is the shorter of the two. If people will not see that, we cannot help them.

However, differences of opinion in nomenclatorial matters are, as such, of little importance. The names are not part of the natural history of the animals. But if the objection to progressive innovations in nomenclature tends to affect adversely the progress of science, it becomes dangerous. The danger to science is obvious enough in the following sentences of Dr. Pagenstecher, l.c.: "I am inclined to carry this simplification still further than it has been done by Aurivillius. For it is possible, without the confusing introduction of new and independent species-names (*sic!*), to fix the interesting varieties produced by soil and season. . . . The German scientific world appears indeed to intend remaining true to the old Linnean nomenclature. . . . It is to be hoped that the mania for erecting 'new' forms with new names will soon return into its proper limitations."

If German science is anything, it is thorough. If the German Lepidopterists really content themselves with the Linnean standpoint, as Dr. Pagenstecher says they appear to do, the German scientists will hardly be willing to recognise them as members of their fraternity. We well know that a good many collections of insects are brought together only for the sake of the pleasure it gives the owners to look over the beautiful or bizarre creations of Nature. We sympathise with these collectors, because we experience the same pleasure. We also know that there are still Entomologists who hate the "ugly" pieces of paper underneath the insects bearing the name of the locality and of the collector, and the date of capture, and who do not want to have the beauty of their specimens

spoiled in this way, leaving them, in the good old fashion of Linnean times, without indication of the special locality, etc., on which the modern stickler for accuracy lays so much stress. And we are again well aware that a great many species have been and are being baptised for the sake of the pleasure the authors derive from the baptism. We do not grudge them either the honour or the enjoyment; they are legitimate. But an author must not claim that to be the ultimate aim of systematic work, though it may remain, with honour, the Ultima Thule for many a describer of species. Every author may restrict his work as he likes, but he must not put this restriction on science. The extraneous barriers to the progress of science have fallen long ago. Members of the scientific world ought not to erect barriers again ; they should not try to push their own branch of science back into such narrow limits of thought and method of research as science could be content with in the second half of the eighteenth and the first half of the nineteenth century. Water and air are no longer "elements" in physics and chemistry. Describing conspicuously different species and putting them somehow together is no longer the sole object of systematists. Ask the scientist to leave off searching minutely and laboriously for all the components of the air ; tell him that it is quite sufficient to know that the air is composed of nitrogen, oxygen, and some carbonic acid. Perhaps he will answer that the knowledge which satisfied him when he was a schoolboy does not satisfy him now ; perhaps he will only laugh ; perhaps he will not even do that.

A systematist may narrow down *his* work to the standpoint of the older writers on classification and not go beyond describing and classifying what is different enough to be easily distinguished. We readily concede that. But we also see that this "conspicuist" is very much mistaken if he believes himself to be out of all difficulties. As soon as he attempts to be critical, he will get into a rare muddle. The non-recognition of non-conspicuous geographical varieties —these varieties being the thorn in the eyes of the conspicuists—carries with it the necessity of sinking as synonyms the names of all those non-conspicuous geographical varieties (= subspecies) which have been recognised by other authors, and consequently also the necessity of distinguishing between what is conspicuously different and what is not. Now, it is a matter of common knowledge that it is impossible to agree about what is and what is not conspicuous. If only one or a few specimens of two forms are at our disposal, the difference may appear slight, while it impresses itself more strongly on the eye if a long series is compared side by side. Differences in bright colours are more easily noticed than differences in sombre colours. To a trained eye a distinction will appear conspicuous for which an untrained eye looks in vain. An author who employs only the naked eye or at the highest a weak lens, and consequently sees many characters only very dimly, naturally does not perceive the distinctions hidden under the surface in the same bright light as the author who employs a stronger magnifying power. After swimming on the surface one should learn diving. A differential character grows in conspicuousness the longer an author works at the respective group of species—that is to say, the more familiar the author becomes with it. A small distinction, which is apparently quite insignificant, grows at once in the mind of the scientist to a conspicuous distinction, when discovered to be of high significance as a diagnostic character. A doctor who has little experience in ophthalmic matters

may pass over a quantitatively insignificant affection of an eye as being trifling ; while a good ophthalmist will at a glance pronounce this trifling affection to be the beginning of a very serious disease of the eye. In short, it does not require any special power of thought to perceive that the answer to the question "whether a difference is conspicuous enough" depends on each individual author. The answer is dependent on the person—*i.e.*, it is arbitrary ; and arbitrariness in scientific research is a vice not to be suffered. It is a degradation of systematic work against which we earnestly protest.

We can demonstrate a difference, and can show that it exists in all individuals from the respective district which are known to science. If we do so, we record only a fact in nature. Be the distinction easy or difficult to perceive, it is there. We are not the authors of the distinction. We have only demonstrated its existence, and we cannot accept any reproach for its demonstration, its occurrence, or its smallness ; the demonstration being our duty as scientists and the character having come into existence without our influence. The answer to the question "whether there is a difference" is always possible to be proved to be in the positive or in the negative. There is nothing arbitrary here.

Since the conspicuist can only arbitrarily decide which forms he will recognise and which not, it is obvious that one conspicuist will treat as synonymous what another will consider worthy of recognition, and that an author who trusts too implicitly the correctness of the synonymy as given by such conspicuists will redescribe as new the very same form which his guides have put down as synonymous. More frequent and of greater consequence is another danger to which the work of conspicuists is exposed. Being accustomed to putting together as identical what is not very distinct-looking, and to treating conspicuously different forms as specifically distinct, he will naturally constantly be deceived by similarities in species and dissimilarities in varieties. He will not be able to come by himself to a correct result in the case of distinct species which are difficult to distinguish in the ordinary way, and he will not find out for himself from the specimens which conspicuously different forms are specifically distinct, which are geographical races, and which are seasonal (or individual) varieties. Dr. Pagenstecher maintains that the interesting varieties produced by soil and season can be fixed without giving names to them. We maintain that they cannot, and that the "simplification" advocated by Dr. Pagenstecher tends to prevent an author from even perceiving the geographical differences and from distinguishing between conspicuous specific characters and non-specific characters in many cases.

Let us illustrate what we have here said by looking at the result of the "simplified" treatment of the Lepidoptera of Baron von Erlanger's expedition enumerated in the list quoted above.* There are three species of *Amauris* mentioned in that list :—

1. *Amauris niavius*.—"The form *dominicanus*, differing from the West African form *niavius* in the greater expanse of the white area of the hindwings, is severally represented; from Gerwidscha, 14. xii. 00. and especially from Mombasa 29. vii. 01."

We have not seen a Gerwidscha specimen, but knowing this place to be in the North-East African subregion we are practically certain that the Gerwidscha

* We are very sorry that we have to mention Dr. Pagenstecher's name so often ; but we do not see how we can present the case clearly to the reader without doing so, and without taking illustrations from Dr. Pagenstecher's paper in which we are personally blamed for our standpoint.

specimens do **not** differ from West African *niavius* in "the greater expanse of the white area of the hindwing," and that they are the same (new) form which is described in the present paper, differing conspicuously from *dominicanus* from Mombasa (and other places of East Africa).

2. *Amauris egialea.*—"Only one specimen from Gotala, 18. i. 01."

The butterflies and some moths collected during Baron von Erlanger's expedition are now in the Tring Museum, except the specimens which Dr. Pagenstecher kept for his collection. Among this material there is an *Amauris* dated 18. i. 01. and labelled by Dr. Pagenstecher *Amauris egialea*. This specimed is a geographical race of *Amauris hecate*, described by us below, and has nothing to do with *egialea*.

3. *Amauris echeria.*—"Some specimens from Galata, 13. xii. 00."

This is a very distinct North-East African subspecies described long ago as *Amauris streckeri*. It will be found in our list as *A. echeria streckeri*.

We mention further that the specimens identified by Dr. Pagenstecher as *Ipthima asterope* belong to several species, as could easily have been ascertained by referring to the Revision of the genus *Ipthima* by Elwes and Edwards ; that the North-East African specimens of *Precis terea* are **not** the "var. *elgiva*," but a special geographical variety (described in this paper) ; that *Precis trimeni* from Balta—we have not seen a specimen—is doubtless not *trimeni* but *simia*, namely the "wet phase" of *antilope*, which latter Pagenstecher enumerates as distinct species after *Precis trimeni* ; that *Precis cuama*, put down as a synonym of *antilope* in the list, is a distinct species ; that the specimens recorded as *Precis milonia* have nothing to do with that species ; that the specimens recorded of *Precis octavia* do not belong to the East African but to the West African geographical variety ; that *Salamis anacardii* and *parhassus* are distinct species ; that *Neptis saclava* from Madagascar and *Neptis marpessa* from East Africa are not identical ; that the specimen of *Papilio* from Mombasa recorded as *leonidas* is the very different *P. philonoë* ; etc., etc.

Butler made the suggestion that *Atella phalantha* and *columbina* are forms of one species ; without however giving any reasons for that assumption. Dr. Pagenstecher has accepted the suggestion as being founded on fact, and brings accordingly *columbina* as a synonym of *phalantha*. Now, *A. columbina* does not occur in the Oriental region, while *phalantha* does. When searching for characters possibly distinguishing the African from the Oriental *phalantha* we found at once that *columbina* had nothing to do with *phalantha*. The "mania" for separation had enabled us to disprove Butler's suggestion, while the "mania" for simplification has prevented Dr. Pagenstecher from recognising that *columbina* is distinct from *phalantha*, as well as from noticing that Aethiopian *phalantha* are different from Oriental *phalantha*.

A systematist who searches for minute distinctions is in a far safer position than the "lumper." Search for small differences means intensity and latitude of research. Being sceptical in regard to the apparent identity of individuals from zoogeographically different countries, he naturally turns from organ to organ in order to find the expected evidence for the individuals having been born under different skies. This latitude of study will enable the systematist very often to show that individuals which appear superficially to be practically identical are members of different species (as in *Ipthima*), and that specimens which appear to represent conspicuously different species are only varietal forms

of one (as in *Precis*). He will be able to come to a correct conclusion where the systematist of the old school is quite helpless.

This helplessness has very aptly been characterised by Prof. E. B. Poulton, when speaking of the seasonal phases of *Precis** : "The results [p. 458] which have been described and illustrated in this section of the present memoir are so startling that they may well shake the confidence of naturalists in the whole fabric of insect systematics. If such forms as [*Precis*] *natalensis* and *sesamus*, as *simia* and *antilope*, as *pelasgis* and *archesia*, are nothing but the generations of two alternating phases of a single species, approximately synchronised with the heat and cold or humidity and dryness of the alternating seasons, naturalists may feel driven to ask, 'What becomes of the validity of specific distinctions?' . . . Under the shock of Mr. Marshall's discovery that *sesamus* and *natalensis* are two forms of the same species, the systematist may well feel doubts about the foundations upon which his science has been erected." . . . [p. 490] "There is, however, nothing revolutionary or subversive in any of these interesting facts. The conventional marks of specific distinction remain just as they were, convenient indications to the systematist, enabling him provisionally to separate groups of individuals into assemblages we call species. When his work is done carefully subsequent breeding experiments will, we may be sure, confirm his conclusions in the majority of cases. But here and there startling exceptions will be found, when it is to the advantage of a species to appear in two or more very different forms." . . . [p. 460] : "There is nothing subversive in the thought that certain species exposed to different organic environments in two seasons of the year may appear as cryptic generations at one of these, aposematic or pseudaposematic at the other. The explanation is at any rate sufficiently probable to enable us to contemplate Mr. Marshall's wonderful discovery with equanimity and with an interest undisturbed by the thought that he has laid in ruins the whole edifice of insect systematics."

That is a low estimate of the results of systematic work, but a just one if applied to those Lepidopterists who are guided by the rule : "conspicuous external differences, two species ; no conspicuous external differences, one species." But if the estimate is meant to imply that the results of research in systematics must always remain as poor as those characterised, it is erroneous. The scope of systematic work is not so limited as there represented. Certainly, we read every now and again in works on Lepidoptera that the "species" of a certain genus can only be ascertained by breeding. We see that intergraduate specimens between "species" are got rid of by putting them down as hybrids, and that numerous forms are described as "var.?" "ab.?" "spec. dist.?" That this is so, is not the consequence of an inherent futility of systematics as such, but is to a large extent the fault of the respective systematists who did not employ the means at their disposal. If the authors interested in African Butterflies had worked on them in the same way as, for instance, Messrs. Godman and Salvin have done in the case of the Central American Butterflies, and Messrs. Elwes and Edwards in the case of various groups of Oriental and Holarctic Butterflies, the connection between the various supposed "species" of *Precis* would not have remained a secret for so long. Seasonal and non-seasonal dimorphism can easily be recognised by the examination of the genital armature of the Butterflies—at least in all those cases where the species

* *Trans. Ent. Soc. Lond.* 1902.

have something characteristical in these organs—a fact which is not difficult to ascertain by comparison with those allied species which have been proved to be distinct by their life-history. In the case of *Precis* there were the *Vanessa* and the seasonally dimorphic *Araschnia*, which could have served as guides. We said in 1896*: ". . . Most probably the artificially produced colour-varieties will be normal in the genital armature. To this conclusion we are led by the experience gained from the examination of seasonally dimorphic species. We paid special attention to the copulatory apparatus of such species, with the hope of finding in one or the other *Papilio* differences in the apparatus of the spring and summer brood (or broods), but completely failed to come across a species which, both in the wing-markings and in the sexual organs, showed seasonal dimorphism. . . . In the case of winter and summer forms it is therefore evident that the influences which bring about a change in the wings have no apparent effect on the sexual armature." . . . [p. 502] "If we apply this conclusion to the species of *Papilio* externally polymorphic, it is evident that the genital armature of *male* and *female* is an excellent criterion of specific identity. The various varieties of the *male* of *P. aegeus ormenus* from New Guinea, of *Troides priamus poseidon* from the same country, of *P. memnon*, and so on, many of which have been described as new species, are thus easily demonstrated to be specifically the same. Still more important is the application to the *female* sex. The numerous species with polymorphic *females*, which so often are quite unlike each other, as in the case of *P. memnon*, *P. aegeus ormenus*, *P. polytes*, and the African *P. phorcas* and *merope*, and some American species——an examination of the genital apparatus of a number of specimens will at once make it clear whether the forms in question belong certainly to one species, or whether they eventually can belong to more species."

Since then we have kept this subject in view during all our researches, and have in various places drawn attention to the fact that seasonal and individual dimorphism is **not** accompanied by differences in the sexual armature, while geographical varieties are in numerous cases distinguished by a more or less obvious peculiarity in the copulatory organs. We do not think that systematists who examine these structures will very often be deceived by polymorphism. On the contrary, the danger for them lies just in the opposite direction. They will be inclined to regard as varietal members of one species all those forms which do not exhibit distinctions in those organs. However, they will be wary if they know, as we know now, that there are many distinct species which are identical in the copulatory armature. The systematist need not stop at the examination of those structures. What prevents him from improving his methods of research in accordance with modern requirements, just as the methods in other branches of zoology have been improved? If the Lepidopterist cannot come to a satisfactory conclusion from the examination of the pattern, colour and shape of the wings, the neuration, the structure of the legs, mouth-parts, sexual armature, etc., he must learn to extend his research still further. The dry cabinet-specimens of insects do not present the complete organisation of the live individuals. But the Entomologist is at least in a better position than the student of bird- and mammal-skins, his specimens being more complete. He is even able to anticipate the observations on the early stages to a certain extent. The eggs are always at his disposal in the body of the *females*—lack of material, of course, puts a stop to all research, as does

* *Mechanical Selection* p. 499; in Nov. Zool. iii.

lack of time—and he may, moreover, find the young caterpillar, or at least its head, in those eggs which are situated in the oviduct. We cannot advise the Lepidopterist in the way Professor Poulton seems to do—namely, to go on separating species and varieties in the old way, and leave it to the observer of the life-history to correct the mistakes. The systematist can do more, although (as a matter of course) the observation of the life-history will always remain the *ultima ratio* also in systematic work. We must not forget that the sexes of many or most insects do not recognise one another by the distinguishing characters by which we are able to separate the species. There are specific characters beyond those, characters which are no more of a spiritual kind than the distinctions in pattern, organs of copulation, colour, etc. Are we debarred from hunting for them and discovering them? We must remember that the Helminthologist would scarcely look with satisfaction on worms preserved in the way of Lepidoptera; a papered specimen would hardly be of much good to him. The Entomologist need not absolutely stick to dried-up specimens.

The ideal here presented may be too lofty for many; but that is no reason why an admirer of the frail and beautiful children of Nature should not **try** to advance from the position of a distant amateur to that af an intimate amant.

The great drawback in systematic research is the frequent lack of adequate material. When working through the African species of *Precis* for the purposes of this paper, we had no difficulty in ascertaining that *Precis cuama* is the same species as *trimeni*, *pelarga* the same as *leodice*, that *pelargoides* is the "wet phase" of *sinuata*, that *antilope* (= *simia*) is distinct from *cuama* (= *trimeni*), that *milonia* is distinct from *sinuata* and the other forms which Aurivillius has treated as varieties of *milonia*, etc. But we have not been able to come to a definite conclusion about *Precis tugela*, *aurorina*, and *pyriformis*, from lack of material. If one wants to find out the extent of variation in a species, it is obviously necessary to possess the material which exhibits the variation. It is no more possible to determine the limits of variation of a species from a few specimens, than it is to study the characters of an individual from a piece of a wing. It was M. Charles Oberthür who more than twenty years ago remonstrated with Entomologists against the habit of restricting themselves to a small number of individuals of each species and variety, and who addressed to them an appeal for correct labelling with exact locality and date of capture. A large and well-labelled material is a necessary premiss for good systematic work; without it the systematist is constantly hampered in his labours. Judging from the materials offered to the Tring Museum from various sources on the Continent, there are still Entomologists, dealers, and their collectors in the Tropics who are unaware of the great importance of correct labelling. Frequent admonitions administered from various sides to this kind of suppliers has done much to improve this state of things, and it is to be hoped that also all the smaller collections will by-and-by come up in labelling to the standard of the more recent parts of the Hope Department of the Oxford Museum, and of the collection of M. Charles Oberthür, so that, when those small private collections ultimately come into some public institute, the material there accumulating will be worth preserving. We are specially pleased that Herr Oscar Neumann and Baron von Erlanger have been so careful in dating the Lepidoptera; indeed, we could hardly expect from such ardent students of geographical variation that they would be negligent in this point.

NYMPHALIDAE.

DANAINAE.

1. Danaida chrysippus.

Papilio Danaus chrysippus Linné, *Syst. Nat.* ed. x. p. 471. n. 81 (1758) (partim) (Egypt).
Euploea dorippus Klug, in Hempr. & Ehrenb., *Symb. Phys. Ins.* t. 48. f. 1–5 (1845).
Danaida chrysippus, Aurivillius, *Kongl. Sv. Vet. Ak. Handl.* xxxi. 5. p. 32. n. 1 (1899).
Danaida dorippus, id., *l.c.* n. 2 (1899).

As *D. chrysippus* and *dorippus* are connected by intermediate specimens (which are rare), and do not differ in structure, we consider them to be forms of the same species. However, it is very remarkable that *dorippus* is confined to Eastern Africa, S. Arabia, and Western India, while *chrysippus* is much more widely distributed. So far the two forms have not been bred from one another.

There are four forms, all contained in the Neumann collection.

(*a*). f. chrysippus.

Hindwing without white area.

In a ♀ from Madali the apex of the forewing, on the upperside, bears a large tawny patch outside the white band. Another specimen, a ♂ from the Senti River, has three dark tawny streaks in the apical area.

9 ♂♂, 16 ♀♀, from: Harar, 9. and 12. iv. 00; Kumbi, 6. vi. 00; Upper Bassijo R., Gindeberat, 24. ix. 00; Madali, Abai R., 1. x. 00; Lake Zuai, 24. xi. 00; north of Galana R., Lake Abbaia, 27. xii. 00; Lake Abbaia to Lake Gandjule, 4. i. 01; Mole R., 22. i. 01; Senti R., Gofa, 29. i. 01; Banka, Mala, 17. ii. 01; Alesa, Koteha, 24. ii. 01; Uma R., Konta, 1. iii. 01; Anderatscha, Kaffa, 9—19. iii. 01; Gelo R. to Akobo R., v. 01.

(*b*). f. alcippus.

Papilio Danaus Festivus alcippus Cramer, *Pap. Ex.* ii. p. 45. t. 127. f. E. F. (1777) (Sierra Leone).
Danaida chrysippus var. et. ab. *alcippus*, Aurivillius, *l.c.*

Hindwing with white area, which varies in extent.

The form with the hindwing more or less extended white is much rarer in East Africa than the previous form, while it is the ordinary form of West Africa. The East African *alcippus* are, on the whole, less extended white than west coast specimens.

4 ♂♂, 2 ♀♀, from: Wabbi, Abulcassim, 14. vii. 00; Upper Urga, Kollu, Schoa, 23. ix. 00; Upper Bassijo, Gindeberat, 24. ix. 00; Lake Abassi, 4. xii. 00; Detscha to Schubba, Konta, 18. iv. 01; Gelov R. to Akobo R., v. 01.

(*c*). f. dorippus.

Euploea dorippus Klug, *l.c.* text (1845).
Euploea dorippus var., id., *l.c.* f. 5 (1845).
Limnas klugi Butler, *Proc. Zool. Soc. Lond.* p. 758. n. 2 (1885) (Somaliland).
Danaida dorippus ab. *infumata* Aurivillius, *l.c.* p. 33 (1899).

Hindwing without white area.

Klug's name *dorippus* is based in the text on specimens with tawny hindwings, while on the plate the specimens with the hindwings partially white are named

dorippus. Since we must give the text preference to the plate, the name *dorippus* must be applied to the form without white.

26 ♂♂, 19 ♀♀, from: Bio Caboba, near Harar, 18. ii. 00; Artu, north of Harar, 22. ii. 00; Djildessa, north of Harar, 3. iii. 00; Harar, 3.—30. iv. 00; Abd-el-Kadr, south of Harar, 14. v. 00; Rufa, Nalloje, 31. v. 00; Mojo R., Atschubo, 2. vi. 00; Kumbi, 6. vi. 00; near Luku, 13. vi. 00; Odamuda to Djugi, Djidda, 20. vi. 00; Lake Zuai, 24. xi. 00; Lake Abassi, 4. xii. 00; Lake Abbaia to Lake Gandjule, 4. i. 01; Antote R., Male, 19. i. 01; Mole R., 22. i. 01; Banka to Omo, 18. ii. 01; Alesa, Kotscha, 23. 24. & 25. ii. 01; Uma R., Konta, 1. iii. 01.

(*d*). f. albinus.

Euploea dorippus var., Klug, *l.c.* text (1847).
Euploea dorippus, id., *l.c.* f. 1–4 (1847).
Danais dorippus ab. *albinus* Lanz, *Iris* ix. p. 130 (1896) (Tanganyika).
Danaida dorippus var. et ab. *albinus*, Aurivillius, *l.c.*

Hindwing with white area, which is variable in extent.

