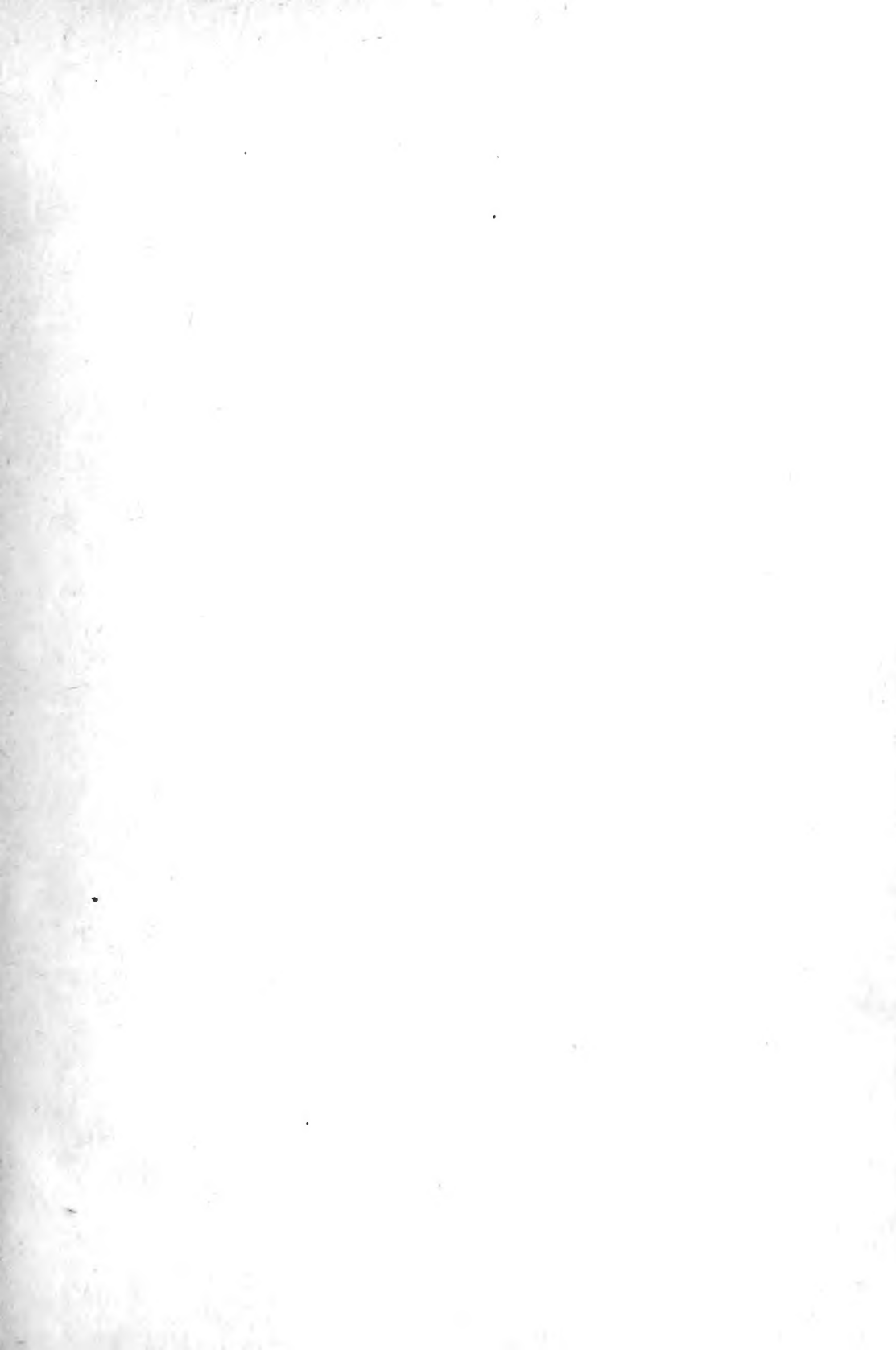
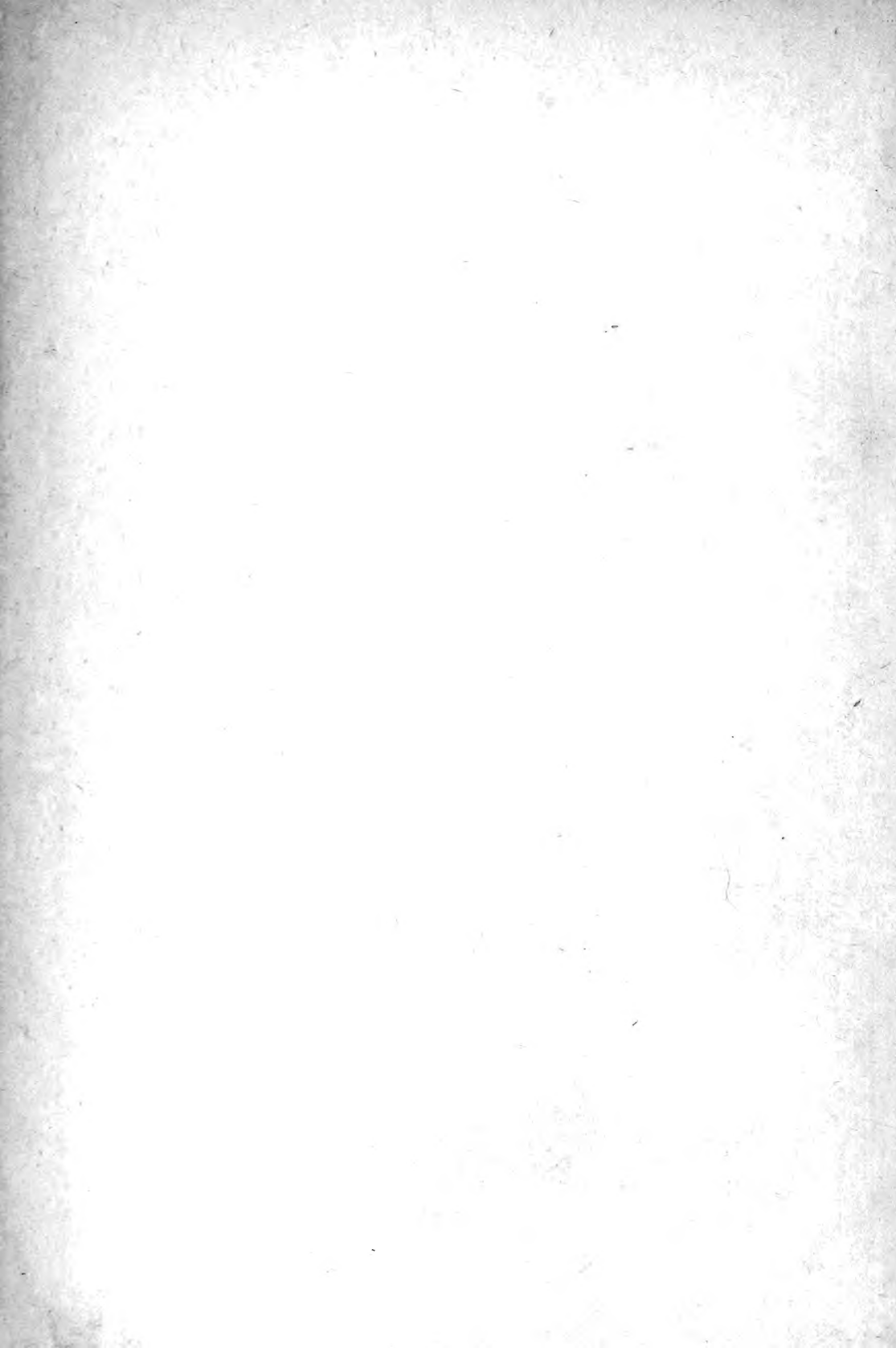


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NOVITATES ZOOLOGICAE.

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# NOVITATES ZOOLOGICAE.

A Journal of Zoology

IN CONNECTION WITH THE TRING MUSEUM.

EDITED BY

LORD ROTHSCHILD, F.R.S., PH.D.,

DR. ERNST HARTERT, AND DR. K. JORDAN.



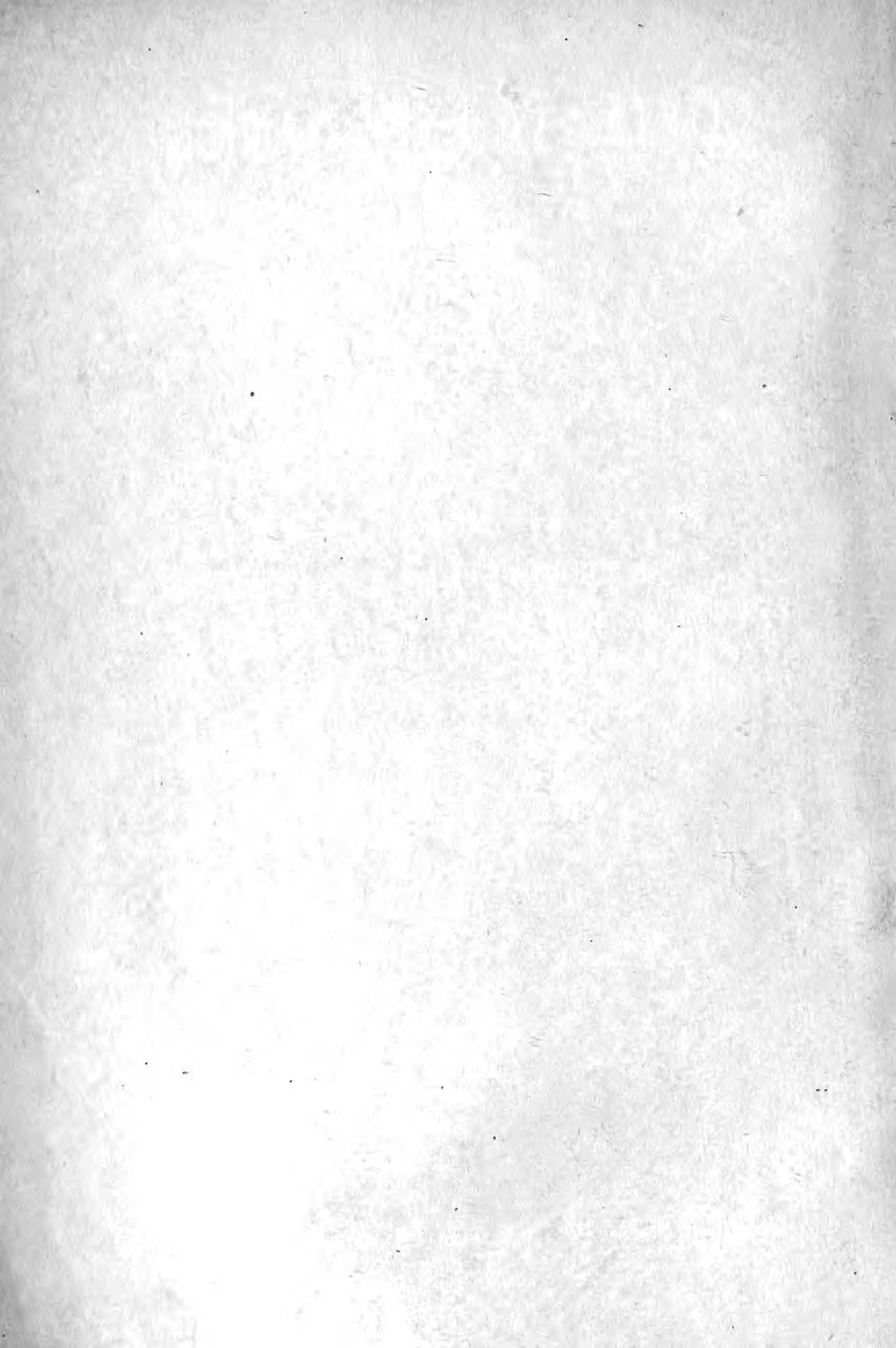
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22 MAY 1922

# NOVITATES ZOOLOGICAE.

Vol. XXIX.

APRIL 1922.

No. I.

## NOTES ON THE BIRDS OF EAST AFRICA.

By V. G. L. VAN SOMEREN.

(Plates I to VII.)

### INTRODUCTORY NOTES.

THOUGH our knowledge of East African birds has been greatly advanced during recent years by the reports on the collections made by Sir Fredrick Jackson and others, yet these reports are based on collections which have been made more or less indiscriminately, in localities which have no direct relationship one to the other, so that a general idea of the distribution could hardly be gained. Further, insufficient material for comparative purposes has rendered it impossible to judge with any accuracy the relationship of the Uganda and East African Avifauna with that of other colonies in Africa.

The recent paper by Claude Grant, *Ibis*, 1915, was the first real attempt to review the birds of East Africa and Uganda (as represented by the Cozens-Lowe collection) in relation to the birds of other parts of Africa. Unfortunately, the collection was somewhat limited and the work has been left unfinished!

Sclater and Praed, *Ibis*, 1918-1919, have contributed much to the elucidation of the ornithological problems of the Sudan.

Until the collections become absolutely representative of the whole of Africa, no comprehensive paper can be written showing the distribution of any species or subspecies all over Africa. We must therefore depend on published reports, and it is in the hopes of being able to throw fresh light on the ornithology of East Africa and Uganda that I have written the following pages, based chiefly on my present collection.

Students of African ornithology may at first sight be surprised that I have recognised so many species and subspecies, and have also in nearly all cases upheld the races created by the late Dr. Mearns (when reporting on the Roosevelt collections, etc.). When these reports first appeared I was sceptical about the possibility of so many new forms, because I accepted as a working basis the works on Jackson's and other collections as correct and representative of the country. I must now admit, however, that since I have studied the ornithology of East Africa and Uganda from the point of view of the field-worker and collector, and from a geographical and topographical point of view, I have had to modify my preconceived ideas considerably.

Considering the position of these countries, it is not surprising to find

that their avifauna is of a very varied and complex nature, therefore during the last eight years I have endeavoured to carry out an ornithological survey of the two countries from the coast up the great lake and westward to Uganda and the Congo border. Owing to the war I was compelled to limit my sphere of operations somewhat, but what I have accomplished has brought to light certain facts of great interest. East Africa has been surveyed more thoroughly than Uganda, and in the main I took as the line of investigation the country on either side of the Uganda Railway from Mombasa to Kisumu, and penetrating as far as possible on either side.

A large amount of material was got together, and the study of this reveals the fact that there are certain more or less defined zoogeographical zones or areas worthy of recognition.

I have endeavoured to illustrate these zones by means of the appended chart, showing a vertical and horizontal section of the Uganda Railway.

The whole of the Western Provinces of Uganda and the central area can be looked upon as West African in character, somewhat modified in type. When we consider the northern territory we find Sudan and South Ethiopian forms represented, and in the eastern districts a mixed avifauna showing South Ethiopian and East African elements.

It should be noted here, however, that birds which may be taken to be typically western in type, find their way into the Elgon area, North Kavirondo, and the Mau Hill, extending more or less southward to what was the old political boundary between Uganda and East Africa.

At this point I should like to draw attention to the extraordinary distribution of certain species which are found on the Elgon-Nandi ranges, and which, although not occurring in Uganda and south of Lake Victoria, yet appear again in the Ruwenzori-Kivu area, in some cases exhibiting no change, in others showing a marked intensification of colour so as to be reckoned as geographical forms. As examples of this we have *Sylvietta leucophrys*, *Trochocercus nigromitratus*, *Chlorophoneus dohertyi*, and *Campothera taeniolaema*.

In the case of East Africa we have to consider Ethiopian, Somali, and South African influences; but in practically all instances the birds exhibit modifications in plumage justifying the recognition of races.

From this point we naturally come to the consideration of the effect of the climatic and topographical influences on the bird-life of the countries.

The zones or areas, as indicated by the chart, carry in them certain species and forms which are more or less confined to these areas, but it must be understood that these areas are still provisional to a certain extent.

That various factors—such as climate, altitude, etc.—had influence on the evolution of races and species has been long recognised, but insufficient regard has been paid to these points in connection with the birds of East Africa and Uganda. Thus, when they are considered, it is not surprising to find that we must recognise more races and species than hitherto.

The various zoogeographical zones or areas are most marked when we study the distribution of the Larks and the *Cisticolae*.

What I call the "thorn-bush zone" extends throughout the eastern half of East Africa north into eastern Uganda, and encircles on the east the high plain and Alpine zones. But even in this "thorn-bush zone" races of the same form are found, produced no doubt by local conditions.

In addition to my own material, I have been able to make use of a fine collection belonging to A. Blayney Percival, a small collection from the Nairobi Museum, and a collection made by Mr. Allen Turner for Colonel Meinertzhagen, and now mostly in Tring. I have also had specimens of *Cisticola*, which were lent to me by J. Pemberton Cook. For comparative purposes I have had the privilege of using the magnificent material in the Tring Museum, and also more or less that in the British Museum. I wish to express my thanks to Lord Rothschild and Dr. Hartert, to the staff of the Tring Museum, especially Mr. Arthur Goodson, and the staff of the Bird-room in the British Museum, for these privileges and much kind help.

The arrangement follows more or less that of Reichenow's *Vögel Afrikas*, but has been modified in certain instances.

The localities have been grouped according to their political divisions.

My collection, on which this work is founded, contained 15,000 skins of about 1,300 species and subspecies. Included are over ninety European and several Asiatic migrants and winter visitors. Several of the European visitors belong to West European forms; as, for example, the British Yellow Wagtail and the Greenland (and Iceland) Wheatear (Tring, February 1920).

[This important contribution to African Ornithology was first sent to the Editors of the *Ibis* for publication, but was not accepted on account of its bulk and unfinished state. It was written without regard to the present high prices of printing, and, owing to an unfortunate attack of influenza, or something like it, during the latter part of Dr. van Someren's stay in England, the manuscript was indeed not fit for printing, as it was rather hurriedly completed, and the type-written text, evidently not being corrected, was full of slips and wrong spellings of names. I have therefore undertaken the tedious work of cutting out unnecessary lengths and repetitions, filling in and correcting quotations and names, etc., etc. That I have eliminated all errors can, however, hardly be hoped for. That I had to do this was natural, for unexpected work always falls to those who are busiest, but I am glad to have been able to help that van Someren's work could be published. It must be added that 6,490 specimens of the 15,000 on which this treatise is based are now in the Tring Museum, including nearly all the types. The rest has, for the time being, been taken back to Nairobi by Dr. van Someren.]

This work has been written in the Tring Museum, where Dr. van Someren worked over half a year, but some weeks were also spent over it in the British Museum.

Though residents in East Africa still distinguish between "British East" and "German East," and will probably long continue to do so, the new official titles of these two countries, "Kenya (or Kenia) Colony" for British East Africa, and "Tanganyika Territory" for German East Africa, are generally used in Dr. van Someren's article.—ERNST HARTERT.]

### 1. *Struthio camelus massaicus* Neum. East African Ostrich.

Young birds were brought to me at Naivasha in January 1919, and eggs were found in the Longonot District in November.

## 2. *Struthio camelus molybdophanes* Rehw. **Somali Ostrich.**

Adults and half-grown young were seen in the open country beyond Archer's Post.

### (*Struthio* ?)

A "pigmy Ostrich" has been reported from south of Lake Rudolf, but no specimens have been procured.)

## 3. *Podiceps ruficollis capensis* Licht. **African Little Grebe.**

The amount of white on the wings of adult birds is very variable and not so distinctly distributed as in the European species. In all my adult African specimens, including breeding birds, the underside is pure white, lacking the black mottling so characteristic in northern species.

On practically all lakes and larger swampy, slow-flowing rivers this bird is common and comparatively tame. They are usually seen in couples or small associations.

I am not satisfied that these birds have a non-breeding plumage. I have shot them on a lake at 9,000 feet.

Lakes Nakuru and Naivasha, B.E.A. 4 ♂ 5 ♀ ad., 2 juv., 29.viii.

## 4. *Podiceps nigricollis* Brehm. **Black-necked Grebe.**

Eggs: Clutch of two.

These birds, although resident and breeding in East Africa, appear not to be separable from European ones, though my specimens are not so black. They are, however, worn. Furthermore, they apparently have no winter or non-breeding plumage. They nest twice a year!

Lake Nakuru, B.E.A. 2 ♂ 2 ♀ ad., 2 juv., all 29.viii.1918.

## 5. *Colymbus cristatus infuscatus* Salvad. **African Crested Grebe.**

Clutches of three or four eggs, and young in October 1918.

This is a good subspecies. It is resident and breeds on the larger lakes of Uganda and East Africa. There is no winter or non-breeding plumage so far as I can make out. Several pairs nested together in a small area of reeds on Lake Nakuru, and it was here that I was able to observe them going through similar antics to those ably described by E. Selous, in connection with the European bird, in *Wild Life*, and elsewhere. Even when the eggs are well incubated, fresh material is added to the nest—mostly by the male bird. The parent birds are most assiduous in their care for the eggs and young.