Some of the specimens (♂♂ and ♀♀) possess a white subapical macular band on the forewing, which is especially distinct on the underside. These spots occur also in *f. klugi* (see Poulton, *Trans. Ent. Soc. Lond.* 1902. t. 15. f. 1. 1a), being in some of our individuals quite plainly visible also above.

10 ♂♂, 4 ♀♀, from: Gara Mulata, near Harar, 21. iii. 00; Harar, 12. iv. 00; Atschabo to Kumbi, 4. vi. 00; Kumbi, 6. vi. 00; Jabolo, 14. vi. 00; Gololota, 18. vi. 00; Gillet Mts., 1900—2200 m., 4. vii. 00; Wabbi, Abulcassim, 14. vii 00; Lake Zuai, 24. xi. 00; Abera, Djamdjam, 16. xii. 00; Alesa, Kotscha, 24. ii. 01; Alesa to Schetie, Kotscha, 25. ii. 01; Anderatscha, Kaffa, 25. iii. 01.

Danaida chrysippus cannot be generically separated from the American *gilippus* and *berenice*, *Limnas* being a synonym pure and simple of *Tasitia*.

2. Danaida limniace petiverana.

Danais limniace var. *petiverana* Doubleday, Westw. & Hew., *Gen. Diurn. Lep.* i. p. 93. sub n. 31 (1847) (Africa).
Danaida limniace var. *petiverana*, Aurivillius, *l.c.* p. 33. n. 3 (1899); Pagenst., *Jahrb. Nass. Ver. Nat.* lv. p. 130. n. 3 (1902).

Aurivillius, *l.c.*, queries the validity of the name *petiverana*, considering it to be a nondescript. Though there is indeed no description given by Doubleday and Westwood, *l.c.*, the name must nevertheless stand, since the authors refer to their plate 12. fig. 1 as representing the "var. *petiverana*" from "Africa."

13 ♂♂ from: Mojo R., Atschubo, 2. vi. 00; Gololota, 18. vi. 00; Webbi, 8. vii. 00; Gardulla, 13. i. 01; Senti R., Gofa, 29. i. 01; Gamitscha to Anderatscha, Kaffa, 6. iii. 01; Anderatscha, Kaffa, 11.—19. iii. 01; Scheko, 25. iv. 01.

3. Danaida formosa neumanni.

Danaus formosa neumanni Rothschild, Nov. Zool. ix. p. 596. n. 4 (1902).

18 ♂♂, 1 ♀, from: Gillet Mts., 1900—2200 m., 4. vii. 00 (♀); Koritscha to Tomata, Dara R., 24. xii. 00; Wori to Gamitscha, Kaffa, 5. iii. 01; Anderatscha, Kaffa, 7.—19. iii. 01.

4. **Amauris niavius aethiops** subsp. nov.

(?) *Amauris niavius* var. *dominicanus*, Pagenstecher (*non* Trimen, 1879), *l.c.* p. 131. n. 1 (1902) (partim ; Gerwidscha).

♂♀. Similar to *A. niavius niavius*, but the white subapical band of the forewing distinctly narrower, the last patch of the band especially being shorter, leaving room for one or two separate white dots near the distal margin of the wing; the black (respectively brown-black) apical marginal band of the hindwing decidedly wider on the underside, the difference in width not being so obvious on the upperside.

Type : Anderatscha.

23 ♂♂, 1 ♀, from : Alata, Sidamo, 13. xii. 00 ; Uma R., Konta, 1. iii. 01 ; Wori to Gamitscha, Kaffa, 5. iii. 01 ; Gamitscha to Anderatscha, Kaffa, 6. iii. 01 ; Anderatscha, Kaffa, 11.—19. iii. 01 ; Detscha to Schubba, Kaffa, 11. iv. 01 ; Scheko, 27. iv. 01.

5. **Amauris ochleides darius** subsp. nov.

♂. Differs from *ochl. ochleides* in the submarginal and admarginal white dots being less numerous, especially on the upperside, and in the posteriorly less extended white area of the hindwing. From *ochl. bumilleri* it is distinguished, *inter alia*, by the cell-patch and the patch M^1—M^2 of the forewing being contiguous.

Type : Anderatscha.

31 ♂♂, from : Koritscha to Tomata, Dara R., Gudji, 24. xii. 00 ; Wori to Gamitscha, Kaffa, 5. iii. 01 ; Gamitscha to Anderatscha, Kaffa, 6. iii. 01 ; Anderatscha, Kaffa, 12.—19. iii. 01 ; Upper Gelo R., 4. v. 01.

The number of white admarginal and submarginal dots is very variable ; some specimens have as many such dots on the underside of the hindwing as are present in *ochleides ochleides*, and in one individual all the white dots found on the upperside of the hindwing of *ochl. ochleides* are at least indicated. The two subapical dots of the forewing are absent from the upperside in many individuals, sometimes also from the underside. The forewing is a little less elongate than in *ochl. bumilleri*.

We have a long series of *ochl. bumilleri*, obtained by Dr. Ansorge at the north end of Lake Nyassa. In one of these specimens the cell-patch and the patch M^1—M^2 of the forewing are contiguous, approaching in size the patches of *A. ochlea*. From this specimen *A. ochl. darius* differs by the median and the subapical bands of the forewing being narrower and the white area of the hindwing being smaller.

The "brand" is the same in *A. ochleides* and *A. ochlea*, the position of the spots and patches is also the same, and the sexual armature does not exhibit any difference. Possibly *A. ochlea* and *ochleides* are forms of the same species, *ochlea* being the insect inhabiting the coast districts, occurring inland as far as the north end of Lake Nyassa, *bumilleri* occupying the Tanganyika plateau, *darius* the southern districts of the Aethiopian Empire, and *ochleides* Erytrea and probably Abyssinia proper.

6. **Amauris hecate stictica** subspec. nov.

Amauris egialea, Pagenstecher, *l.c.* p. 131. n. 2 (1902) (Gotala, 18. i. 01).

♂. Much smaller than *hec. hecate*, the forewing less elongate, its outer margin less sinuate, the hindwing much more rotundate; the white patch in the cell of the forewing and patch M^1—M^2 smaller, the discal spots R^1—R^3 reduced to dots, the second often absent; the hindwing with more submarginal dots. On the underside the hindwing bears two series of dots near the margin, the outer series being mostly incomplete, consisting of tiny dots, while the inner series extends from SC^2 to SM^2 or to M^2, and is farther away from the margin than in *hec. hecate*; the white median costal spot of the hindwing is generally not followed by a second spot, but the base of cellule SC^2—R^2 is white in most specimens.

Length of forewing: 33 to 37 mm.

Type: Anderatscha.

31 ♂♂ from: Habela to Alata, Sidamo, 11. xii. 00; Koritscha to Tomata, Gudji, 24. xii. 00; Wori to Gamitscha, Kaffa, 5. iii. 01; Gamitscha to Anderatscha, Kaffa, 6. iii. 01; Anderatscha, Kaffa, 9.—19. iii. 01; Anderatscha to Godjeb, Kaffa, 24. iii. 01; Sobeko, 28. iv. 01.

Among Baron v. Erlanger's material there is a specimen of this insect (Gotala, 18. i. 01) labelled by Pagenstecher as *egialea*. This identification is rather wild.

7. **Amauris echeria streckeri.**

Amauris streckeri Kheil, *Berl. Ent. Zeitschr.* xxxiii. p. 393. fig. (1889) (Abyssinia).
Amauris echeria var. (ab. ?) *streckeri*, Aurivillius, *l.c.* p. 39. sub n. 15 (1899).
Amauris echeria, Pagenstecher, *l.c.* p. 131. n. 3 (1902) (Galata).

Apparently a common insect in the Aethiopian Empire. It is easily differentiated from *ech. jacksoni* and *ech. echeria* by the narrowness of the band of the hindwing, which is occasionally interrupted, and the more numerous admarginal and submarginal spots in both fore- and hindwing. The spots of the forewing are of the same colour as the band of the hindwing, not being white as apparently in all individuals of *echeria* from British East Africa and Uganda.

32 ♂♂ from: Lake Abassi, 4. xii. 00; Alata, Sidamo, 13. xii. 00; Koritscha to Tomata, 24. xii. 00; Wori to Gamitscha, Kaffa, 5. iii. 01; Gamitscha to Anderatscha, 6. iii. 01; Anderatscha, Kaffa, 9.—19. iii. 01.

Amauris albimaculata Butler, *Ann. Mag. N. H.* (4). xvi. p. 394 (1875), which Aurivillius (l.c.) treats as a geographical (*sic!*) variety of *echeria*, though both are widely distributed over Eastern Africa, is decidedly distinct from *echeria*. We doubt, however, that the insects commonly referred to as *albimaculata* are always this species, the true distinguishing characters apparently never having been pointed out. Aurivillius has already mentioned that the "brand" of the ♂ of *albimaculata* is much longer than that of *echeria*. This differential character holds good right through our very long series of *echeria* (and varieties) and of *albimaculata*. This distinction is accompanied by the following differences: in *echeria* the tenth tergite of the abdomen of the ♂ is slightly or not at all sinuate, while it is bilobate in *albimaculata*; the clasper of the ♂ of *echeria* is ventrally much more emarginate than in *albimaculata*, and the distal edge is more rounded. The underside of the abdomen is in **both** sexes of *albimaculata* as pale as the

median band of the hindwing or paler, becoming white at the base, while the underside of the abdomen of *echeria* is about as dark olive-black as the marginal area of the hindwing. The white spot on the second segment of the palpus is **always** long in **both** sexes of *albimaculata*, and **always** short in *echeria*. The spots of the forewing are white, but that is also the case in nearly all *echeria jacksoni* and the greater proportion of *echeria echeria*.

The specimens described by Butler as *Amauris harringtoni* belong to *albimaculata*.

NYMPHALINAE.

8. **Atella phalantha aethiopica** subspec. nov.

Trimen, in *S. Afr. Butt.* i. p. 192 (1887), points out some differences between the Oriental and African specimens of *phalantha*. He says: "In the Asiatic Region . . . the butterfly appears constantly to present on the upper side of the forewings the middle discal row of black spots, which in South African individuals is only completely shown on the underside; and in the same way they possess on the upper side of the hindwings two lines of disconnected short thin black lines before the discal row of spots corresponding in position to the streaks present on the under side." We have very long series of specimens from the Aethiopian and Oriental Regions, and are able to confirm Trimen's statement. We add to the distinctions given another which also holds good in all individuals: the bars in the basal half of the hindwing below are deep brown or black in the Oriental specimens and pale brown or ochraceous in African ones, the difference in colour being especially noticeable in the double bar situated at the end of the cell, if individuals of the same sex are compared. Specimens from the Malagasic Subregion, especially *females*, approach a little the Oriental individuals. The clasping organs of the *male* are practically alike in African and Indian examples, the sinus of the clasper being perhaps a little deeper and the lower lobe of the clasper slightly more spatulate in the Oriental specimens.

Type of aethiopica from the Gillet Mts., Somaliland, 1. July 1900 (Erlanger and Neumann).

West African specimens are on the whole heavier spotted than East African ones, the bars in the middle of the wings being more accentuated and therefore appearing more numerous.

Baron von Erlanger and O. Neumann found five ♂♂, three ♀♀ at: Harar, 30. iv. 00; Abd-el-Kadr, south of Harar, 11., 14. & 15. v. 00; Gillet Mts., 1900—2200 m., 29. vi. & 1. vii. 00; Wallenso, Gillet Mts., 2000 m., 9. vii. 00; Boko-Kore, Hanash River, 5. viii. 00.

O. Neumann captured only one ♂ of this common insect at the Mole River, 17. i. 01.

The individuals of *Atella phalantha* from the island of Sokotra captured by Messrs. Forbes and Grant, and recorded as *phalantha* by Mr. W. K. Ogilvie-Grant in Forbes, *Nat. Hist. Sokotra* p. 302 (1903), represent a very remarkable subspecies, being similar to dark Indian specimens on the upper- and pale African ones on the underside. We name it

Atella phalantha granti subspec. nov.

Black markings of the *upperside* heavy on both wings, the discal row of bars continued to SM^2 of hindwing, the median bars SC^2—R^2 of the same wing

distinct; the submarginal, crenate line heavy, slightly interrupted on the hindwing at R^3. *Underside* rather uniform in colour, purplish and ochraceous, the admarginal line obsolete on both wings, the submarginal one faint; bars of hindwing all ochraceous, not brown or black, postdiscal spots without black or brown centres; ochraceous discal line heavy, continuous; no whitish patches outside this line.

Hab.: Sokotra; 2 ♂♂ in the Tring Museum, a series of specimens in the British Museum.

Atella columbina.

Papilio Nymphalis Phaleratus columbina Cramer, *Pap. Ex.* iii. p. 76. t. 238. f.A.B. (1779) ("China, Coromandel," error loci).

Atella eurytis Doubleday, in Doubl., Westw. & Hew., *Gen. Diurn. Lep.* I. p. 167. t. 22. f. 3 (1848) (W. Africa).

Atella phalanta var., Trimen, *S. Afr. Butt.* ed. 1. p. 115 (1862); id., Kirby, *Cat. Diurn. Lep.* p. 154 n. 1. 1871 (partim); id., Butler, *Proc. Zool. Soc. Lond.* p. 53 (1898) (wet form = *columbina*, dry form = *phalantha* ! !); Pagenst., *l.c.* p. 137. n. 1 (1902) (partim).

Atella columbina, Trimen & Bowk., *S. Afr. Butt.* i. p. 193. n. 58 (1887).

Butler was quite wrong in maintaining that *A. phalantha* and *columbina* are forms of one species. The fact that *columbina* does not occur in the Oriental Region should have made him hesitate to publish a statement which was supported by no evidence whatever. The two insects are constantly different in structure and pattern. Some distinctions in colour were well pointed out by Trimen in 1887, *l.c.* We add that the median spots just behind the cell on the underside of the forewing are (as a rule) obsolete in *columbina* and distinct in *phalantha*, that the hindwing is more obviously produced at R^3 in *columbina*, and that in *phalantha* the cross-vein D^3 of the hindwing is just opposite M^1, while it is more proximal in *columbina*. The copulatory organs are very different in *phalantha* and *columbina*.

In the *males* of both species the clasper bears at the dorsal margin, close to the tenth (supra-anal) tergite, a very long, thin, tapering process, beset with bristles and tubercles. This process, which is doubtless of a sensory nature, being very thinly chitinised at the tip, is strongly elbowed in *phalantha*, and feebly and gradually curved in *columbina*. The apical margin of the clasper is obliquely and very shallowly sinuate below the filamentous process in *columbina*, and deeply sinuate in *phalantha*. Above the sinus the clasper of *phalantha* is produced into a short obtuse lobe, and below the sinus into another, much longer, lobe. In *columbina* the upper lobe is barely indicated, and the portion of the clasper below the sinus is only a little produced, being broad, obtuse, and slightly truncate. This broad, short lobe is armed at the lower corner with an acute tooth. The penis has a special armature within the sheath. The armature consists in *columbina* of an elongate swelling on each side, beset with short teeth-like tubercles. In *phalantha* the two swellings are enlarged, projecting from the sheath. The two together resemble somewhat a pair of feet of an armadillo with the backs turned towards each other, and beset all over the convex surface with long, strong, curved, claw-like teeth.

While the West African specimens of *columbina* are generally large, and bear large black postdiscal spots on the underside of the hindwing, the individuals from South and East Africa are small and have the postdiscal spots reduced in size. The specimens from Somaliland and the western districts of the Abyssinian Empire, for which we propose the name

9. **Atella columbina microps** subspec. nov.,

agree with the East and South African examples except in having the basal area of the upperside of the wings distinctly shaded over with olive. In the *female* this olive shade extends on the forewing from the base to the median series of spots, situated just outside the cell.

Type: ♂, from Walenso, Gillet Mts., 9. July 1900 (Erlanger & Neumann).

5 ♂♂, 4 ♀♀, from: Gillet Mts., 1. vii. 00; Walenso, Gillet Mts., 2000 m., 8. & 9. vii. 00; Gara-Daig, Abunas, 2500 m., 10. vii. 00; Tscheratscha to Goscho, Metscha, 17. ix. 00; Habela to Alata, Sidamo, 11. xii. 00.

10. Argynnis hyperbius neumanni.

Argynnis niphe, Oberthür (*non* Linné, 1767), *Ann. Mus. Civ. Genova* xv. p. 155. n. 23 (1879); id., *l.c.* xviii. p. 718. n. 26 (1883) (Shoa).

Argynnis hyperbius, Aurivillius (*non* Linné, 1763), *Kongl. Sv. Vet. Ak. Handl.* xxxi. 5. p. 127. (1899) (Abyssinia); Pagenst., *l.c.* p. 137 (1902) (Aethiopia; not different from Oriental specimens).

Argynnis hyperbius neumanni Rothschild, Nov. Zool. ix. p. 596 n. 5 (1903) (Kaffa; Schoa).

Mr. Moore removed *Argynnis hyperbius* (= *niphe*) from the other *Argynnis*, *Lep. Indica* iv. p. 230 (1900), keeping it in a separate genus, *Acidalia*, especially on account of the presence in *hyperbius* of androconial scales on the median and submedian veins of the forewing, and some differences in the outline of the wing. He quotes Nicéville's statement that the androconia are absent from the Ceylon form of *hyperbius*, but does not reject it, though he includes this Ceylon form as a distinct species in *Acidalia*. Our material shows that the presence of raised androconial scaling on the veins of the forewing is in this case decidedly not a character of generic value. The *males* from Continental (North and South) India have a distinct fold on the lower median vein, M^2, while this fold is absent from the specimens occurring in China, Formosa, Japan, Java, etc., the *males* from these countries being either practically without androconia on the veins or possessing only a limited number of such scales, which are, moreover, **not** raised. In the Abyssinian subspecies the streaks of androconia are just vestigial, the difference in this respect from South and North Indian specimens being very marked.

There is another structural character distinguishing *neumanni* from the Indian as well as the other Oriental forms of *hyperbius*. The dorsal portion of the clasper of *hyperbius* is produced into a horizontal process. The process is club-shaped, naked, and beset with small pointed tubercles. In *neumanni* this process is decidedly shorter than in the Oriental subspecies, being in the former a little shorter and in the latter longer than the lobe of the clasper lying beneath it. The rest of the clasper is divided by an apical sinus into a long and narrow upper and a short and broad ventral lobe. In *neumanni* the upper lobe is narrower and the lower one less denticulate than in the Oriental forms.

15 ♂♂, 6 ♀♀, from: Badattino to Abuje, Schoa, 28. ix. 00; Kollu to Kilbe, Schoa, 6. x. 00; Abela to Halata, Sidamo, 12. xii. 00; Abera, Djamdjam, 18.—23. xii. 00; Gamfa, Doko, 13. ii. 01; Naja to Banka, Malo, 14. ii. 01; Banka, Malo, 17. ii. 01; Anderatscha, Kaffa, 11. iii. 01; Detscha to Schubba, Kaffa, 11. iv. 01.

The species apparently does not occur in the mountainous districts of North Somaliland (Gillet Mts.), where a good many collections have come from.

The names of *hyperbius*, *niphe*, *argyrius*, and *tigris* apply all to Chinese specimens, and *tephnia* was proposed by Godart for Chinese and Indian *males*.

The first name given to a North Indian specimen alone is *aruna*, based upon an aberrant, melanistic individual by Moore in *Cat. Lep. Ins. Mus. E. I. Co.* i. p. 156. t. 3A. f. 4 (1857). The North Indian subspecies, distinguished in the ♂ from *A. hyperbius hyperbius* by the presence of a conspicuous androconial fold on M^2 of the forewing, has therefore to be referred to as :

A. hyperbius aruna.

Antanartia gen. nov.

Typus : *Papilio Nymphalis Phaleratus delius* Drury, *Illustr. Ex. Ins.* iii. p. 18. t. 14. f. 5. 6 (1782) (Sierra Leone).

The classification of the hairy-eyed Nymphalids allied to *Vanessa* is in an unsatisfactory state, the genera being largely based on one of the most unreliable characters—namely, the outline of the wings. As we know from *Precis* that the outline of the wings varies considerably within the limits of some of the species of that genus, one may *a priori* conclude that a difference in the shape of the wings in the allied Nymphalids can hardly be considered to be by itself of generic value. This is neither the place to give a revision of the genera allied to *Vanessa*, nor have we at present the time to compare all the known species thoroughly, as would be necessary for a satisfactory arrangement of these insects. But having here to enumerate three species of this relationship, we had either to accept as valid the general belief that two of them belonged to the American genus *Hypanartia*, and that the third, though similar in colour, was a member of the cosmopolitan genus *Pyrameis*, or to investigate ourselves the question of the generic position of *abyssinica*, *hippomene*, and *schaeneia*. The association of the last two species with a number of American Nymphalids in one genus *Hypanartia* has been brought forward again and again in memoirs on geographical distribution as evidence for a connection between the Aethiopian and Neotropical faunae, and hence as evidence for a former direct connection between the respective continents. A comparison of the Neotropical and African species of *Hypanartia*, however, proved to us at once not only that the supposed generic identity of these American and African insects was illusory, but also that the so-called African *Hypanartia* are less nearly related to the American ones than to the African "*Pyrameis*" *abyssinica*.

The American *Hypanartia* stand, in one very curious character, in contra-distinction to all (?) *Nymphalinae*, being in this character sharply separated at least from all allies of *Vanessa*. The ninth and tenth abdominal tergites of the *male* of Lepidoptera, as is well known, are not sharply separated from one another. They are generally strongly chitinised, and mesially produced into the supra-anal hook (which is either mesially divided or simple). The eighth tergite is normally truncate, not differing essentially from the preceding segments. In all the American *Hypanartia*, and here only, the eighth tergite is produced into a mesial hook. This hook lies above the supra-anal one (tenth tergite), concealing it from view. The peculiar structure has not been noticed before, as far as we know. Messrs. Godman & Salvin, in *Biol. Centr. Amer., Rhop.* i., simply state that the tegumen (*i.e.* the tenth tergite) of the *males* of *Hypanartia* is strongly developed.

The series of American species included in *Hyparnartia* fall in two natural groups, which may have the rank of genera, *lethe* and allies being characterised by

an open cell to the hindwing, and differing also in other respects from *dione* and allies, which have the cell closed.

In the African species, which we separate generically as *Antanartia*, no trace of the hook of the eighth abdominal segment is to be found. In fact, the copulatory organs are not of the same type as in *Hypanartia*. The third subcostal branch of the forewing stands, moreover, much farther from the cell than in *Hypanartia*, The cell of the hindwing is closed, the cross-vein standing distally of the point of origin of M^1, while it is placed opposite M^1 or proximally of it in *Hypanartia dione*, *kefersteini*, *lindigi*, etc.

11. Antanartia hippomene.

Hypanartia hippomene Hübner, *Samml. Ex. Schm.* ii. t. 25 (1816-24) (S. Afr.) ; Butler, *Proc. Zool. Soc. Lond.* p. 918. n. 17 (1900) ; Pagenst., *l.c.* p. 137 (1902).