Lakes Nakuru and Naivasha, B.E.A. 3 ♂ 2 ♀, 1 pull., 20.x. and December.

## 6. *Larus fuscus* Linn. **Lesser Black-backed Gull.**

A few adults and young remain throughout the summer, but the majority are young or birds in their second plumage.

Lake Nakuru, Lake Naivasha.

## 7. *Larus hemprichi* Bruch. **Hemprich's Gull.**

This species is found along the coast, but not very common.

Mombasa and Manda Island. 2 ♀.

8. *Larus cirrhocephalus* Vieill. **Grey-headed Gull.**

Common on the larger sheets of water. The occurrence of *L. ridibundus* in East Africa is doubtful, the recorded birds probably being young of *L. cirrhocephalus*.

Lakes Victoria, Nakuru, Naivasha. 3 ♂, 1 juv.

9. *Sterna media* Horsf. **Lesser Yellow-billed Tern.**

1 ♂ Manda Island, 29.iii.

10. *Sterna bergii* Licht. **Yellow-billed Tern.**

Fair numbers seen along the coast.

Manda Island, March.

11. *Hydrochelidon leucoptera* Meisn. **White-winged Black Tern.**

The two August birds are adults, assuming winter plumage. The May birds are young and show no attempt at assuming summer dress. Adult males in winter plumage have grey tails—as in females. Many birds remain on the lakes throughout the year and do not migrate north.

Lakes Nakuru, Naivasha, and Rudolf. 5 ♂ 5 ♀, January, May, August, December.

12. *Hydrochelidon leucopareia leucopareia* Temm. **Whiskered Tern.**

Not very common.

Lake Naivasha. November.

13. *Gelochelidon nilotica* Horsf. **Gull-billed Tern.**

A winter visitor to the large lakes and coast.

Lamu and Manda Island. 2 ♂ ♀, April.

14. *Pelecanus rufescens* Gm. **African Pelican.**

A pair frequented the south end of Lake Naivasha for about a week in October 1918, but eventually disappeared.

15. *Pelecanus onocrotalus* Linn. **Common Pelican.**

♂ 12.ii.1917, in perfect full plumage, Lake Naivasha.

16. *Phalacrocorax africanus* Gm. **Lesser African Cormorant.**

Jinja, in Uganda, Lake Naivasha and Kisumu. 4 ♂ 1 ♀, May, August, December.

17. *Phalacrocorax carbo lugubris* Rüpp. **East African Cormorant.**

The area of bare skin of the throat is more extensive than in *P. carbo carbo* and *P. carbo lucidus*.

♂ ♀, 25.viii. Kisumu.

18. *Nyroca erythrophthalma* Wied. **African Pochard.**

(= *capensis* Less., nec Gm., *brunnea* Eyt.)

Great variation exists in this species. Full-plumaged birds are found in April and November.

♂♀. In full plumage, April and November. ♂ juv., half plumage, May, October, December. ♀ juv., half plumage, February, August, October. There appears to be no eclipse plumage!

Lakes Nakuru and Naivasha, Eldoret. 22 specimens.

19. *Anas sparsa* Eyton. **Black River Duck.**

This species is found on the smaller lakes and rivers. Although adult, my male has no white ring on the neck.

Aberdare Mts. ♂, 10.viii.17.

20. *Anas undulata* Dubois. **Yellow-billed Duck.**

Moulting in November, breeding in February and May. Down of two colours, dark and long, pale and short, is present in females in February and May.

Nakuru Lake, Naivasha and Kimiriri River, Elgon. 6 ♂ 4 ♀.

21. *Anas capensis* Gm. **African Pink-billed Teal.**

The female, although an October bird, had swollen ovaries and a heavy crop of dark down. The female is more uniform on the lower surface than the male.

Nakuru Lake. 2 ♂ ♀, October, November.

22. *Anas punctata* Burch. **Hottentot Teal.**

The down in the female and of those in the Tring Museum is greyish ashy, while that of males is dark brownish black.

Lakes Nakuru and Naivasha. 4 ♂ 1 ♀, February, October, November.

23. *Dafila acuta* Linn. **European Pintail Duck.**

The April male is in full breeding dress. This date is the latest on which I have seen this species. The January bird is in half breeding dress.

Lake Naivasha.

24. *Nyroca fuligula* Linn. **European Tufted Duck.**

This I believe is the first record of this bird so far south. It was shot by Mr. Allen Turner on the Yala River Swamp, Kavirondo, 21.xi.1913.

25. *Querquedula querquedula* Linn. **European Garganey.**

A regular winter visitor. In 1919 most birds had left by April 16th.

Lake Naivasha. 3 ♂ 2 ♀, March, May, October.

26. *Poecilonetta erythrorhyncha* Gm. **African Pintail.**

The November female is in heavy body moult. Dark and pale down is present on the breast.

Lakes Naivasha and Nakuru. November, December.

27. *Spatula clypeata* Linn. **European Shoveller.**

The most extraordinary plumages are met with in Shovellers shot in East Africa. The April 15th male is in full plumage. I have never come across an adult male in full plumage before the end of March. Why this should be, is difficult to explain, unless it is that all the birds which winter with us are birds of the year or previous year. One young male has the feathers of the back barred.

Lakes Nakuru and Naivasha. January, April, November, December (♂ juv.).

28. *Thalassornis leuconotus* Eyt. **White-rumped Diving Duck.**

A male bird shot on February 16th is uniform on the breast, and moulting heavily. The male of October 18th had very large testes, while a female shot on April 15th had an egg in the oviduct. A common bird, keeping to the Lily patches, and very disinclined to take wing.

Lakes Naivasha and Nakuru. February, April, October, December.

29. *Erismatura maccoa* Smith. **Red Diving Duck.**

A female shot in October has moulted all its wing-feathers and is in heavy moult on the body. The other two are in full clean dress. This is not a common species in East Africa.

Lakes Naivasha and Nakuru. 2 ♂ 4 ♀, October, December.

30. *Dendrocygna viduata* Linn. **White-faced Whistling Duck.**

A common species.

Naivasha and Lake Magadi. 2 ♂ 1 ♀, 15.iv.1919.

31. *Dendrocygna fulva* Gm. **Fulvous Whistling Duck.**

Appears to prefer shallow swamps and flooded areas rather than open sheets of deep water.

Kisumu swamp. ♂, 20.iii.1918.

32. *Chenalopex aegyptiacus* Linn. **Egyptian Goose.**

An October male is young, just able to fly. It was seen amongst a flock of at least fifty, all of the same age. There were only three adult birds with them.

Naivasha and Kisumu.

33. *Sarkidiornis melanotus africanus* Hartl. **Knob-billed Goose.**

Lakes Naivasha and Nakuru. 3 ♂ 1 ♀.

34. *Plectropterus gambensis* Linn. **Spur-winged Goose.**

My male has the entire head and neck and the whole breast black or green-black.

Kisumu and Lake Nakuru and Naivasha. 1 ♂ 3 ♀, June, November.

35. *Balearica regulorum gibbericeps* Rehw. **East African Crowned Crane.**

Very common. Seen either in pairs or flocks, usually in the vicinity of water. Kisumu. 1 juv., 17.i.1916.

36. *Threskiornis aethiopica* Lath. **Sacred Ibis.**

Very common on the larger sheets of water, but occasionally frequenting the smaller streams and swamps. A small flock of six haunted the swamp by the Nairobi River for nearly a month. The February specimen is young, still retaining part of the spotted plumage, and has the neck and head feathered. Full-plumaged breeding males develop long straw-coloured plumes on the flanks.

Kisumu, Naivasha, Nairobi. ♂ juv. 16.ii., ♂ June, ♀ April.

37. *Plegadis falcinellus* Linn. **European Glossy Ibis.**

The May bird is in perfect full dress. Fairly common.

Naivasha Lake and Kisumu. 2 ♂ May, December, ♀ December.

38. *Oreoibis akleyorum* Chapman. **Kenia Ibis.**

Described from Kenia and Aberdare Mountains. An adult male was obtained by W. Noel van Someren on the slopes of Mt. Kenia, 6,500 feet, 18.i.1921.

39. *Hagedashia hagedash nilotica* Neum. **Northern Great Glossy Ibis.**

I have provisionally recognised this race, though I fail to appreciate the differences between these birds and East African specimens. My material is, however, very limited, 2 ♂ 1 ♀ only.

Masindi and Entebbe in Uganda.

40. *Hagedashia hagedash erlangeri* Neum. **East African Great Glossy Ibis.**

Lake Jipe and Naivasha.

41. *Platalea leucorodia leucorodia* Linn. **European Spoonbill.**

A male belonging to the European species, having black legs and the feathering of the crown extending down between the eyes in a point; shot Lake Naivasha, 15.ii.1918. Large numbers winter on the larger lakes.

42. *Platalea alba* Scop. **African Spoonbill.**

A female was shot off its nest April 10th, containing two eggs. Not particularly common, though more were seen on Lake Nakuru than elsewhere.

Kisumu, Lakes Nakuru and Naivasha.



43. *Ardea cinerea cinerea* Linn. **European Grey Heron.**

Migrants are found during the winter months, but the bird is not resident in East Africa.

44. *Ardea melanocephala* Vig. **Black Crowned Grey Heron.**

A common species on the lakes and larger rivers and swamps.  
Lakes Nakuru and Naivasha.

45. *Ardea goliath* Cretzschm. **Giant Heron.**

Not very common.  
Lake Naivasha. ♂, April 1916.

46. *Ardea gularis* Bosc.

Has been recorded from Zanzibar and Witu (Jackson).

47. *Ardea purpurea purpurea* Linn. **Purple Heron.**

Very common. A resident and breeding species.  
Kisumu and Lake Naivasha.

48. *Melanophoyx ardesiaca* Wagl. **Black Heron.**

Common on the coast of Tanganyika Territory. A few extending to the Pangani region.  
Dar-es-Salaam (Loveridge leg.).

49. *Mesophoyx intermedius brachyrhynchus* Brehm. **Short-billed White Heron.**

Quite common on Lake Victoria and the larger lakes, but also found on the smaller swamps.  
Nairobi, Kisumu, Nakuru.

50. *Egretta alba* Linn. **European White Heron.**

Winter visitor. Not resident, so far as my observations go.

51. *Bubulcus ibis* Linn. **Cattle Egret.**

Very common. Sometimes found miles from water.

52. *Egretta garzetta* Linn. **Egret.**

A common species found from the coast throughout East Africa and Uganda in suitable localities.

53. *Ardeola ralloides* Scop. **Buff-backed Heron.**

Very common along the shores of the larger lakes, Naivasha and others.

54. *Ardeola idae* Hartl. **Striped-backed Heron.**

It is remarkable to find this species so far inland as Nairobi. The only two specimens I have seen and shot were along the banks of small streams, not by lakes. It is a rare bird.

Nairobi and Kijabe. 10. vii. 1915, 20. x. 1916.

55. *Butorides atricapilla* Afz. **Green-backed Heron.**

Very common.

56. *Erythrocnus rufiventris* Sund. **Chestnut Heron.**

Not very common. Is found along the shores of Lake Victoria. Entebbe. 18. xi. 1917.

57. *Ardetta sturmi* Wagl. **Little Blue Heron.**

Not by any means common. It occurs along swamps, by little streams, and also along lake sides.

Nairobi River, Lake Victoria, Kisumu. 2 ♂ collected, May, November.

58. *Ardetta minuta payesi* Hartl. **Little Black-backed Heron.**

Kisumu in British East Africa, Sezibwa and S. Ankole in Uganda. January, August, September.

59. *Tigrisoma leucolaema* Rehw.

This bird was described from Ukerewe Island on Lake Victoria. I have no specimens.

( *Botaurus stellaris* L. **Bittern.**

I have no records of the occurrence of the Bittern in East Africa or Uganda.)

60. *Nycticorax nycticorax* Linn. **Night Heron.**

Occurs in East Africa on migration, and is said to be resident also.

61. *Scopus umbretta bannermani* C. Grant. **East African Hammerkopp.**

A pair was caught on the nest at Kisumu, 17. vi. 1915. Common on swampy ground and small collections of water.

62. *Balaeniceps rex* Gould. **Shoebilled Stork.**

Is fairly common on Lake Kioga in Uganda, nesting in the sudd on that lake.

63. *Ciconia ciconia* Linn. **White Stork.**

Very common; large flocks spend the winter months on the plains of Kavirondo and Ukamba. A bird which had been ringed in Hungary was shot at Eldoret in Usingishu district.

64. *Ciconia nigra* Linn. **Black Stork.**

A large flock was seen in the Kisumu district in December 1917.

65. *Abdimia abdimi* Licht. **Purple Stork.**

Common in the Nile district of Uganda.

66. *Dissoura episcopus microscelis* Gray. **White-headed Stork.**

Has been recorded from several localities in Uganda and East Africa : Lamu Kipini, Naivasha, and Masindi.

67. *Mycteria senegalensis* Shaw. **Saddle-billed Stork.**

Occurs on the lakes and larger rivers, but is not common.

68. *Leptoptilus crumeniferus* Less. **Marabou Stork.**

Common in suitable localities.

69. *Anastomus lamelligerus* Temm. **Open-billed Ibis.**

Very common in the Kavirondo district. Kisumu.

70. *Tantalus ibis* Linn. **Wood Ibis.**

Commoner in the Nile district, Uganda, and Lake Albert than in East Africa but occurs on the Tana and Juba Rivers and is common on Lake Rudolf.

71. *Phoenicopterus roseus* Pall. **Greater Flamingo.**

Very common on Lakes Rudolf and Baringo, also occurs on Naivasha and Nakuru.

72. *Phoenicopterus minor* Geoffr. **Lesser Flamingo.**

A common species on Lakes Rudolf, Baringo, Nakuru, Naivasha, and Magadi, and the lakes in West Uganda. Breed on Nakuru in large numbers. Young obtained in October and November. 20.x.1916, adults.

73. *Glareola pratincola fülleborni* Neum. **East African Pratincole.**

Few in second plumage, 15.i.1917, adults January and May.

With a series of *G. p. fülleborni* and *G. p. limbata* laid out side by side, it is obvious that they are distinct. It is, however, difficult to define their exact distribution. From the specimens before me it would appear that in East Africa and Uganda, *G. p. fülleborni* occurs along the coast and inland to Victoria Nyanza and Lake Rudolf. It is possible that *G. p. limbata* extends into North Uganda, but I have no specimens from this locality. *G. p. fülleborni*, besides being darker on the breast, back, and under wing coverts than *G. p. limbata*, lacks the indication of a collar on the hind neck. The amount of ochraceous on the under surface appears to vary with age, the younger birds being pure white on the lower breast

and abdomen. It is important that the breeding range of the two subspecies should be ascertained and information as to migratory movements—if any—collected. Wings, 183–204 mm.

N. of Mombasa to Lamu, Lakes Victoria and Rudolf.

(*Glareola pratincola pratincola*. **European Pratincole.**

Does not occur in East Africa or Uganda—although reported. These specimens should refer to the previous subspecies !)

74. *Glareola nordmanni* Fisch. **Black-winged Pratincole.**

Seth-Smith collected this form in North Uganda, at Gondokoro, in 1916, and remarks that they appeared in large numbers between April 14th and 18th, and then left. Wings, 193–202 mm.

75. *Glareola ocularis* Verr. **Madagascar Pratincole.**

This species has been reported from the coast of East Africa: Lamu, September 11th, Jackson coll.

76. *Glareola nuchalis* Gray. **White-ringed Pratincole.**

? *Glareola emini* Shell.

It seems to me very doubtful whether *G. nuchalis* and *G. emini* are distinct. Entebbe and Jinga in Uganda. 2 ♂, 1.viii.17 and 7.v.18.

77. *Cursorius somalensis* Shelley. **Somali Grey-naped Courser.**

♂, 13.iii.1918. Turkwell River, H. J. A. Turner leg., Meinertzhagen coll.

This specimen appears to me not to differ from birds collected in Somaliland.

The occurrence of this species in Turkana and south-west Lake Rudolf district extends its range considerably. Wings, 125–134 mm.

78. *Cursorius temmincki* Sw. **Temminck's Courser.**

Claude Grant, *Ibis*, 1915, draws attention to the three specimens collected by the Cozens-Lowe Expedition in Uganda and East Africa, and remarks that they are rather darker on the back than West or South African birds. This is also the case in my five specimens. In addition, my specimens seem to have the black abdominal patch larger in extent—more longitudinal and reaching almost to the vent. However, this may be due to preparation. Transvaal birds are palest.

There is considerable variation on the under-surface, some specimens lacking the ashy-olive tinge on the breast. These birds are found from sea-level to well over 8,500 feet. Wings, 118–125 mm.

Coast of East Africa, Lamu inland to Taveta, Simba, Nakuru, and Eldoret in B.E.A., South Ankole in Uganda. 4 ♂ 2 ♀, January, May, August, September.

79. *Rhinoptilus chalcopterus obscurus* Neum. **Southern Purple-winged Courser.**

Apparently a good subspecies. Two full-plumaged males, Nairobi, 3.v. 1917 and 26.v. 1919.

80. *Rhinoptilus africanus gracilis* Fisch. and Rehw. **Little Two-banded Courser.**

Frequents the open, rocky plains and dry bush country. Not very common. Taveta, Magadi, Loita. 3 ♂ 1 ♀, 5.viii.; 12, 23.xii.

81. *Rhinoptilus africanus hartingi* Sharpe. **Lesser Two-banded Courser.**

This form occurs in the Juba district of British East Africa.

82. *Rhinoptilus cinctus cinctus* Heugl. **Three-banded Courser.**

At first glance it would appear that Somaliland specimens are paler on the upperside, but these can be matched with birds from East Africa.

Suk Country, Turkana, and Kerio River. 4 ♂ 1 ♀, 6.iv. 1917; 1 ♀, 4.i. 1918.

83. *Squatarola helvetica* Linn. **Grey Plover.**

Specimens shot during the same month represent various degrees of moult. Thus we find that a male procured in March is almost in full nuptial dress, while others obtained in April show as yet very little signs of change from winter to summer.

Lamu and Manda Islands. Coast of mainland. ♂ ♀, March and April.

84. *Charadrius geoffroyi* Wagl. **Heavy-billed Dotterel.**

Five birds, with the exception of two males collected in April, are in winter dress. The moult apparently extends over a lengthened period, some birds taking longer than others. A male taken 17.iv. 1916 is still in full winter plumage. So far as I know, this species has not been taken on the inland waters of East Africa or Uganda.

Coast of East Africa, especially Lamu and district. March, April, January.

85. *Charadrius asiaticus* Pall. **Caspian Plover.**

This is perhaps the most common wader found inland, frequently miles from water. On open veldt and newly ploughed land they occur in flocks, but in my experience seldom stay long in one place.

Coast lands, Nairobi, Kisumu, Naivasha, Eldoret. 3 ♂, January, September.

86. *Charadrius mongolus atrifrons* Wagl. **Black-fronted Sand Dotterel.**

Specimens collected in March are almost in full breeding plumage. They occur commonly along the coast and occasionally inland on the larger lakes. Wings, 120-127 mm.

Lake Victoria, coast land Mombasa, Lamu. 5 ♂ ♀, January, March.

(*Charadrius mongolus mongolus* does not migrate to East Africa.)

87. *Charadrius marginatus* Vieill. **Pale-backed Sand Plover.**? *C. pallidus* Strickl.

Rather paler than birds from Angola, but one or two worn specimens from that country agree in coloration. Madagascar birds, however, are paler, like the East African specimens; a series should be compared. Wings, 100–103 mm.

Lamu and mainland coast [Jubaland, A. B. Percival coll.]. ♂ ♀, April, December, in fresh plumage.

88. *Charadrius varius varius* Vieill. **African Sand Plover.**

This species is found in East Africa along the coast and inland, frequenting the lake shores and banks or rivers and streams where there are open beaches and banks. It is, however, more a bird of the lakes than the Three-collared Plover. Full-plumaged adults vary considerably from worn specimens, the difference being particularly noticeable on the breast.

Lamu, Manda, Nairobi, Lakes Nakuru and Naivasha. 8 ♂ 3 ♀, February, April, May, June.

89. *Charadrius venustus* Fisch. and Rehw. **Massai Sand Plover.**

To the original description should be added the following: In adult males there is an indication of a narrow black band separating the white of the throat from the pale chestnut breast band. In clean, freshly moulted males the chestnut of the posterior part of the superciliary stripe is extended back to the nape, forming a collar. The young bird has the feathers of the mantle and wing-coverts tipped with pale greyish. It lacks the black-and-brown frontal bands, and on the breast has an incomplete band of an ashy brown.

This Plover is apparently confined to the Soda Lakes of East Africa and very rare in collections. The plumage of newly moulted birds is soon bleached by the action of the soda in the water.

Magadi Lake. 3 ♂, 2 ♀, 1 juv. (20.xi.1917) obtained.

90, 91. *Charadrius hiaticula hiaticula* Linn. and *Charadrius hiaticula tundrae* Lowe. **Ringed Plover.**

In a series of fifteen East African specimens pale and dark birds are represented, and as both the typical and eastern forms are migrants to Africa south of the equator, both subspecies might occur. It is noticeable that November to January birds are paler than February to April specimens, and some of the latter are as pale as the typical form.

Wings: ♂ 122, 123, 124, 126, 127, 128, 129; ♀ 118, 121, 126, 127, 118 mm.

Nairobi, Nakuru Lake, Naivasha Lake, Mombasa. 5 ♂, 2 ♀.

92. *Charadrius dubius curonicus* Gmel. **Little Ringed Plover.**

The localities from which my specimens were taken extend its winter range. February birds are still in first plumage.

Victoria Nyanza, Kisumu, and Lake Rudolf (S.W.). 3 ♂ 2 ♀, February, March.

**93. *Charadrius tricollaris* Vieill. Three-collared Ringed Plover.**

Eggs: Clutches three and two taken 17.ix.1918.

A young bird, 16.x.17, is heavily spotted on the back, the feathers being margined and barred with pale buff; remains of down are present on the hind neck and on the tips of the rectrices. Very common on lakes and suitable streams.

Nairobi, Simba, and Lakes Nakuru and Naivasha. 3 ♂, 2 ♀, 1 juv., the last 16.x.1917.

**94. *Stephaniyx melanopterus minor* Zedlitz. Large Grey-breasted Plover.**

This form appears to be separable, but certain North-East African birds are not any larger than East African examples.

East African: wings, 215–218; North-east African: 218–230 mm.

The nestlings in down have the forehead buff with a few black spots, head and upper surface of body mixed black and buff, neck with a decided white collar, chin, sides of head and lower surface of body white, sides of head and body washed buff. Tips of bill brownish. They resemble very closely the young of our common Lapwing. Frequents the plains rather than water-side.

Nairobi, Nakuru, and Naivasha. 2 ♂ 3 ♀, May and October. Nestlings, 16.v.1918.

**95. *Stephaniyx lugubris* Less. (= *S. inornatus* Swains.). Lesser Grey-breasted Plover.**

Claude Grant, *Ibis*, 1915, points out that the correct name for this bird is *S. lugubris*, not *inornatus*.—Birds from the coast districts of East Africa have rather narrower black bands separating the grey breast from the white abdomen. In some cases the black is entirely absent. Wing, 160–184 mm.

Lamu and Nambeziwa, Uganda. 2 ♂, 8.v.1916, 14.x.1917.

**96. *Stephaniyx coronatus* Bodd. Crowned Lapwing.**

East African specimens do not appear to differ from South African birds. Wings, 193–198 mm. Young in the first barred plumage show more indication of the ultimate plumage than do others of this group. The specimen taken 12.viii.1915 has still a large amount of down. It is pale sandy buff on the upperside and breast, faintly barred with blackish. A dark band separates the buff of the breast from the white of the rest of the underside. Central pair of tail-feathers uniform black, the remainder tipped white—all retain the down at the tip. The cap is indicated by a whitish centre mixed with buff and margined with black. The soft parts of the bill and the legs are yellowish pink.

M'buyuni Plains, Simba, Nairobi. 3 ♂, 1 ♀, 1 juv.

**97. *Hemiparra crassirostris* Hartl. Thick-billed Plover.**

Masindi, Uganda. ♂ ♀ in full, fresh plumage, 15.xi.1918.

**(*Hemiparra leucoptera* Rehw. White-winged Thick-billed Plover.**

Is said to occur in Uganda, but I do not think it does.)

98. *Hoplopterus spinosus* L. **Egyptian Spur-winged Plover.**

Fully adult birds were taken at Lake Rudolf, January and December. Kobua River, Lake Rudolf, and Moroto.

99. *Hoplopterus armatus* Burch. **Saddle-backed Plover.**

(*H. speciosus* is synonym.)

Very common along the shores of Lakes Nakuru and Naivasha. Naivasha and Nakuru. 2 ♂, June, October.

100. *Sarciophorus tectus* Bodd. **Crested Wattled Plover.**

From the series (21 skins) with which I have compared my few birds it would appear that those from North-east Africa and Abyssinia are paler on the upperside than birds from the Senegal, the type locality of *S. tectus*. The East African (inland) and Uganda birds resemble the Senegal ones. It must, however, be noticed that our North-east African birds are clean and hardly worn, while the Senegal ones before me appear stained with earthy material.

A comparative table of wing-measurements gives the following :

North-east Africa, eight specimens, 190–198 mm.

Senegal, nine specimens, 185–195 mm.

Uganda, East Africa, four specimens, 180–187 mm.

Near Mt. Moroto, Turkwell River, Kerio River. Specimens collected in January, October, November.

101. *Sarciophorus tectus latifrons* Rehw. **White-fronted Wattled Plover.**

Reichenow has separated the birds from the east coast near the Juba River under the above name, giving as their differentiating characters the wide frontal band, the paler plumage, and smaller size : wings, 175 mm. In the Tring Museum there is a specimen from the type locality which bears out these characters except in size : wing, 183 mm. Zedlitz upholds this subspecies and quotes several examples, and includes birds from the Ukamba district of British East Africa. Claude Grant, *Ibis*, 1915, doubts the validity of this form, but is in error when he compares eastern and western birds.

102. *Sarciophorus superciliosus* Rehw. **Chestnut-banded Wattled Plover.**

Of this rare plover I collected three adult males in full plumage and with the olive-bronze feathers of the back margined with rusty. The adult female has the lower edge of the chestnut breast-band margined with black. Reichenow appears to have used an immature bird for his original description. Two young birds, shot 22.viii.1917, near Kisumu (where these birds breed), differ considerably from the adults, being paler on the upper side and having paler upper breasts and necks ; the breast-band is only slightly indicated with a few brownish feathers. The rufous on the forehead is wider than in adults and extends back as a superciliary stripe to almost the nape. The crown is ashy greyish, not black as in adults. The wattles are present, but not well developed.

Kisumu. 3 ♂ 2 ♀, August and December.



**103. *Lobivanellus senegalus lateralis* A. Sm. Black-billed Wattle Plover.**

Claude Grant, *Ibis*, 1915, recording a bird from Gondokoro as *L. senegalus*, states that it "has not yet assumed the black on the abdomen," and thinks it to be immature. If the bird is *L. senegalus senegalus* it never would develop the black abdomen! All the specimens that I have taken in Uganda have black abdomens and are *L. senegalus lateralis*! Neumann, however, in *O.M.*, 1914, p. 8, includes Uganda in his distribution of *L. senegalus senegalus*. It may occur there, but I doubt it.

*L. senegalus major* Neum., N.E. Africa, is a much larger bird, and a recognizable race.

Masindi, Singo. 2 ♂, April, December.

**104. *Burhinus oedienemus oedienemus* Linn. European Stone Plover.**

Appears to be a regular winter visitor to East Africa. I have records of its occurrence during five years. They are, however, not common.

Kyambu and Naivasha Lake. Taken in January and October.

**105. *Burhinus senegalensis* Swains. Senegal Stone Curlew.**

My birds undoubtedly belong to the Senegal race. Whether or not the Eastern bird differs, I am unable to decide from the material available.

W. Lake Rudolf, Kobua, and Meuressi. ♂ ♀, February, March.

**106. *Burhinus vermiculatus* Cab. African Stone Curlew.**

Occurred in fair numbers on the coast at Lamu and on the mainland at M'Koi. Is very common in Uganda.

Lamu. 2 ♂ ♀, April.

**107. *Burhinus capensis capensis* Licht. Cape Spotted Stone Curlew.**

My specimens agree with typical birds and not with *B. capensis affinis*. They are resident and breed in East Africa. Several pairs nested on the stony ground of the Athi plains.

Nairobi River. June, October.

**108. *Burhinus capensis affinis* Rüpp. Somali Spotted Stone Curlew.**

Zedlitz (*Journ. f. Orn.*, 1914) states that this form extends to the Victoria Nyanza. This requires verification. Birds from Baringo and Lake Rudolf may belong to this race. (Cf. Hartert, *Nov. Zool.* 1921, p. 88.)

**109. *Dromas ardeola* Payk. Crab Plover.**

Common on the coast in suitable places. A very immature bird was taken at Manda Island on 6.iv.1916.

Mombasa, Lamu, Manda Island.

110. *Recurvirostra avosetta* Linn. **Avocet.**

Resident on Lakes Nakuru and Naivasha. The specimen collected was taken at Njoro about twenty miles north of Nakuru, not in the vicinity of water, on May 17th, 1917.

111. *Himantopus himantopus* Linn. **Black-winged Stilt.**

Resident on Lakes Nakuru and Naivasha.

112. *Numenius arquatus arquatus* Linn. **Common Curlew.**

Many birds remain on the coast throughout the summer. The bill of the largest female measures 180 mm., and of the smallest male 127 (measured straight). Occurs also on inland waters.

Mombasa, Manda Island. April.

113. *Numenius phaeopus phaeopus* Linn. **Whimbrel.**

Fair numbers winter along the lakes and coast.  
Manda, Lake Nakuru. February, April, August.

114. *Terekia cinerea* Guld. **Terek Sandpiper.**

In full breeding plumage in March, at Lamu.

115. *Machetes pugnax* Linn. **Ruff.**

An August bird is still in summer plumage and has not commenced to moult ; it shows little sign of wear, while the young taken with it is in first immature plumage.

Nakuru Lake, Nairobi. Taken also in October.

116. *Tringa nebularia* Gunn. **Green Shank.**

March and April birds are in full nuptial dress. Common on inland waters and in flocks along the coast.

Eldoret, Nakuru, Naivasha, Lamu and Manda Island.

117. *Tringa totanus* Linn. **Red-shank.**

Has been noted at Zanzibar and Mombasa, but I have not obtained specimens.

118. *Tringa stagnatilis* Bechst. **Marsh Sandpiper.**

The male of 17.iii.1917 is to all intents in full breeding dress, while the May birds are showing very little signs of change. In my opinion, these latter are probably young of the previous summer and quite a number of these *do not leave* their winter quarters in the summer. An August bird has so worn the pale edges of the mantle feathers as to appear almost black in the interscapular region, and yet shows little indication of a moult. My October and December birds are young of the previous summer and are becoming light grey on the upperside.

Obtained at Nakuru and Naivasha Lakes, Eldoret, Kisumu, and Nairobi River.

**119. *Tringa ochropus* Linn. Green Sandpiper.**

Specimens shot in January, February, September, October, and December are in various plumages, but none approaching the full nuptial dress. A few remain throughout the summer.

Entebbe and Magani in Uganda, Nairobi, Kisumu, Lakes Nakuru and Naivasha.

**120. *Tringa glareola* Linn. Wood Sandpiper.**

Odd birds remain in East Africa during the spring and summer.

Kisumu, Nakuru, Naivasha, Nairobi, and Lake Jipe, in East Africa; Budu and S. Aukole in Uganda. February, March, October, December.

**121. *Tringa hypoleucos* Linn. Common Sandpiper.**

Some birds remain throughout the year in suitable localities.

Kisumu, Nakuru, Naivasha, Nairobi, Simba, Tsavo, Lamu, and Manda Island.

**122. *Crocethia alba* Pall. Sanderling.**

An October bird is a young one in first plumage, while April birds are in half summer dress, though one April male is still in winter garb.

Found on coast and inland waters.

Nakuru, Mombasa, and Lamu. April, October, January.

**123. *Calidris canutus* Linn. Knot.**

Recorded from Zanzibar. I have not collected specimens.

**124. *Arenaria interpres* L. Turnstone.**

Occurs along the coast during winter, and is occasionally found on the larger lakes.

Jubaland coast. ♂ ♀, December.

**125. *Calidris alpina* Linn. Dunlin.**

Has been recorded from the coast and inland waters, but I have seen no specimens.

**126. *Calidris ferruginea* Brünn. Curlew Sandpiper.**

The birds collected between April and May vary from specimens in new summer dress to others still in full winter and showing no indication of moult. August and October birds are young of the same year.

Kisumu, Nakuru, Naivasha, Lamu, and Manda Island. 4 ♂, 2 ♀, 2 juv., collected April, May, August, October, December.

**127. *Calidris minuta minuta* Leisl. Little Stint.**

The assumption of the breeding dress is not limited to any given period; thus among the May birds we have some not yet started to moult and others in nuptial plumage. As with other "migratory waders," I am convinced that here

also the late moulting birds are young of the previous summer, and of these many would not leave their winter haunts. I have been unable to collect birds in June and July, because I have not been in favourable districts during these months. On my return to Africa I hope to rectify this omission.

Coast of East Africa, Mombasa, Lamu, Nairobi River, N'gong Ditch, Naivasha, Nakuru, and Kisumu. 10 ♂ 11 ♀, shot in February, May, August, September, October, and December.

128. *Gallinago media* Lath. **Great Snipe.**

As a rule the Great Snipe leave Kisumu area on May 28th, but in the spring of 1917 they were still in evidence as late as June 15th. It was an exceptionally wet period, and floods were common. My heaviest bird weighed  $8\frac{1}{2}$  oz.; it was covered with a thick layer of fat. Numbers remain in East Africa during the winter. Cf. next species.

Nairobi, Naivasha, Nakuru, Kisumu. 2 ♂ 3 ♀, collected in April, May, December.

129. *Gallinago gallinago* Linn. **Common Snipe.**

A few Common Snipe remain throughout the winter in suitable localities, but the majority which are shot are those passing south or north on migration. Cf. previous species.

Nairobi, Nakuru, Naivasha. May, October, December.

130. *Gallinago gallinago nigripennis* Bp. **African Snipe.**

I have found this species breeding at altitudes from 3,400 to 9,000 feet.

Nairobi River, Lakes Narasha, Naivasha, and Nakuru. 3 ♂ 2 ♀, shot September and December.

131. *Limnocyptes minima* Brünn. (*gallinula* auct.). **Jack Snipe.**

The occurrence of the Jack Snipe in East Africa extends its known winter range very considerably. I have only met with it twice, and shot two males 23.x.1918, 20.xii.1916. It is not a common visitor, and whether it is a regular migrant to these parts has yet to be ascertained.

Lakes Nakuru and Naivasha.

132. *Rostratula benghalensis* Linn. **Painted Snipe.**

Breeds regularly in suitable places in East Africa.

Nairobi, Nakuru, Kisumu. April, May.

133. *Phyllopezus africanus* Gm. **African Jacana.**

Mombasa (mainland), Kisumu. January, May, September.

134. *Microparra capensis* Smith. **Pigmy Jacana.**

On two occasions I saw what I took to be this species on Victoria Nyanza. The identification is probably correct, as the bird had been obtained by Sir F. Jackson on Naivasha Lake.

135. *Rallus coerulescens* Gm. **African Long-billed Rail.**

Two males and others from East Africa are rather paler than birds from South Africa, and have the throats whitish, not grey like the rest of the underside. They are *adult* birds, and possibly a northern form.  
Nairobi, Simba.

136. *Crex crex* Linn. **Land Rail.**

The majority of those seen are birds on their way south and north. I have specimens from Nairobi, Kisumu, Kyamba, and Simba, shot in April and December.

137. *Creccopsis egregia* Pet. **African Water Rail.**

It is rather remarkable that so few specimens of this bird are obtained, and it was only by accident that my two specimens were procured while snipe shooting in May.

Kisumu Swamp.

138. *Limnocorax niger* Gm. **Black Rail.**

The nestling in down (10. xii. 1917) is oily green-black on the upperside, dull sooty-black below. Legs brownish horn. Upper mandible pink with a black band midway, lower black with pink tip. In first feathered plumage the bird is dull black, paler, more brownish underneath, becoming whitish on the belly. Bill black-brown with indication of pink.

Nairobi, Fort Hall, Kisumu, and Jinja in Uganda.

139. *Porzana porzana* Linn. **European Spotted Crake.**

Two specimens obtained in February and April are both adult, yet are examples of extremes in plumage. The female bird, evidently in full breeding dress, is very heavily speckled all over, including the secondary and tertiary coverts. The male, on the other hand, is without spots from chin to the vent, the abdomen being almost uniform creamy. The wing coverts have very few spots. There is a large series of this bird in the Tring Museum, yet not one exactly like my male bird.

Londiani and Nairobi.

140. *Porzana pusilla obscura* Neum. **African Little Spotted Crake.**

A ♀, 14. i. 1918, is an interesting specimen, being a bird changing from the first or juvenile plumage to the adult. The grey which is appearing on the head and throat is paler than in southern birds. I suspect that the northern birds are distinct.

Collected by my friend J. P. Cook on Lake Naivasha.

141. *Sarothrura rufa elizabethae* van Someren. **Van Someren's Pigmy Rail.** (Pl. I.).  
*Bull. B.O. Club*, xl. p. 20, 1919.

The bird recorded under the name of *S. r. bonapartei* (Ibis, 1916) was identified for me by Ogilvie-Grant. I have now procured three males and an adult female.

I drew attention to the fact that my single specimen from Kyetume, Uganda, did not have a white or pale throat, as *S. bonapartei* has, according to the original description; but the whole of the head, neck, and chest were uniform bright chestnut. Now, with the additional material, it is evident that young males have pale throats and paler chestnut foreparts than adults. The type of *S. bonapartei* comes from Gabun, far removed from the locality where I procured my specimen and in view of the fact that these Rails are very local—two distinct species occurring in close proximity—it would not be unreasonable to suggest that the Kakamega and Kyetume birds are not typical *S. rufa bonapartei*. There are in the Tring Museum two males and two females from Angola, collected by Anson, which are not true *S. rufa*, nor yet are they *S. rufa bonapartei* as they—the females—have uniform black tails, not spotted. These females differ considerably from my female, though the males are scarcely separable. I consider these to be a new subspecies of *S. rufa*.

The birds are not *S. r. bonapartei*, specimens of which I have examined, for that bird has the chestnut of the head and forepart of the body pale, more orange-chestnut. I accordingly have named the Uganda and Kavirondo birds *S. rufa elizabethae*. (*Bull. B.O.C.*, November 1919.)

Uganda to North Kavirondo and Nandi.

*S. rufa ansorgei* van Someren, *Bull. B.O. Club*, November 1919, inhabits Angola.

The ♀ from Kisumu cannot be *S. lugens*, as the description of that bird does not fit and *S. lugens* is larger, having a wing of 83 mm. as compared with 78 mm. of my bird. It differs from ♀ of *S. rufa rufa* of Cape Colony by being blacker on the upper surface, the buff markings are coarser, the tail is closely spotted and barred. The males differ from *S. rufa rufa* ♂ in being rather more whitish on the underside and the bill is slightly smaller. The males have wings of 75–80 mm.

In the three Kavirondo males it is at once noted that the youngest bird is less spotted and streaked on the wings than adults, further that the tail is practically uniform, one or so spots being present. In the second, not quite mature bird the abdomen is white and the throat paler than the breast, but this is not so in the old male. In the British Museum is an adult male shot at Kampala by Seth Smith.

Kyetume, Kisumu, Kakamegoes.

#### 142. *Sarothrura somereni* Bannerman. **Bannerman's Pigmy Rail.** (Pl. I.).

*Bull. B.O. Club*, xl. p. 8, 1919.

I do not think this bird can be *S. böhmi* Rehw., type locality Likulwe River; for although agreeing superficially with the description, my birds differ in such characters as the markings and measurements (Reichenow compares *S. böhmi* with *S. rufa* and *S. bonapartei*). The white markings on the wings are not small, but very large white streaks. The outer web of the first primary is pure white. My birds have wings of 84–87 mm. as compared to 80 mm. in *S. böhmi*; tails of 30–32 mm. instead of 40.

Further, Kisumu and Nairobi are far removed from Likulwe, and these birds are very local.

Since the above was written a female bird, procured by Dr. Hind at Machakos, undoubtedly belonging to this species, and totally different from any

known female, has been described by Bannerman in *Bull. B.O. Club*, November 1919, as the type of a new species to which my male birds belong.

Kisumu and Nairobi, East Africa. 3 ♂, May 1916.

143. *Sarothrura pulchra centralis* Neum. **Uganda Pigmy Rail.**

I wish to draw attention to the variation in the spotting and barring of the tail feathers of this bird.

Lugalambo, Bugoma, Mabira ; Kakamegoes, Nandi.

144. *Sarothrura elegans reichenowi* Sharpe. **Reichenow's Pigmy Rail.**

The specimen referred to by me in *Ibis*, 1916, remains the only one obtained by me or my collectors. It is apparently very rare. I consider this a good race of *S. elegans*.