Butler, *l.c.* p. 917. n. 16, remarks that *hippomene* and *schaeneia* have been said to be seasonal phases of one species. We do not know who besides Butler himself, *l.c.* 1895. p. 727, has put forward such a suggestion ; but it was certainly done without a careful examination of the insects. The two species, of which Pagenstecher (*l.c.*) has again pointed out the differences in colour and pattern, are very different in structure. The patch of modified scales situated on the underside of the forewing near the base along the hinder margin is in *schaeneia* restricted to the area behind the submedian vein SM^2, while in *hippomene* it extends beyond this vein. The club of the antenna is decidedly broader in *hippomene* than in *schaeneia*. The hindtibia is spinose on the back from middle to end in *hippomene*, while the tibia of *schaeneia* has no distinct dorsal spines. The sexual armature differs also conspicuously in the two insects. The clasper of *hippomene* is produced at the apex just above the middle into a long, sharply pointed, curved, strongly chitinised process, and is shallowly sinuate below this process ; on the inner surface there is a large oblique fold, which is widest towards the base of the process, and is here armed with several acute teeth ; along the ventral edge of the clasper, and partly covered by the fold just mentioned, there is the harpe, represented by a strongly chitinised, nearly straight process, which is armed at the end with conical, pointed, claw-like teeth. In the other species, *schaeneia*, the clasper is more complicated ; it is deeply sinuate at the end in the middle ; the upper lobe, which corresponds to the process of *hippomene*, is much shorter than this process, broader and less chitinised ; the lower portion of the clasper is again sinuate, a slender process below the middle being separated by a deep sinus from the most ventral, obtuse lobe ; on the inner surface the clasper bears a feebly chitinised, setiferous, slender process instead of the dentate fold of *hippomene*, and the harpe is much longer, projecting beyond the apex of the clasper, being produced into a long slender point. The vaginal aperture of *schaeneia* is situated on a conical projection of the apical margin of the seventh sternite; this cone is smooth, and is separated from the seventh sternite by a transverse groove. In *hippomene* the projection is very short, and bears on the surface a horseshoe-shaped impression. The egg of *schaeneia* is much shorter than that of *hippomene*, and bears 10 carinae, while that of *hippomene* has only 9.

The Abyssinian specimens of *hippomene* are all short-tailed, but do not present any constant difference from East and South African ones.

9 ♂♂, 1 ♀, from : Kollu, Schoa, 21. ix. 00 ; Badattino, Gindeberat, 4. x. 00 ; Abera, Djamdjam, 16—18. xii. 00 ; Dereta Mts., Kaffa, 2. iii. 01.

12. **Antanartia schaeneia diluta** subsp. nov.

Vanessa schoeneia, Oberthür (*non* Trimen, 1879), *Ann. Mus. Civ. Gen.* xviii. p. 723. n. 46. t. 9. f. 1. ♂, 2. ♀ (1883) (Schoa).
Hypanartia schaeneia, Aurivillius, *l.c.* p. 129. n. 2 (1899).
Hypanartia schoeneia, Pagenstecher, *l.c.* p. 138. n. 2 (1902).

♂. The orange band of the forewing on the upper- and underside obviously paler than in East and South African specimens ; the orange border to the hindwing also paler and narrower, and including more or less conspicuous black or brown admarginal bars.

♀. The band of the forewing dirty white, faintly washed with yellow, especially behind, narrower than in *schaen. schaeneia*. The marginal band to the hindwing obscured in front and behind by brown scaling, narrow, buffish yellow, with heavy brown bars.

Type from Kaffa, 6. iii. 01.

7 ♂♂, 1 ♀ from : Badattino to Abuje, Schoa, 28. ix. 00; Alata, Sidamo, 13. xii. 00; Dereta Mts., Kaffa, 2. iii. 01; Gamitscha to Anderatscha, Kaffa, 6. iii. 01 ; Kankati to Djibbe, Djimma, 26. iii. 01.

The ♀ in Baron von Erlanger's material from Djamdjam and the one figured by Oberthür have also a whitish band. This distinction holds, doubtless, good in all ♀♀ from Abyssinia.

13. **Antanartia abyssinica.**

Pyrameis abyssinica Felder, *Reise Novara. Lep.* p. 397. n. 589 (1867) (Abyssinia).
Vanessa abyssinica, Oberthür, *Ann. Mus. Civ. Gen.* xviii. p. 722. n. 45. t. 9. f. 5 (1883).

4 ♂♂, 3 ♀♀ from : Gara Daij, Abunass, 2500—2800 m., 10. vii. 00; Djaffa Mts., 2750 m., 21. viii. 00; Badattino, Schoa, 27. ix. 00; Lake Zuai, 21. xi. 00; Habela to Alata, Sidamo, 12. xii. 00; Abera, Djamdjam, 21. xii. 00.

The cross-vein D^3 of the hindwing is more distal than in the other species. The patch of modified scales on the underside of the forewing extends beyond SM^2, as it does in *hippomene*, while it is limited by that vein in *delius* and *schaeneia*. The mid- and hindtibiae are spinose on the back. The paronychium of the claw-segment leads over to that of *Pyrameis (?) cardui*, the lower lobe being reduced in length. The clasper of the ♂ is divided by an apical sinus into a broad upper and a narrow and pointed lower lobe. The harpe is as strongly chitinised as in the previous species ; it is forked at the end. The fifth tarsal segment bears in this species and the previous ones only two rows of spines beneath, the lateral ventral rows being represented by hairs; in *delius* (which is West African) the lateral spines are partly well developed. *A. delius* differs, moreover, from its congeners in the hairs of the lower and hinder parts of the eye being shorter.

14. **Pyrameis (?) cardui.**

Papilio Nymphalis cardui Linné, *Syst. Nat.* ed. x. p. 475. n. 107 (1758) (Europe ; Africa).

The *type* of *Pyrameis* is *atalanta*. The present species differs from *atalanta*, *indica*, etc., especially in the structure of the claw-segment of the mid- and hindtarsi. The paronychium has on each side only one lobe, which is very long and slender, and is devoid of a distinct fringe ; the ventral lobe is completely obliterated. The claw itself is slenderer and far less curved than in *atalanta*

and allies, *Vanessa*, *Antanartia*, etc. The pulvillus is reduced. In *P. carye* and *virginiensis* the claw-segment is similar in structure, but the paronychium is distinctly fringed and the claw is a little more curved, the pulvillus being, moreover, less reduced. The tenth abdominal tergite of the ♂ is simple in *cardui* and allies, deeply sinuate in *atalanta*. The cell of the hindwing is closed (Schatz erroneously represents that of *Vanessa polychloros* as open, in *Fam. & Gatt. Tagf.* t. 16).

6 ♂♂, 2 ♀♀ from: Harar, 28 & 30. iv. 00; Ganda Amuma to Ganda Koro, Argobba, 19. v. 00; Djidda to Oborussa, 2800 m., 21. vii. 00; Managascha, Schoa, 15. ix. 00; Tschalleba, Schoa, 16. xi. 00; Tuksuki River, 28. xi. 00; Habela to Alata, Sidamo, 12. xii. 00.

Many of the species of the genus *Precis* have been nuts too hard to crack for the systematists of the old school. Since we have had to work through it in order to identify the species contained among Oscar Neumann's material, we have thought it advisable to publish the result of this research here. The genus is well worth a monograph.

15. Precis orithya madagascariensis.

Junonia orythia var. *madagascariensis* Guenée, in Vins., *Voy. Madag., Ins.* p. 37 (1865) (Madagascar).
Precis orithya var. *madagascariensis*, Aurivillius, *l.c.* p. 135. n. 1 (1899); Pagenst., *l.c.* p. 139. n. 1. (1902).

5 ♂♂ from: Harar, 3. & 28. iv. 00; Luku, Sheikh Hussein, 21. vi. 00; Akaki, Schoa, 12. viii. 00; Schoa, 17. xi. 00.

In one of the Harar specimens the upper ocellus of the hindwing is absent, and the posterior one reduced to a small black spot; in the Luku example the upper ocellus of the right hindwing is small and black, while that of the left hindwing has developed to a large black patch. A ♂ from Bogos (Hausal) in the Felder collection is distinguished by the absence of orange spots in the cell of the forewing on the upperside, and by the enlargement of the upper ocellus of the hindwing, this ocellus being almost twice the size of the posterior one on both hindwings and nearly quite black. The individuals from Abyssinia and Somaliland have less extended orange markings in the basal half of the underside of the forewing than the specimens from other places of Africa.

16. Precis clelia clelia.

Papilio Nymphalis Gemmatus clelia Cramer, *Pap. Ex.* i. p. 33. t. 21. f. E.F. (1775) (W. Africa).
Precis clelia, Aurivillius, *l.c.* n. 2 (1899); Pagenst., *l.c.* n. 2 (1902).

7 ♂♂, 2 ♀♀ from: Harar, 3. & 28. iv. 00; Ganda Amuma to Ganda Koro, Argobba, 19. v. 00; Ganda Koro, Argobba, 20. v. 00; Zuai Lake, 24. xi. 00; Banka to Omo, 18. ii. 01; Dalba to Umu R., Konte, 28. ii. 01; Gelo R. to Akobo R., v. 01.

The specimens do not differ from other African ones. The ocelli of the upperside of the hindwing are sometimes obliterated.

The blue patch on the upperside of the hindwing is in the ♀ of *clelia* of a more purplish tint than in the ♂, and disappears sometimes almost completely. This happens not only in Madagascar specimens, but also in continental African ones. The individuals from Madagascar (*P. clelia epiclelia*) have in both sexes

larger orange markings in the basal half of the underside of the forewing than the continental specimens. A ♀ from Aburi, Gold Coast, in the Tring Museum, is albinistic, being grey shaded with brown.

17. Precis oenone crebrene.

Junonia crebrene Trimen, *Trans. Ent. Soc. Lond.* p. 353 (1870) (S. Afr.).
Precis oenone var. *crebrene*, Aurivillius, *l.c.* p. 135. n. 3 (1899) ; Pagenst., *l.c.* p. 140. n. 3 (1902).

3 ♂♂, 6 ♀♀ from : Jeldabel to Daba-ass, 20. ii. 00 ; Ardu, north of Harar, 2. iii. 00 ; Lake Haramaya, north of Harar, 17. iii. 00 ; Harar, 3. & 17. iv. 00 ; Mole R., 21. i. 01.

This insect is an inhabitant of South and East Africa, occurring in West Africa only in the more open parts of the Hinterland of Sierra Leone, Gold Coast, etc., not in the West African Forest Region proper.

The blue patch on the hindwing is vestigial in some of our ♀♀ (Bogos, Abyssinia ; and East Africa).

18. Precis westermanni.

Junonia westermanni, Westwood, *Ent. Mo. Mag.* vi. p. 278 (1870) (W. Afr.).
Precis westermanni, Aurivillius, *l.c.* p. 136. n. 5 (1899).

An essentially West African insect, occurring from the Gold Coast to Angola, eastwards to the western districts of the Abyssinian Empire, and to British East Africa, being apparently absent from Somaliland, Abyssinia proper, and the coast regions of East Africa. The individuals obtained by O. Neumann—Baron von Erlanger did not meet with the species—agree best with specimens from British East Africa. We can distinguish three subspecies, a West African one, an East African one, and a north-eastern one, connected in characters by the individuals known to us from the regions between the Congo Free State and the Eldoma Ravine.

In the West African ♂♂, the orange patch on the upperside of the forewing does not extend to the base of M^1 and stops anteriorly at R^1 in nearly every individual ; there is only one vestigial subapical spot, seldom two, often none ; the black markings in the middle of the underside of the hindwing are heavy and the black submarginal dots comparatively large. In the ♀♀ the light (indistinct) markings in the apical third or half of the upperside of the forewing are much paler than the reddish spaces of the proximal area, being whitish ; the underside of the same wing is also whitish in the distal half ; the black submarginal dots of the hindwing are large.

The specimens of our series from Unyoro and Uganda (Dr. Ansorge) are on an average smaller than the West African ones ; most of them possess two subapical spots on the forewing, some three or even four ; the orange patch of the same wing is slightly wider at M^1, reaching the base of this vein (or close to it) ; the patch is sinuate proximally at the apex of the cell and extends beyond R^1 ; the underside is either as heavily marked as in West African specimens, or the black bars and spots have become reduced and partly obliterated. The *females* agree rather closely with West African ones, or the upperside is nearly entirely orange-red, the black colour being reduced and the pale spaces in the distal half of the forewing being of the same colour as the basal and posterior areas of the wing. In these latter specimens the underside is also more uniform in colour than in the tricolorous ones.

The specimens from the Nandi country, collected by Dr. Ansorge at Rau, agree with smaller individuals from Uganda, and come also very close to the individuals from British East Africa, east of the Ravine.

The subspecies from British East Africa, which we name

P. westermanni suffusa subspec. nov.,

type from the Kikuyu Escarpment, is distinguished by the following characters:

♂. Size small; orange patch of forewing, above, broader and longer than in *west. westermanni*, reaching to $SC^{4,5}$ and close to the base of M^1; two or three buffish subapical dots; markings of underside of hindwing obsolescent, the submarginal dots very small, or partly absent, the wing much dusted over with brown, appearing freckled.

♀. Decidedly paler than the individuals from the countries lying farther west. Two forms, one buffish, the other orange, in both the pale spaces of the apical half of the forewing above essentially of the same colour as the disc of the hindwing. Underside of hindwing nearly uniform in colour, freckled, the markings absent or obsolescent.

11 ♂♂, 7 ♀♀ from: Kikuyu Escarpment, ix. x. 1900 (dry season), i. 01, iii. iv. 01 (wet season) (W. Doherty); Kikuyu, iv. 1894 (Dr. Ansorge).

The six individuals from Western Abyssinia, collected by O. Neumann, differ again from *suffusa* in some details. We abstain from naming this north-eastern subspecies, since we have no ♀♀ from that region.

These ♂♂ have the fringe of both wings more or less extended pale, as is the case in some of our specimens from the Nandi country. The subapical dots of the forewing, one or two in number, are nearly white. The markings on the underside of the hindwing are rather more distinct than in *suffusa* from Kikuyu, but are widened and washed out, and the pale discal area which extends from the abdominal margin to R^2 contrasts strongly with the median and costal areas; the submarginal dots are on the whole better marked than in true *suffusa*.

6 ♂♂ from: Koritscha to Tomata, Dara R., Godji, 24. xii. 00; Kankati to Djibbe, Djimma, 26. iii. 01; Godjeb to Bongo, Kaffa, 4. iv. 01; Scheko, 25. iv. 01.

19. Precis sophia infracta.

Junonia infracta Butler, *Proc. Zool. Soc. Lond.* p. 63. n. 33 (1888) (Tobbo ♂; Taveta ♀).
Precis sophia var. *infracta*, Aurivillius, *l.c.* p. 136. n. 6 (1899); Pagenst., *l.c.* p. 140. n. 4 (1902).

The black line extending in *sophia sophia* from the lower angle of the cell of the forewing obliquely backwards is said to be absent from *sophia infracta*. This distinction, however, does not hold good in all specimens, the line being as heavily marked in some of the East African examples as in West African ones.

P. sophia sophia occurs from Sierra Leone to Angola and the Aruwimi Forest. Specimens from Toru and the neighbouring districts of the Congo Free State are intermediate between *infracta* and *sophia*, possessing the oblique discal line on the forewing as in *sophia sophia*, while the pale admarginal linear interspace on the underside of the hindwing is as narrow as in *sophia infracta*.

In *sophia sophia* the sexes are similar in colour, the ground of the wing being as a rule of an orange colour. White specimens are decidedly rare in West Africa. We possess only one ♂, from Bopoto, Upper Congo, of which the ground-

colour can be said to be white ; some other ♂♂, from Warri, Niger, are also paler than usual, but not white.

In *infracta* the proportion between white and orange specimens is quite different. We have *infracta* from Unyoro, Uganda, Nandi country, Eldoma Ravine, Abyssinia, Kondeland (north of Lake Nyassa), and Natal. Doherty did not find the species at the Kikuyu Escarpment, nor did Dr. Ansorge meet with it in Kikuyu and the eastern parts of British East Africa; it occurs, however, in Usambara, according to Baumann, and at the Kilimandjaro. Of 38 ♂♂ and 17 ♀♀, no less than 21 ♂♂ and 8 ♀♀ are white or nearly so—that is to say, about half the number of specimens of *infracta* belong to the white form. In this form which is not seasonal, occurring with the orange form during the rainy and the dry seasons, the brown and black colours are intensified. This is especially noticeable in the ♀♀, the white ♀♀ resembling the ♂♂ rather closely, while in the orange ♀♀ the orange colour is, as a rule, much more extended than in the orange ♂♂.

The Abyssinian specimens are not different from the variable *infracta*. O. Neumann found 6 ♂♂ and 4 ♀♀ at : Tschoratscha, Goscho, Metscha, 17. ix. 00 ; Abuje, Schoa, 29. ix. 00 ; Lake Abassi, 7. & 9. xii. 00 ; Alata, Sidamo, 13. xii. 00 ; Djala, Gofa, 31. i. 01 ; Kankati to Djibbe, Djimma, 26. iii. 01.

20. **Precis octavia octavia.**

Papilio Nymphalis Phaleratus octavia Cramer, *Pap. Ex.* ii. p. 60. t. 135. f. B. C. (1777) (Sierra Leone).
Precis octavia, Aurivillius, *l.c.* p. 136. n. 7 (1899) ; Pagenst., *l.c.* p. 140 n. 5 (1902) (syn. partim).

The Abyssinian and Somaliland specimens agree with the West African subspecies, not with the South and East African one. Angola is inhabited by the latter, while in the Congo basin the West African subspecies occurs. The blue and the orange-red forms occur both in the dry and wet seasons. The two forms are structurally identical, while they differ considerably from their allies in both sexes not only in the sexual armature but also in other organs, the last segment of the mid- and hindtarsi, for instance, bearing four ventral rows of spines instead of two, the ventro-lateral spines not being all reduced to hairs, as is the case in most other *Precis*.

5 ♂♂, 3 ♀♀ from : Abd-el-Kadr, south of Harar, 15. v. 00 ; Odamuda to Djugi, Djidda, 20. vi. 00 ; Suksuki R., 28. xi. 00 ; Lake Abassi, 4. xii. 00 ; Anderatscha, Kaffa, 12.—19. iii. 01.

Our specimens from Angola (Rivers Bolombo, Calweha and Cubal) belong to the South and East African subspecies *P. octavia sesamus*. As *sesamus* is the first name given to specimens of the South and East African geographical variety, it is the name for it, not *natalensis*, which is of a much later date.

21. **Precis ceryne ceryne.**

Salamis ceryne Boisduval, in Deleg., *Voy. Afr. Austr.* p. 592. n. 68 (1847) (Zululand).
Salamis tukuoa Wallengren, *K. Sv. Vet. Ak. Handl.* (2). ii. 4. p. 25. n. 6 (1857) (Natal).
" *Precis ceryne*, Boisd. = *P. tukuoa*, Wallg.," Marshall, *Trans. Ent. Soc. Lond.* p. 559 (1896).
Precis tukuoa, Aurivillius, *l.c.* p. 138. n. 11 (1899) (= *ceryne*?).
Precis ceryne, Pagenstecher, *l.c.* p. 141. n. 8 (1902).

Since *ceryne* and *tukuoa* agree perfectly in structure, there can be no doubt that they are forms of the same species.

The two Abyssinian specimens collected by O. Neumann, and the two which are among the duplicates of Baron von Erlanger's material, belong to the form *tukuoa*. They agree fairly well with certain Angola individuals in approaching, on the upperside, a little the form *ceryne*, the discal band of the forewing being proximally paler than distally. We have both f. *tukuoa* and f. *ceryne* from various places in Eastern Africa and Angola, and f. *ceryne* from Uganda.

The individuals of this species from the Niger (and probably also those recorded from Kamerun (see Aurivillius, *l.c.*) are different from the southern and eastern specimens, belonging to a distinct subspecies, for which we propose the name

P. ceryne ceruana subsp. nov.

♂ ♀. Similar to *ceryne* f. *ceryne*, but the distal border to the underside of the wings much darker. The proximal black lunules of this border continuous, and the bars situated between this black line and the black edge of the wings also black or deep brown.—The form corresponding to f. *tukuoa* is not known to us.

Hab. Niger: Lokoja, March to May 1896 (Dr. Cook), *type;* Akassa to Onitscha (Dr. Cook).

7 ♂♂, 2 ♀♀.

22. Precis antilope.

Salamis antilope Feisthamel, *Ann. Soc. Ent. France* p. 250. n. 4 (1850) (Cazamance).
Salamis simia Wallengren, *l.c.* p. 26 (1857) (Natal).
Precis simia, Aurivillius, *l.c.* p. 137. n. 8 (1899).
Precis antilope, id., *l.c.* p. 138. n. 10 (1899) (partim); Pagenst., *l.c.* p. 141. n. 7 (1902) (syn. partim).
Precis antilope, Marshall, *Trans. Ent. Soc. Lond.* p. 418 (1902) (*antilope* = dry phase, *simia* = wet phase).

We have dissected a series of specimens of both forms *simia* and *antilope*. They agree perfectly. Marshall has proved the specific identity by breeding one from the other.

The species does not occur in the West African Forest Region proper; but it is found in the Hinterland of the Gold Coast and Sierra Leone and in Senegambia, and in the south again in Angola. These western individuals do not present any constant differences from Eastern ones.

Four ♂♂ of f. *antilope* from: Gurgura to Gololota, 17. vi. 00; Madali, Abai R., 1. x. 00; Uba R., 27. i. 01.

The f. *simia* was not met with, but we have a specimen of it from Sheikh Hussein, 1. x. 94 (Donaldson Smith). Pagenstecher, *l.c.*, records *trimeni* from Balta. This "*trimeni*" may be f. *simia*.

Aurivillius, *l.c.*, regards *cuama* as a form of *antilope*, gives *simia* as a distinct species, and puts *trimeni* down as doubtfully distinct from *simia*. Marshall, *l.c.* p. 419, is of opinion that *trimeni* and *cuama* are not distinct from *antilope* (= *simia*). Our own research shows that *trimeni* is structurally the same as *cuama*, and that both are constantly different in both sexes from *antilope* (= *simia*). They are together a species distinct from *antilope* (= *simia*), *trimeni* being the "wet phase" and *cuama* the "dry phase." The differences in colour and pattern between the corresponding forms of *P. antilope* and *P. cuama* are not very conspicuous, but nevertheless easily perceived if specimens of both species are compared side by side. The copulatory apparatus of the ♂ of *P. cuama* is recognisable at a

glance, the lower lobe of the clasper being produced upwards into a broad black triangular tooth, while the corresponding lobe of *antilope* is very short and obtuse; the upper process of the clasper as well as the other parts of the copulatory appendages are also different in the two insects. In the ♀ of *cuama* (= *trimeni*) the eighth abdominal sternite is smooth and bears at the base a large vaginal tubercle, which is slightly sinuate at the apex. The eighth sternite of the ♀ of *antilope* (= *simia*) is densely scaled, subcarinate mesially, and has only the rudiment of a vaginal tubercle at the base. *P. cuama* appears to be confined to the eastern side of the Continent; we have it from Nyassaland, German and British East Africa.