Kyetume, Uganda. ♂ 20.ii.1912.

145. *Porphyrio madagascariensis* Lath. **African Purple Swamp Hen.**

Dr. Hartert has shown, *Nov. Zool.* xxiv. 1917, that the continental bird does not differ from that from Madagascar, consequently the name above must be applied to all.

These birds were breeding in October 1918 on Naivasha Lake.

146. *Porphyrio alleni*. Thomps. **Little Purple Swamp Hen.**

A nest with eggs and young was observed at Naivasha Lake, in October 1918. Not very common and rather retiring in habits.

147. *Gallinula chloropus brachyptera* Brehm. **African Water Hen.**

The name above must be applied to the African form of *G. chloropus* in preference to *G. c. meridionalis*. (Vide Hartert, *Nov. Zool.* xxiv. 1917.) A December bird is in moult and is just beginning to renew the wing feathers.

Simba and Lake Naivasha.

148. *Gallinula angulata* Anders. **Lesser African Water Hen.**

Extremely shy and difficult to procure. I obtained the eggs of this bird in June 1917, and adult ♂♂ in April and May, on the Nairobi River.

149. *Fulica cristata* Gm. **African Coot.**

The young collected in December is a bird of October hatching. These birds nested on Lake Naivasha.

Naivasha and Nakuru Lakes.

150. *Podica petersi* Hartl. **Peter's Finfoot.**

A pair were seen on a small lake just north of Mombasa, but I was unable to procure them with my small-bore gun.

151. *Podica senegalensis* ? subsp. **East African Finfoot.**

On several occasions a small Finfoot was observed on the Thika and Ruiru Rivers.

152. *Turnix nana* Sund. **Dark-backed Button Quail.**

Reichenow does not include Uganda in the distribution of this species. It is possible that Uganda birds will prove to be a subspecies, but insufficient material exists at present on which to form an opinion.

Kyetume, Uganda. ♂, 12.iv.1914.

153. *Ortyxelus meiffreni* Vieill.

Has been taken on the Turkwell River, but is a very rare bird.

154. *Turnix sylvaticus alleni* Mearns. **East African Button Quail.**

Of the various characters mentioned by Mearns, the more intense rusty colour on the breast and its extent are the only ones which can be accepted. Even these are variable and can be matched by South African *Iepurana*. Owing to lack of South African material I am unable to come to any definite conclusion as to the validity of this subspecies. Mearns gives the wing measurement of his type as 70 mm. My specimens measure ♂♂ 75, ♀♀ 80-83.

Simba, Samburu, and Kisumu. 2 ♂ 3 ♀, January, May, July.

155. *Pterocles gutturalis saturator* Hart. **Eastern Yellow-throated Sand Grouse.**

An excellent subspecies. Fairly common in suitable localities. Simba and Kyambu. 2 ♂, collected 18.viii.1918.

156. *Pterocles decoratus decoratus* Cab. **Bridled Sand Grouse.**

Two birds from the Suk Country do not differ from those found in the Taru district. Common.

Kimiriri River, South Elgon, Suk Hills, Taveta, M'buyuni, and Simba. 8 ♂ 3 ♀, January to December.

157. *Pterocles senegalensis olivascens* Hart. **Massai Pin-tailed Sand Grouse.**

These specimens agree perfectly with the type of *P. senegalensis olivascens* (type locality Simba). They are very much darker than birds from Somaliland and Egypt. This is what one would expect. However, C. Grant (*Ibis*, 1915) identifies his birds from thirty miles north of Baringo as "*P. exustus ellioti*," which he believes is the older name for Hartert's *P. exustus somalicus*. Hartert's type and co-types were exceptionally small birds, as shown by a good series of additional material from North Somaliland. These resemble the type in being paler, but they agree in size with birds from the Sudan, which are darker than Somaliland ones, though not so dark as birds from Turkana and Simba. Abyssinian specimens are pale like Somali ones, and thus *P. s. ellioti* must be used for birds from these two countries. Are the Baringo birds *P. s. ellioti*, or are they *P. s. olivascens* and thus similar to my Turkana birds? The locality of *senegalensis* is given as Senegal, Nubia, and Abyssinia. This species, however, does



not occur in Senegal, and as the Abyssinian birds are the pale *P. s. ellioti*, we accept Nubian ones as typical.

Simba (three specimens), Meouressi, Turkwell, South Turkana (two specimens).

The range of the forms are then: *P. exustus exustus*, Nubia (dark birds). *P. exustus floweri*, Egypt (still darker, not quite so dark as *olivascens*). *P. exustus ellioti*, Abyssinia, Somaliland (pale birds). *P. exustus olivascens*, East Africa North to Uganda (darkest form).

#### 158. *Numida coronata reichenowi* Grant. Reichenow's Helmeted Guinea Fowl.

Birds from Fort Hall district are rather puzzling. They have the helmet curved and have no papillae at the base of the bill, while birds from the Loita Plains are just the reverse, but also with no nasal tuft, while the Nakuru birds have differently shaped helmets; this has been called:

*Numida "ptilorhyncha" ansorgei* Hartert, 1898. Ansorge's Guinea Fowl, App. Under Af. Sun., 1898 (subsp. of *coronata*).

I have placed *ptilorhyncha* in inverted commas because Hartert, in his original description (from one specimen), among other characters of diagnostic value mentions that the bird possessed "caruncles" at the base of the bill. I have examined the type and also topo-types, and all certainly agree in having caruncles or bristles. There is one specimen, however, which has no bristles. I think the evidence is in support of the type of *N. ansorgei* belonging to the "*ptilorhyncha*" group, and not "*coronata*" or "*mitrata*."

The character of the wing is as in *N. ptilorhyncha major* Neum., i.e. spotted, not with a decided white bar as in *N. ptilorhyncha ptilorhyncha*. Assuming these observations to be correct, in what relation does this bird stand to *N. p. rendilis* Lönnberg (with syn. *N. p. baringoensis* C. Grant)?

*N. coronata* Rehw. occurs just south of Nakuru and at Naivasha, but do these birds flock together and do they interbreed? More specimens are required! *N. ansorgei* has priority over both *N. rendilis* and *N. baringoensis*.

In Tring are specimens from Nakuru and Elmenteita Lake.

#### 159. *Numida ptilorhyncha rendilis* Lönnberg. Rendile Tufted Guinea Fowl.

(*N. p. baringoensis*!)

The relationship of this Guinea Fowl is still in doubt!

Suk Hills and Baringo.

#### 160. *Numida mitrata* Pall. Coast Guinea Fowl.

? *N. uhehensis* Rehw.

One specimen from Makindo may belong to this species or Reichenow's subspecies *N. m. uhehensis*, if that race can be upheld.

Makindo in Tanganyika Territory.

#### 161. *Acryllium vulturinum* Hardw. Vulture-like Guinea Fowl.

Common in the dry desert scrub.

Tsavo, Masongoleni.

162. *Guttera cristata suahelica* Neum. East African Blue Guinea Fowl.

A doubtful form. More material required.  
N'gong by Nairobi.

163. *Guttera cristata seth-smithi* Neum. Uganda Blue Guinea Fowl.

The young in first plumage is as follows : The head is ochraceous buff, lined with black—a centre line commences at the base of the bill, passes back over the crown, and at the top of the head widens out to form a large black patch on hind part of the crown and neck ; a narrow black line commences at the nostril and in the region of the lores divides into two—one passing up over the eye, where it breaks up into a mottled superciliary stripe, the other skirting the edges of the bill—passes below the eye to end in a mottled area in the region of the ear. The throat is pale buff. Feathers of the mantle and coverts of wing rusty brown, lined on the outer web with black and margined with ochraceous. The secondaries are greyish, finely speckled with black and tipped with pale buff. Primaries greyish black, tipped with buff. The breast feathers and those of the flanks are blackish, widely edged with rusty and buff. Abdomen greyish. Bill horn brown. Legs brownish.

Mabira Forest, Uganda.

164. *Guttera pucherani* Hartl. Scrub Black-crested Guinea Fowl.

Lamu and Malindi, Taveta. 2 ♂ 1 ♀, January, April, August.

165. *Pternistes leucoscepus infuscatus* Cab. Orange-throated Francolin.

*P. l. keniensis* Mearns.

It is quite obvious that this bird varies greatly, and that these variations do not occur according to locality, but are due to age, sex, and the soil. Mearns, in describing the Kenia bird, gives certain characters by which this form can be distinguished from *P. l. infuscatus*. These may be found in all birds occurring over 6,000 feet on Kenia, but they are also found in birds from the Kyambu district, from Maktau, from Lake Jipe (type locality *P. l. infuscatus*) and Taveta, and from the localities as mentioned by Mearns as being inhabited by intergrades—*i.e.* Saba Saba and Fort Hall. Then he goes on to say that the birds from Wambugu's are typical *P. l. infuscatus*. This is extraordinary, as Wambugu's lies between the locality of *P. l. keniensis* and that of *infuscatus*. Therefore I doubt that his "keniensis" can be upheld. My thirteen specimens are from the following places : West Kenia, Embu, Fort Hall, Saba Saba, Kyambu, Nairobi, Simba, M'buyuni, Taveta, and Lake Jipe.

166. *Pternistes cranchi* Leach. Cranch's Red-throated Francolin.

The distribution of this and *P. bohmi* is rather remarkable, if the localities given by Reichenow are correct.

Muhuroni, east Victoria Nyanza. 3 ♂ 1 ♀.

167. *Pternistes humboldti* Peters. **Humboldt's Red-throated Francolin.**

? *P. h. melanogaster* Neum.

There is much variation in birds from one locality, and I cannot with confidence state whether these birds are typical or not.

3 ♂ ♀, Mombasa, Lamu (mainland).

168. *Francolinus squamatus schützi* Cab. **Schütt's Scaly Francolin.**

♂, 4.ix.15; 17 ♀, 27.vii.1917, 3.ix.1915.

South Ankole, Kyetume, Lugalambo, and Elgon.

169. *Francolinus squamatus maranensis* Mearns. **Kilimanjaro Scaly Francolin.**

3 ♂, 17.x.1917; ♀, 19.x.1917; juv., 3.v.1915.

The arrangement adopted in Tring of placing *F. schützi* as a subspecies of *F. squamatus* appears to be correct. Of the various subspecies described by Mearns, the only one which appears good is *F. s. maranensis*, but even here my specimens do not bear out the characters given by him for this bird. Specimens from the Kilimanjaro district (south-east) do not possess brown tails "broadly barred with black," nor have they the outer primaries "mottled and pencilled with rust brown." The tails of my birds are brown, finely vermiculated and freckled with black, and the outer web of primaries is uniform. The distribution of *F. s. maranensis* as given by C. Grant (*Ibis*, 1915) appears to embrace too large an area, or else *F. s. maranensis* is not a good subspecies. It appears to me, from the series before me (Uganda 8, East Africa 11), that the differences in the series are very slight, and Uganda birds can be matched exactly by East African and *vice versa*, and these not from localities where the two subspecies might be expected to meet and interbreed! Further, my series does not bear out C. Grant's remark that the females of the East African birds are uniformly paler on the underside than males, and that Uganda males and females are more alike in this respect. In dividing Francolins into races one should never omit to take into consideration age, moult, and of course sex, and most certainly also character of soil of country inhabited. There is the tendency for old males of the *schützi* group to become more uniform on the underside, the central brown patch on the feathers being diminished in size and the submarginal longitudinal white or creamy white line disappearing. Old females follow the same change.

The young in down is as follows: Upper surface bright chestnut, slightly mottled with black on the back. Head with two buff lines commencing at the base of the bill, passing one on either side of the chestnut coronal patch which is outlined in black, form wide superciliary stripes, and continuing down to the nape, join each other. Along the sides of the back, from about the middle, pale lines continue to the tail. There is a short black line posterior to the eye. The under surface is bright sandy, not yellowish, and washed with brownish on the breast and flanks. Thighs mottled sandy and brown. Bill horny yellow, culmen brown. Legs pink. Cf. young of *P. infuscatus* and *hildebrandti*.

Kyambu, Fort Hall, Kenia, and Molo.

Although my birds do not conform to the distribution given by Mearns for his races of *squamatus*, yet it is more than probable that we shall have to adopt certain of the names applied, i.e. *keniensis*, *maranensis*, and ? *zappeyi*. There are

three district races in East Africa: (a) a form inhabiting the plains and scrub from Kilimanjaro east to the cultivated lands of the N. Ukambo and N'gong districts; (b) a race inhabiting the highlands from Kenia, Aberdares, and the Mau Escarpment; and (c) a marked form, ranging in the Loita district and S. Kavirondo area to Kisii. More material is required to establish these races.

170. *Francolinus jacksoni* Grant. **Jackson's Francolin.**

In perfect plumage in August.  
Aberdare Mountains.

171. *Francolinus icterorhynchus* Heugl. **Uganda Striped Francolin.**

*F. i. emini* Neum.

*F. i. ugandensis* Neum.

Some males have chestnut on the flanks, others not. Even with fresh material, I am unable to arrive at a different conclusion from that published in *Ibis*, 1916. The specimens available to C. Grant (*Ibis*, 1915) may have led him to support *F. i. emini* as a good subspecies, but my series—and the material in Tring (including typical *F. icterorhynchus*)—certainly suggest that the birds from West Uganda are similar to those from East Uganda, as far as Elgon, and that *F. i. emini* is not a good race. C. Grant does not mention *F. i. ugandensis* from Chagwe in Uganda—and this is important, because whereas *Francolinus i. emini* was described from just west of Lake Albert, *F. ugandensis* was described from Chagwe Prov. I do not know whether Neumann made *F. ugandensis* a species, and not a subspecies, on account of the fact that *emini* and *ugandensis* forms occur together, but they certainly do; and further, from east to west both occur, as also many intermediates. *F. ugandensis* is a full-plumaged bird in the dark phase, *F. emini* a bird in the light striped plumage. If the two forms were true in extremes of distribution and at their meeting-line intermediates occurred, it would be understandable, but this is not the case with the series before me. I suggest that they are all united.

The material available includes birds from Toro and Masindi, besides the localities mentioned by me in *Ibis*, 1916, and Kawala, Kyama Buremezi, and Kyanja in Uganda.

Young in down: Very much like the young of *F. schützi*, but paler throughout, especially on the crown and underside.

172. *Francolinus hildebrandti hildebrandti* Cab. **Hildebrandt's Francolin.**

Kibwezi. ♂, 4. vii.; ♀, 13. viii. 1918.

Apparently typical birds, small coveys seen in the bush country.

173. *Francolinus hildebrandti altumi* Fisch. and Rehw. **Naivasha Francolin.**

C. Grant (*Ibis*, 1915) has stated his reasons for retaining the Northern birds as a subspecies, and with his remarks I agree. The young in down are very like those of *F. schützi*, but paler throughout and more mottled in the wings, and yellowish sandy below. There is a distinct black stripe passing right through the eye from lores to ear-coverts.

Naivasha, Nakuru and Escarpment, January, November.

174. *Francolinus uluensis* O.-Grant. **Ulu Francolin.**

Simba and Saba Saba, Fort Hall.

175. *Francolinus streptophorus* O.-Grant. **Nzoia Francolin.**

A very local and rare species.

Elgon (South). 2 ♂, 12.iii.1917, collected by Turner.

176. *Francolinus gedgei* O.-Grant. **Gedge's Francolin.**

Although somewhat resembling *F. icterorhynchus* and occurring in the same locality, this bird is perfectly distinct.

177. *Francolinus elgonensis* O.-Grant. **Elgon Chestnut-bellied Francolin.**

The occurrence of this species on Elgon and Kenia at about 10,000 feet is most remarkable, especially as its nearest relations appear to be *F. shelleyi* and *F. crawshayi*.

Very local, and apparently rare in collections.

178. *Francolinus levaillanti kikuyuensis* O.-Grant. **Freckle-neck Francolin.**

*F. l. mulemae* O.-Grant.

Ogilvie-Grant, in describing *F. kikuyuensis*, states that the chin and throat are "rufous white"; and again, in contrasting *F. mulemae* with *F. kikuyuensis*, emphasises the point and says the latter "always has the entire chin and throat suffused with buff." Now, in comparing my birds I find my three specimens of *Francolinus kikuyuensis* have the chin and throat pure white, much more so than my three specimens of *F. mulemae*. The colour of the throat appears to be the main difference between *F. kikuyuensis* and *F. mulemae*, but, as I have shown, this character is not reliable, because not constant. To emphasise this point I might mention that of four specimens of *Francolinus levaillanti* two have buff throats and two white just tinged with buff.

As regards wing measurements, my Uganda specimens have wings: ♀ 162, ♂ 165-166. Eldoret birds, ♀ 168, ♂ 168-170.

Thus even the difference in size is so very slight that I am inclined to consider *F. mulemae* and *F. kikuyuensis* synonymous. Dr. Hartert, who has examined my birds and the type and co-types, agrees with my remarks.

C. Grant has been misled in thinking the type locality of *F. kikuyuensis* is the Kikuyu district. It came from the Uasingishu. (Vide Jackson, *Journal E.A. and U. Nat. Hist. Society*, vol. i. No. 1).

"*F. l. kikuyuensis*": Eldoret, Uasingishu, and Burnt Forest.

"*F. l. mulemae*": Banda, Mpumu, Entebbe.

***Francolinus levaillanti benguellensis* Neum.**

The type compared with *F. mulemae* Grant has, as Neumann points out, this difference, that, whereas *F. mulemae* has a distinct rusty collar on the hind neck, this bird has the barred black and white feathers of the lower neck carried up in the form of a narrow line, to the crown. This is the only difference! It may

hold good, but is surely very variable, for if one compares a series of *F. levaillanti*, it will be seen that some have the rusty collar interrupted and some have not! So also in *F. l. kikuyuensis*, though here the line is blackish when it exists, not barred, and some birds have perfect collars.)

179. *Francolinus coqui* A. Sm. **Coast Golden-headed Francolin.**

The range of this species in East Africa requires careful study, as also does the next mentioned.

Mombasa, S. Ankole in Uganda.

It is strange that the Coqui Francolin should have entered into S.W. Uganda and be, presumably, indistinguishable from the coast bird. It is true that Ankole birds are more rufous on the mantle and rump, but they can be matched with Natal birds. Some typical birds have rufous throats, others have *white* throats.\*

180. *Francolinus coqui hubbardi* Grant. **Hubbard's Francolin.**

Nakuru Plains, and Loita. ♂ ♀, May.

181. *Francolinus sephaena granti* Hartl. **Grant's Red-legged Bush Francolin.**

I brought home a series of 13 ♂ ad., 6 ♀ ad., and 2 juv. from various months, in the hope that I might be able to clear up some of the confusion into which the "*sephaena*" group of Francolins has fallen. I laid out the series which the Tring Museum possesses into the races which were admitted. It planned out nicely, but when I added my specimens according to localities, the whole arrangement was upset. Taking as a basis the papers by Zedlitz, *Journ. f. Orn.*, 1914, and that by C. Grant, *Ibis*, 1915, and attempting to reconcile their conclusions to the series before me, I am led to vote provisionally in favour of Grant's results, but I have insufficient material of typical *F. s. granti*. The three specimens from Dodoma are not identical and can be matched by birds from the Kisumu area. Taking the described races singly I find:

*F. s. ochrogaster* Hartl.: Birds from West Uganda and the Nile province—Gondokoro, Nimuli—can be matched by birds from Tsavo. It is not a case of being able to pick out one from a particular district and matching it with another from a place far removed, but with the series before me, three or so can be so matched. The North Uganda birds are dark sandy below, but not constantly so, and in size do not differ from Tsavo birds.

*F. s. icteropus—schoanus* (= *spilogaster*, Abyssinia): Can be kept separate on account of its large size, but in the series of birds from this locality none have indications of a speckled underside.

*F. s. dilutescens* (Mearns) from Kenia: Are not any larger than birds from Tsavo and Chamgamwe, and resemble them in colour.

*F. s. jubaensis* Zedlitz: Supposed to extend from Jubaland south to Ukamba and Mombasa, covering an area where birds of marked variations occur and which do not bear out the characters mentioned by Zedlitz for his subspecies. If we omit the Ukamba and Mombasa birds, then we may admit a

\* In between S.W. Uganda and the coast we find an accepted race of *F. coqui*, that is *F. c. hubbardi*. It is possible that there is a line of continuous distribution through Tanganyika Territory of which we have no information.

South Somali coast race, but of two old males collected on the Tana River, one has very freckled and lined pale sandy feathers on the underside and the other has this area ochraceous-sandy with a few marks. However, a series of seven males and nine females from Lamu, Manda, and M'koi on the mainland are very pale on the underside, and have narrow chestnut spots on the rib area of the feathers of the breast and abdomen (not as in *F. rovuma* = *kirki*).

This series is extraordinarily uniform, but the two specimens from the Tana appear to upset this form, though the two races probably meet here. The birds from Mombasa and Mazeras cannot be distinguished from birds from Tsavo and Taveta. Size, except in the case of Abyssinian birds, appears in this case to be very variable, and not a reliable character. Odd birds from between Tsavo and Mombasa have large chestnut spots and stripes on the lower breast, but they are not *F. rovuma*, because they do not possess the characteristic large black spots on the secondaries, but show the close relationship of these species.

*F. s. granti* : Dodoma, Tanganyika Territory.

*F. s. ochrogaster* : Nile Province, Uganda, Mt. Moroto, Meuressi, Turkwell in Uganda, Kisumu.

*F. s. dilutescens* : Kenia and Embu.

? *F. s. granti* : Chamgamwe, Mombasa, Kiu, Tsavo, Taveta, M'buyuni.

*F. s. jubaensis* : Lamu, Manda, M'koi, and north bank of lower Tana River.

#### 182. *Francolinus rovuma* Gray. Chestnut-spotted Bush Francolin.

*F. kirki* Hartl.

C. Grant (*Ibis*, 1915) states that the older name for this species is *rovuma* Gray. It must, however, be recalled that the term Zanzibar used to include a large tract of the mainland coast in olden times, and it is quite possible that, although the name "*kirki*" was applied to a bird from Zanzibar, it need not necessarily have come from the *Island* of that name. Further, Dr. Aders of Zanzibar assures me that there are no Francolins on Zanzibar Island! I am not convinced therefore that this change is advisable.

My 4 ♂ and 3 ♀ (April, July, November) are all typical ones. They possess the characteristic large black areas on the inner secondaries and coverts and scapulars, besides having bars on the undertail coverts. Young males and some females have arrow-shaped head marks on the latter. Birds from Kitui, M'koi, and Tsavo, though showing chestnut marks on the underside, lack the characters mentioned above.

South Mombasa (mainland, Vanga district), Dar-es-Salaam.

#### 183. *Francolinus lathami schubotzi* Rehw. Schubotz' Forest Francolin.

I have nothing fresh to add to my notes on this species (*Ibis*, 1916), except to record the occurrence in the Bugoma and Budongo Forests east of Lake Albert.

Bugoma, Budongo, Lugalambo, in Uganda (Mabira Forest, S. Uganda, Belgian Congo). 2 ♂ 4 ♀, January, October.

#### 184. *Francolinus nahani* Dubois. Nahan's Forest Francolin.

Here, again, the range of this Francolin is extended, the former records being only Ituri, Belgian Congo, and Mabira Forest in Chagwe. The new localities are Bugoma and Budongo, east of Lake Albert. 2 ♂, January, December.

185. *Ptilopachus fuscus florentiae* O.-Grant. **Rock Francolin.**

A very large specimen was obtained, 28.i.1918, at Mt. Moroto, in Uganda.

186. *Coturnix coturnix coturnix* Linn. **European Quail.**

An undoubted specimen of the European Quail was obtained at Kisumu, 22.xii.1915. Dr. Hartert, who has recently made a study of this group, endorses my identification. Wings, 112 mm.

The European Quail is not a common migrant to East Africa, and most of the records for this species refer to *C. c. africana*, which is a resident bird.

187. *Coturnix coturnix africana* Temm. **African Quail.**

*C. c. capensis* Gray.

This resident form varies to some extent, some males being as pale on the throat as European birds, but they are smaller. Wings, 96 mm. They were breeding in June.

W. Kenia, Kyambu, Embu.

188. *Coturnix delegorguei* Hartl. **Delegorgue's Black-breasted Quail.**

There is a great amount of variation in the females. This appears not to be due to season, but possibly to age. Two breeding females are very heavily spotted on the breast and upper abdomen, while another is apparently assuming male plumage. Others, again, have the breast heavily washed with olive-grey, others are almost uniform brownish.

Buff stripes on the feathers of the underside of males are a sign of immaturity. These birds when kept in captivity are very prolific, one female laying 150 eggs! During the fighting of these birds over Nairobi, dozens are injured or killed by the telephone-wires.

Kisumu, Nairobi, Nakuru, Ngong, Kimiriri River, Elgon, Suk.

189. *Excalfactoria adansoni* Verr. **Painted Quail.**

These birds are resident and breed in East Africa and Uganda. They are not common. I obtained two females at Mawakota, Uganda, and Nyarondo, East Africa.

190. *Neotis cafra* Licht. **Stanley's Bustard.**

Insufficient typical material prevents me from deciding whether or not these birds should be united with the South African form. Fairly common, though not seen in larger numbers than twos or threes.

Lakes Nakuru and Naivasha, Loita. 2 ♂ 2 ♀.

191. *Otis hartlaubi* Heugl. **Uganda Little Bustard.**

? *O. maculipennis* Cab.

Occurs in the northern parts of Uganda and East Africa.



192. *Otis senegalensis canicollis* Rehw.

Fairly numerous in the dry scrub country and the Loita district. I am not satisfied that *somaliensis* is a synonym.

Tsavo, Simba. ♂♀, June, August.

193. *Otis melanogaster* Rüpp. **Black-bellied Bustard.**

? *O. lovati* Grant.

Fairly plentiful in the open grass country of the plains and highlands. I am unable to say whether *lovati* is separable.

Fort Hall and Kyambu.

194. *Otis kori struthiunculus* Neum. **Northern Kori Bustard.**

Not very common, but usually seen in the same localities as Stanley's Bustard. The type is from S. Abyssinia.

195. *Afrotis gindiana* Oust. **Yellow-tufted Bustard.**

Frequents the dry thorn-bush country from the coast to south Lake Rudolf. Juba River. (A. B. Percival coll.)

196. *Treron calva salvadorii* Dub. **Salvadori's Large-cered Green Fruit Pigeon.**

This form apparently extends from West Tanganyika (the type locality) to Uganda and east to North Kenya Colony, as far south as the Elgeyu escarpment, where apparently it meets with the next subspecies.

Elgon, Burnt Forest, Elgeyu in East Africa, Budongo, Sezibwa, Jinga, and Kagera River in Uganda. 4 ♂ 3 ♀.

197. *Treton calva brevicera* Hart. & Goodson. **East African Short-cered Green Pigeon.**

The principal difference between this and the foregoing subspecies is the small "cere" or basal portion of the bill. One never meets with a large-cered bird in this form. The other differences mentioned by the authors do not hold good in all cases, and no great reliance can be placed on them. The distribution is German and British East Africa, north to Elgeyu, where it meets *T. c. salvadorii*.

The nestling is dull green above, with bright edges to the feathers. Wings as in adult, but without the purplish patch on "shoulder" and of a much duller green. Under-surface covered with greyish down, through which yellow-green feathers are showing, under tail-coverts uniform buff.

Kyambu, Fort Hall, Saba Saba, Embu, Thika, Nairobi, and Kiu.

198. *Treron wakefieldi wakefieldi* Sharpe. **Wakefield's Green-tailed Green Pigeon.**

Four typical birds, with wings of 145-152 mm., March and April. Gunning and Robert's subspecies, *T. w. orientalis*, from Portuguese East Africa is larger. Mombasa, Lamu, Manda Island.

199. *Treron delalandei granti* van Someren. **Coastal Green-tailed Green Pigeon.**

*Bull. B.O. Club*, November 1919.

Darker than birds from Transvaal and Natal, and considerably smaller. Wing, 157–160 mm., as against 178–190 mm. in Natal birds.

Mombasa, Dar-es-Salaam.

200. *Columba uncinata* Cass. **Grey Forest Pigeon.**

Very uncommon. 1 ♀ specimen in full plumage, shot on the Sezibwa River.

201. *Columba guinea longipennis* Rehw. **Speckle-necked Rock Pigeon.**

The wing measurements of 1 ♂ and 3 ♀♀ are 220–232 mm. It is doubtful whether this form can be recognised.

Kaimosi, Nyarondo, Elgon, Naivasha, Kisumu.

202. *Columba arquatrix* Temm. **Speckled Forest Pigeon.**

? *C. albinucha* Sassi.

The whole of my series of 3 ♂ and 5 ♀ (January, June, September) are hardly so reddish on the back as birds from South Africa (Knysna Forest), and have a distinct greenish sheen on the inner secondaries and coverts, which in southern birds are dull brownish. The size does not differ. Is *albinucha* a species or a variety?

Fort Hall, Kyambu, Nairobi, Burnt Forest, Elgon.

203. *Turturoena sharpei* Salvad. **Sharpe's White-necked Pigeon.**

*T. harterti* Neum.

The history of this species is interesting. The type, a head and neck only, was collected on Mt. Elgon by Sir F. Jackson. It was described as new by Count Salvadori in the *Cat. Birds Brit. Mus.*, xxi, 1893. This was a rash proceeding, but it is an instance where a rash and hasty description, based on wholly inadequate material, has been confirmed. Further, the characters given by Salvadori as warranting the separation are not valid. Compared with *T. delegorguei* Hartl., it was stated that the new species had a metallic green lustre on the head and neck, not purplish green-bronze. This, as I shall show, is not constant. In 1894 Lord Rothschild received a complete skin of a *Turturoena* which he believed to belong to *T. sharpei*, and he described and figured the entire bird in *NOVITATES ZOOLOGICAE*, 1894. In his determination Lord Rothschild was correct. A second adult was received from Doherty in 1901, from Escarpment, which was like the Nguru specimen. Neumann, however, in 1898 described a bird from Kilimanjaro as *T. harterti*, as his two females did not agree with any known species of *Turturoena* (*Journ. f. Orn.*, 1898, p. 287, pl. 2). In 1916 I sent Dr. Hartert three skins, 1 male and 2 females, from Mt. Elgon. These, coming from the type locality of *T. sharpei*, were identified as complete adults of that species. They had black backs, so naturally, as the Kilimanjaro and Escarpment birds had reddish backs, the question arose as to whether the bird figured by Lord Rothschild was really *T. sharpei*. The assumption was that it

was not; the only other name for Kilimanjaro and Escarpment birds was Neumann's *T. harterti*—though the figure of *T. harterti* in *Journ. f. Orn.*, 1898, was misleading, the colouring being much overdone. With the material I brought home with me (fourteen skins) I have been able to show that the Elgon birds do not differ from those of Kilimanjaro and Nguru, and that *T. sharpei*, as the oldest name, must be adopted for all of them. On Mt. Elgon we get red-backed and black-backed birds which cannot be distinguished from specimens from Escarpment, Nairobi, or Kyambu, and still further they are identical with birds from Kilimanjaro and Nguru in coloration and size! From the same locality we get males with green and others with purplish bronze heads, some with metallic sheen to the red of the back, some without. Some have velvet black backs, others black with greenish reflections. Similarly, the presence or absence of metallic sheen on the under-surface is variable. The young male is very like the adult female, but the coppery bronze of the head is dulled by the greyish tips to the feathers.

*T. delegorguei* from Natal appears to be separable only on account of its size. Reichenow gives the wings as 170–190 mm. My specimens, however, have wings 165–182 mm.

Elgon, Nairobi, Kyambu, Thika, Kilimanjaro, Nguru, Escarpment.

(*Turturoena incerta* Salvad.)

A specimen which died in the Zoological Gardens, locality unknown, must surely be a female of *T. delegorguei*, as the description tallies, and the only other bird it could possibly be is *T. sharpei*, a most improbable thing. This bird could hardly have come from Elgon!)

204. *Haplopelia larvata larvata* Temm. Cinnamon-breasted Forest Dove.

*H. l. kilimensis* Neum.

Bannerman, in reviewing the genus *Haplopelia* (*Ibis*, 1916) gives the distribution of the typical form as from the Cape to N'guruman and Kenya Colony, including the latter on the evidence of a single skin procured by Mackinder on Mt. Kenya, of which he says, "It is the only specimen known from north of Nyassaland." Apparently Bannerman did not consult the Tring collection, where there are three skins, collected by Doherty at Escarpment in 1901, and further he apparently overlooked *H. larvata kilimensis* Neum. 1898 from Kilimanjaro. Neumann claimed that his was the first example procured north of Nyassaland. In *Ibis*, 1916, I recorded *H. larvata* from Nairobi. As it happens, Bannerman's statements are correct, because with the material before me I cannot separate the typical birds and specimens from East Africa north to Elgon. Therefore I place *T. larvata kilimensis* as a synonym of *T. larvata larvata*. The size appears the same, southern specimens having wings of 145–150 and East African 145–152 mm.

Nairobi, Kyambu, Kakamgoes, and W. Elgon. 6 ♂♀.

205. *Haplopelia simplex jacksoni* Sharpe. Uganda Grey-breasted Forest Dove.

A ♂ obtained 11.xii.1918 in Budongo Forest, Uganda, shows traces of the young plumage on the abdomen.

206. *Tympanistria tympanistria fraseri* Bp. **Fraser's White-breasted Dove.**

A good subspecies. Young males moult from the barred plumage into adult dress in one moult.

Kyambu, Nairobi; Lugalambo, Sezibwa, Kyetume, Budongo. 7 ♂ 2 ♀.

207. *Turtur chalcospilos* ? subsp. **Emerald-spotted Ground Dove.**

I am not satisfied that this group can be separated into as many subspecies as has been done. Even with the large series at Tring it appears difficult. Owing to the lack of specimens from certain type localities, I refrain from identifying my birds with certainty with any given subspecies. The Portuguese East African birds (2 ♂ ♀) are interesting, as they are darker on the underside than East African specimens and the wing speculum is not constantly green; in one bird the spots are purply blue, in another half blue, half green, in the other two green!

Going by localities, there would be amongst my birds:

East Africa: *T. c. acanthina* Oberh.

Lamu and Tana: *T. c. somalica* Erl.

Lumbo Port, E.A.: *T. c.* ? subsp. *caffra*.

Nairobi, Taveta, M'buyuni, Tsavo, Lamu, Mombasa, Dar-es-Salaam, and Lumbo in Portuguese East Africa.

208. *Turtur afer sclateri* Rothsch. **Uganda Blue-spotted Ground Dove.**

An excellent pale race.

Toro, Masindi, South Ankole. 4 ♂ ad.

209. *Oena capensis* Linn. **Long-tailed Ground Dove.**

Oberholser described a subspecies, *O. c. anomyna*, from East Kilimanjaro, which does not appear to be valid. Some birds have blue, others purple speculum.

M'buyuni, Taveta, Simba, Kisumu, Maungu. 5 ♂ 2 ♀.

210. *Streptopelia senegalensis senegalensis* Linn. **Speckled-neck Dove.**

Zedlitz divided these birds into several races, but variation being considerable, some of the forms cannot be upheld.

Kendu Bay, Kisumu, Fort Hall, Nairobi, Tsavo, Maungu. 8 ♂ ♀.

211. *Streptopelia capicola tropica* Rehw. **Uganda White-vented Dove.**212. *S. c. electra* Mad. **East African White-vented Dove.**

My series includes birds which I recognise as belonging to two distinct races of *S. capicola*. I do not agree with C. Grant that *S. c. tropica* of Reichenow cannot be separated from *S. capicola damarensis*. One has only to lay out a series of birds from typical localities to recognise that they are separable. With regard to birds from East Africa south of the Kavirondo Plains, I am not surprised to find a difficulty in placing them with any known race, as they are intermediate. They are greyer, less tinged with vinous on the breast, yet are as dark on the

upper surface as *T. capicola tropica*. The females are more whitish on the abdomen and not so greyish. In this they resemble *S. capicola capicola*, and thus are darker than *S. capicola damarensis*, and would probably be *electra* of Madarasz.

The distribution of these two forms, as evidenced by the series, is as follows :

*S. capicola tropica* : Albert Lake, through Uganda to Elgon and Kavirondo south to Muhoroni. Wings, 145–157 mm.

*S. capicola electra* Madarasz : Lumbwa, south to the Athi Plains, and Simba. Wings, 140–156 mm.

**213. *Streptopelia capicola somalica* Erl. Somali White-bellied Dove.**

These are pale birds, paler on the back than *S. c. tropica*, and cleaner vinous on the breast. The most pronounced feature is the great extent of white on the lower surface, extending well over half the underside. The wings are paler grey than *S. c. tropica*. Wings, 145–157 mm.

The distribution within East Africa is : Plains east of Kilimanjaro—the Taru Desert and South-east Ukamba.

*S. capicola somalica* : Samburu, Masongoleni, Tsavo, M'buyuni, Taveta, and Mungu to S. Somaliland.

**214. *Streptopelia decipiens permista*. White-vented Red-eyed Dove.**

A quite distinct subspecies, with whitish belly and almost white under tail-coverts.

Kendu Bay, Speke's Gulf. 2 ♂, August.

**215. *Streptopelia decipiens shelleyi* ? Grey-vented Red-eyed Dove.**

These are the birds to which I referred in my paper in the *Ibis*, 1916, as not being typical *T. semitorquatus* ; but I had then overlooked the "*decipiens*" group. They differ in being darker, especially on the flanks and abdomen, and in having the under tail-coverts much greyer.

South Ankole and Karagwe. 2 ♂ 1 ♀.

**216. *Streptopelia reichenowi* Erl. Juba Grey Dove.**

♂ ♀, December 1912. This is a very good species ; the whole bar on the wing is very marked when the birds fly.

Juba River. (A. B. Percival coll.)

**217. *Streptopelia semitorquata semitorquata* Linn. Grey-vented Dove.**

There appears to be little difference between birds of the *semitorquatus* group from various parts of Africa, except from the coast of South Somaliland, Jubaland, and Tanaland, which I refer to later. These birds enumerated above would be *S. s. intermedius* Erl., if this subspecies were valid. 7 ♂ ♀.

Nairobi, Thika in East Africa ; Bugoma, Budongo, and Masindi in Uganda.

218. *Streptopelia semitorquata minor* Erl. **Coastal Grey-vented Dove.**

This I consider a good subspecies, thus disagreeing with C. Grant (*Ibis*, 1915), who unites it with the typical form. It is altogether paler, above and below, has paler under wing- and under tail-coverts, also a decided grey rump, in my specimens. The head is not so rosy, but more pale grey.

M'koi, Lamu, and Kismayu.

219. *Streptopelia lugens funebrea* van Someren. **Black Turtle Dove.**

*Bull. B.O. Club*, xl, p. 21, 1919.

Very much like *S. lugens lugens*, but smaller and altogether darker. The pinkish buff on the throat and lower breast not so extensive, the grey of the crop and abdomen darker. The under tail-coverts and under wing-coverts much darker. Wings, 170-180; in *S. lugens lugens* 185-192 mm.

Nairobi, Elgon, Burnt Forest, Elgeyu, and Kyambu, south to Kilimanjaro.

220. *Streptopelia lugens* subsp. nov. ?

In South Ethiopia is found an intermediate race which is not so pale as *S. lugens lugens*, but not so dark as the subspecies described above, though of about the same size. Wings, 170-185 mm. I have not named this, as I have not ascertained the range, which, however, appears to be South Ethiopia to Turkana and north Lake Rudolf.

221. *Serpentarius serpentarius orientalis* Verr. **Secretary Bird.**

Frequently seen on the plains round Nakuru.

222. *Serpentarius serpentarius gambiensis* Ogilby. **Northern Secretary Bird.**

This form probably occurs on the western plains of Uganda. It appears, however, doubtful whether the supposed races can really be upheld.

223. *Necrosyrtes monachus* Temm. **Common Brown Vulture.**

This is the commonest vulture in East Africa, and particularly plentiful in the Naivasha and Nairobi districts.

Nairobi and Kisumu.

224. *Neophron percnopterus* Linn. **Egyptian Vulture.**

Occasionally one or two would visit the slaughter-houses at Kisumu, but were invariably driven off by *N. monachus*.

225. *Lophogyps occipitalis* Burch. **White-necked Vulture.**

I shot a specimen of this bird in September 1918, on the open plains beyond Lake Narasha at 8,900 feet, on the Eldoret Road.

226. *Pseudogyps africanus* Salvad. **Lesser African Vulture.**

So much variation exists in the plumage of these birds that it appears doubtful if there are as many forms as have been described.

N. of Marich Pass, Suk. ♂, 12.vi.1917.

227. *Polyboroides typicus* Smith. **Bare-faced Whistling Hawk.**

One bird is a dark specimen with the barring of the lower surface indistinct. Nairobi and Kimiriri River, Elgon. 2 ♂ ad.

228. *Circus macrourus* Gm. **Grey Harrier.**

A common migrant; most of the birds seen are in immature dress. Dar-es-Salaam, Uasingishu, Kyambu, and Nairobi.

229. *Circus aeruginosus* Linn. **Marsh Harrier.**

Not so common as the above.

Nakuru Lake. ♀, 17.xii.1917.