23. Precis pelarga.

Papilio Nymphalis Phaleratus pelarga Fabricius, *Syst. Ent.* p. 512. n. 292 (1775) ("Brasilia; Mus. Banks").
Papilio Nymphalis Phaleratus leodice Cramer, *Pap. Ex.* ii. p. 64. t. 138. f. 8. 11 (1797) (W. Africa).
Precis pelarga, Aurivillius, *l.c.* p. 138. n. 13 (1899).
Precis leodice, id., *l.c.* n. 14 (1899).

In this species again there are two conspicuously different forms, hitherto considered to be distinct species, except by some of the old writers. Cramer's *leodice* is the cryptic form and *pelarga* the "wet phase" of the same species. The ♀ of f. *leodice* has the band of the upperside of the wings more or less extendedly shaded with blue. In the f. *pelarga* the sexes are nearly similar to each other in colour, the band of the ♂ being as a rule paler than that of the ♀. *P. pelarga* occurs from the Senegal to Angola, its range extending eastwards to Uganda and Abyssinia.

O. Neumann procured two ♂♂ of f. *leodice* at Kollu-Kilbe, Schoa, 6. x. 00. In one of them the band of the forewing is narrow and is interrupted behind R^3; on the underside the basal half of the wings and the distal marginal area are shaded with bluish white, contrasting strongly with a tawny olive elongate-triangular discal space.

Closely allied with *P. pelarga* is an essentially East African insect which we possess from British and German East Africa, Nyassaland, and Angola in two forms corresponding to f. *pelarga* and f. *leodice* of *P. pelarga*. This is

Precis actia { f. *actia* = "dry phase"; f. *furcata* nov. = "wet phase."

In *P. actia* f. *actia* both sexes have the band on the upperside of the wings more or less shaded with blue. The "wet" form has apparently escaped being named, being generally considered to be *pelarga*. This "wet" form, for which we propose the name

furcata (*type*: ♂ from Dar-es-Salaam),

is distinguished by the postdiscal costal branch of the band of the upperside of the forewing being better expressed than in *P. pelarga* f. *pelarga*, this postdiscal branch being, especially in the ♀ of *furcata*, clearly marked. Moreover, the black dots within the band are less close to the distal edge of the band, the bluish-white bars near the distal margin on the upperside of the wings are longer, and the distal marginal area of the underside is deeper black. In the ♀ the band of

the upperside is bluish white proximally, while in *P. pelarga* f. *pelarga* the band is rather deeper orange in the ♀ than in the ♂.

In both forms of *Precis actia* the upper lobe of the clasper of the ♂ is armed at the end with several spikelike teeth ; in *P. pelarga* the lobe is divided at the end only into two long teeth.

24. Precis pyriformis.

Junonia pyriformis Butler, *Proc. Zool. Soc. Lond.* 1895. p. 726. n. 20. t. 42. f. 5. 6 (♂) (1896) (Ruwenzori).
Precis milonia var. ? (ab. ?) *pyriformis*, Aurivillius, *l.c.* p. 139. sub n. 16 (1899).
Precis milonia, Pagenstecher, *l.c.* p. 141. n. 9 (1902).

We have a long series of a *Precis* from British East Africa which in the ♂ agrees with *pyriformis*. The ♀♀ have a much paler band to the upperside of the wings than the ♀ described by Butler, *l.c.*, agreeing in colour with the ♀♀ of *aurorina* of the same author. We think it quite possible that *pyriformis* is only the tropical subspecies of *P. tugela*. We have unfortunately only a few specimens of *tugela*, and therefore do not know how far the differences distinguishing it from *pyriformis* hold good. The difference in the sexual armature is minute and perhaps not constant. The length of the hook of the forewing is variable in *tugela* as well as *pyriformis*.

P. aurorina Butler, *l.c.* 1893. p. 651. n. 35. t. 60. f. 3. (♂) 1894) (Nyassaland) may be the "wet phase" of *tugela*. We have no adequate material for entering into the question.

The specimens obtained by Oscar Neumann agree with our East African ones. There are 14 ♂♂, 2 ♀♀ from : Lake Abassi, 4. xii. 00 ; Naja to Banka, Malo, 14. ii. 01 ; Banka, Malo, 17. ii. 01 ; Dereta Mts., Kaffa, 2. iii. 01 ; Wari to Gamitscha, Kaffa, 5. iii. 01 ; Kankati to Djibbe, Djimma, 26. iii. 01 ; Detscha to Schubba, Kaffa, 11. iv. 01.

Aurivillius, *l.c.*, unites under *Precis milonia*, besides *pyriformis* at least four more species : namely, (1) *milonia* ; (2) *aurorina* = ? *tugela* ; (3) *rauana* ; (4) *sinuata* = *pelargoides*.

Precis milonia.

Precis milonia Felder, *Reise Novara, Lep.* p. 403. n. 603 (1867) (Old Calabar).
Junonia kowara Ward, *Ent. Mo. Mag.* viii. p. 82 (1871) (Old Calabar ; Kamerun).

This species is one of the rarer ones. We have 5 ♂♂ and 2 ♀♀ from : Old Calabar ; Bipindi, Kamerun, December 1899 ; Gaboon ; Aruwimi Forest, three and four days' march from Fort Beni, Congo Free State, 7. & 8. v. 1899 (Dr. Ansorge).

Both sexes are broad-winged, resembling the ♀ of *P. sinuata* f. *sinuata*, but the band on the upperside of the wings is deeper in tint. The pale lines in the black border to the upperside of the hindwing are rather broad, especially in the ♀. The sexual armature is very distinct. In the ♂ the tenth tergite of the abdomen is long, triangular, compressed distally, almost pointed, the apical sinus not being distinct in a dorsal view. The structure of the clasper is peculiar. The dorsal lobe is long, conical, slightly curved inwards and downwards, and is armed at the apex with two sharp conical teeth curved towards each other ; the middle process of the clasper, which in other species is bent towards the penis forming a kind of sheath from which the penis projects, is in *milonia* feebly chitinised, being pale throughout,

and is straight, subcylindrical, thin, at the end obtuse. The ventral lobe is curved upwards and inwards; it is long and pointed, forming a strong hook, of which the point is about on a level with the penis. In consequence of the feeble development of the middle lobe the penis is not concealed in a ventral view. The strongly developed ventral lobe replaces to a certain extent the feeble middle lobe.

In the ♀ the eighth sternite is naked (always?) and mesially subcarinate, the carina being forked basally. There is no free process.

Precis sinuata.

Precis sinuata Plötz, *Stett. Ent. Zeit.* xli. p. 477. n. 38 (1881) (Mungo, Kamerun).
Precis serena Weymer, ibid. L iii. p. 86 (1892) (Sierra Leone).
Precis milonia var. (temp ?) *sinuata*, Aurivillius, *l.c.* p. 140. sub n. 16 (1899).

This species replaces in West Africa *Precis tugela*, *pyriformis*, or *aurorina*, which are perhaps one species.

The insect described by Aurivillius, *l.c.*, p. 139, from Kamerun as *Precis milonia* ab. (hybr.?) *pelargoides*, and which he suggests to be possibly a hybrid between *Precis sinuata* and *pelarga*, is the "wet phase" of *P. sinuata* :—

P. sinuata { f. *pelargoides* = wet phase.
f. *sinuata* = dry phase.

Now, it is very curious that this "wet phase" *pelargoides* is apparently much rarer than the "dry phase." One would expect that the opposite obtained in the West African Forest Region. The explanation probably is that the two phases are not truly seasonal. The difference in colour and shape between the two forms is not very conspicuous.

The ♂ of *P. sinuata* (= *pelargoides*) is easily recognised by the tenth abdominal tergite being short, broad and truncate, the dorsal process of the clasper ending in two short teeth, and the ventral lobe of the clasper being sinuate. In the ♀ there is a short free vaginal process which is rather deeply sinuate. The vaginal process of *Precis pyriformis* is much longer and pointed; in *tugela* it is also long, but somewhat sinuate. The ventral lobe of the clasper of the ♂♂ of *tugela* and *pyriformis* is truncate, not sinuate, and the dorsal process is also different from that of *sinuata*, being wider at the end, and bearing a much longer ventral apical tooth. Moreover, the tenth tergite of *pyriformis* is longer.

Precis sinuata occurs from Sierra Leone to the Congo, its range extending eastwards to Nyassaland and Uganda. Our ♂♂ from Zomba (December) and from near Bandawe (only one labelled, April) have the band of the wings mostly deeper in tint than the West African specimens, while the ♀♀ from near Bandawe have it rather paler than Western ones.

25. **Precis terea fumata** subspec. nov.

Precis terea var. *elgiva*, Pagenstecher (*non* Hewitson, 1864), *l.c.* p. 142. n. 11 (1902).

♂♀. Intermediate between the East African subspecies *elgiva* and the West African *terea*. The interspace between the basal area of the wings, on the upperside, and the black line which in *terea terea* is situated in the middle of the yellow band, is in *fumata* suffused with black to a more or less great extent, some specimens approaching *terea elgiva*, others *terea terea*.

Type: ♂, from the Gillet Mountains.

13 ♂♂, 1 ♀, from: Gillet Mts., Somaliland, 1900—2200 m., 22. vi. & 1. vii. 00; Abulcassim, 2400—2600 m., 16. vii. 00; Upper Bussijo R., Gindeberat, 25. ix. 00; Badattino, Gindeberat, 4. x. 00; Kankati Forest, Djimma, 3. iv. 01.

26. Precis coelestina.

Precis coelestina Dewitz, *Nova Acta Ac. Nat. Cur.* xli. 2. 2. p. 21 (Separ.) t. i. f. 13 (1879) (Angola).

2 ♂♂ from Banka, Mole, 17. ii. 01; Dalba to Uma R., Konta, 28. ii. 01.

In the "wet phase" of this species the edge of the wing is scalloped and the fringe distinctly spotted with white. In the "dry phase," which is rather larger, the distal margins of the wings are nearly even, the fringe is unicolorous, and the undersurface of the wings is more uniform in colour than in the "wet phase." The two ♂♂ collected by O. Neumann are intermediate.

We have *coelestina* also from Unyoro and the Naudi country, Uganda.

27. Precis limnoria taveta.

Precis tareta Rogenhofer, *Ann. K. K. Hofmus. Wien* vi. p. 460. n. 31. t. 15 f. 7 (1891) (Taveta).
Precis limnoria var. *taveta*, Aurivillius, *l.c.* p. 140. n. 21 (1899); Pagenst., *l.c.* p. 141. n. 10 (1902).

We have (in coll. Felder) a series of specimens from Bogos, obtained in October by Hansal. These individuals all agree with Guérin's figure of *naib*. The specimens collected by O. Neumann and Baron Erlanger, as well as those which we possess from British and German East Africa, belong to the form described and figured by Rogenhofer as a distinct species, *taveta*. It is probable that the two forms are seasonal. They agree in structure. Against their being seasonal (not geographical) forms of one species speaks, however, the fact that the cryptic form *naib* is smaller than the brighter-coloured form *taveta*.

6 ♂♂, 2 ♀♀ from: Harar, 30. iv. 00; Abd-el-Kadr, 14. & 15. v. 00: Ganda Kore, Argobba, 20. v. 00; Bubassa, near Harar, 22. v. 00; Djabdjabdu, 24. v. 00; Gobele R. to Ganda Ali, 28. v. 00.

28. Precis chorimene.

Vanessa chorimene Guérin, *Icon. Règne Anim., Ins.* p. 475 (1844) (Senegal).
Precis chorimene, Aurivillius, *l.c.* p. 142. n. 27 (1899); Pagenst., *l.c.* p. 142. n. 13 (1902).

A West African species, extending from the Senegal to the Congo, and eastwards to Uganda, Abyssinia, the Harar Highlands, and Arabia, not found in British and German East Africa, and farther south on the east coast of the Continent.

12 ♂♂, 4 ♀♀ from: Harar, 12. & 20. iv. 00; Walenso, Gillet Mts., 2000 m, 9. vii. 00; Abulcassim, 2400—2600 m., 16. vii. 00; Motscho, Hauasch R., 6. viii. 00; Bis-Bali, Schoa, 8. viii. 00; Sekuala, Schoa, 17. & 18. xi. 00; Alesa, Kotscha, 23. & 24. ii. 01; Alesa to Schetie, Kotscha, 25. ii. 01; Dalbe to Uma R., Konta, 28, ii. 01; Uma R., Konta, 1. iii. 01.

Specimens bearing a white costal spot on the underside of the hindwing occur everywhere in the range of the species. Some specimens are much more uniformly coloured beneath than others, and have a more strongly angulated hindwing.

Precis nachtigalli is structurally the same as *artaxia*, it being the "wet phase" and *artaxia* the "dry phase": see Marshall & Poulton, *Trans. Ent. Soc. Lond.* p. 414 (1902). In *Berl. Ent. Zeitschr.* xlviii. p. 137. t. 2. f. 11 (1903) Herr Thurau

describes and figures a new species, *Precis nobilitata*. This is nothing else but f. *nachtigalli*, only a little more "wet" in character, the forewing being less angulate below the apex.

Precis archesia = *staudingeri* = *semitypica* = *pelasgis* = *chapunga* are all the same in structure, being forms of the same species.

29. Catacroptera cloanthe.

Papilio Nymphalis Phaleratus cloanthe Stoll, in Cramer, *Pap. Ex.* iv. p. 93. t. 338. f. A. B (1781) (Cap. b. sp.).
Catacroptera cloanthe, Aurivillius, *l.c.* p. 143. n. 1 (1899) ; Pagenst., *l.c.* p. 142. n. 1 (1902).

The genus *Catacroptera* differs from all the species of *Precis* in the patch of modified scales on the underside of the forewing near the base being much larger, extending beyond SM^2.

C. cloanthe, the only species of the genus, consists of a West African subspecies, and an East and South African one, each of which appears again in one form with dark underside and another with brighter underside, the two forms corresponding to the "wet and dry phases" of *Precis*. In the form with dark underside, the "dry phase," the distal marginal area of the wings, on the upperside, is more or less conspicuously shaded with tawny brown. The subspecies inhabiting South and East Africa is

C. cloanthe cloanthe { f. **cloanthe** = "wet phase." / f. **obscurior** = "dry phase."

The individuals from Somaliland and Abyssinia belong to this subspecies, and Neumann obtained three ♂♂ and two ♀♀ at: Lake Zuai, 24. xi. 00 ; Lake Abassi, 4. & 6. xii. 00 ; Alata, Sidamo, 13. xii. 00 ; Djiren, Djimma, 27. iii. 01.

Of these specimens one from L. Abassi belongs to the "dry phase," the others being intermediate.

The individuals from West Africa differ from *cloanthe cloanthe* in the marginal and admarginal black lines of the forewing, above, being heavier, not obsolescent, and in the series of eye-spots of the hindwing, on the upperside, being proximally and distally accompanied by a crenate black line, which is heavier than in the corresponding "phases" and sexes of *cl. cloanthe*. We name the West African subspecies

C. cloanthe ligata { f. **ligata** nov. = "wet phase." / f. **fuscata** nov. = "dry phase."

Type of *ligata* a ♂ from Sierra Leone.
„ *fuscata* a ♀ from the R. Gambia.

Our specimens from Warri, Niger, of f. *ligata* were caught by Dr. Felix Roth during the wet season in June and July.

30. Salamis cacta.

Papilio Nymphalis cacta Fabricius, *Ent. Syst.* iii. 1. p. 116. n. 356 (1793 : "India").
Salamis cacta, Aurivillius, *l.c.* p. 145. n. 7 (1899).

A West African species with which O. Neumann met only at Scheko, on April 25th, 26th, and 27th, 1901. There are in the collection no less than 38 specimens from that place. The individuals are as variable beneath as those from other localities.

31. Salamis temora.

Salamis temora Felder, *Reise Novara, Lep.* p. 404. n. 605 (1867) (O. Calabar).

4 ♂♂ from Scheko, 25. & 26. iv. 01.

32. Salamis parhassus.

Papilio Nymphalis Gemmatus parhassus Drury, *Illustr. Ex. Ins.* iii. p. 4. t. 4. f. 1. 2 & Index (1782) (W. Afr.).

Salamis anacardii, Aurivillius (*non* Linné, 1758), *l.c.* p. 145. n. 3 (1899) (partim); Pagenst., *l.c.* p. 143. n. 1 (1902) (partim).

There are two white continental species of *Salamis*, *anacardii* and *parhassus*, Aurivillius and Pagenstecher, *ll.cc.*, treated them as one, but they were decidedly in error. The two insects are quite distinct from one another. However, each varies to such an extent in structure, as well as in colour and pattern, that we do not wonder at these authors having fallen victims to a deception.

S. parhassus is the species with glossy underside. The individuals are, on the whole, larger than those of *S. anacardii*, and all of them have the eye-spot M^1—M^2 on the underside of the forewing well developed. The specimens fall into two subspecies, one inhabiting the greater part of Africa, occurring from the Cape Colony to Abyssinia and on the West Coast northward to the Niger, the other being restricted to the rest of the West Coast.

The names *parhassus*, *aethiops* (=*aethiopa*), *aglatonice* and *viridescens* are given to this species, *parhassus* and *aglatonice* being referable to the darker north-western subspecies, and *aethiops* and *viridescens* to the southern and eastern subspecies, which is more restricted black. The synonymy and distinctions are as follows:—

Salamis parhassus aethiops.

Papilio aethiops Palisot, *Ins. Afr. Amér.* p. 22 (1805) (Benin).
Papilio aethiopa id., *l.c. Lép.* t. 3 (1805).
Salamis aglatonice, auct. (partim).
Salamis anacardii, auct. (partim).
Salamis parhassus, auct. (partim).
Salamis anacardii ab. *parhassus*, Aurivillius, *l.c.* (partim).
Salamis anacardii ab. *viridescens* Thurau, *Berl. Ent. Zeitschr.* xlviii. p. 138 (1903) (E. Africa).

The black submarginal spot R^1—R^2 of the forewing, on the upperside, stands separate from the distal marginal band, which is narrower than in the north-western subspecies, the spot being seldom connected with this band, while it is rather often joined to the costal portion of the black apical area. The marginal area of the hindwing is also, on the whole, more restricted black. The black marks at and beyond the apex of the cell on the upperside of the forewing are in *aethiops* also more reduced, and the marginal projection below the apex is longer. All these distinctions vary a good deal. Far more reliable as a means of recognition for the classifier is the difference in the copulatory organs of the ♂♂. The harpe of the clasper is in *park. aethiops* produced distad into a more or less club-shaped process, which is beset with short, brown, conical teeth, the organ resembling the mediaeval weapon called "Morgenstern." In *park. parhassus* the harpe is proximally denticulate, but the distal process is simply forked at the end, the prongs of the fork being long, slender, and sharply pointed. There are seldom some small teeth on the prongs, but in one

of our specimens from Sierra Leone the additional projections are numerous, this harpe forming a kind of transition towards the harpe of *park. aethiops*. Though we have dissected several dozens of specimens from various localities, we have only come across this one instance of a marked deviation from the normal forked harpe of *park. parhassus*. Harpes intermediate between those of *parhassus* and *aethiops* will doubtless be found among the individuals from Old Calabar and Kamerun if a sufficiently large number be examined ; we have no ♂♂ from these places. The individuals from Cape Colony and Natal are, on the whole, purer white than those from the tropical countries. Our dissections seem to us to indicate that there is a slight distinction between the Congo specimens (and presumably those from Gabun to the Niger) on the one hand and those from the more eastern and southern districts on the other.

O. Neumann and Baron von Erlanger obtained a series of specimens in North Somaliland, and the former met with the species again farther west.

10 ♂♂, 1 ♀, from : Harar, 20. iv. 00 ; Gillet Mts., 1900—2200 m., 29. vi. & 1. vii. 00 ; Wori to Gamitscha, Kaffa, 5. iii. 01 ; Upper Gelo R., 1. v. 01.

Salamis parhassus parhassus.

Papilio Nymphalis Gemmatus parhassus Drury, *l.c.* (Sierra Leone).
Vanessa aglatonice Godart, *Enc. Méth.* ix. p. 299. n. 8 (1819) (*hab.?*) ; Lucas, *Lép. Ex.* p. 110. t. 57. f. 2 (1835).
Salamis anacardii, auct. (partim).
Salamis anacardii ab. *parhassus*, Aurivillius, *l.c.* (partim).

We have this subspecies from Sierra Leone, the Gold Coast, and Warri, Niger Coast Protectorate. In all of them the black submarginal spot R^1—R^2 of the forewing is connected with the black distal marginal band, and also with the costal portion of the black apical area.

The second white species of *Salamis*, *S. anacardii*, has a chalky white underside, and the ocellus M^1—M^2 on the underside of the forewing is obsolescent or vestigial. It is not among O. Neumann's material, but we have it from Salomona, Erytrea.

Salamis anacardii.

Papilio Danaus anacardii Linné, *Syst. Nat.* ed. x. p. 467. n. 56 (1758) (*synon. exclusa* ; America !) ; Clerck, *Icon.* t. 28. f. 3 (1764).

This species consists of three well-defined subspecies :—

S. anacardii { **anacardii** from West Africa.
nebulosa „ South and East Africa.
duprei „ Madagascar.

Comparing the differences between the two subspecies of *S. parhassus* with those separating the two continental subspecies of *S. anacardii*, one very remarkable point is observed, which, if it had been noticed or carefully taken into consideration, would have made the advocates of the specific identity of *anacardii* and *parhassus* suspicious of the correctness of their conclusion. For, while in *parhassus* the north-western subspecies is more extended black than the southern and eastern one, in *anacardii* just the opposite distinction obtains, *anac. nebulosa*

being more extended black than *anac. anacardii*. Aurivillius, *l.c.*, did not know the true *anacardii* from North-West Africa. We have not seen a specimen of *anacardii* from the Congo Free State northward to the Niger; the species does not seem to occur there.

Salamis anacardii anacardii.

Papilio Danaus anacardii Linné, *l.c.*
Salamis nebulosa Trimen & Bowker, *S. Afr. Butt.* i. p. 248 (1887) (partim ; Gold Coast).

Clerck's figure agrees with specimens from the Gold Coast and Sierra Leone. The black apical area of the forewing, on the upperside, does not extend backwards beyond R^3 in the submarginal region. The dentate process of the harpe of the ♂ resembles somewhat that found in *S. parhassus aethiops*, being club-shaped and dentate. However, in some individuals the process is divided into two dentate clubs, approaching the structure found in *S. anacardii nebulosa*. The upper lobe of the clasper is denticulate at the apical edge in the three subspecies of *anacardii*; in *parhassus* it is not denticulate or the teeth are very few in number (Congo specimens). We have *S. anac. anacardii* only from Sierra Leone and the Gold Coast (11 ♂♂, 4 ♀♀).

Salamis anacardii nebulosa.

Salamis nebulosa Trimen, *Trans. Ent. Soc. Lond.* p. 441 (1881) (Zululand ; Natal ; Delagoa Bay); id. and Bowk., *S Afr. Butt.* i. p. 246. n. 79 (1887) ("Cape Coast Castle" excepted).
Salamis nebulosus iid., *l.c.* p. 247 (1887).
Salamis definita Butler (*non* id., 1879), *Proc. Zool. Soc. Lond.* p. 653. n. 48 (1893).
Protogoniomorpha aglantonice, id. (*non* Godart, 1819), *l.c.* p. 564. n. 34 (1894) (Brit. E. Afr.).

Mistaking *S. parhassus* for the Linnaean *anacardii*, Trimen described the East African subspecies of *anacardii* as a new species. Had he been aware that the name *anacardii* applied to the species with the opaque underside, and that the species with the glossy underside was *parhassus*, Trimen would have abstained from giving the Eastern *anacardii* a name. For in 1887, *l.c.*, he says of *nebulosa* (quite correctly as regards the distinction) that three examples which he has "seen from the Gold Coast, one of which is in the collection of the South African Museum, differ slightly from those above mentioned in having the black markings of the upperside less developed, although much more so than in *anacardii*." These examples of "*nebulosa*" are the true *anacardii*, the *anacardii* with which they are compared at the end of the sentence being *parhassus*.

Dr. Butler erroneously applied the names of *aglantonice* and *definita* to this insect. The former name refers to the North-West African subspecies of *parhassus*, as a glance at Lucas's figure will prove, and *definita*, being a name originally given to Madagascar individuals of the Malagasic *S. anacardii duprei*, cannot possibly again be applied to Continental African specimens which are quite different from the Malagasic ones, notwithstanding Butler says that *aglatonice*, *definita*, and *nebulosa* are "mere sports of one variable form."

The ♀ of *nebulosa* is much more extended black than the ♂, the difference in the sexes being far more obvious than in the North-West African subspecies of *anacardii*, and than in the sexes of the two subspecies of *S. parhassus*. The process of the harpe of the *male* is forked, each half of the fork being club-shaped. It is worthy of note that we find here again the same kind of contradistinction

between the subspecies of *S. parhassus* and *S. anacardii* which obtains in their pattern, the North-Western *parhassus* and Eastern *anacardii* having a forked harpe, while the North-Western *anacardii* and Eastern (and Southern) *parhassus* have the process of the harpe not forked. In both species the more extended-black subspecies has the forked harpe, but the geographical position of the respective subspecies is reversed. This is of importance, since it throws light on the origin of the two species. The original species had doubtless a more extended black pattern than the present ones, and most likely a forked harpe. It separated into a North-Western and an Eastern subspecies (the ancestral *anacardii* occupying the East and the ancestral *parhassus* the North-West of the Continent), the North-Western subspecies then going south and east and developing here into a paler form again (*S. park. aethiops*), while the range of the Eastern subspecies became extended to Sierra Leone and the Gold Coast, segregation modifying these latter North-Western arrivals also into a paler form, with reduced pattern and reduced copulatory organs (*S. anac. anacardii*).

We have *S. anac. nebulosa* from : Erytrea, Unyora, British and German East Africa, and Nyassaland.

The Malagasic subspecies *S. anacardii duprei* (= *definita*) can easily be recognised by the absence or reduction of the black submarginal patch R^3—M^1 on the forewing and the more produced anal angle of the hindwing.

33. **Hypolimnas misippus.**

Papilio Danaus Festivus missippus Linné, *Mus. Lud. Ulr.* p. 264. n. 83 (1764) (America).
Hypolimnas misippus, Aurivillius, *l.c.* p. 147. n. 1 (1899) ; Pagenst., *l.c.* p. 143. n. 1 (1902).

There are only two forms of ♀♀ among the material from Somaliland and Abyssinia, namely ♀-f. *misippus* and ♀-f. *dorippoides*. See Aurivillius, *l.c.*

23 ♂♂, 10 ♀♀ from : Abd-el-Kadr, 5., 11. & 16. v. 00 ; Bubassa, near Harar, 22. v. 00 ; Bio Woraba to Dika, near Harar, 23. v. 00 ; Djabdjabda, 24. v. 00 ; Harro Rufa to Mojo River, 1. vi. 00 ; Kumbi, 6. vi. 00 ; Odamuda to Djugi, Djidda, 20. vi. 00 ; north of Galana R., Lake Abbaia, 27. xii. 00 ; Galana R., Lake Abbaia, 31. xii. 00 ; Lake Gandjule, 5. i. 01 ; Mole River, 22. i. 01 ; Djala, Gofa, 31. i. 01 ; Senti River, Gofa, 29. i. 01 ; Alesa to Schetie, Kotscha, 25. ii. 01 ; Dolba to Uma R., Konta, 28. ii. 01.

34. **Hypolimnas salmacis platydema** subsp. nov.

♂♀. Underside of body deeper brown than in *salm. salmacis* ; the white oblique band of the forewing broader and the patches composing it sharper defined ; the white band of the hindwing also broader, both above and below. In the ♀ the forewing below bears two small white spots at the apical fifth of the cell, one behind SC, the other on the third fold.

Three ♂♂ from : Scheko, 26. iv. 01 (O. Neumann), *type* ; one ♂, one ♀ from Port Alice, Unyoro, 30. vii. 1894 and 9. iii. 1897 (Dr. Ansorge).

The Unyoro ♂ is larger than those from Scheko, and the ♀ is a very large insect, its forewing measuring 61 mm.

This subspecies stands in the width of the white bands intermediate between *H. s. salmacis* and *H. monteironis*. The latter species is treated by Aurivillius, *l.c.* p. 148, as *H. salmacis* var. *monteironis*. If the term "var." is meant to have the definite meaning given to it in the introduction to that greatest work on

African Butterflies, namely signifying geographical form, *monteironis* can on no account be a "var." of *salmacis*, as the range of *salmacis* embraces that of *monteironis* entirely, the two insects being found together in the Congo Region, including Unyoro, and the country west of Lake Victoria. Apart from the constancy of the distinguishing characters, the specific distinctness of the two insects becomes at once evident, if we compare Congo specimens of both species with specimens from Unyoro, the individuals of *salmacis* of these countries being very different, while the specimens of *monteironis* are not different. The distinctions in structure between the two species are very slight. We have a long series of specimens both of *monteironis* and *salmacis*.

35. **Eurytela hiarbas abyssinica** subspec. nov.

Eurytela hiarbas, Pagenstecher, *l.c.* p. 144. n. 1 (1902).

♂♀. Wings shaped as in *E. hiarbas hiarbas*. White band of upperside slightly wider than in *E. hiarbas angustata*, not longer on the forewing than in that subspecies and less tapering, narrower than in *h. hiarbas*; distal margin of forewing distinctly tawny brown, as it is in *angustata* from South Africa. Underside similar to that of *angustata*, differing from that of *hiarbas* obviously in the reduction of the bluish white bars, and in the narrow white band of the hindwing being shaded over with chocolate brown at the costal margin; olivaceous costal space situated on the forewing midway between cell and apex bordered distally by a thin white line, corresponding to the bluish white dots of *h. hiarbas*; white band of forewing broader than in *h. angustata*, sharply defined from hinder margin of wing to M^1, suddenly tapering from M^1, appearing obliquely truncate, the band concave on the outer, convex (subangulate) on the proximal side; the white costal subapical dot of the forewing usually absent, never marked on the upperside either in ♂ or ♀.

Type from Banka.

9 ♂♂, 3 ♀♀ from: Habela to Alata, Sidamo, 11. xii. 00; Alata, Sidamo, 13. xii. 00; Koritscha to Tomata, Dara R., Gudji, 24. xii. 00; Banka, Malo, 17. ii. 01; Dareta Mts., Kaffa, 2. iii. 01; Wori to Gamitscha, Kaffa, 5. iii. 01; Anderatscha, Kaffa, 24. iii. 01; Kankati to Djibbe, Djimma, 26. iii. 01.

The individuals of *E. hiarbas* from British East Africa (Kikuyu Escarpment and Nandi country) as well as from Nyassaland—most likely all the specimens from tropical East Africa—differ from the specimens occurring in Natal and Cape Colony (*E. hiarbas angustata*) in the distal margin of the forewing being less angulate at R^1 and not being tawny brown, in the white band of the forewing being as narrow as in *angustata*, while the band of the hindwing is rather broader, in the latter band being on the underside very little shaded with brown at the costal margin, in that of the forewing below being longer, and in the anal area of the hindwing below being much less extended chestnut. The bluish white bars bordering the chestnut markings on the underside are also better expressed. We name this tropical narrow-banded subspecies—

E. hiarbas lita subsp. nov.

Type from the Kikuyu Escarpment.

36. Eurytela dryope angulata.

Eurytela dryope var. *angulata* Aurivillius, *l.c.* p. 154. sub n. 2 (1899) (Natal, etc.); Pagenst., *l.c.* p. 145. n. 2 (1902).

3 ♂♂, 6 ♀♀ from: Abd-el-Kadr, south of Harar, 16. v. 00; Gillet Mts., 1900—2200 m., 1. & 4. vii. 00; Walenso, Gillet Mts., 2000 m., 9. vii. 00; Abulcassim, Gillet Mts., 2400—2600 m., 16. vii. 00; Motscho, Hanasch R., 6. viii. 00; Zuai Lake, 24. xi. 00; Alesa, Kotscha, 22. ii. 01.

All nine specimens, as well as several others from North Somaliland and Erytrea, have, on the underside of the hindwing, a conspicuous pale costal spot like the specimens from East and South Africa, and the forewing is strongly angulate at R^1.

37. Neptidopsis ophione velleda.

Eurytela velleda Mabille, *Ann. Soc. Ent. France* p. 19 note (1890) (E. Afr.).
Neptidopsis ophione var. *velleda*, Aurivillius, *l.c.* p. 156. sub n. 1 (1899); Pagenst., *l.c.* p. 144. n. 1 (1902).

Eight ♂♂ from: Alata, Sidamo, 13. xii. 00; Naja to Banka, Malo, 14. ii. 01; Wori to Gamitscha, Kaffa, 5. iii. 01.

The specimens are not different from East African ones.

The Continental individuals of *Neptidopsis fulgurata*, which have hitherto been treated as being identical with Malagasic ones (see Aurivillius, *l.c.* p. 156. n. 2) are distinguished by several characters. The wings are less angulated, the three proximal patches of the posterior white area of the forewing are smaller, while the white spot R^3—M^1 which stands outside the respective white patch is larger; the inner one of the two spots situated between the anterior and posterior white areas is obsolete, and the outer one distinct; distally of the white patch R^1—R^2, which is sinuate in Continental specimens, there is one distinct white dot in Malagasic individuals and three white marks in Continental ones, the third mark being the largest. Of the two white patches situated on the hindwing between the white band and the costal angle the proximal one is reduced in the Continental form. On the underside the brown lines and patches are much more extended than in Malagasic *fulgurata*, the white scaling in the basal and distal regions being reduced to well-defined lines and patches, the distal area differing especially from that of *fulg. fulgurata* in being sharply marked with brown and white.

We name this subspecies

N. fulgurata platyptera subsp. nov.

Type from Mikindani, German East Africa (Reimer).

38. Byblia ilithyia.

Papilio Nymphalis Phaleratus ilithyia Drury, *Illustr. Ex. Ins.* ii. p. 29. t. 17. f. 1. 2 (1773) (Senegal).
Papilio Nymphalis Phaleratus polinice Cramer, *Pap. Ex.* iv. p. 169. t. 375. f. G. H. (1782) (Coromandel).
Papilio goetzius Herbst, *Naturs. Schm.* ix. p. 193. n. 16. t. 258. f. 1. 2 (1798) (partim; nom. nov. loco *polinice*).
Hypanis cora Feisthamel, *Ann. Soc. Ent. France* p. 249 (1850) (Senegal).
Byblia ilithyia, Aurivillius, *l.c.* p. 158. n. 1 (1899); Pagenst., *l.c.* p. 145. n. 1 (1902).

The two individual forms of this species, f. *ilithyia* and f. *polinice*, which differ on the upper and under surface, are connected with one another by all intergradations. *B. ilithyia* f. *polinice* is more extended black, especially in the ♀, than

B. ilithyia f. *ilithyia*,—Aurivillius says that the black markings are smaller in *polinice*,—and has a pale underside to the hindwing. The African and Indian specimens are identical, taken as a whole.

8 ♂♂, 9 ♀♀ belonging to :

f. *polinice* from : Lake Haramaja, north of Harar, 16. & 17. iii. 00 ; Alesa, Kotscha, 24. ii. 01.

f. *ilithyia* (or being intermediate) from : Bio Caboba, north of Harar, 18. ii. 00; Lake Haramaja, 16. iii. 00 ; Gara Mulata, near Harar, 27. & 29. iii. 00 ; Harar, 2. & 20. iv. 00 ; Abd-el-Kadr, 11. & 14. v. 00 ; Djabdjabdu, 24. v. 00 ; Alesa, Kotscha, 24. ii. 01.

39. Byblia anvatara.

Papilio Nymphalis Phaleratus ilithya (!), Cramer (*non* Drury, 1773), *Pap. Ex.* iii. p. 35. 37. t. 213. f. A. B ; t. 214. f. C. D (1779) (Sierra Leone).
Papilio goetzius Herbst, *l.c.* p. 193. t. 258. f. 3. 4 (1798) (partim).
Hypanis cora, Lucas (*non* Feisthamel, 1850), in Chenu, *Enc. Hist. Nat., Pap.* i. f. 516 (1853).
Hypanis anvatara Boisduval, *Faune Madag. Bourb.* p. 56. t. 7. f. 5 (1833) (Madag.).
Byblia goetzius, Aurivillius, *l.c.* p. 158. n. 2 (1899).

Butler and Aurivillius apply the name *goetzius* (= *götzius*) to this species. That is surely incorrect. Herbst, *l.c.*, proposed the name *goetzius* merely to supplant the name *polinice*, which was preoccupied in *Papilio*. Therefore *goetzius* cannot be applied to another species than *polinice*. Further, Herbst says that the ♀ (f. 3. 4) **appears** to him to belong rather to *goetzius* than to *ilithyia*, proceeds to point out differences between this ♀ and the ♂, and finally gives as habitat Coromandel, where there occurs only the insect to which his figures 1 and 2 belong, figures 3 and 4 representing the African species. It is quite plain that this ♀ would not be the type of the name *goetzius*, even if Herbst had not expressly stated that he renamed Cramer's *polinice* (or *polenice* as Herbst spells the name). Since *anvatara* is the name next in priority applied to a portion of the present species, it is to be adopted as the name for the entire species.

There are four subspecies, three of which occur in a form with a dark underside to the hindwing and another form with a light underside.

a. B. anvatara anvatara.

Hypanis anvatara Boisduval, *l.c.*
Hypanis ilithyia var. *anvatara*, Mabille, in Grand., *Hist. Nat. Mad., Lép.* t. 17. f. 11. 12 (1885-87).
Byblia goetzius var. *anvatara*, Aurivillius, *l.c.* p. 159 (1899).

The two forms of this subspecies are :

B. anv. anv. f. *anvatara*, with a light underside to the hindwing ; and

B. anv. anv. f. **seriata** nov., with the underside of the hindwing tawny chestnut, marked with three rows of creamy-white spots. In this form the apex of the forewing below bears also a row of creamy-white spots.

Type from Morondawa, Madagascar.

b. B. anvatara boydi.

Byblia cora, Butler (*non* Feisthamel, 1850), *Proc. Zool. Soc. Lond.* p. 177. t. 18. f. 4 (1881) (Sokotra).
Byblia boydi Dixey, ibid. p. 375. t. 30. f. 1. 2 (1898) (Sokotra).

Only the form with the dark underside to the hindwing is known.

c. B. anvatara acheloia.

Hypanis acheloia Wallengren, *Lep. Rhop. Caffr.* p. 29 (1857).
Hypanis ilithyia, Trimen, *S. Afr. Butt.* p. 214. n. 124 (1862-66) (partim).
Hypanis castanea Butler, *Proc. Zool. Soc. Lond.* p. 759 (1886).
Hypanis ilithyia var. *vulgaris* Staudinger, *Exot. Schm.* i. p. 106 (1886) (E. Afr.).
Byblia goetzius var. (et ab. ?) *vulgaris*, Aurivillius, *l.c.* p. 159 (1898).
Byblia goetzius var. temp. *acheloia*, id., *l.c.*

This subspecies occurs from South Africa to the Harar Highlands and Erytrea. The specimens are generally easily recognised by the black markings being less extended than in *B. anvatara crameri* from West Africa. The "dry phase" is f. *acheloia* = *castanea*, while the "wet phase" is f. *vulgaris*.

The specimens brought home by O. Neumann and Baron von Erlanger belong to this subspecies.

11 ♂♂, 7 ♀♀ of:

f. *acheloia* from: Abd-el-Kadr, south of Harar, 11. v. 00; Luku, Sheikh-Hussein, 25. vi. 00; Gillet Mts., 1900—2200 m., 4. vii. 00.

f. *vulgaris* from: Harar, 9. & 12. iv. 00; Abd-el-Kadr, 11. & 14. v. 00; Atschabo to Kumbi, 4. vi. 00; Kumbi, 6. vi. 00; Gillet Mts., 1900—2200 m., 4. vii. 00; Djidda, 2700—2800 m., 24. vii. 00; Hauasch R., 2. viii. 00; Boko to Kore, Hauasch R., 5. viii. 00; Dalba to Uma R., Konta, 28. ii. 01.

d. B. anvatara crameri.

Papilio Nymphalis Phaleratus ilithya, Cramer (*non* Drury, 1773), *Pap. Ex.* iii. p. 35. 37. t. 213. A. B; t. 214. f. C. D. (1779).
Papilio goetzius Herbst., *l.c.* (partim).
Hypanis cora, Lucas (*non* Feisthamel, 1850), *l.c.*
Byblia ilithyia Drury var. *crameri* Aurivillius, *Tidskr. Ent.* xv. p. 279 (1894) (Kamerun).

This subspecies occurs from Sierra Leone (Senegal ?) to the Congo basin, extending eastwards to Uganda. The form with the dark underside to the hindwing, which we name

B. anv. crameri f. **fasciata** nov.,

is undoubtedly much rarer than *B. anv. cram.* f. *crameri*. We have a long series of *B. anv. crameri* with dates, the specimens being obtained during the dry as well as the wet seasons. There are very few f. *fasciata* among them, f. *crameri* being prevalent all the year round.

Type of f. *fasciata* from Accra, Gold Coast.

Genus ASTEROPE.

Asterope Hübner, *Verz. bek. Schm.* p. 66 (1816-23) (type: *amulia* Cram., 180. C. D.).
Crenis Boisduval, *Faune Madag. Bourb.* p. 48 (1833) (type: *madagascariensis*); Auriv., *l.c.* p. 158 (1899).
Metacrenis Butler, *Proc. Zool. Soc. Lond.* p. 259 (1895) (partim; syn. of *Crenidomimas*, type *concordia*).

The species of this genus are exceptionally difficult to deal with—at least, most of them. That is shown by the numerous mistakes made by the authors who since 1860 have tried to characterise new species and varieties. In order to find out the correct names for the three species of *Asterope* obtained by O. Neumann, we have compared all the original descriptions with the material

of *Asterope* contained in the Tring Museum. We believe that we have correctly identified all the known species with the exception of one, *A. garega*. This species is described by Karsch from Kamerun in *Ent. Nachr.* p. 173 (1892) from a single ♂. The learned Professor compares it with *A. natalensis*, from which it is said to differ in the following points: the dark brown border to the anterior edge of the forewing, which border includes paler spots, is narrower, and is almost straight behind at R^3 (=Karsch's M^3); the eye-spots on the underside of the hindwing are more proximal; the apex of the forewing is more obviously truncate, and the outer margin rounded, not undulate.

Aurivillius, who had doubtless compared the *type* of *garega*, puts it down as a synonym of *howensis* of Standinger, *l.c.* p. 161. n. 4 (1899). This *howensis*, as conceived by Aurivillius and Standinger, is a mixture of different species. However, as Aurivillius refers to Mabille's Plate XVII. f. 5. 6, adding f. 3. 4. with ?, it is obvious that Aurivillius believed *howensis* to be a species somewhat similar in colour to the ♀ of *natalensis*. Therefore, *garega* being considered identical with *howensis* by Aurivillius, we must conclude that *garega* is similar to the ♀ of *natalensis*, not to the ♂. However, we can scarcely believe that Prof. Karsch compared the ♂ of a supposed new species with the ♀ of a known one without saying so. We have no specimen from Kamerun, Gabun, or the Lower Congo, which agrees with the short description of *garega*, and must for the present treat the name *garega* as of dubious application.

40. **Asterope occidentalium.**

Crenis occidentalium Mabille, *Bull. Soc. Zool. France* i. p. 275 (1876) (Gabon).

The range of this species extends from Sierra Leone to Angola, and eastwards to Western Abyssinia.

There are two subspecies :—

a. **Asterope occidentalium occidentalium.**

C. o. Mabille, *l.c.*; Aurivillius, *l.c.* p. 160. n. 1 (1899).
Crenis vadimonis Druce, *Ent. Mo. Mag.* xiv. p. 226 (1878).
Crenis ribbei Dewitz, *N. Acta. Leop. Carol. Ak. Naturf.* xli. 2. p. 196. t. 26. f. 3 (1879) (Northern Angola).

10 ♂♂ from : Scheko, 25., 26., 27. iv. 01 ; Upper Gelo R., 1. v. 01.

These specimens do not differ from West Coast examples.

b. **Asterope occidentalium penricei** subsp. nov.

♂. *Upperside* paler than in the preceding, but darker than in *moranti*, about midway between the two in tint.

Underside: Forewing not quite so pale ochraceous as in *moranti*, much paler than in *occ. occidentalium*; the black patch situated proximally of the greyish apical area rather deeper in tint than in *moranti* and a little larger, being much smaller and better defined than in *occ. occidentalium*; the smaller patch just outside the apex of the cell is less distinct than the larger patch, being in one of the specimens vestigial; the black dots in the apical area are less distinct than in the previous.——On the hindwing the basal half and the eye-spots are flushed with pale violet, as in *moranti*, the inner violet-grey ring of the eye-spots contrasting in some specimens rather strongly with the olivaceous

The clasper of *occ. occidentalium* is produced into a very long and slender process, which is curved, and is beset at the ventral edge with sharp teeth projecting basad, and the harpe, which is broad and obtuse, bears at the upper edge near the base a long, pointed, conical, slightly curved tooth. In *occ. penricei* the process of the harpe is shorter and broader, bearing also more teeth, some of which are placed on the outer surface of the clasper, and the dorsal tooth of the harpe is thinner and shorter.

Hab. Calweha River, Angola, April and May, 1898 (G. W. Penrice).
4 ♂♂.

Asterope moranti.

Crenis morantii Trimen, *Trans. Ent. Soc. Lond.* p. 439 (1881) (Natal) ; id. & Bowk., *S. Afr. Butt.* i. p. 253. n. 82. t. 5. f. 3 (♀) (1887) ; Auriv., *l.c.* n. 2 (1899).

We have 2 ♂♂ and 1 ♀ of this insect, namely, a pair from Natal, the ♀ being caught May 2nd 1892, at the Valmert River, and a second ♂ from Zomba, Nyassaland, obtained in December 1895 by Dr. Percy Rendall.