230. *Circus ranivorus* Daud. **African Harrier.**

Not at all common in East Africa and Uganda.

Entebbe, Uganda. ♂, 19.xi.1917.

231. *Melierax canorus metabates* Heugl. **Northern Chanting Hawk.**

I have a very dark specimen, but the vermiculations on the secondaries are present. Some individuals of this form, however, have uniform wings.

Kerio River, Turkana, Uganda. ♂ ad., 6.vi.1917.

232. *Melierax poliopterus* Cab. **White-rumped Chanting Hawk.**

Dr. Hartert, in *Vögel Pal. Fauna*, places this bird as a subspecies of *M. canorus*, but to me it ought to be kept distinct because apparently *M. poliopterus* and *M. metabates* are found in the same countries. The young bird taken in February is exactly like that captured in March, and both belong to *M. poliopterus*. The general scheme of coloration is similar in young of *M. metabates* and *M. poliopterus*, but the latter is much darker, while the upper and under tail-coverts are marked differently, *M. poliopterus* having cordate markings.

Tsavo and Mt. Moroto, Turkana in Uganda.

233. *Melierax gabar* Daud. **White-rumped Sparrow Hawk.**

(*M. niger* is synonym.)

There is no doubt that *M. niger* is nothing but the melanistic form of *M. gabar*. Not only have I seen a black bird mated to a normally coloured one, but in the Nairobi Museum is a specimen which is parti-coloured. A common species. The young vary greatly, some having brown or blackish markings on the under-side, others bright reddish brown. A male was shot in the act of removing young weavers from their nest.

Fort Hall and Kyambu, Nairobi, Burnt Forest, Kimiriri River near Elgon, Meuessi, Turkwell River in Uganda.

234. *Kaupifalco monogrammicus* Temm. **Lesser Chanting Hawk.**

Nairobi, Fort Hall, Kyambu, and Kimiriri River near Elgon.

235. *Astur melanoleucus* Daud. **Black and White Goshawk.**

Elgon. ♂ ad., 3.i.1916.

236. *Astur tachiro tachiro* Daud. **Barred Goshawk.**

*A. t. acelatus* Oberhols.

Oberholser has described a form of *Astur tachiro* from Taveta, which he named *A. t. acelatus* (*Proc. U.S. Mus.*, 1905). I fail to recognise this subspecies, especially as the type is the only known specimen. If valid, my bird would have to belong to this form.

Taveta, S.E. Kilimanjaro. ♀, 15.iii.1919.

237. *Astur tachiro nyanzae* Neum. **Uganda Barred Goshawk.**

Apparently intermediate between *A. tachiro tachiro* and *A. tachiro unduliventer*. The young birds shot in June and July are all about the same age and show no signs of assuming the adult plumage. Some are heavily spotted, others not.

Entebbe, Nairobi, Kyambu, Fort Hall.

238. ? *Astur tachiro tenebrosus* Lönnb. **Black Goshawk.**

A ♀ agrees exactly with Lönnberg's description of his new subspecies. I doubt if it is a good form and consider it a melanistic variety of *Astur tachiro nyanzae* Neum.

Forest West Kenia, 6,000 feet. A. B. Percival coll.

239. *Accipiter badius sphenurus* Rüpp. **Pale-breasted Sparrow Hawk.**

Young birds, which are moulting into adult plumage, were shot January and March. One male is in almost complete breeding dress.

Tsavo, Lugalambo, and Turkwell River, Uganda.

240. ? *Accipiter badius riggenbachi* Neum. **Rufous-breasted Sparrow Hawk.**

A bird with very distinct heavy rufous barring—not fine and pale as in all the specimens in the Tring Museum and thirty others. The only specimen with which it agrees is the female of *A. riggenbachi* from Senegal. Now, the strange thing is, that in order to accept a dark barred bird as distinct from the pale, in a country where both occur, Neumann had to make *A. riggenbachi* a species, not subspecies of *A. badius*! Since I also have taken a dark bird, where pale ones occur, it seems to me that *A. riggenbachi* is not a species nor even a distinct subspecies, but merely a dark form of *A. badius sphenurus* (type and cotypes examined). The fact that the type of *A. riggenbachi* has a uniform breast counts for nothing, as some *A. badius sphenurus* have also practically uniform breasts. Either *A. riggenbachi* is a good species, and it extends to east of Kilimanjaro, or else it is a synonym of *A. b. sphenurus*. Dr. Hartert takes this latter view.

1 ♀, 4.iii.1919. Taveta, S.E. Kilimanjaro.



241. *Accipiter minullus tropicalis* Rehw. **Little Sparrow Hawk.**

A female, although a breeding bird, has not yet completed her moult into adult plumage.

Fort Hall, Kyambu, Nairobi. ♂ ♀, March, September, December.

242. *Accipiter ovampensis* Gurney. **Barred Sparrow Hawk.**

The occurrence of this species in East Africa greatly extends its known range. My specimen is rather more distinctly and widely barred than birds from Gambaga, and is rather larger, having wings of 230, as compared to 220 mm.

Nairobi. 1 ♀, 9.iii.1917.

243. *Accipiter rufiventris* A. Sm. **Brown-breasted Sparrow Hawk.**

Not a common species. My female is rather dark.

Nairobi and Kijabe. ♂, 14.ix.1917; ♀, 20.v.1916.

244. *Circaetus cinereus* Vieill. **Brown Harrier Eagle.**

A single male was seen and procured at Mombasa, March 1917.

245. *Circaetus pectoralis* Smith. **White-breasted Harrier Eagle.**

A fully adult ♀ was shot at Nairobi, 27.iii.1917. Not common in British East Africa.

246. *Spizaetus coronatus* Daud. **Martial Hawk Eagle.**

Nairobi and Kabete. ♀, 5.ii.; juv. in moult, 25.iii.1917.

247. *Hieraaetus ayresi* Gurney. **Spotted Hawk Eagle.**

? *H. lucani* Sharpe & Bouv.

An adult ♂, Nairobi, 14.vii.1918. Lieut. Davies has written an interesting note in the *Ibis*, 1919, regarding this bird; but without examining the material on which he bases his remarks, one cannot form a personal opinion on the matter. I do not consider that my specimen has a long tail for its size.

248. *Hieraaetus wahlbergi* Sund. **Wahlberg's Brown Eagle.**

Two adult specimens in fresh plumage, March 1917, on the Kabua River, Rudolf.

249. *Lophoaetus occipitalis* Daud. **Crested Hawk Eagle.**

Nairobi River. ♀, 30.x.1916, in breeding condition, though not in full adult plumage.

250. *Aquila rapax rapax* Temm. **Tawny Eagle.**

Very common round Nairobi. It is a great carrion eater, feeding freely amongst kites, though keeping these at a respectful distance. It is also plentiful at Naivasha.

251. *Helotarsus ecaudatus* Daud. **Bateleur Eagle.**

Eldoret, Uasin Gishu.

252. *Buteo buteo vulpinus* Gloger. **Rufous Buzzard.**

(*B. desertorum*, *anceps*, *rufiventer* !)

Eldoret, and Yala River, Kavirondo.

253. *Buteo oreophilus* Hart. and Neum. **Mountain Buzzard.**

This Mountain Buzzard is not very common. An adult ♀ was shot off her nest, which contained two eggs, on Mt. Elgon, 7,000 feet, 27.iii. 1916. The eggs are chalky white with pale indistinct blotches. My brother Noël shot a ♀ 6,000 feet high on Kilimanjaro, in August.

254. *Buteo augur* Rüpp. **Red-tailed Buzzard.**

♂, 2.v. 1917; ♀, 30.xii. 1916; both in the black plumage. The female is not jet black, but brown-black.

Nairobi and Elgon, 6,000 feet.

255. *Machaerhamphus anderssoni* Gurney. **Bat Hawk.**

A pair was seen every night for some time just at sunset, when the bats started to come out. Within an hour they had fed and disappeared. They catch and devour a bat in mid-air.

Kisumu, Nairobi.

256. *Butastur rufipennis* Sund. **Red-winged Hawk.**

1 ♂ 2 ♀, all in different phases of plumage. The presence of this species so far south as central Tanganyika Territory extends the distribution as given in Reichenow's *Vögel Afrikas*.

Singo in Uganda, Morogoro in Tanganyika Territory.

257. *Milvus migrans parasitus* Daud. **Southern Kite.**

Nairobi, Naivasha, and Mt. Moroto in Uganda.

258. *Milvus migrans migrans* Bodd. **European Black Kite.**

Numbers visit East Africa during the winter, but are merely birds of passage, not remaining longer than a week in any one place.

259. *Elanus coeruleus* Desf. **Black-winged Kite.**

Elgon and Sezibwa River in Uganda; Kyambu in East Africa. A nestling, 16.viii. 1916.

260. *Pernis apivorus* Linn. **European Honey Buzzard.**

An April bird is in fresh full plumage, while autumn ones are much worn and have a paler appearance, especially about the head.

Yala River, Kavirondo, and Nairobi.

261. *Baza verreauxi* Laf. **Cuckoo Falcon.**

? *B. emini*.

My male has barred under wing-coverts, the female uniform. I doubt if *B. emini* is a valid species, as my series (ten specimens) does not support it. Soronko River, Elgon, and Kadama Bukedi, in Uganda.

262. *Falco peregrinus minor* Schleg. **Lesser Peregrine Falcon.**

An adult in rather worn plumage, and a young bird. Samburu, 8. xi., 23. vii. 1918.

263. *Falco biarmicus abyssinicus* Neum. **Abyssinian Red-headed Falcon.**

The adult males no doubt belong to this form, while the two young birds may possibly belong to the typical *F. biarmicus biarmicus*, having been shot in German East Africa.

Turkwell River, Uganda; and Morogoro.

264. *Falco ruficollis* Swains. **Red-necked Falcon.**

The adult is a bird of the pale-breasted variety with few bars on the underside, while the young bird has no indication of a rufous neck-patch. Not common. Turkana, Uganda. ♂ ad., 3. iii.; ♀ juv., 7. iii. 1918.

265. *Falco subbuteo subbuteo* Linn. **European Hobby.**

Two specimens shot by Blayney Percival in the Northern Guaso N'yiyo are interesting. One is a young in the first plumage, the other is an adult, but has only a trace of rufous on the thighs and under tail-coverts.

Jinga in Uganda, and Voi in East Africa.

266. *Falco cuvieri cuvieri* Smith. **Cuvier's Brown-breasted Hobby.**

The male has the tail uniform grey, the female barred on both webs. The latter is adult, showing no pale edges to the feathers of the mantle. In some adult specimens the breast is very pale rufous.

Elgon, Nairobi. ♂, 6. viii. 1916; ♀, 30. vii. 1919.

267. *Falco fasciinucha* Neum. **Taru Brown-breasted Falcon.**

♂ juv., 5. iii. 1918, Voi Station. This species was previously only known from the type which was procured in the Teita Country. It is very like *F. cuvieri*, but more robust—the legs more powerful. This feature, along with the pale greyish rump, which is spotted and barred, and the barred grey tail with terminal white bars, distinguish this species at a glance from *F. cuvieri*. Except for its much stronger feet one might easily mistake the bird for a young *F. cuvieri*.

This specimen is now in the Tring Museum. It was exchanged by Colonel Meinertzhagen from Mr. Blayney Percival, who shot it at Voi Station.

268. *Falco tinnunculus tinnunculus* L. **Common Kestrel.**

7 ♂ and 5 ♀, collected in January, March, April, May, and September to December, belong to the European species. They are in various stages of plumage, from young of the year to fully mature adults in full plumage. The dates are of interest.

Masindi, Bukedi, in Uganda; Kisumu, Kakrur, Naivasha, Fort Hall, Kyambu, Tsavo, and Lake Jipe.

269. *Falco tinnunculus carlo* Hart. and Neum. **Brown Kestrel.**

♂, 11. v. 1918. Fort Hall.

This bird, being very heavily marked and dark, probably belongs to this race.

270. *Falco rupicoloides arthuri* Gurney. **Lesser Barred Kestrel.**

A single specimen collected in Turkana, 17. iv. 1918, belongs to this race. It is a rare bird. It was collected by the East Africa Natural History Society's collector, and is now in the Tring Museum.

Meuressi, Turkwell River, Uganda.

271. *Falco naumanni* Fleisch. **Lesser Kestrel.**

Kisumu and Kyambu.

272. *Poliobierax semitorquatus semitorquatus* Smith. **Red-backed Falconet.**

There are certainly two distinct forms of the African Falconet—the southern or typical, extending from South Africa to as far north as the Athi Plains (wings: ♂ 120–124, ♀ 125 mm.), and a northern race from Abyssinia to Baringo, which is paler and smaller.

Simba, Taveta, and Tsavo.

273. *Poliobierax semitorquatus homopterus* Oberhols. **Northern Falconet.**

A ♂, shot 1. vi., and a ♀, 3. vi. 1917, belong to the pale race, the oldest name for which appears to be *P. homopterus*. Wings: ♂ 110–115, ♀ 120 mm.

Turkwell and Kobua Rivers, Lake Rudolf.

274. *Bubo lacteus* Temm. **Milky Eagle Owl.**

Jinja in Uganda, Lake Naivasha.

275. *Bubo capensis capensis* Daud. **Cape Eagle Owl.**

I cannot see any difference between my East African bird and specimens from Natal or Transvaal. It is fairly common in parts of Tanganyika Territory.

Surely Oberholser re-described *B. capensis* when he named the Natal bird *B. m. amerimus* (not *americanus*, as stated by C. Grant, *Ibis*, 1915).

Lake Jipe.

276. *Bubo africanus africanus* Temm. Lesser Grey Eagle Owl.*B. maculosus* auct.

Nairobi and Nakuru.

277. *Bubo africanus cinerascens* Guér. Brownish Eagle Owl.

Apparently this northern bird extends into the Suk Country and Nile province of Uganda.

Kerio River and S. Turkana. ♂, 10. viii. 1916.

278. *Asio capensis capensis* A. Sm. Tawny Grass Owl.

Found in the swamps and grass country.

Lakes Nakuru and Naivasha.

279. *Otus leucotis* Temm. White-faced Scops Owl.

Owing to insufficient material I cannot be quite sure as to whether these are typical *O. leucotis leucotis* (Senegal), or whether they belong to the Somali form which has been named *O. l. nigrovertex* by Erlanger.

C. Grant placed his Moroto birds as *O. l. leucotis* (vide *Ibis*, 1915).

Meuressi, Turkwell and Moroto, Turkana, Uganda.

280. *Otus scops ugandae* Neum. Uganda Little Owl.

Budongo Forest, Soronko River, and Buremezi, Uganda.

281. *Syrnium woodfordi* subsp. Brown Forest Owl.

In my series of twelve specimens there is every gradation from a bright golden brown to deep black brown. Thus my specimens can be matched with birds in the Tring Museum which have been placed as *S. w. nuchale*, *bohndorffi*, *suahelicum*, and *nigricantius*.

The golden brown bird has no signs of vermiculations on the feathers of the back.

The young also differ: one is greyish buff, while the other two are sandy buff. Then, again, there is a young bird which has assumed adult plumage, but there still remain some downy feathers and down about its neck at the back and on the thighs. This bird is very dark brown. Two birds moulting from nestling plumage into second dress exhibit interesting differences, one having large broad spear-shaped spots on the crown, the other small white irregular bars. The series in Tring appears to indicate three distinct birds in Africa: (1) *S. woodfordi woodfordi*, South Africa; (2) *S. woodfordi suahelicum*, ashy brown, vermiculated on the back, with narrow barred feathers on the underside; and (3) a dark chestnut brown race found in Gabon and Angola.

These birds are very fond of insects, beetles, and moths.

Budongo Forest, Lake Albert, Kyetume, Lugalambo, and Elgon in Uganda; Aberdare Mountains, Kyambu, and Nairobi in East Africa.

282. *Glaucidium perlatum* subsp. **Pearl-spotted Owl.**

The Tring Museum possesses a fine series of this bird, and when these are laid out according to localities, it is apparent that there are certainly two if not three distinct forms. The typical birds (Senegal) are generally more rufous above and below, while the eastern birds are more greyish on the mantle; variation in the amount of spotting occurs in both forms, but the general tone is quite marked.

East African specimens are intermediate.

My specimens show extremes: birds with uniform heads and backs—another with uniform head and spotted back, others spotted on head and back, and one barred on the head and spotted on the mantle!

Tsavo, Kitui, Simba in East Africa; Kerio and Kimiriri Rivers, Elgon, and S. Ankole in Uganda.

283. *Tyto capensis* A. Sm. **Black-backed Barn Owl.**

A ♂ is uniform black-brown on the back and less heavily spotted on the underside than Cape birds. It is possible that with more material it will be shown that the northern birds belong to a recognisable race.

♂, Fort Hall, 13. viii. 1916.

284. *Tyto alba affinis* Blyth. **Cape Barn Owl.**

*T. maculata* auct.

Kyambu and Nairobi. Nestlings, 2. ix. 1917.

285. *Psittacus erythacus* Linn. **Grey Parrot.**

A male shot in December appears to be an old bird. It has an extra large bill, and is considerably darker than two others. The tips of all the feathers of the breast, abdomen, and rump are shot with bluish purple. The sexes differ greatly in size.

Nyarondo in N. Kavirondo; Jinja and Budongo Forest in Uganda.

286. *Poicephalus gulielmi massaicus* Fisch and Rehw. **Red-fronted Green Parrot.**

Young birds are bright green like females, but have dark, horny grey-brown bills. This is a very noisy species, and is very partial to the Juniper Forest of the higher altitudes.

Burnt Forest, Elgeyu Forest, Aberdare Mountains.

287. *Poicephalus fuscicapillus* Des Murs. **Golden-breasted Parrot.**

My collectors tell me that these birds do considerable damage to young growing coconuts, but personally I have not witnessed this destruction. The birds are certainly seen among the palms, but mostly on the highest fronds.

Changamwe.

288. *Poicephalus rufiventris simplex* Rehw. **Salmon-bellied Parrot.**

It has been shown that the birds from south of Abyssinia are separable from the northern or typical, and the name "*Simplex*," which Reichenow applied to a female bird collected in Tanganyika Territory, has rightly been re-established.

With my series and the birds in Tring Museum it is obvious that there are three, perhaps four distinct forms:—

*P. rufiventris rufiventris*, Abyssinia and Blue Nile.—Dark above, rump greenish yellow tinged blue. Bill small.

*P. rufiventris* ? subsp. (intermediate), South Ethiopia.—Not so dark above, bill small, rump bluer. Wings, 140–155 mm.

*P. rufiventris pallidus*, subsp. nov., North Somaliland.—Much paler, bill small, rump brighter blue, sides of abdomen blue. Wings, 145–155 mm.

*P. rufiventris simplex*, Tanganyika Territory, Kenya Colony.—Larger, darker than N. Somaliland birds, much heavier beaks, rump green, tinged with blue. Wings, 150–163 mm.

I have *P. ruf. simplex* from Tsavo, Taveta, Maungu, Masongoleni, Simba, Kitui, and River N'zin in Ukamba. 13 ♂ ♀.

289. **Poicephalus meyeri matschiei** Neum. **East African Blue-rumped Parrot.**

This form occurs in the southern portion of the Seyedi Province, and is said to occur in Mombasa area.

Kongwa, Tanganyika Territory. ♂, 26.iv.1917, collected by Loveridge.

290. **Poicephalus meyeri** subsp. nov. ? **Kenia Yellow-shouldered Parrot.**

A ♂ shot on Kenia, 7,000 feet, in February, comes from a locality where specimens of *P. meyeri* do not appear to have been collected. It is an extremely dark bird—darker than *P. m. saturatus* or *P. m. neavei*. It has dark yellow shoulders and a yellow band on the crown. The rump is yellow green, bluer at base.

291. **Poicephalus meyeri saturatus** Sharpe. **Uganda Yellow-shouldered Parrot.**

*P. m. nyansae* Neum.

In 1916, when reporting on a collection from Uganda, I admitted three forms of *P. meyeri* to Uganda and East Africa. I did this because at the time I had insufficient material to test the validity of the several races named. With additional material I am compelled to unite *P. m. nyansae* of Neumann with *P. m. saturatus* of Sharpe.

Masindi and Mubendi in Uganda.

292. **Poicephalus meyeri virescens** Rehw. **East African Yellow-shouldered Parrot.**

I am not satisfied that the East African birds are the same as Uganda ones—they are not so dark, more greenish (not the greenish tinge of immaturity). The rump is rather bluer than in West Uganda birds. Should more material show the East African birds to be the same as Uganda specimens, then *P. m. virescens* becomes a synonym of *P. m. saturatus*.

Soronko River, Nyarondo in Kakamega, and Fort Ternan,

293. *Agapornis pullarius pullarius* Linn. **Red-faced Love-bird.**294. *A. p. ugandae* Neum.

In the Tring Museum seven western birds have dark blue rumps, much darker than birds from South Abyssinia ; two males from Masindi in Uganda are also dark. East African and Uganda (Central and East) birds cannot be separated from Ethiopian specimens. The Masindi birds must be called *A. pullarius* and the rest *A. p. ugandae*.

Masindi, Lugalambo, Entebbe, Jinja in Uganda, and Nyarondo in E. Africa.

295. *Agapornis personatus* Rehw. **Yellow-breasted Love-bird.**

This species comes over to the east of Mt. Kilimanjaro, where it was seen by me at Taveta.

Kongwa, Tanganyika Territory. ♂, 2.iv.1917, collected by Loveridge.

296. *Palaeornis krameri* Scop. **Long-tailed Ring-necked Parrot.**

*Palaeornis docilis* auct.

A pair were seen between Masindi and the Budongo Forest.

297. *Corythaeola cristata yalensis* Mearns. **Eastern Giant Plantain Eater.**

In order to test the validity of this subspecies I procured 5 ♂ and 1 ♀ from the type locality. Comparing these with Gabun and other West African birds (Sierra Leone excepted), they certainly show less blue and a more greenish tinge on the upper surface. They are also paler about the cheeks and throat. The Sierra Leone birds are coloured similarly to the Eastern ones, but are smaller. The Eastern birds are the largest ; the difference, however, can only be appreciated with a series.

Mabira and Kyetume in Uganda, Yala River and Kakamega in East Africa.

298. *Musophaga rossae* Gould. **Ross's Red-crested Plantain Eater.**

I have compared Uganda and Western birds and can find no difference. Some Uganda specimens are certainly bluer, but these are newly feathered birds ; others which are purplish show new feathers coming in, which are blue. The coloration of the tail feathers varies with age and exposure. I have, however, noticed that North Kavirondo and Nandi birds have less greenish tinge to the feathers of the underside.

East Elgon and Kakamega.

299. *Turacus hartlaubi* Fisch. and Rehw. **Hartlaub's Blue-crested Plantain Eater.**

Mearns has separated this bird into several subspecies. He gives as the distribution for the typical bird, Kilimanjaro, South-east Africa north to Sotik Forests, for "*T. l. medius*" Machakos north of the Uganda Railway, Kenia to Uganda.

This distribution appears to me peculiar, particularly the northern limits of each supposed race. The Sotik Forest is continuous with the Mau Forest which crosses the railway and merges into the forest of the Ravine and Elgeyu Escarp-



ment. Now, according to Mearns at the Sotik end of the Forest is to be found the typical bird and at the Elgeyu end the subspecies *medius*.—With birds before me from Kilimanjaro (type locality of *T. hartlaubi hartlaubi*) north to Elgon, it appears that the typical bird extends to Mau, Ravine, Elgeyu, and Elgon; while in the Machakos, Kenia, Nairobi, and Escarpment districts there may possibly be a recognisable subspecies which would have to bear the name of *T. h. medius*.

*T. h. crissalis* from Mt. M'bololo cannot be upheld; the coloration of the abdomen and vent varies greatly in birds from one locality.

300. *T. h. coeruleus* from Mt. Urageess may possibly be separable, because the avifauna from that district is most remarkable.

301. *T. hartlaubi medius* examined from Machakos, Kyambu, Nairobi, Escarpment.

*Turacus hartlaubi hartlaubi* from Molo, Elgeyu, Burnt Forest, Elgon.

### 302. *Turacus leucolophus* Hartl. White-headed Plantain Eater.

Plentiful in suitable localities.

Bugoma, Budongo, Elgon, Buremezi in Uganda; Marich, Suk, Kitosh, and Nyarondo in East Africa.

### 303. *Turacus emini* Rehw. Emin's Green Plantain Eater.

*T. ugandae* Rehw.

It seems to me impossible that there should be two distinct species of green Plantain Eaters in the Lake Albert district. My birds (6 ♂ 3 ♀) are all identical, and they were collected from West to East Uganda and in North Kavirondo. There is a certain amount of variation, but this is due to weathering of the plumage. One specimen shot in Kavirondo has a red feather in its tail.

Budongo Forest, Bugoma Forest, Lugalambo, Mabira in Uganda, South Elgon, and Kakamega.

### 304. *Gymnoschizorhis personatus centralis* Neum. Uganda Pink-breasted Plantain Eater.

My series (3 ♂ 2 ♀) rather supports Neumann's statement that the Uganda birds are darker than the Tanganyika Territory birds, and for the present I shall recognise his subspecies. If these birds are not separable, then my specimens would be *G. p. leopoldi* Shell.

Kendu Bay, Kano, and Kibos.

### 305. *Chizaerhis africana zonura* Rüpp. Hackle-neck Plantain Eater.

Young birds in first plumage (14.iii.1916) are more uniform grey-brown, lacking the striping on the breast and the elongated neck feathers.

Jinja, Masindi, and Elgon in Uganda.

### 306. *Corythaixoides (Chizaerhis) leucogaster* Rüpp. White-bellied Plantain Eater.

Females have greenish bills. My specimens are rather smaller than northern ones (Abyssinia), having wings of 205–220, as against 215–230 mm.; otherwise there appears to be no difference.

Kacheliba, Suk, Simba, M'buyuni, and Tsavo. 3 ♂ 2 ♀.

307. **Centropus monachus monachus** Rüpp. **Great Blue-headed Coucal.**

The distribution in North Kenya Colony appears to be east of the Elgeyu Escarpment. West of this range is found the smaller race. The hen sits after laying the first egg, thus eggs do not hatch at the same time.

Fort Hall and Kyambu.

308. **Centropus monachus fischeri** Rehw. **Fischer's Dark-headed Coucal.**

Fort Ternan in East Africa, Kewala in Uganda.

309. **Centropus senegalensis flecki** Rehw.

Eight specimens, Lumbo (Nairobi Museum Coll.).

I have reason to believe that this species occurs in the south of the Seyedi Province. A bird of the "*senegalensis*" type is reported from Zanzibar (Kirk).

310. **Centropus superciliosus intermedius** subsp. nov. van Someren. **East African Hackle-necked Coucal.**

These are all adult birds. I obtained a large series of this bird, because I was certain that with sufficient material one would be able to recognise a distinct race. I am satisfied that in point of size as well as colour, these birds can be separated from the northern typical bird from S. Arabia. Colour alone (much darker above than *C. superciliosus superciliosus*) justifies this. The extreme form from Angola has been separated by C. Grant as *C. s. loandae*. This is a larger bird than the intermediate race. The East African and Uganda specimens have wings of 140–155 mm. The specimen of this Coucal from Sokotra in the Tring Museum does not agree with the characters as given by C. Grant for *C. s. sokotrae*!

Mombasa, Changamwe, Lamu, Tsavo, Samburu, Nairobi, Kisumu, also Jinja in Uganda. Type ♂, Mombasa, 12. iv. 1919.

311. **Centropus grilli** Hartl. **Red-winged Black Coucal.**

♂, 11. v. 1917.

Kitosh district.

312. **Ceuthmochares aereus** ? subsp. nov. **Green Yellow-billed Coucal.**

Specimens from the coast of British to Portuguese East Africa are much paler than South African examples, and may possibly belong to a distinct form. Doherty procured this bird at Escarpment, Lowe in Uganda (Naikwa Hills).

Changamwe, near Mombasa.

313. **Ceuthmochares aereus intermedius** Sharpe. **Grey Yellow-billed Coucal.**

The distribution in East Africa and Uganda of this race and the above requires careful study. I have seen specimens of this form from Kenia, and myself have collected it in Mubendi, Budongo, Bugoma, Mubango, Lugalambo, Kyetume in Uganda, Elgon, Fort Ternan in East Africa. If they occur together, they cannot both be races of the same form. 6 ♂ 9 ♀, nestling, 20. xi.

**314. *Coccytes cafer* Licht. Green-backed Crested Cuckoo.**

In a Kyambu specimen the striping of the breast reaches to the abdomen, giving the bird a dark appearance.

Jinja in Uganda and Kyambu in East Africa.

**315. *Coccytes jacobinus* Bodd. Blue-backed Crested Cuckoo.**

Lamu, Manda, Tsavo, and Kisumu. 3 ♂ 2 ♀.

**316. *Coccytes glandarius* Linn. Great Spotted Cuckoo.**

December birds were very fat, pointing rather to the fact that they were migrants from the north. May birds were in breeding condition, while the young shot 9.v.1917 still has a soft bill. These lay regularly in East Africa, so I do not think that Sclater is correct when he suggests that South African birds come up to Uganda after the breeding season (during South African winter), nor do I believe in the theory of double breeding of European birds! (C. Grant, *Ibis*, 1915, p. 416). There is doubtless a resident bird in East Africa, but whether or not it is the same as the European bird remains to be proved.

Kano, Jinja, and Suk Hills.

**317. *Cuculus canorus canorus* Linn. European Cuckoo.**

♂, Nairobi, 28.i.1918. This bird has a small black bill and is probably a migrant from Europe.

**318. *Cuculus canorus gularis* Steph. Yellow-billed Grey Cuckoo.**

Larger than *C. canorus canorus*, and base of the upper mandible and almost the whole of the lower mandible yellow.

Kimiriri River, Elgon, and Gomba in Uganda.

**319. *Cuculus clamosus clamosus* Lath. Black Cuckoo.**

See notes under next species.

Kitui in Ukamba, 20.x.1918.

**320. *Cuculus jacksoni* Sharpe. Jackson's Black Cuckoo.**

I have examined a large series of this bird and of the preceding, and from the specimens one is led to suggest that *C. jacksoni* is a species occurring side by side with *C. clamosus*, or that *C. jacksoni* is a subspecies of *C. clamosus* and limited to Uganda, where the adult gets a red throat.

The young in intermediate plumage would appear to be indistinguishable, yet the adults are! Black birds such as one gets in Natal occur in Uganda, S. Ethiopia, and East Africa (Doherty coll. Escarpment). Bannerman is working at these Cuckoos, so I will not discuss them further.\*

Namasagali, Elgon, Soronko, and Mubendi in Uganda.

\* Bannerman's notes have since appeared in *Ibis*, 1921, pp. 93-5.—E. H.

**321. *Cuculus gabonensis mabirae* van Someren. Mabira Red-throated Cuckoo.**

*Bull. B.O. Club*, 1915.

This is another bird which apparently occurs side by side with *C. jacksoni*. I omitted to state in *Ibis*, 1916, that, besides having rusty-buff cheeks, the pre-orbital spots are buff and the crown of the head is tinged greyish, not blue-black as in *C. gabonensis* or *C. jacksoni*.

The young in second plumage are somewhat like young of *C. solitarius*, but differ in having the back blue-black, not grey. They differ from young of *C. jacksoni* in the tails, which are barred, not uniform or with white shaft spots as in *C. jacksoni*. The nesting plumage is not known.

Bugoma, Budongo, in Uganda.

**322. *Cuculus solitarius* Steph. Red-throated Grey-backed Cuckoo.**

The young of this bird and *C. jacksoni* or *C. clamosus* are quite different, and cannot possibly be confused.

Mubendi, Entebbe, Kyetume and Kobua, Rudolf; Mawakota and Bumasolo in Uganda; Kyambu, Nairobi, and Nyarondo in East Africa. February, March, May, October; young in May and July; thirteen specimens.

**323. *Cercococcyx mechowi wellsii* Bannerman. Long-tailed Barred Cuckoo.**

*Bull. B.O. Club*, November 1919.

This bird does not appear to extend to Elgon district, its eastern limits, so far as is known, being west of Jinja. What is the relationship to *C. olivinus* of Sassi? (Cf. *Ibis*, 1921, p. 96.)

Kyetume, Uganda.

**324. *Chrysococcyx auratus auratus* Gm. Yellow-bellied Emerald Cuckoo.**

*C. cupreus* Shaw.

*C. smaragdineus* (authors).

Both Bannerman and Grant agree that there are two distinct species, one with white, barred, and one with uniform yellow under tail-coverts, which in the case of young birds are barred, but not as in the first.

My series along with the specimens in Tring show that birds which are resident and breeding in British East Africa possess these characters. Thus if Bannerman and Grant were correct, we should have a species and a subspecies inhabiting and breeding in the same districts! Bannerman next goes on to show that the South African bird always has white, barred, but never yellow, under tail-coverts, and states that this is a bird breeding in the south and migrating north during the southern winter. This is accepted by C. Grant. I have, however, stated that this type of bird breeds in Uganda and East Africa. The two forms are named *C. auratus auratus* Gm. (= *C. smaragdineus* and *C. cupreus* Shaw), type locality Gambia, and *C. auratus intermedius* Hartl., type locality Gaboon. In the Tring Museum there is a large series of Gaboon specimens—some with *barred white*, some with *uniform under tail-coverts*. The type of *C. intermedius* was not a South African bird! thus *C. intermedius* Hartl. is a synonym of *C. auratus*. The South African birds differ from northern specimens in the way Bannerman mentioned

on p. 245 of *Ibis*, 1912, *i.e.* they are smaller, they have white under tail-coverts which are barred, and the tail is shorter and not so graduated as in *C. auratus*. The South African birds, then, require a name. On investigation we find the name "*splendidus*" Gray. *Vide* Gray, *G.B.*, 1847. This was based on a *West-coast bird*. It was next used by Sharpe in his *Catalogue*, 1871, the reference he gives being Gray, 1847, mentioned above; but he states the locality as South Africa, which is wrong, Gray's "*splendidus*" being a West-coast bird, thus the name cannot be used. I name the South African bird—

***Chrysococcyx auratus sharpei* subsp. nov.** (type in the Tring Museum).

Besides the differences mentioned by Bannerman as referring to males, we find the female of the southern bird differs from the northern bird in being more finely barred on the underside and lacks the clear green barring.

*C. a. sharpei*: Mawakota, West Elgon, and Soronko River, in Uganda.

*C. a. auratus*: Nairobi, Kyambu, and Kisumu in British East Africa.

**325. *Chrysococcyx klassi* Steph. White-breasted Emerald Cuckoo.**

In June 1919 I was surprised to find a young Klass's Cuckoo being fed by a pair of *Otyphantes reichenowi* and apparently thriving. How did the Cuckoo deposit its egg in the Weaver's nest? My previous experience has been that this Cuckoo victimises "insect-eating" birds, not one given largely to a grain and seed diet.

South Ankole, Elgon, and Entebbe in Uganda; Kisumu, Nairobi, Kyambu, M'buyuni, Sagala, and Maungu in East Africa. Sixteen specimens.

**326. *Chrysococcyx caprius* Bodd. White-breasted Golden Cuckoo.**

*C. cupreus* auct.

Very common and very noisy. I witnessed the presence of seven adult birds in a small patch of scrub not more than a quarter of an acre in extent.

Bugoma, Kyetume, Nmbango, Junja, Soronko, Elgon, in Uganda; Kisumu, Kendu Bay, Kibos, Nairobi, and Tsavo in East Africa.

**327. *Indicator indicator* Gmel. Black-throated Honey Guide.**

Nmbendi and Elgon in Uganda; Nakuru, Fort Hall, and Tsavo in East Africa.

**328. *Indicator variegatus variegatus* Linn. Speckled Honey Guide.**

Some of these birds are heavily speckled on the breast, some have almost uniform undersides.

Mubendi, Budongo, and Moroto in Uganda; Burnt Forest, Naivasha, and Nairobi in East Africa.

**329. *Indicator minor teitensis* Neum. Lesser Honey Guide.**

(i) 3 ♂ 4 ♀: Heads green; green backs; underside grey-olive, green tinged. Wings: ♂ 86-91, ♀ 83-85 mm.

Changamwe, Taveta, Kitui, Kyambu.

(ii) 9 ♂ 1 ♀: Heads green; green backs; underside grey-olive, green tinged. Wings: ♂ 91-98, ♀ 83-89 mm.

Fort Ternan, Aberdares, Kakamegoes, Kobua, Rudolf, and Mt. Moroto, Uganda.

(iii) 1 ♂ 3 ♀: Heads brown-grey, as in *diademata*; backs more golden; underside paler less tinged olive. Wings: ♂ 86, ♀ 83-85 mm.

Kobua River and Mt. Moroto.

This is a most interesting series which has caused me much bother. As *teitensis* and *minor* are supposed to be separable on size only, it would appear that no great reliance can be placed on this character.

A series of typical *minor* gives the following wing-measurements: ♂ 92-94, ♀ 88-89 mm.; South Abyssinian birds, ♂ 93-97, ♀ 87 mm.; North Abyssinia-Eritirea, ♂ 90, ♀ 85 mm.

*Indicator lovati* Og.-Grant agrees with these Eritrean birds, while the South Abyssinian birds are indistinguishable from those from the Aberdare Mountains.

**330. *Indicator exilis* ? *pygmaeus* Rehw. Uganda Little Olive Honey Guide.**

♂, 2.ii.1919; ♀, 7.v.1914, 4.viii.17.

My two new specimens agree with the bird collected in 1914, and are not typical *exilis* but nearer to *pygmaeus*. More material will probably show this to be a good race. These birds are clearly striped on the back.

Lugalambo, and Mabira Forests in Uganda.

**331. *Indicator exilis* ? *narokensis* Jacks. Little Grey-bellied Honey Guide.**

(? *I. ansorgei* Alex. ?)

1 ♂ 2 ♀ agree with the descriptions of *ansorgei* and *narokensis*. They are pale greyish below and have the mantle greyish green with practically no stripes. Mt. Moroto, and Soronko River, Elgon, Uganda.

**332. *Prodotiscus regulus* Sund. Slender-billed Brown Honey Guide.**

♂, 30.vi.1918; ♀, 27.vii.1918, 21.xi.1916.

These birds agree very well with South African birds. They have wings of 73-75 mm.

Nairobi, Campi-ya-bibi, Samburu, in the Scrub country.

**333. *Prodotiscus insignis* ? *reichenowi* Mad. Slender-billed Grey-bellied Olive-backed Honey Guide.**

5 ♂ 2 ♀. The identification of these birds must remain uncertain until the type of *reichenowi* can be examined. They are quite distinct from *emini*. More of a forest-loving bird than the preceding.

Nairobi and Kyambu.

**334. *Prodotiscus insignis emini* Shell. Uganda Slender-billed Olive Honey Guide.**

♂, 15.x.1915; ♀, 9.ii.1917. This very marked form appears to be confined to Uganda, the distribution being from the Nile district to Mt. Elgon and North Kavirondo. It is very rare.

Kakamegoes and Yala River.

335. *Lybius bidentatus aequatorialis* Shell. **Uganda White-flanked Red Barbet.**

This is an excellent subspecies which apparently extends to the Nandi country. Neumann's subspecies *L. b. aethiops*, Omo River and South Abyssinia, is on the whole smaller, but quite a number of the Uganda birds are as small, while the size of the South Ethiopian birds is constantly the same.

South-east Elgon, Kibras, Kibos, and Fort Ternan in East Africa ; Budongo, Bugoma, Kiwala, Kasaka, Kigoma, South Ankole, Masaka, and Entebbe in Uganda.

336. *Lybius melanopterus* Pet. **White-bellied Red-headed Barbet.**

A bird of the low altitudes and desert country. Young birds resemble the adults somewhat, but the red on the throat and crown is more restricted, and the spotting on the nape and mantle absent. The brownish area of the breast and in the scapular region is absent, and the white of the underside tinged yellowish. The bill, which is horn-brown, has smooth cutting edges.

Changamwe, Lake Jipe, Taveta, Teita, and Sagala Hills.

337. *Lybius leucocephalus* De Fil. **White-headed Barbet.**

Claude Grant, when referring to this bird, *Ibis*, 1915, endorsed the view of Reichenow, *Vög. Afrikas*, vol. ii, that *L. albicauda* of Shelley and *L. abbotti* Reichw. are merely stages in the plumage of *L. senex* Reichenow, the last named being the full adult. He further goes on to state that a larger series will show that *L. leucocephalus* is *L. senex* in its first dress, and as *L. leucocephalus* is the oldest name it would have to be adopted for the species. Now, my series of *L. leucocephalus* and *L. senex* prove quite conclusively that Reichenow and Grant are in error. *Lybius leucocephalus* is quite distinct from either *L. albicauda* or *L. senex*, as evidenced by the young bird of *L. leucocephalus* in my series, which to all intents is coloured similarly to the adults.

A point I wish to draw attention to is, that the extent of the white area on the breast varies in individuals—some have the white feathering extending in a point, well on to the abdomen ; in others, it is limited to the breast. The amount of white spotting on the wings differs in individuals. The distribution of this species is from the Ituri Forest and East Congo through Uganda, including the Blue and White Nile to Kavirondo. My series includes birds from Toro, Masindi, Jinja, S. Ankole, Kigezi, in Uganda ; Kitosh and Nyarondo in East Africa.