As will be seen from the above description of *A. occ. penricei*, the present species and *occidentalium* come rather close in characters, the gap being partly bridged over by *occ. penricei*. However, the long tooth projecting from the upper edge of the harpe in both subspecies of *occidentalium* is absent from our 2 ♂♂ of *moranti*. The process of the clasper is rather shorter than in *occ. penricei*, and rough with small tooth-like tubercles all over the outer surface, the dentition of the lower edge (=distal edge, as the clasper is turned upwards) being much less distinct than in either form of *occidentalium*. Notwithstanding these differences, it is quite possible that *moranti* is nothing else but the eastern subspecies of *occidentalium*. A sufficiently large series of specimens from Southern Angola and the Upper Zambesi may eventually prove the insects to completely intergrade.

41. Asterope boisduvali.

Crenis boisduvali Wallengren, *Rhop. Caffr.* p. 30. n. 2 (1857) (Natal) ; Trim. & Bowk., *l.c.* i. p. 252. n. 81. t. 5. f. 2 (♂). 2A (♀) (1887) ; Auriv., *l.c.* n. 3 (1899).
Crenis natalensis, Trimen (*non* Boisduval, 1847), *Rhop. Afr. Austr.* p. 144. n. 86 (1862).

The individual variability in size and colour is not inconsiderable. There are in both sexes paler and darker individuals. The difference is especially noticeable in the ♀♀. In the pale specimens the rings of the eye-spots on the underside of the hindwing are often rather bright ochraceous. The clasping organs of the ♂ are characteristic for this species : the clasper is produced upwards into a club-shaped, densely tuberculated process, and the long harpe, which is also curved upwards, ends in a long smooth point.

A. boisduvali consists of two subspecies :—

a. Asterope boisduvali kaffana subsp. nov.

♂. Differs from *A. b. boisduvali* on the underside. The forewing is deeper in tint, approaching that of *A. o. occidentalium*, the subapical dots are less distinct, the hindwing is more uniform in colour, olivaceous, and the eye-spots not so prominent, resembling in distinctness those of *A. o. occidentalium*.

8 ♂♂ from : Godjeb to Bonga, Kaffa, 4. iv. 01, *type* ; Scheko, 25. & 26. iv. 01 ; Upper Gelo R., 4. v. 01.

b. Asterope boisduvali boisduvali.

Crenis boisduvali Wallengren, *l.c.*

We have a very long series from Sierra Leone, Gold Coast, Congo, Angola, Cape Colony, Natal, Delagoa Bay, British East Africa, Uganda, and Unyoro.

Asterope howensis.

Crenis howensis Staudinger, *Exot. Schm.* i. p. 108 (1886) (Madagascar ; "Natal" *error loci vel alia species*) ; Auriv., *l.c.* p. 161. n. 4 (1899) (partim ; Madagascar; nec Kamerun, Natal, Delagoa Bay, Querimbe).

Crenis natalensis, Mabille (*non* Boisduval, 1847), in Grandid., *Hist. Nat. Madag., Lép.* p. 152. t. 17. f. 3 & 4 (♂). 5 & 6 (♀) (1885-87).

The representative of *boisduvali* ; perhaps only a subspecies, a question which is better left for a future monographer of the genus to decide. The underside of the hindwing is as strongly variegated as in *A. b. boisdurali*. There are here, as in the previous species, darker and paler specimens in both sexes. The incrassate apical portion of the process of the clasper is rather longer than in *A. boisduvali*, and the harpe is much shorter and obtuse, not being produced into a long point.

The species occurs only on Madagascar (or, at least, only in the Malagasic subregion), not on the Continent. The Natal specimens which Staudinger identified as *howensis* when publishing this name had either a wrong locality attached to them, or belonged to *natalensis* or *moranti*, or were large individuals of *boisduvali*.

We have 12 ♂♂ and 8 ♀♀ of *howensis*.

Asterope natalensis.

Crenis natalensis Boisduval, in Deleg., *Voy. Afr. Austr.* ii. p. 592 (1847) (Natal) ; Auriv., *l.c.* p. 161. n. 6 (1899) (partim ; Natal, Transvaal ; *nec* Madagascar ; *nec* var. *trimeni*).

Crenis boisduvali Staudinger, *Exot. Schm.* t. 40 (1885).

Crenis wallengreni id., *l.c.* p. 108 (1886) (Natal).

The sexes of this species are more different than they are in all the preceding ones, the ♀ being much paler on the upperside and having a purer black apical area to the forewing, with larger, more sharply defined and brighter-coloured spots in it than the ♂.

The clasper of the ♂ is prolonged into a tapering, but not pointed, process, which is denticulate ; the harpe is obtuse, irregularly spatulate, being dilated ventrally before the apex.

We have 5 ♂♂ and 6 ♀♀ from : Cape Colony; Natal; Delagoa Bay; Mikindani, German East Africa (Reimer).

Asterope madagascariensis.

Crenis madagascariensis Boisduval, *Faune Madag. Bourb.* p. 48 (1833) (Madag.) ; Mabille, in Grandid., *Hist. Nat. Madag., Lép.* i. p. 151. t. 17. f. 1. 2 (♀) (1885-7).

The sharply defined large black apical area to the forewing above distinguishes this species from all the others. On the underside the apex of the forewing and the whole hindwing are as light grey as in *natalensis*; the markings are obsolescent. The clasper of the ♂ is prolonged into a very slender, very long, and almost straight process, which is beset with pointed tubercles on the innerside and all round at the apex ; the harpe is very short and obtuse, bearing bristles at the apex.

We have 11 ♂♂ and 10 ♀♀ from various places in Madagascar.

Asterope amazoula.

Crenis amazoula Mabille, *Bull. Soc. Ent. Belg.* xxiii. p. 16 (1880) (Madag.; "Natal" *loci error vel alia spec.*).

Crenis amazula (!) id., in Grandid., *Hist. Nat. Madag., Lép.* i. p. 153. t. 17. f. 7-10 (♂ ♀) (1885-7) (Madag.).

Crenis natalensis, Aurivillius (*nom* Boisduval, 1847), *l.c.* p. 161. n. 6 (1899) (partim).

It is to be regretted that Mabille gave the name *amazoula* to an insect which is confined to the Malagasic subregion. The Boisduvalian specimens from Natal, to which Mabille refers in his original description as being the same as the Malagasic ones, had either a wrong locality attached to them or belonged to *Asterope trimeni*.

In colour *amazoula* is widely different from *madagascariensis*, while the sexual armature of the two insects is apparently identical. That is very remarkable; for the astonishingly great similarity or (according to our research) identity in these organs is directly injurious to the existence of the insects as separate entities. The markings of the underside are prominent, in contradistinction to *madagascariensis*. The outer rings of the eye-spots of the hindwings are ochraceous and merged together to two lines.

In the Tring Museum 3 ♂♂ and 5 ♀♀, mostly from Morondawa, S.W. Madagascar (Last).

Asterope trimeni.

Crenis natalensis var., Trimen, *Proc. Zool. Soc. Lond.* p. 76. n. 25. t. 9. f. 12 (♂) (1891) (Omrora and Okavanga R., S.W. Afr., xi. xii.).

Crenis natalensis var. *trimeni* Aurivillius, *l.c.* p. 161. sub n. 6 (1899).

We have 14 ♂♂ and 5 ♀♀ of this insect from between Stanley Pool and Lukolele (Congo), various places in Angola (October and November), Cape Colony and Delagoa Bay.

As the differences in colour between this series and that of *natalensis* in the Tring Museum are accompanied by differences in the sexual apparatus, we have no doubt that *trimeni* is a distinct species. The species is easily recognised by the underside of the hindwing being of a peculiar blue-grey colour, and by the outer rings of the eye-spots being bright ochraceous and merged together to two lines. The ♂ is paler than the ♀. The brown-black apical area of the upperside of the forewing of the ♀ is nearly as large as in *natalensis* ♀, but the pale ochraceous spots within it are larger. The ♂ differs from that of *natalensis* in the much paler upperside and the larger and more clearly marked pale ochraceous spots in the apical half of the upperside of the forewing, and in the presence of a black-brown patch just outside the cell on the underside of the forewing, the patch resembling that of the ♀. The clasper is much shorter and more obtuse than in *natalensis*; the harpe is spatulate. *A. trimeni* reminds one of the Malagasic *amazoula*; the latter agrees, however, in structure with *madagascariensis*, differing widely from *trimeni* and *natalensis*.

Asterope consors spec. nov.

A series of both sexes of an *Asterope* from Angola and the Upper Zambesi, though apparently identical with *trimeni* in structure, seems to us to represent another species. We thought at first that *consors* and *trimeni* (and *madagascariensis* and *amazoula*) were seasonal forms of one species. However, our specimens of *consors* and *trimeni* from Angola were all caught at the end of the

dry and beginning of the (short) rainy season during the end of September, October and November, except three worn specimens of *consors* which were obtained in July. Compare *Asterope amulia*.

♂. Resembling on the *upperside* the ♀ (!) of *natalensis*; the black apical area of the forewing rather less extended, the patch beyond the apex of the cell and at the base of cellule R^5—M^1 being smaller; the patches within the black area of the same ochraceous tone as the outer portion of the disc, being less pale than in *natalensis* ♀; the proximal subcostal ochraceous patch larger than in *natalensis* ♀, approaching that of *trimeni* ♀, well separated from the submarginal patch R^3—M^1, which is about the same size as in *natalensis* ♀, being smaller than in *trimeni* ♀; this patch R^3—M^1 is separated from the disc by a black streak on vein M^1; the ochraceous subapical spots larger than in *natalensis* ♀, but smaller than in *trimeni* ♀; the distal marginal band deeper black than in either species, as is also the marginal band of the hindwing; the black submarginal spot M^2—SM^2 of the forewing larger than in *trimeni* and *natalensis* ♀, and sharper marked; ground-colour of both wings rather paler than in *natalensis* ♀, but more olivaceous than in *trimeni* ♀.

Underside: Forewing much brighter ochraceous than in *natalensis* ♀, hindwing and apex of forewing conspicuously washed with a darker bluish grey tint than in *trimeni*; black subapical dots of forewing as small as in *natalensis*; a broad black subapical band as in *natalensis* ♀, continued along outer margin to hinder angle; connected with this band is another which is situated outside the cell as in *natalensis* ♀ and *trimeni* ♀; a large brown-black submarginal patch between M^2 and SM^2.——Hindwing: black bars and dots not so heavy as in *trimeni*, the black submarginal dots especially much smaller; the two crenate lines forming the outer rings of the eye-spots nearer together than in *trimeni*, but not forming complete rings; the inner one of these crenate lines more or less ochraceous tawny, the outer one black-brown.

♀. Similar to ♂; the black parts of the forewing deeper in tone and somewhat more extended, the light parts of the apical half of the forewing paler. On the *underside*, the eye-spots shaded over with black, excepting the second and the posterior ones (the second and the last being the palest also in ♂); basal half of hindwing also shaded with black, especially at the median series of bars.

Hab. Longa R., Angola, November 1899 (G. W. Penrice), *type*; Libollo, Angola, July 1901 (H. Pemberton); Gowlu-pan, between Lialui and Gazunguli, Upper Zambesi, March 1898 (R. T. Coryndon); 8 ♂♂, 5 ♀♀.

Asterope umbrina.

Crenis umbrina Karsch, *Entom. Nachr.* xviii. p. 114 n. 8 (1892) (♀, Togo); id., *Berl. Ent. Zeitschr.* xxxviii. p. 179. n. 22. t. 5. f. 2 (♀?) (1893) (♀, ♂); Auriv., *l.c.* p. 161. n. 5 (1899).

We know only the ♂ of *umbrina*. This species is the palest of all on the upperside, being almost buff or clayish buff (Ridgway, *Nomencl. Colours* t. v. n. 8 and 13), shaded with olive basally. The apical area of the forewing is nearly marked as in *natalensis* ♀ (!), but the dark portions are very much paler, being bistre-brown, not black; the pale submarginal patch R^3—M^1 is sharply defined owing to the base of cellule R^3—M^1 being filled in with bistre-brown. On the underside the forewing bears a brown-black band outside the apex of the cell. The clasper is dilated at the end and incrassate, club-shaped in side-view; the dilated part

denticulated; the harpe tapers slightly in ventral view, rather strongly in side-view, being sabre-shaped in this aspect.

There are in the Tring Museum 7 ♂♂ of this species collected by Dr. Ansorge at Lugula, Usoga, 21. xii. 96; Mondo, Uganda, 24. xii. 96; Banda, Uganda, 27. xii. 96; Kikoyero, Unyoro, 31. iii. 97; Kaligire, Unyoro, 5. i. 98.

42. **Asterope ansorgei** spec. nov.

♂. *Upperside* of wings ochraceous, much brighter than in all the other species.——Forewing: costal and apical area brown-black, this colour varying much in intensity and extent; the brown-black patch at the apex of the cell gradually shading off basally, the blackish shade filling in nearly the whole cell; the oblique brown subapical band either blackish brown, obsolescent, or black and extended to the distal margin; in the former case (*type*) the ochraceous subapical spots, which are of the colour of the disc, not separated from it; the brown patch situated at the base of cellule R^3—M^1 obsolete, practically absent, or obsolescent at M^1; black-brown submarginal spot M^2—SM^2 small.——Hindwing: black dots smaller than in *trimeni*, *natalensis*, *umbrina*, and *consors*.

Underside.——Forewing rather brighter yellow than in *consors* and *trimeni*; subapical band brown or black, not extended to distal margin; oblique band beyond apex of cell broad, separated from the subapical one or connected with it; apex of wing dirty grey, proximal submarginal series of dots within this area obsolescent; submarginal spot M^2—SM^2 vestigial.——Hindwing similar to that of *natalensis*, the bars and rings more or less obviously clayish ochraceous; black centres of eye-spots small.

Sexual armature essentially as in *natalensis*.

♀. Not known to us.

Hab.: Rau, Nandi country, 14. iii. 99: Patsho, Nandi country, 11. xii. 96; Kabras, Uganda Protectorate, 13. xii. 96 (*type*); Kiwalogoma, Uganda, 26. xii. 96; Banda, Uganda, 27. xii. 96; Kampala, Uganda, i. 97; Port Alice, Uganda, 1. & 2. i. 97, and 10.—13. ii. 97; Msarosaro, Uganda, 14. iii. 99; three days' march from Fort Beni, Aruwimi Forest, 7. v. 99; 50 ♂♂, all caught by Dr. Ansorge, in whose honour the species is named.

O. Neumann found 4 ♂♂ between Godjeb and Bonga, Kaffa, 4. iv. 01.

Asterope amulia.

Papilio Nymphalis Gemmatus amulia Cramer, *Pap. Ex.* ii. p. 128. t. 189. f. C. (1777) (Sierra Leone).

Papilio Nymphalis amalia, Fabricius, *Ent. Syst.* iii. 1. p. 129. n. 398 (1793) (Sierra Leone).

Crenis amulia, Aurivillius, *l.c.* p. 161. n. 8 (1899).

This and the two following species agree almost exactly in the genital armature of the ♂♂, a fact of importance, if we have to weigh the bearing of the similarity in these organs between *Asterope madagascariensis* and *amazoula*, *natalensis* and *ansorgei*, *consors* and *trimeni*, upon the relation of the insects towards each other. It is evident that, since nobody can doubt the distinctness at least of *amulia* from *benguelae* or *rosa*, the similarity in the sexual organs of the before-named insects is also not an indication of specific identity of the insects. The clasper of *amulia*, *rosa* and *benguelae* is truncate and at the upper corner produced into a very long and very slender process, which is denticulate at the end and more or less curved, the apex being sometimes almost

bent into a hook. The harpe of all three species is hook-shaped, the apical half being directed basad and upwards and sharply pointed.

In the Tring Museum 70-odd ♂♂ and 17 ♀♀ from: Gold Coast; Warri, Niger; Cameroons; Gaboon; Angola.

Asterope rosa.

Crenis rosa Hewitson, *Ent. Mo. Mag.* xiv. p. 82 (1877) (Delagoa Bay, ♀); Auriv., *l.c.* p. 161, n. 10 (1899: partim).
Crenis mafiae Staudinger, *Iris* x. p. 358 (1898) (Mafia I., Germ E. Afr.); Auriv., *l.c.* n. 9 (1899).

When describing his *mafiae*, Staudinger started from the erroneous proposition that *rosa* (described from Delagoa Bay) was the same as *pechueli* (described from Angola), and then proceeded to point out the differences between *mafiae* and what he called *rosa*.

Staudinger had evidently not read Hewitson's description of *rosa*, nor compared Mrs. Monteiro's figure of it (in Monteiro, Delagoa Bay, 1891), else he would at once have seen that his *mafiae* was nothing else but *rosa*, and that *rosa* and *pechueli* were different.

The 12 ♂♂ and 5 ♀♀ in the Tring Museum are from: Mombasa; Ruhuhu R., Magwangware, Germ. East Africa, 5. i. 94 (Dr. Ansorge), Dar-es-Salaam; Chipaika Estate, Bandawe, Nyassaland, 5. v. 00 (Watkinson); Deep Bay, Lake Nyassa, 17. x. 95 (Crawshay); Mongu, Barotse, Upper Zambesi, ii. 98 (Coryndon); Lumbi and Gowlu-pan, between Lialui and Gazungula, Upper Zambesi, March 98 (Coryndon); Bolombo R., Angola, 10. v. 95 (Penrice).

Asterope pechueli.

Crenis pechueli Dewitz, *N. Acta Leop. Car. Ak. Naturf.* xli. 2 p. 195. t. 26. f. 1 (♂) (1887) (Angola); id., *l.c.* p. 368. t. 17. f. 2 (♀) (1887)
Crenis rosa, Staudinger (*non* Hewitson, 1877), *Iris* x. p. 358 (1898); Auriv., *l.c.* p. 161. n. 10 (1899) (partim).

The distribution of *pechueli* and *rosa* speaks against their being geographical races (= subspecies) of the same insect. The series of black submarginal spots appears to be always complete on the underside of the forewing in *pechueli*, while in *rosa* there are only four spots, the fourth moreover being much enlarged.

We have only ♂♂ of this species, seventeen from the Congo and one from the Cambe Vley, between Lialui and Gazungula, Upper Zambesi (Coryndon).

Marpesia camillus.

Papilio Eques Achivus camillus Fabricius, *Spec. Ins.* ii. p. 11. n. 42 (1781) (Afr. aequin.).
Cyrestis camillus, Aurivillius, *l.c.* p. 163. n. 1 (1899).

As the type of Hübner's *Marpesia* is *thyonneus* Cram. 220. E. F., we must employ that name for the present species instead of *Cyrestis*. The author of *Cyrestis* did not treat Hübner's names as valid, merely quoting them as synonyms.

Aurivillius, *l.c.*, suggested that the Malagasic *elegans* was a variety of *camillus*. As our series of East African specimens of *camillus* contains individuals which approach *elegans* rather closely, and as further there is no structural difference between *elegans* and *camillus*, there can be no doubt that *elegans* and *camillus* are geographical forms (= subspecies) of the same insect. The eastern Continental individuals (from British East Africa to Nyassaland) differ slightly from the western and northern ones as pointed out by Lathy, who described and figured

the eastern form as a distinct species (*sublineata*), in *Trans. Ent. Soc. Lond.* p. 25. n. 69. t. iii. f. 1 (1901). There are therefore three subspecies of *camillus*. The specimens obtained by Herr Oscar Neumann belong to :—

43. **Marpesia camillus camillus.**

Papilio Eques Achivus camillus Fabricius, *l.c.*
Cyrestis camillus nigrescens Martin, *Iris* p. 162 (1903).

Bands broad and black as a rule, variable, the discal one (second outside cell) olivaceous or ochraceous. The specimens from Somaliland and Abyssinia belong to this subspecies. The distinctions between *cam. camillus* and *cam. sublineatus* are not constant. In some of our specimens of *sublineatus* the bands are partly obliterated. The ♂♂ have on the whole darker bands than the ♀♀.

Six ♂♂ from : Kankati Forest, Djimma, 3. iv. 01; Detscha to Schubba, Kaffa, 11. iv. 01 ; Upper Gelo River, 1. v. 01.

44. **Neptis saclava marpessa.**

Neptis marpessa Hopffer, *Sitzb. Ak. Wiss. Berlin* p. 640 (1855) ; id., in Peters, *Reise Mozambique, Ins.* p. 383. t. 24, f. 9. 10 (1862).
Neptis nemetes var. *pasteuri* Snellen, *Tijdschr. Ent.* xxv. p. 221 (1882) (Quanza R.).
Neptis saclava, Aurivillius (*non* Boisduval, 1833), *l.c.* p. 166. n. 6 (1899) (partim) ; Pagenst., *l.c.* p. 146. n. 1 (1902) (synon. partim).

The Continental specimens differ from Malagasic ones in the white patches of the forewing and the white band of the hindwing being decidedly more restricted, and the black submarginal spots of the hindwing being larger.

8 ♂♂, 6 ♀♀ from : Gillet Mts., 1900—2200 m., 4. vii. 00 ; Walenso, Gillet Mts., 9. vii. 00 ; Gara-Daij, Abunass, 2500—2700 m., 10. vii. 00; Abulcassim, 2400—2600 m., 16. vii. 00 ; Djala, Gofa, 31. i. 01.

The description of Snellen's *nemetes* var. *pasteuri*, l.c., fits exactly the present insect.

45. **Neptis nemetes obtusa** subsp. nov.

♂. Costal margin of forewing comparatively shorter than in *nem. nemetes*, the wing appearing more obtuse. The white band of fore- and hindwing much narrower than in *nem. nemetes*, the inner edge of the band of the hindwing crossing vein M just at the point of origin of M^1.

Length of forewing : 21 mm.

Two ♂♂ from : Scheko, 27. iv. 01.

46. **Neptis agatha.**

Papilio Nymphalis Phaleratus agatha Stoll, in Cram., *Pap. Ex.* iv. p. 76. t. 327. f. A. B. (1782) (Sierra Leone).
Neptis agatha, Aurivillius, *l.c.* p. 167. n. 9 (1899) ; Pagenst., *l.c.* p. 146. n. 2 (1902).

The species occurs all over Africa south of the Sahara. It has not developed into subspecies, but it is individually variable. The South African specimens have the white band on the whole narrower than tropical ones.

A long series from : Odamuda to Djugi, Djidda, 20. vi. 00 ; Luku, Scheikh-Hussein, 20. & 21. vi. 00 ; Walenso, Gillet Mts., 2000 m., 8. vii. 00 ; Gara-Daij, Abunass, 1900—2200 m., 10. vii. 00 ; Djaffa, 19. vii. 00 ; Gindeberat, 25. ix. 00 ; Badattino, Schoa, 27. ix. 00 ; Lake Abassi, 4. xii. 00 ; Alata, Sidamo, 13. xii. 00 ; Koritscha to Tomata, Dara R., Gudji, 24. xii. 00 ; Alesa, Kotscha, 22. & 23. ii. 01 ; Alesa to Schetie, Kotscha, 25. ii. 01 ; Anderatscha to Godjeb, Kaffa, 24. iii. 01 ; Kankati to Djibbe, Djimma, 26. iii. 01.

47. **Neptis melicerta melicerta.**

Papilio Nymphalis Phaleratus melicerta Drury, *Illust. Ex. Ins.* ii. p. 34. t. 19 f. 3. 4. and Index (1773) (Sierra Leone).
Neptis melicerta, Aurivillius, *l.c.* p. 169. n. 24 (1899).

Only two ♂♂ from Scheko, 27. iv. 01, which agree fairly well with West African examples, differing from the East African *melicerta goochi* in the white elongate spot in the cell of the forewing being complete.

Pseudacraea lucretia.

Papilio Nymphalis Phaleratus lucretia Cramer, *Pap. Ex.* i. p. 71. t. 45. f. C. D. (1775) (Guinea).

The insects described as *apaturoides*, *comorana*, *walensensis*, *lucretia*, *protracta*, etc., etc., belong all to the same species. We distinguish six subspecies:

a.	*Pseudacraea lucretia*		*apaturoides*	from	Madagascar.
b.	„	„	*comorana*	„	the Comoro Islands.
c.	„	„	*walensensis*	„	Somaliland and Abyssinia.
d.	„	„	*lucretia*	„	West Africa.
e.	„	„	*tarquinia*	„	South Africa.
f.	„	„	*expansa*	„	East Africa.

The name *heliogenes* refers to orange specimens of *expansa*, and *protracta* to partly ochraceous ones of *lucretia*. The *female* sex is dichromatic (everywhere?), one form being white as the ♂ usually is, and the other having the markings of the upperside partly or all ochreous. Sometimes the hindwing is pale ochraceous and the forewing white (♂ and ♀).

48. **Pseudacraea lucretia walensensis.**

Panopea walensensis Sharpe, *Proc. Zool. Soc. Lond.* p. 532. n. 31 (1896) (Walenso).
Pseudacraea apaturoides var. *walensensis*, Aurivillius, *l.c.* p. 174. n. 2 (1899).
Pseudacraea lucretia, Pagenstecher, *l.c.* p. 146. n. 1 (1902) (Gorobube, 20. iii. 1901).

A variable subspecies, coming nearest to Uganda specimens. In some individuals the white band of the forewing is widely interrupted behind M^2 as in ordinary West Coast specimens; in others it is complete, as described by Miss Sharpe. The white subapical spots of the forewing are said by the authoress to be more square than in *apaturoides*; in all our specimens they are longer. The submarginal dots of the hindwing, above, are in most specimens small but sharply marked. The band of the hindwing is in the Somaliland individuals on the whole broader than in those found farther west by O. Neumann. In some of the latter specimens the band is distinctly shortened behind. One ♀ from Scheko is yellowish on fore- and hindwing. The forewing of the ♀ is rather more elongate than that of the ♂ in all subspecies of *lucretia*.

13 ♂♂, 6 ♀♀ from: Gillet Mts., 1900—2200 m., 4. vii. 00; Walenso, Gillet Mts., 2000 m., 9. vii. 00; Gara-Daij, Abunass, 1900—2000 m., 10. vii. 00; Madali, Abai R., 1. x. 00; Anderatscha, Kaffa, 12—19. iii. 01; Scheko, 27. iv. 01.

49. **Aterica galena incisa** subsp. nov.

♂. *Upperside* of wings: spots of forewing smaller than in West African *galene*; the patch of the hindwing rather more rounded distally and somewhat edged with tawny; the inner side of the patch straight, but deeply incised at the cross-vein, the incision extending from R^2 halfway to R^3. On the *underside* the spots of the forewing as small as above; hindwing rather more buffish than in

gal. galene (West African subspecies), agreeing better with *gal. theophane* (East African subspecies), a brown Λ-mark outside the double cell-spot.

One ♂ from between Kankati and Djibbe, Djimma, 26. iii. 01.

In *A. galene theophane* the patch of the hindwing of the ♂ is always bordered with ochreous rufous, and is of a deeper yellowish tint than in *gal. galene*, as are the spots of the forewing; the discal spots of the latter are larger than in West Coast examples; the two pointed processes of the tenth tergite are rather more curved sideways. The ♀ of *theophane* has the spots of the forewing white and the patch of the hindwing orange, differing from West Coast ♀♀ with orange hindwing in the spots of the forewing being purer white and the discal ones larger, contiguous, and in the abdominal fold of the hindwing not being white-hairy.

The ♂♂ of *A. galene galene* occur in two forms, one having the spots of the forewing the same colour as the patch of the hindwing, the other having them almost white. The ♀♀ occur in three forms: (1) spots of forewing and patch of hindwing white; (2) as before, but hindwing with cinnamon-rufous patch posteriorly outside the white area; (3) spots of forewing pale buff, patch of hindwing pale orange.

Leucosticha nom. nov.

Hamamunida Hübner, *Verz. bek. Schm.* p. 18 (1816-26) (partim; *type: veronica* Cram. 325. c. d); Auriv., *l.c.* p. 181 (1899).

Canopus Felder (*non* Fabricius, 1803), N. Acta *Leop. Car. Acad. Naturf.* xxviii. 3. p. 33 (1861) (type: *daedalus*).

50. **Leucosticha daedalus.**

Papilio Danaus Festivus daedalus Fabricius, *Syst. Ent.* p. 482. n. 174 (1775) (Guinea).

Papilio Danaus Festivus meleagris Cramer, *Pap. Ex.* i. p. 102. t. 66. f. a. b (1775) ("West Indies"!).

1 ♂, 2 ♀♀ of f. *meleagris* from: Upper Busijo, Gindeberat, 25. ix. 00; Gelo R. to Akobo R., v. 01.

6 ♂♂, 5 ♀♀ of f. *daedalus* from: Artu, north of Harar, 2. iii. 00; Abd-el-Kadr, south of Harar, 11. & 14. v. 00; Gurgura to Gololota, 17. vi. 00; Seknata to Hanasch R., Schoa, 18. xi. 00; Alesa, Kotscha, 23. ii. 01; Dalba to Uma R., Konta, 28. ii. 01.

51. **Euphaedra preussi neumanni.**

Euphaedra neumanni Rothschild, Nov. Zool. ix. p. 596. n. 7 (1902).

A comparison of this insect with a long series of *preussi* has convinced us that the differences between *neumanni* and *preussi* are only of subspecific value.

1 ♂, 2 ♀♀ from: Scheko, 27. iv. 01; Upper Gelo R., 1. v. 01.

The ♀ from the latter place has the pale middle area of the upperside of fore- and hindwing much more reduced than the Scheko ♀, and the black cell-spots of the underside are larger, there being, moreover, a distinct black bar on the cross-veins of both wings.

52. **Euphaedra sarita abyssinica.**

Euphaedra sarita abyssinica Rothschild, *l.c.* n. 6 (1902).

2 ♂♂, 3 ♀♀ from: Banka, Mole, 17. ii. 01; Kankati Forest, Djimma, 3. iv. 01.

The specific distinctness from one another of *E. sarita*, *eberti*, *inanum* and *ceres* is not beyond doubt. It is scarcely possible to decide where to draw the line of distinction between them.

53. Euphaedra medon.

Papilio medon Johanssen, in Linné, *Amoen.* vi. p. 402. n. 53 (1763) ("in Indiis"!).
Euphaedra medon, Aurivillius, *l.c.* p. 190. n. 20 (1899).

1 ♂ from the Upper Gelo River, 8. v. 01.

The specimen has a yellow subapical band on the upperside of the forewing, an entirely blue-green upperside to the hindwing, a narrow, abbreviated, white subapical band on the underside of the forewing, and a white discal band on the hindwing, The black cell-spots of the underside are small.

The genus *Euphaedra* requires a thorough revision. Some species are amazingly variable. We have studied the genus to some extent, but not sufficiently to publish the results. We can only say this much—that it is a very hard nut to crack. The sexual armature is of little help, being obviously different only in a small number of species.

54. Charaxes varanes vologeses.

Charaxes vologeses Mabille, *Bull. Soc. Zool. France* i. p. 280 (1876) (Congo).
Charaxes varanes vologes, Rothschild & Jordan, Nov. Zool. vii. p. 358 (1900).
Charaxes varanes, Pagenstecher, *l.c.* p. 150. n. 6 (1902).

4 ♂♂, 3 ♀♀ from: Harar, 17. iv. 00; Abd-el-Kadr, south of Harar, 14. & 16. v. 00; Walenso, Gillet Mts., 2000 m., 8. vii. 00; Abulcassim, 2100—2600 m., 16. vii. 00.

The white area of the upperside of the wings is on an average less extended than in ordinary tropical individuals. In two of the specimens from Abd-el-Kadr the underside is strongly irrorated with black-brown, while in the ♀ from Harar the underside is green-olive, resembling the leaf-like form occurring commonly in South-East Africa. The ♀ from Abulcassim has the underside irrorated, but less strongly than those ♂♂ from Abd-el-Kadr.

55. Charaxes candiope candiope.

Nymphalis candiope Godart, *Enc. Méth.* ix. p. 353. n 10 (1823) (hab.?).
Charaxes candiope candiope, Rothschild & Jord., *l.c.* p. 366. n. 26a (1900).
Charaxes candiope, Aurivillius, *l.c.* p. 240. n. 51 (1899); Pagenst., *l.c.* p. 150. n. 5 (1902).

8 ♂♂, 4 ♀♀ from: Abd-el-Kadr, 14., 15. & 16. v. 00; Habela to Alata, Sidamo, 12. xii. 00; Wori to Gamitscha, Kaffa, 5. iii. 01; Scheko, 26. iv. 01.

56. Charaxes numenes neumanni.

Charaxes numenes neumanni Rothschild, Nov. Zool. ix. p. 597. n. 8 (1902).

1 ♂ from Wori to Gamitscha, Kaffa, 5. iii. 01.

57. Charaxes tiridates marginatus subsp. nov.

♂. Differs from *Ch. tir. tiridates* in the ochraceous marginal (respectively admarginal) spots of both wings being larger, forming a band which is interrupted only at the narrowly black veins, the upperside resembling that of *Ch. numenes neumanni*.

1 ♂ from Scheko, 25. iv. 01.

58. **Charaxes boueti rectans** subsp. nov.

♂. Wings, *upperside:* Forewing: the upper admarginal orpiment-orange spots larger than in *b. boueti* and *b. lasti*, the spots all being of nearly equal size, excepting the last one, which is larger; the series of postdiscal orpiment-orange spots straight, the uppermost spot not being more proximal than the ones behind it, the spots being, moreover, smaller than in the other two races.—— Hindwing: the orpiment-orange admarginal band narrower than in *Ch. b. boueti* and *b. lasti*.

Underside conspicuously different from that of the other subspecies of *boueti*.——Forewing: cell-bar 3 heavy, cell-bar 4 abbreviated, short, situated close to bar 3 (individual character?); median bars * SC^5—R^2 straight, olivaceous; a silvery white straight postdiscal band, tapering behind, extending from SC^4 to beyond M^2, proximally slightly incised at the veins, bordered proximally by a narrow olive discal band which shades off proximally, and distally by a broader postdiscal band which ends in a large square patch M^2—SM^2.——Hindwing: a subbasal and a median olive band, the latter resembling that of *b. boueti* in its proximal edge being more straight than in *b. lasti*; submedian interspace C—M silvery white; discal bars ill-defined, broad, merged together to form a narrow olivaceous band; submarginal interstitial band olive, paler than the olive-black postdiscal bars, which are ill-defined; the discal bars edged with silvery white distally, especially the upper ones; a series of silvery admarginal spots; olive marginal line rather heavier than in the West and the East African subspecies.

1 ♂ from the Upper Urga, Kollu, Schoa, 23. ix. 00.

59. **Charaxes phoebus.**

Charaxes phoebus Butler, *Proc. Zool. Soc. Lond.* 1865. p. 625. n. 8. t. 36. f. 2 (♂) (1866) (Abyssinia); Rothsch. & Jord., *l.c.* p. 424. n. 54 (1900).

This species is rare in collections, as nearly all the truly Abyssinian forms.

1 ♂, 1 ♀ from: Djaffa, 19. vii. 00; Kafissa, Lake Abassi, 10. xii. 00.

60. **Charaxes brutus junius.**

Charaxes brutus var. *junius* Oberthür, *Ann. Mus. Civ. Gen.* xv. p. 166. n. 47(1879) (Abyssinia); Auriv., *l.c.* p. 231. sub n. 1 (1899).
Charaxes brutus junius, Rothschild & Jord., *l.c.* p. 431. n. 57a (1900).

1 ♂ from Kollu-Kollu, Schoa, 7. x. 00.

The band of the upperside is rather narrower than in the specimens described by us *l.c.*

61. **Charaxes brutus somalicus.**

Charaxes brutus somalicus Rothschild, Nov. Zool. vii. p. 432. n. 57*b* (1900) (Harar Highlands).

2 ♂♂ from: Gara Mulata, near Harar, 29. iii. 00; Kankati forest, Djimma, 3. iv. 01.

The admarginal spots of the upperside of the hindwing are obviously smaller than in *junius*. The band of the forewing of the Kankati specimen is more straight than in the Gara Mulata individual, and also than in our specimens of *junius*. It is possible that a long series will show *junius* and *somalicus* to be the same.

* See Nov. Zool. v. p. 549. fig. 2 (1898).

62. Charaxes castor castor.

Papilio Eques Achivus castor Cramer, *Pap. Ex.* i. p. 61. t. 37. fig. C. D. & Index (1775) (Guinea).
Charaxes castor, Aurivillius, *l.c.* p. 232. n. 4 (1899).
Charaxes castor var. et ab. *godarti* id., *l.c.*
Charaxes castor castor f. *godarti*, Rothschild & Jord., *l.c.* p. 440 n. 58.c' (1900).

1 ♂ from Gadschin R., Jambo, 9. v. 01.

This individual resembles certain Congo specimens very closely, differing however from all our examples of *castor castor* in the proximal patches SC^4—R^2 of the band on the upperside of the forewing being rather larger. The specimen belongs to the form *godarti*, in which the interspaces in the basal half of the underside of the wings are black.

63. Charaxes hansali.

Charaxes hansali Felder, *Reise Novara, Lep.* p. 446. n. 728. t. 59. f. 3. 4 (1867) (Bogos); Auriv., *l.c.* p. 233. n. 6 (1899); Rothsch. & Jord., *l.c.* p. 440. n. 59 (1900).

1 ♂, 1 ♀ from: Abd-el-Kadr, south of Harar, 16. v. 00; Wabbi, 10. vii. 00.

64. Charaxes epijasius.

Charaxes epijasius Reiche, in Ferr. & Gal., *Voy. Abyss., Ent.* p. 469. t. 32. f. 1. 2 (1849); Auriv., *l.c.* p. 232. n. 3 (1899); Rothsch. & Jord., *l.c.* p. 450. n. 62 (1900).

3 ♂♂ from: Uma R., Konta, 1. iii. 01; Uanji Hill, Jambo, 13. v. 01.

65. Charaxes etesipe abyssinicus.

Charaxes etesipe abyssinicus Rothschild, Nov. Zool. vii. p. 458. n. 64c (1900) (Schoa).

1 ♂, agreeing with the *type* in the essential distinctions from *etesipe etesipe* and *etesipe tavetensis*.——From Walenso, Gillet Mts., 2000 m., 3. vii. 00.

66. Charaxes achaemenes.

Charaxes achaemenes Felder, *Reise Novara, Lep.* p. 446. n. 729. t. 59. f. 6. 7 (1867) (Natal); Auriv., *l.c.* p. 234. n. 16 (1899); Rothsch. & Jord., *l.c.* p. 460. n. 66. t. 12. f. 1. ♀ (1900); Pagenst., *l.c.* p. 149. n. 2. (1902).
Charaxes jocaste Butler, *Trans. Ent. Soc. Lond.* p. 274 (1869) (*achaemenes* = *jocaste*).

18 ♂♂ from; Abd-el-Kadr, south of Harar, 14. v. 00; Bio Woraba to Dika, 23. v. 00; Djabdjabdu, 24. v. 00; Moyo R., Atschubo, 2. vi. 00; Scheikh-Hussein, 26. vi. 00; Wabbi, Abulcassim, 15. vii. 00; Gadschin R., Jambo, 9. v. 01; Uanji Hill, Jambo, 13. v. 01.

67. Charaxes etheocles etheocles.

Papilio Eques Achivus etheocles Cramer, *Pap. Ex.* ii. p. 34. t. 119 fig. D. E. & Index (1777).
Charaxes etheocles, Aurivillius, *l.c.* p. 236. n. 34 (1899); Pagenst., *l.c.* p. 149. n. 3 (1902) (syn. partim). Rothsch. & Jord., *l.c.* vi. t. 8. f. 6. ♂, 7. ♀ (1899); iid., *l.c.* vii. p. 479. n. 74. t. 12. f. 5. 7. 8. ♀ ♀ (1900).
Charaxes etheocles etheocles Rothschild & Jord.

15 ♂♂, 2 ♀♀ from: Gobele R., 26. v. 00; Jabalo to Gurgura, 15. vi. 00; Gurgura to Gololota, 17. vi. 00; Gillet Mts., 1900—2200 m., 29. vi., 1. & 4. vii. 00; Walenso, Gillet Mts., 2000 m., 8. vii. 00; Uanji Hill, Jambo, 13. v. 01.

The specimens (♂♂) have on the upperside of the forewing one or two subapical spots, and some bear indications of one or two more dots; there are two or three discal costal dots, and most specimens have also a spot in the

cell. The marginal spots of the forewing are sometimes rather distinct. The anterior admarginal spots of the hindwing, upperside, are centred with orange or are unicolorous. The two ♂♂ from the Uanji Hill are rather smaller than the specimens from the other places.

The two ♀♀ differ from the forms of this sex known to us. The band of the wings, upperside, is similar in shape to that of ♀ f. *ethalion*, but is entirely white; on the forewing it is posteriorly slightly edged with blue, while it is broadly bordered with that colour proximally and distally on the hindwing. This form, which bears a rather close likeness to *Ch. achaemenes*, we name

Ch. etheocles etheocles ♀-f. daria nov.

Type from between Jabalo and Gurgura; the second specimen from the Gillet Mts.

68. **Charaxes zoolina zoolina.**

Nymphalis zoolina Westwood, in Doubl., Westw. & Hew., *Gen. Diurn. Lep.* ii. t. 53. f. 1. ♀ (1850).
Charaxes zoolina, Aurivillius, *l.c.* p. 243. n. 64 (1899 : partim).
Charaxes zoolina zoolina Rothschild & Jord., *l.c.* p. 517. n. 89*a*. t. 9. f. 4. 5. ♂, 6. ♀ (1900).

14 ♂♂, 2 ♀♀ from: Bubassa, 22. v. 00; Bio Woraba to Dika, 23. v. 00; Djabdjabdu, 24. v. 00; Atschabo to Kumbi, 4. vi. 00.; Luku, Scheikh-Hussein, 25. vi. 00; Scheikh-Hussein, 26. vi. 00.; Scheko, 26. iv. 01.

69. **Charaxes neanthes neanthes.**

Nymphalis neanthes Hewitson, *Ex Butt. i. Nymphalis* t. i. f. 2. 3. ♀ (1854) (Natal).
Charaxes neanthes, Aurivillius, *l.c.* p. 244. n. 68 (1899); Pagenst., *l.c.* p. 150. n. 7 (1902).
Charaxes neanthes neanthes, Rothschild & Jord., *l.c.* p. 523. n. 93*a* (1900).

10 ♂♂, 3 ♀♀ from: Ganda Kore, Argobba, 20. v. 00; Atschabo to Kumbi, 4. vi. 00; Gurgura to Gololota, 17. vi. 00; Luku, Scheikh-Hussein, 25. vi. 00; Gillet Mts., 1900—2200 m., 4. vii. 00; Djaffa, 19. vii. 00; Darro, 18. vii. 00.

(*To be continued.*)

NOTE ON *PULEX PALLIDUS* Tasch.

By THE HON. N. C. ROTHSCHILD, M.A., F.L.S.

THROUGH the kindness of the Director of the Berlin Museum for Natural History we have received two (♂ and ♀) of the specimens from which Taschenberg drew up the description of *Pulex pallidus*. In this description it is stated that *pallidus* is so closely related to *irritans* that the author doubted the two species being specifically distinct. *Pulex pallidus* proves now to be identical with my *Pulex witherbyi*, described in *Ent. Mon. Mag.* (2). xiv. p. 86 (1903).

NOVITATES ZOOLOGICAE.

Vol. X. (INDEX NUMBER). No. 4.

NOTE ON *DENDRODORCOPSIS WOODWARDI.*

BY THE HON. WALTER ROTHSCHILD, PH.D.

WHEN I published (*antea*, p. 414) a preliminary description of the above very distinct Kangaroo I stated that the cranial characters were identical with *Macropus*. Mr. Oldfield Thomas, when writing a paper on the collections made by Mr. Tunny on the Alligator River, has pointed out to me that my new genus cannot stand, as even the external characters are more Macropine than I at first thought. I therefore, as there is already a *Macropus woodwardi*, propose for this new species the name of *Macropus bernardus*, instead of *Dendrodorcopsis woodwardi*.

NEW SPECIES AND SUBSPECIES

DESCRIBED IN

VOLUMES I. TO X. OF *NOVITATES ZOOLOGICAE.*

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I. MAMMALIA.

1. **Acomys hunteri** De Winton . . . . . vol. viii. (1901), p. 401 (footnote)
2. **Acomys witherbyi** De Winton . . . . . „ viii. (1901), p. 400
3. **Alouatta palliata coibensis** Thomas . . . . „ ix. (1902), p. 135
4. **Capra sibirica lydekkeri** Rothsch. . . . . „ vii. (1900), p. 277, pl. II.
5. **Carponycteris crassa** Thomas . . . . . „ ii. (1895), p. 163
6. **Cercocebus chrysogaster** Lydekker . . . . . „ vii. (1900), p. 279, pl. III.
7. **Cercocebus hagenbecki** Lydekker . . vol. vii. (1900), p. 594; vol. viii., pl. I., fig. 1
8. **Cervicapra chanleri** Rothsch. . . . . vol. ii. (1895), p. 53
9. **Chirogale melanotis** Forsyth Major . . . . „ i. (1894), p. 25, pl. II., fig. 10
10. **Chiruromys pulcher** Thomas . . . . . „ ii. (1895), p. 164
11. **Cobus penricei** Rothsch. . . . . „ ii. (1895), p. 52
12. **Dama rothschildi** Thomas . . . . . „ ix. (1902), p. 136
13. **Dasyprocta coibae** Thomas . . . . . „ ix. (1902), p. 136
14. **Dendrolagus maximus** Rothsch. . . . . „ v. (1898), p. 511
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16. **Didelphis marsupialis battyi** Thomas . . . . „ ix. (1902), p. 137
17. **Dipodillus henleyi** De Winton . . . vol. x. (1903), p. 284, pl. VIII., fig. 1
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19. **Dorcopsis rufolateralis** Rothsch. . . . . vol. v. (1898), p. 512
20. **Eliomys lerotinus occidentalis** Thomas . . . . „ x. (1903), p. 300
21. **Emballonura meeki** Thomas . . . . . „ iii. (1896), p. 527
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23. **Gerbillus (Dipodillus) watersi** De Winton . . „ viii. (1901), p. 399
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28. **Lepus rothschildi** De Winton . . . . . „ ix. (1902), p. 444
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33. **Opolemur thomasi** Forsyth Major . . . . „ i. (1894), p. 19, pl. I., fig. 1
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53. **Semnopithecus natunae** Thomas & Hartert . . vol. i. (1894), p. 652
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56. **Tupaia splendidula lucida** Thomas & Hartert . . „ ii. (1895), p. 490

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54. **Corvus corax canariensis** Hartert & Kleinschmidt . „ viii. (1901), p. 45
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56. **Corvus corax hispanus** Hartert & Kleinschmidt . „ viii. (1901), p. 45
57. **Coturniculus savannarum caribaeus** Hartert . . „ ix. (1902), p. 298
58. **Creciscus sharpei** Rothsch. & Hartert . . . „ vi. (1899), p. 185
59. **Criniger lucasi** Hartert . . . . . „ x. (1903), p. 13
60. **Cryptolopha everetti waterstradti** Hartert . . „ x. (1903), p. 9
61. **Cryptolopha montis floris** Hartert . . . . „ iv. (1897), p. 171
62. **Culicicapa ceylonensis sejuncta** Hartert . . . „ iv. (1897), p. 526
63. **Cyanerpes caerulea cherriei** Berlepsch & Hartert . „ ix. (1902), p. 16
64. **Cyanops rubescens** Baker . . . . . „ iii. (1896), p. 257
65. **Cyclopsittacus virago** Hartert. . . . . „ ii. (1895), p. 61
66. **Dendrocincla phaeochroa** Berlepsch & Hartert. . „ ix. (1902), p. 67

67. **Dendrocopus major anglicus** Hartert . . . vol. vii. (1900), p. 528
68. **Dendrornis rostripallens sororia** Berlepsch & Hartert „ ix. (1902), p. 63
69. **Dicaeum geelvinkianum diversum** Rothsch. & Hartert „ x. (1903), p. 215
70. **Dicaeum kühni** Hartert . . . . . „ x. (1903), p. 28
71. **Dicaeum neglectum** Hartert . . . . . „ iv. (1897), p. 264
72. **Dicaeum sollicitans** Hartert . . . . . „ viii. (1901), p. 52
73. **Dicrurus dohertyi** Hartert . . . . . „ ix. (1902), p. 441
74. **Dicrurus kühni** Hartert . . . . . „ viii. (1901), p. 170
75. **Dicrurus meeki** Rothsch. & Hartert . . . „ x. (1903), p. 110
76. **Dicrurus suluensis** Hartert . . . . . „ ix. (1902), p. 441
77. **Dysithamnus tucuyensis** Hartert . . . vol. i. (1894), p. 674, pl. XV. fig. 1
78. **Eafa maculata** Rothsch. & Hartert . . vol. x. (1903) p. 448, pl. XIV. fig. 1
79. **Eclectus pectoralis solomonensis** Rothsch. & Hartert vol. viii. (1901), p. 82
80. **Edoliisoma amboinense tagulanum** Hartert . . „ v. (1898), p. 524
81. **Edoliisoma dohertyi** Hartert . . . . . „ iii. (1896), p. 584
82. **Edoliisoma emancipata** Hartert . . . . . „ iii. (1896), p. 170
83. **Edoliisoma erythropygium saturatius** Rothsch. & Hartert vol. ix. (1902), p. 582
84. **Edoliisoma melas meeki** Rothsch. & Hartert . . vol. x. (1903), p. 207
85. **Edoliisoma melas tommasonis** Rothsch. & Hartert . „ x. (1903), p. 206
86. **Edoliisoma meyeri sharpei** Rothsch. & Hartert . „ x. (1903), p. 209
87. **Eos kühni** Rothsch. (= **Eos bornea** juv. *vide* vol. v. p. 509) vol. v. (1898) p. 110, pl. XVIII. fig. 1
88. **Eriocnemis berlepschi** Hartert . . . . vol. iv. (1897), p. 531
89. **Eriocnemis derbyi longirostris** Hartert . . . „ ii. (1895), p. 69
90. **Eriocnemis evelinae** Ernst & Cl. Hartert (= **E. vestita smaragdinipectus**, *cf.* Hartert, *Tierreich* 9, p. 145) . . . . . vol. i. (1894), p. 59
91. **Erithacus rubecula melophilus** Hartert . . . „ viii. (1901), p. 317
92. **Erythrura trichroa papuana** Hartert . . . „ vii. (1900), p. 7
93. **Erythrura trichroa woodfordi** Hartert . . . „ vii. (1900), p. 7
94. **Eudynamis cyanocephala everetti** Hartert . . „ vii. (1900), p. 231
95. **Euphonia fulvicrissa purpurascens** Hartert . . „ viii. (1901), p. 370
96. **Eupsychortyx mocquerysi** Hartert . . . vol. i. (1894), p. 675, pl. XV. fig. 2
97. **Eurystomus neohanoveranus** Hartert . . . vol. viii. (1901), p. 185 (footnote)
98. **Eutoxeres baroni** Ernst & Cl. Hartert . . . „ i. (1894), p. 54
99. **Formicarius analis destructus** Hartert . . . „ v. (1898), p. 493
100. **Galerida cristata deltae** Hartert . . . . „ iv. (1897), p. 144
101. **Galerida cristata superflua** Hartert nom. nov. (for **G. cristata pallida** Whitaker, *Ibis*, 1895, p. 100) . . . . . vol. iv. (1897), p. 144
102. **Galerida ellioti** Hartert nom. nov. (for **G. pallida** Elliot, *Field Columbian Museum Publications*, 17 p. 38) . . . . . vol. iv. (1897), p. 144
103. **Gecinus rodgeri** Hartert & Butler . . . . „ v. (1898), p. 508
104. **Geocichla dohertyi** Hartert . . . . vol. iii. (1896), p. 555, pl. IX., fig. 3
105. **Geoffroyus aruensis cyanicarpus** Hartert . . vol. vi. (1899), p. 81
106. **Geospiza darwini** Rothsch. & Hartert . . . vol. vi. (1899), p. 158
107. **Geospiza dubia simillima** Rothsch. & Hartert . „ vi. (1899), p. 161
108. **Geospiza fuliginosa minor** Rothsch. & Hartert . „ vi. (1899), p. 162
109. **Geospiza scandens septentrionalis** Rothsch. & Hartert „ vi. (1899), p. 165
110. **Geotrygon veraguensis cachaviensis** Hartert. . „ v. (1898), p. 504
111. **Gerygone everetti** Hartert . . . . . „ iv. (1897), p. 267
112. **Gerygone kühni** Hartert . . . . . „ vii. (1900), p. 15
113. **Gerygone neglecta dohertyi** Rothsch. & Hartert . „ x. (1903), p. 473
114. **Gerygone rosseliana** Hartert . . . . . „ vi. (1899), p. 79
115. **Gerygone rosseliana onerosa** Hartert . . . „ vi. (1899), p. 209
116. **Goura cinerea** Hartert (= **Goura coronata** aberr., *cf.* vol. viii. p. 134), vol. ii., p. 67

117. **Gracupica tertia** Hartert . . . . . vol. iii. (1896), p. 547
118. **Graucalus bungurensis** Hartert . . . . . „ i. (1894), p. 477
119. **Graucalus floris alfredianus** Hartert . . . . „ v. (1898), p. 458
120. **Graucalus hypoleucus louisiadensis** Hartert . . „ v. (1898), p. 524
121. **Graucalus sumatrensis difficilis** Hartert . . „ ii. (1895), p. 470
122. **Habrura pectoralis brevipennis** Berlepsch & Hartert „ ix. (1902), p. 40
123. **Haemophila laeta** Salvin . . . . . „ ii. (1895), p. 8
124. **Haemophila personata** Salvin . . . . . „ ii. (1895), p. 8
125. **Halcyon australasiae dammeriana** Hartert . . „ vii. (1900), p. 19
126. **Halcyon sordidus colonus** Hartert . . . . . „ iii. (1896), p. 244
127. **Heliangelus claudia** Hartert . . . . . „ ii. (1895), p. 484
128. **Heliangelus dubius** Hartert . . . . . „ iv. (1897), p. 532
129. **Heteropelma rosenbergi** Hartert . . . . . „ v. (1898), p. 489
130. **Houbara fuertaventurae** Rothsch. & Hartert . . „ i. (1894), p. 689
131. **Hypochaera wilsoni** Hartert . . . . . „ viii. (1901), p. 342
132. **Hypocharmosyna meeki** Rothsch. & Hartert vol. viii. (1901), p. 187; vol. ix., pl. VII., fig. 3
133. **Hylocharis ruficollis maxwelli** Hartert . . . . „ v. (1898), p. 519
134. **Hylophilus thoracicus griseiventris** Berlepsch & Hartert vol. ix. (1902), p. 11
135. **Hypotaenidia owstoni** Rothsch. . . . . vol. ii. (1895), p. 481
136. **Hypothymis puella blasii** Hartert . . . . . „ v. (1898), p. 131
137. **Iole holti binghami** Hartert . . . . . „ ix. (1902), p. 558 (footnote)
138. **Iole tickelli peracensis** Hartert . . . . . „ v. (1898), p. 506
139. **Iyngipicus grandis excelsior** Hartert . . . . „ v. (1898), p. 461
140. **Iyngipicus obsoletus ingens** Hartert . . . . „ vii. (1900), p. 33
141. **Kittacincla macrurus omissa** Hartert . . . . „ ix. (1902), p. 572
142. **Lagonosticta senegala rendalli** Hartert . . . . „ v. (1898), p. 72
143. **Lanius algeriensis koenigi** Hartert . . . . „ viii. (1901), p. 309
144. **Lathria unirufus castaneotinctus** Hartert . . „ ix. (1902), p. 610
145. **Leptoptila decolor** Salvin . . . . . „ ii. (1895), p. 21
146. **Limnaëtus limnaëtus floris** Hartert . . . . „ v. (1898), p. 46
147. **Lophoceros granti** Hartert . . . . . „ ii. (1895), p. 55
148. **Lophornis verreauxi klagesi** Berlepsch & Hartert . „ ix. (1902), p. 89
149. **Lophozosterops dohertyi** Hartert . . vol. iii. (1896), p. 568; vol. iv., pl. II., fig. 1
150. **Lophozosterops subcristatus** Hartert . . . vol. iv. (1897), p. 171
151. **Loriculus aurantiifrons meeki** Hartert . . . . „ ii. (1895), p. 62
152. **Lorius lory major** Rothsch. & Hartert . . . . „ viii. (1901), p. 66
153. **Macropteryx comata major** Hartert . . . . „ ii. (1895), p. 473
154. **Macropteryx mystacea woodfordiana** Hartert . „ iii. (1896), p. 19
155. **Macropygia doreya cunctata** Hartert . . . . „ vi. (1899), p. 214
156. **Macropygia ruficeps orientalis** Hartert . . . „ iii. (1896) p. 573
157. **Malacopterum cinereum bungurense** Hartert . „ i. (1894), p. 470
158. **Manucodia ater altera** Rothsch. & Hartert . . „ x. (1903), p. 84
159. **Melilestes fergussonis** Hartert . . . . . „ iii. (1896), p. 237
160. **Melittophagus sharpei** Hartert (= **M. cyanostictus** vide *Bull. B.O.C.*) vol. vii. (1900), p. 35
161. **Melopyrrha taylori** Hartert . . . . . vol. iii. (1896), p. 257
162. **Metallura smaragdinicollis septentrionalis** Hartert „ vi. (1899), p. 73
163. **Metallura theresiae** Simon . . . . . „ ix. (1902), p. 181
164. **Microeca addita** Hartert . . . . . „ vii. (1900), p. 234
165. **Microeca griseiceps occidentalis** Rothsch. & Hartert „ x. (1903), p. 471
166. **Microeca oscillans** Hartert . . . . . „ iv. (1897), p. 170
167. **Microcerculus caurensis** Berlepsch & Hartert. . „ ix. (1902), p. 5
168. **Micropus willsi** Hartert . . . . . „ iii. (1896), p. 231
169. **Miro dannefaerdi** Rothsch. . . . . „ i. (1894), p. 688

170. **Mirafra africana athi** Hartert . . . . vol. vii. (1900), p. 46
171. **Mirafra africana transvaalensis** Hartert . . „ vii. (1900), p. 45
172. **Mirafra africana tropicalis** Hartert . . . „ vii. (1900), p. 45
173. **Mitrephanes berlepschi** Hartert . . . . „ ix. (1902), p. 608
174. **Mixornis everetti** Hartert . . . . . „ i. (1894), p. 472
175. **Monachalcyon monachus intermedius** Hartert . „ iv. (1897), p. 163
176. **Monarcha brodiei floridana** Hartert . . . „ viii. (1901), p. 182
177. **Monarcha everetti** Hartert . . . . . „ iii. (1896), p. 173
178. **Monarcha kulambangrae** Hartert . . . . „ viii. (1901), p. 183
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181. **Muscicapa toruensis** Hartert. . . . . „ vii. (1900), p. 37
182. **Muscicapula hyperythra pallidipectus** Hartert . „ x. (1903). p. 52
183. **Myiagra nupta** Hartert (= **M. nitida** Gould, *cf.* vol x., p. 466) vol. v. (1898), p. 526.
184. **Myiagra rufigula colonus** Hartert. . . . vol. iv. (1897), p. 266
185. **Myrmeciza swainsoni griseipectus** Berlepsch & Hartert vol. ix. (1902), p. 76
186. **Myrmotherula cerviniventris pallida** Berlepsch & Hartert vol. ix. (1902), p. 74
187. **Myrmotherula cherriei** Berlepsch & Hartert . . vol. ix. (1902), p. 72
188. **Myrmotherula viduata** Hartert . . . . . „ v. (1898), p. 492
189. **Myzomela batjanensis** Hartert . . . . . „ x. (1903), p. 56
190. **Myzomela eichhorni** Rothsch. & Hartert vol. viii. (1901), p. 181; vol. ix., pl. VII., fig. 1, 2
191. **Myzomela nigrita louisiadensis** Hartert . . vol. v. (1898), p. 527
192. **Myzomela simplex mortyana** Hartert . . . „ x. (1903), p. 56
193. **Nasiterna salvadorii** Rothsch. & Hartert . . „ viii. (1901), p. 80
194. **Nasiterna tristrami** Rothsch. & Hartert . . „ ix. (1902), p. 589
195. **Neocrex uniformis** Hartert . . . . . „ viii. (1901), p. 369
196. **Neopsittacus pullicauda** Hartert . . . . . „ iii. (1896), p. 17
197. **Nesopelia galapagoensis exsul** Rothsch. & Hartert „ vi. (1899), p. 184
198. **Nucifraga caryocatactes japonica** Hartert . . „ iv. (1897), p. 134
199. **Onycognathus intermedius** Hartert . . . „ ii. (1895), p. 56
200. **Oreotrochilus stolzmanni** Salvin (= **O. bolivianus** Bouc., *cf. Tierreich* ix., p. 110) vol. ii. (1895), p. 17
201. **Oriolus broderipi oscillans** Hartert . . . vol. x. (1903), p. 32
202. **Orthnocichla everetti** Hartert . . . . . „ iv. (1897), p. 170
203. **Osmotreron everetti** Rothsch. . . . . „ i. (1894), p. 41
204. **Osmotreron wallacei pallidior** Hartert . . . „ iii. (1896), p. 178
205. **Pachycephala everetti** Hartert . . . . . „ iii. (1896), p. 170
206. **Pachycephala fortis trobriandi** Hartert. . . . „ iii. (1896), p. 236
207. **Pachycephala johni** Hartert . . . . . „ x. (1903), p. 12
208. **Pachycephala melanura dammeriana** Hartert . „ vii. (1900), p. 17
209. **Pachycephala moroka** Rothsch. & Hartert . . „ x. (1903), p. 106
210. **Pachycephala nudigula** Hartert . . . vol. iv. (1897), p. 171, and pl. III. fig. 3
211. **Pachyrhamphus similis** Salvin . . . . vol. ii. (1895), p. 13
212. **Parus caeruleus degener** Hartert . . . . „ viii. (1901), p. 309
213. **Passer hispaniolensis maltae** Hartert . . . „ ix. (1902), p. 332
214. **Pelargopsis melanorhyncha eutreptorhyncha** Hartert „ v. (1898), p. 128
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216. **Phaethornis berlepschi** Ernst & Cl. Hartert . . „ i. (1894), p. 56
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220. **Phoenicophaes microrhinus** Berlepsch . . . „ ii. (1895), p. 70
221. **Phyllergates cucullatus philippinus** Hartert . . „ iv. (1897), p. 517
222. **Phyllergates everetti** Hartert . . . . „ iv. (1897), p. 517

223. **Picumnus stellae** Berlepsch & Hartert . . . vol. ix. (1902), p. 96
224. **Pinarolestes megarhyncha despectus** Rothsch. & Hartert vol. x. (1903), p. 100
225. **Pinarolestes megarhyncha madaraszi** Rothsch. & Hartert vol. x. (1903), p. 100
226. **Pipra mentalis minor** Hartert . . . . vol. v. (1898), p. 489
227. **Pisorhina alfredi** Hartert . . . . . ,, iv. (1897), p. 527
228. **Pisorhina manadensis kalidupae** Hartert . . ,, x. (1903), p. 21
229. **Pisorhina sulaensis** Hartert . . . . . ,, v. (1898), p. 126
230. **Pitohui dohertyi** Rothsch. & Hartert . . . ,, x. (1903), p. 95
231. **Pitohui meyeri** Rothsch. & Hartert . . . ,, x. (1903), p. 96
232. **Pitta irena virginalis** Hartert . . . . ,, iii. (1896), p. 174
233. **Pitta mackloti aruensis** Rothsch. & Hartert . . ,, viii. (1901), p. 63
234. **Pitta concinna everetti** Hartert . . . . ,, v. (1898), p. 459
235. **Pittasoma rufopileatum** Hartert . . vol. viii. (1901), p. 370; vol. ix. pl. VII.
236. **Ploceus passerina infortunatus** . . . . vol. ix. (1902), p. 577
237. **Pnoepyga everetti** Rothsch. . . . . ,, iv. (1897), p. 168
238. **Polioptila berlepschi** Hellmayr . . . . ,, viii. (1901), p. 356
239. **Polioptila buffoni innotata** Hellmayr . . . ,, viii. (1901), p. 359
240. **Polioptila nigriceps major** Hellmayr . . . ,, vii. (1900), p. 538
241. **Pomarea ribbei** Hartert . . . . . ,, ii. (1895), p. 485
242. **Poospiza alticola** Salvin . . . . . ,, ii. (1895), p. 7
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244. **Prioniturus mada** Hartert . . . . . ,, vii. (1900), p. 230
245. **Prioniturus platurus talautensis** Hartert . . ,, v. (1898), p. 88
246. **Prionochilus inexpectatus** Hartert . . . ,, ii. (1895), p. 64
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250. **Pterocles gutturalis saturatior** Hartert. . . ,, vii. (1900), p. 29
251. **Pteruthius tahanensis** Hartert . . . . ,, ix. (1902), p. 576
252. **Ptilinopus albocinctus baliensis** Hartert . . ,, iii. (1896), p. 553
253. **Ptilinopus chrysorrhous pelingensis** Hartert . . ,, v. (1898), p. 135
254. **Ptilinopus gestroi kaporensis** Rothsch. & Hartert . ,, viii. (1901), p. 105
255. **Ptilinopus melanocephala aurescentior** Hartert . ,, x. (1903), p. 33
256. **Ptilopus lewisii vicinus** Hartert . . . . ,, ii. (1895), p. 62
257. **Ptilotis aruensis sharpei** Rothsch. & Hartert . ,, x. (1903), p. 442
258. **Ptilotis chrysotis madaraszi** Rothsch. & Hartert . ,, x. (1903), p. 446
259. **Ptilotis chrysotis saturatior** Rothsch. & Hartert . ,, x. (1903), p. 445
260. **Ptilotis praecipua** Hartert . . . . . ,, iv. (1897). p. 370
261. **Ptilotis salvadorii** Hartert . . . . . ,, iii. (1896), p. 531
262. **Ptilotis visi** Hartert . . . . . ,, iii. (1896), p. 15
263. **Pycnonotus prillwitzi** Hartert . . . . ,, ix. (1902), p. 561
264. **Pyrocephalus rubinus saturatus** Berlepsch & Hartert ,, ix. (1902), p. 34
265. **Rallina tricolor victa** Hartert . . . . ,, viii. (1901), p. 175
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267. **Reinwardtoenas reinwardti griseotincta** Hartert . ,, iii. (1896), p. 18
268. **Rhamphastos haemotatorhynchus** Berlepsch & Hartert vol. ix. (1902), p. 99
269. **Rhamphocoelus dunstalli** Rothsch. . . . vol. ii. (1895), p. 481
270. **Rhectes ferrugineus brevipennis** Hartert . . ,, iii. (1896), p. 534
271. **Rhinomyias colonus** Hartert . . . . . ,, v. (1898), p. 131
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273. **Rhipidura albina** Hartert . . . . . ,, viii. (1901), p. 183
274. **Rhipidura celebensis sumbensis** Hartert . . ,, iii. (1896), p. 585
275. **Rhipidura louisiadensis** Hartert . . . . ,, vi. (1899), p. 78
276. **Rhipidura saipanensis** Hartert . . . . ,, v. (1898), p. 54

277. **Rhynchocyclus megacephala flavotectus** Hartert . vol. ix. (1902), p. 608
278. **Salvadorina waigiuensis** Rothsch. . . . vol. i. (1894), p. 683; vol. ii., pl. III.
279. **Sapayoa aenigma** Hartert . . . . . vol. x. (1903), p. 117
280. **Sasia abnormis magnirostris** . . . . . „ viii. (1901), p. 51
281. **Saucerottea erythronotos caurensis** Berlepsch. & Hartert vol. ix. (1902), p. 84
282. **Sclerurus mexicanus obscurior** Hartert . . . vol. viii. (1901), p. 370
283. **Scytalopus unicolor** Galvin . . . . . „ ii. (1895), p. 15
284. **Sericornis pusilla** Rothsch. & Hartert . . . „ x. (1903), p. 228
285. **Serpophaga orenocensis** Berlepsch & Hartert . „ ix. (1902), p. 40
286. **Siphia bonthaina** Hartert . . . . . „ iii. (1896), p. 157
287. **Siphia djampeana** Hartert . . . . . „ iii. (1896), p. 172
288. **Siphia kalaoensis** Hartert . . . . . „ iii. (1896). p. 172
289. **Siphia omissa** Hartert . . . . . „ iii. (1896), p. 71
290. **Siptornis baroni** Salvin . . . . . „ ii. (1895), p. 14
291. **Siptornis hypochondriacus** Salvin . . . . „ ii. (1895), p. 14
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293. **Sitta europaea britannica** Hartert . . . „ vii. (1900), p. 526
294. **Sitta frontalis saturatior** Hartert . . . . „ ix. (1902), p. 573
295. **Siva strigula malayana** Hartert . . . . „ ix. (1902), p. 567
296. **Spathura underwoodi bricenoi** Hartert . . . „ vi. (1899), p. 72
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ERRATA.

P. 138, line 3 from above, read: 4 about half the length of 5.
„ 483 „ 16 „ , „ *Mydrothauma*.
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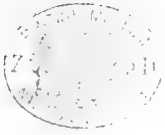

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