338. *Lybius albicauda senex* Rehw. 1887. **Black-winged White Barbet.**

Here, again, we are dealing with a quite distinct bird—*vide* remarks preceding species. It is undoubtedly related to *L. albicauda*, as evidenced by the indications of dusky mottling on the abdomen and flanks of individual birds, but otherwise it is quite distinct. Three young birds shot with their parents show quite clearly that this bird has nothing to do with *L. leucocephalus*. The young are coloured like adults, with the exception of the tail, which is suffused with black on the outer edges of the webs. The amount of white spotting on the back and wings varies individually—thus some old males have the white limited to the scapulars, others have the lesser coverts and mantle spotted.

I took the eggs in June 1919. The distribution appears to be East Africa from Ukamba north to Lumbwa.

I have procured it in the following places : Kitui, Ukamba, Fort Hall, and Nairobi.

**339. *Lybius albicauda albicauda* Shell, 1881. Black-billed White Barbet.**

Differs from the preceding subspecies in having the lower breast and abdomen in both adult and young blackish, the feathers having pale whitish tips. The wing-coverts are more spotted with white. It has been obtained at Taveta and Mombasa in British East Africa.

The distribution is : southern portion of Kenya Colony through Tanganyika Territory to the south-west shores of Lake Victoria.

**(*L. leucogaster* Bocage 1887. Black-tailed White Barbet.**

Differs from *L. albicauda senex* in having a black tail and white under wing-coverts.

Angola.)

**340. *Lybius tridactylus ugandae* Berger. Uganda Red-headed Black Barbet.**

I am perfectly satisfied that this is a good subspecies of *L. tridactylus*. Besides having the white and yellow edgings to the wing feathers narrower and less conspicuous, the wings are smaller. Thus a series of ten skins from Uganda varies from 75 to 85 mm. as against 85 to 93 (most 90 mm.) in *L. t. tridactylus* (Abyssinia). I thus do not agree with C. Grant, *Ibis*, 1915, p. 438, nor Selater, *Ibis*, 1919.

Toro, Soroti, and Jinja in Uganda.

**341. *Lybius torquatus irroratus* Cab. Red-headed Yellow-bellied Barbet.**

Two females have the vents decidedly orange. There is a tendency in the East African specimens to show a greater expanse of black on the breast than in specimens from Tanganyika Territory.

Mombasa, Changamwe, Samburu.

**342. *Tricholaema hirsutum ansorgei* Shell. Ansorge's Green-breasted Barbet.**

Masaka, Kigezi, Mubango, Mibira, and Lugalambo in Uganda.

**343. *Tricholaema melanocephala stigmatothorax* Cab. Brown-throated Barbet.**

In the thorn bush and scrub of the Taru Desert this bird is plentiful, breeding in March and April. Young birds have the same colour scheme as adults, but the coloration is duller.

Tsavo, Bura, M'buyuni, Cami-ya-bibi, and Maungu.

**344. *Tricholaema lacrymosa lacrymosa* Cab. Spotted-flanked Barbet.**

**345. *Tricholaema lacrymosa radcliffei* Og.-Grant. Radcliffe's Spotted-flanked Barbet.**

*T. l. ruehiae* Neum.

It is of interest that with my series of sixteen *T. l. lacrymosa* and five *radcliffei*, together with that of the Tring Museum, evidence goes to show that



Grant's subspecies can be upheld, provided the distribution is carefully noted. Birds with pear-shaped spots, *T. l. lacrymosa*, must be recognised as the eastern form—ranging through East Africa to North Kavirondo, to the eastern province of Uganda and into South Ethiopia, while the western form ranges through North Tanganyika Territory to Lake Victoria, extending to South Kavirondo on the east, on the west through Uganda to, but not including, the eastern province.

*T. l. lacrymosa* : Changamwe, Masongoleni, Taveta, Tsavo, Teita, Kitui, Lake Jipe, East Elgon, Sio River, Jinja, Mt. Moroto.

*T. l. radcliffei* : Fort Ternan, Kisumu, Kampala, Entebbe, Kabulamuliro, Toro, Kagera, and Nimule.

**346. *Tricholaema diademata diademata* Heugl. Buff-bellied Barbet.**

A series of birds from the White Nile and South Ethiopia have wings of 70–77 mm., while birds from North-east Uganda south to Mt. Kenia, although having the characteristic uniform belly, are considerably larger and have the same measurements as *T. diademata massaica*.

Kyetume—Masindi, Uganda.

**347. *Tricholaema diademata* ? subsp. nov. Large Buff-bellied Barbet.**

3 ♂ and 2 ♀ have wings of 80, 80, 81, 82, 85 mm., and were obtained at Mt. Moroto, Kacheliba, Kerio, and Mt. Kenia. 7,000 feet.

The specimen recorded by C. Grant (*Ibis*, 1915, p. 441) from the Turkwell River has wings of 82 mm. and would belong to this apparently larger race.

**348. *Tricholaema diademata massaica* Rehw. Massai Buff-bellied Barbet.**

This subspecies is much larger than typical *T. diademata*, and heavily spotted on the underside in both adult and young. Some birds, however, are not so heavily spotted as others. Wings, 77–85 mm.

Kisumu, Nakuru, Nairobi, Naivasha, Kendu Bay, Simba, and Tsavo in East Africa.

**349. *Gymnobucco bonapartei cinereiceps* Sharpe. Elgon Tufted Barbet.**

These birds, which are typical *G. b. cinereiceps*, have long straw-coloured tufts and distinctly greyish heads and necks. The ear-coverts are greyish. They have wings of 96–104 mm., and range from Elgon south to Nandi and possibly Sotik. They are the extreme contrast to *G. b. bonapartei* Hartl.

Elgon, Kakamega, Kitosh, Nyarondo, and Nandi.

**350. *Gymnobucco bonapartei intermedius* subsp. nov.**

The Tufted Barbet which occurs in Uganda is separable from the bird of Elgon and North Kavirondo in being smaller and in having the nasal tufts shorter, and chestnut or brownish in colour, and in having the ear-coverts brown. Bill smaller. Tail more washed with green, and mantle and wings more striped. It is thus the connecting link between *G. bonapartei* and *G. bonapartei cinereiceps*. Young birds have short, soft, pale straw-coloured tufts, not like Elgon birds. Wings, 87–99 mm.

Mabira Forest, west to the Mpanga and Ruwenzori and South Ankole.  
Type ♂: Mpanga Forest. 20.ix.1916.

Ogilvie-Grant noticed that the bird obtained during the Ruwenzori Expedition differed from the eastern form, but considered the difference due to wearing.

Namwave, Mubaugo, Mabira, Kyetume, Bugoma, Kigezi in South Ankole.

351. *Buconodon olivaceum* Shell. **Large Olive Barbet.**

This species, the type of which came from Rabai, appears to be rare, very few specimens having been collected.

352. *Buconodon leucotis kilimensis* Shell. **Black-headed Barbet.**

This is quite a good subspecies, but occasionally one comes across a bird from Tanganyika Territory which has a blackish rump, as in Natal birds. Young birds are rather blacker than adults, lacking the brown on the sides of the breast and in the scapular region; the bristle-like feathers are restricted to the forehead. The bases of the upper and lower mandibles are pinkish or whitish.

Taveta, Lake Jipe, Teita.

353. *Barbatula duchailloi* Cass. **Yellow-spotted Barbet.**

*B. ugandae* Rchw.

With the additional material of 4 ♂ 4 ♀ to my series of 1914 (11 skins), I am unable to recognise Reichenow's subspecies. The spotting on the back is extremely variable. Wings, 75-80 mm.

S. Ankole, Lugalambo, Mubango, Mawakota, Sezibwa in Uganda.

354. *Barbatula duchailloi* ? subsp. nov.

The specimens from East Africa, although agreeing with the Uganda birds in coloration, are larger and probably belong to a southern race. Wings: 83, 85, 85 mm.

Kisumu and S. Kavirondo.

355. *Barbatula scolopacea aloysii* Salvad. **Small Green-spotted Barbet.**

Budu, Lugalambo, and Elgon in Uganda.

The distribution of the named races of *B. scolopacea* requires defining. From the material available it would appear that:

*B. scolopacea scolopacea* is found in Ashanti, Sierra Leone, and South Nigeria.

*B. s. stellata* Jard. & Fras.: Fernando Po.

*B. s. flavisquamata* Verr.: Gaboon.

*B. s. consobrina* Rchw.: Congo to possibly Angola (Angola birds seem larger).

*B. s. aloysii* Salvad.: Uganda to Elgon.

356. *Barbatula leucolaima nyanzae* Neum. (*Journ. f. Orn.* 1907, p. 347). **Uganda Little White-eyebrowed Barbet.**

Ogilvie-Grant places this subspecies as a synonym of his *B. l. m'fumbiro*, but I do not consider this correct. In working over these Little Barbets, I have

checked Neumann's reviews of the group in *Journ. f. Orn.* 1911, and his division of this group appears correct.

Budongo, Bugoma, Kyetume, and Entebbe in Uganda.

357. *Barbatula subsulphurea ituriensis* Neum. (*Journ. f. Orn.* 1917). **Uganda Yellow-breasted Pigmy Barbet.**

A good subspecies, being very much more yellowish on the underside than *B. subsulphurea subsulphurea*, and having the yellow edging to the wing feathers more pronounced. The character given by Neumann—viz. the blue instead of green gloss on the head—is obvious in the type, but does not hold good in the other specimens. The type is a miserable, much-soiled specimen.

Dividing the small Barbets into three species with so many subspecies as Neumann does, allows for the presence of three of these Pigmy Barbets in the same locality, each belonging to distinct species.

Budongo, Mabira, Kyetume, in Uganda.

358. *Barbatula bilineata fischeri* Rehw. **East African Yellow-breasted Barbet.**

This bird is remarkably like *B. leucolaima nyanzae*, but paler yellow on the abdomen. It appears to be an uncommon bird. It is possible that the mainland bird may be separable from the birds of Zanzibar—the type locality of this subspecies of the South African *B. bilineata*.

Changamwe and Mombasa. 2 ♂, April and May.

359. *Barbatula bilineata* ? subsp. nov. **Grey-breasted Pigmy Barbet.**

3 ♂ and 3 ♀ have a distinctly grey throat and breast and the rump is canary-yellow. Wings, 50–56 mm. This form is met with from Ukambani to Nakuru district, but north of this occurs a larger, paler one, which is apparently typical *B. jacksoni*.

Nairobi, Kyambu, Naivasha.

360. *Barbatula bilineata jacksoni* Sharpe. **Jackson's Pale-breasted Pigmy Barbet.**

This bird (type locality Ravine) is very like the preceding, but much clearer yellowish below, not so grey on the breast, and has the rump rather darker yellow-chrome. It is larger, with wings of 55–59 mm. The distribution, so far as is known, is from Molo north to Kakamegoes and Elgon.

Molo, Elgeyu, Kakamega, Kitosh, Elgon, and Bukedi in Uganda.

361. *Viridibucco simplex simplex* Rehw. **Little Olive Barbet.**

This species occurs in the Seyidi Province south of Mombasa, and is rare. Morogoro, Tanganyika Territory.

362. *Viridibucco simplex leucomystax* Sharpe. **White-moustached Olive Barbet.**

I have not met with this bird south of Kitui, Ukamba, and in its northern limits not beyond Mt. Elgon.

Mt. Elgon, Bukedi, Uganda; Elgeyu, Marakwet, Burnt Forest, Aberdare Mts., Nairobi.

363. *Pogoniulus pusillus affinis* Rchw. **Red-fronted Pigmy Barbet.**

The revision of the races of this little Barbet, by C. Grant (*Ibis*, 1915, p. 443), appears correct, though in certain instances the descriptions he gives are inadequate. The relationship between this race and the next is very close, for amongst my series there are three adult birds from Kitui and Sagala, Teita, with reddish-orange rumps.

Some birds have the hind margin of the red frontal patch outlined with yellow feathers of a different character to the actual red feathers forming the patch. In my series the wings vary from 47 to 57 mm.

Lamu, Changamwe, Manugu, Kibwezi, Sagala, River N'ziu, Ukambani, Simba, Kendu Bay, Mt. Kenia, Baringo; and Olgerei, Narossora (A. B. Percival coll.), and Mt. Moroto, Kerio River, in Uganda.

364. *Pogoniulus pusillus uropygialis* Heugl. **Red-rumped Pigmy Barbet.**

Type locality Eritrea. It is possible that this race extends to N. Rudolf. It is of interest to note that of sixteen specimens of this race only five have the red rump.

365. *Pogoniulus chrysocomus centralis* Rchw. **Uganda Yellow-fronted Pigmy Barbet.**

Although C. Grant limits the range of this race to Uganda, it is not surprising to find it extended into East Africa south-west of the Nandi Escarpment, as do quite a number of Uganda forms. It is possible that the extreme East African birds will prove to be a further race, as they are rather paler yellow on the underside than West Uganda specimens and slightly larger. Wings: 62 and 63 mm., as against 57-60 mm.

Nyarondo, Kibos, and Kibigori in East Africa.

366. *Trachyphonus erythrocephalus* Cab. **Large Red-headed Waxy Barbet.**

Pale lemon-yellow under tail-coverts are found in decidedly adult birds as well as in young, thus I doubt if it can be reckoned a character of immaturity. One male specimen has a bill 32 mm. long!

Young birds are coloured as in females.

*T. e. versicolor* Hartl. is probably not a good race.

Masongoleni, Maungu, Tsavo, Kitui, Simba, in East Africa; and Kerio River and Mt. Moroto in Uganda.

367. *Trachyphonus d'arnaudi d'arnaudi* Des Murs. **Uganda Waxy-headed Barbet.**

There is a certain amount of variation in these birds which makes it rather difficult to say whether *T. d. zedlitzii* Berger, from Baringo, is really a good form. It is probably only in a series that the characters claimed for this race can be appreciated. I cannot separate my two specimens from Baringo from birds from Moroto or Kerio River. The wing measures 63-76 mm.

C. Grant does not mention this race. *T. d'arnaudi d'arnaudi* has nothing to do with *T. d. usambiro* Neum. The forms do not actually meet.

Nile Province, Masindi, Moroto, Kerio, in Uganda; Nyarondo in East Africa.

**368. *Trachyphonus d'arnaudizeditzi* Berger. Baringo Waxy-headed Barbet.**

Baringo. ♂♀, 5.xii.1917.

**369. *Trachyphonus d'arnaudi usambiro* Neum. East African Waxy-headed Barbet.**

This distinct race has nothing to do with *T. emini* Rehw. C. Grant was quite in error when he described this bird as the female of *T. emini*, and figured it in the *Ibis*, 1915, p. 449. The type of *T. usambiro* was in Tring, but he appears not to have consulted it. He mentions this race when discussing the forms of *T. d'arnaudi*, but did not connect his Loita birds with it. It must be remembered that the male and female of *T. d'a. usambiro* are alike, as is also the case with *T. emini*.

*T. d'a. usambiro* can be recognised from the typical race by being larger, and by having a blackish bill, not horn-brown. The black patch on the breast is larger, the head and nape are yellower, and there is an almost complete breast-band of white-spotted black feathers.

The distribution, so far as at present known, is the Tanganyika Territory south of Lake Victoria Nyanza, into Kenya Colony, as far as the Loita Plains and Southern Uaso-n'yi-ro. Wings, 81-87 mm.

Loita and Usambara.

**370. *Trachyphonus emini* Rehw. Emin's Black-capped Waxy Barbet.**

In size this bird agrees with the preceding, but, as already pointed out, has nothing to do with it. The black crown and large black patch from the chin to the breast, the bright yellow nape and side of face and neck, finely spotted with blackish, and the distinct breast-band of white-spotted black feathers, render this bird easy of identification. Distribution from Lake Nyassa north to Tanganyika Territory.

**371. *Trachyphonus böhmi* Rehw. Böhm's Black-capped Waxy Barbet.**

I am not satisfied that this bird is really a subspecies of *T. d'arnaudi*. The black cap and the large black spot on the chest indicate separation.

The presence of this bird north-west of Kenia is of great interest.

Manugu, Bura, Sagala, Voi, Taveta, Campi-ya-bibi, Simba, N'ziu Ukambani, and West Kenia.

**372. *Trachylaemus purpuratus elgonensis* Sharpe. Yellow-billed Barbet.**

The known distribution of this bird is from West Uganda east to Elgon (type locality), and south to the Elgeyu Escarpment!

Mabira, Bumasifa, Elgon, in Uganda; Burnt Forest and Elgeyu in East Africa.

**373. *Iynx torquilla torquilla* Lin. European Wryneck.**

The occurrence of the European Wryneck in Uganda is certain, but so far there is no evidence of its being found in East Africa.

374. *Iynx ruficollis cosensi* C. Grant. **East African Wryneck.**

This race is recognisable, but there is a lot of variation in the character of the striping on the underside, some birds being very heavily striped, others having only narrow lines and spots. The extent of the brown on the throat, the rusty under tail-coverts, and the larger size separate this bird from *I. r. ruficollis* of South Africa. A young bird in first plumage has the broad patch on the throat indicated by a rusty wash which does not extend to the chin, the underside more mottled than striped, and the black markings on the back much larger than in adults.

Elgeyu, Burnt Forest, Naivasha, Nairobi, Loita, and Simba in East Africa.

375. *Campothera nubica nubica* Bodd. **Nubian Red-headed Spotted Woodpecker.**

In a variable species such as this it is difficult to define races. There are, however, certain characters by which, in large series, one can admit at least three races. These three are, however, not those admitted by C. Grant (*Ibis*, 1915, p. 452). I uphold one which Grant suppresses, I recognise as a distinct species a bird which he places as a synonym of *C. nubica nubica*, and I transfer one of Grant's subspecies of *nubica* to a subspecies of this species (*C. scriptoricauda*).

When a series of birds from Abyssinia, Somaliland, Sudan, Uganda, and East Africa is laid out, it will be noticed that those taken in East Africa from Kavirondo south to Nairobi are dark birds, this being due to the fact that the great majority are spotted on the back, not barred or with spear-shaped spots. The northern birds I place as *C. nubica nubica*, those of East Africa, within certain limits, as *C. nubica neumanni* Rehw (type locality Naviasha), and those from Somaliland, Jubaland, Tana, south to desert area of East Africa as *C. nubica pallida* Sharpe (type locality Lamu).

Individual birds from the distributions given can be matched by birds from other localities, but in a series the characters of the races can be recognised. For instance, I have a bird taken in the Sudan which exactly matches the pale birds of Lamu, but this is individual.

The characters of the races are as follows :—

*C. nubica nubica* Bodd (22 skins).—Upper surface olive-yellowish, barred or heavily spotted; cheeks and malar region white barred and streaked with black; under surface buffy to yellowish or whitish, generally the spotting smallish and limited to breast and sides.

Nubia, Abyssinia, Sudan, Uganda, and British East Africa = south-east of Elgon to Baringo.

376. *C. nubica neumanni* Rehw. (25 skins).—Upper surface darker above, more greenish, not so heavily spotted and *not* frequently barred; cheeks and malar region darker, more blackish; under surface more heavily spotted, with large spots which extend well on to the abdomen; ground colour whitish or buff.

Kavirondo, south along the high country to Naivasha and Nairobi, and North Ukambani.

*C. nubica pallida* Sharpe (14 skins).—Much paler above, more greyish olive, heavily barred with whitish, very pronounced on inner secondaries and

scapulars ; cheeks and malar region pale, lighter than in typical bird ; underside less spotted than in *C. nubica nubica*.

Somaliland south to Jubaland and Lamu down to Mombasa and through to dry Taru desert country to East Kilimanjaro and South Ukambani. Where these subspecies meet, intermediate forms occur. Some birds have reddish tips to the feathers of the mantle !

*C. n. nubica* I have obtained from Masindi, Elgon, Kyetume, Suk, Kerio, Moroto, Turkwell ; *neumanni* from Kakemega, Fort Ternan, Nakuru, Naivasha, Escarpment, Nairobi, Machakos.

**377. *Campothera nubica pallida* Sharpe. Red-headed Barred Woodpecker.**

The characters and distribution of this subspecies are given above.

Lamu, Manda, Manugu, Changamwe, Tsavo, Voi.

**378. *Campothera scriptoricauda* Rehw. Yellow-billed Woodpecker.**

Instead of uniting this bird with *C. nubica*, I place it as a distinct species. The characters given in the original description hold good in the three specimens before me. They are : more narrowly barred upper surface, tail blackish for 20 mm., breast and sides with small spots, *spotting extending to throat and chin*, paler cheeks and ear-coverts, and (most important of all) the yellow lower mandible ! These are adult breeding birds.

Seeing that the distribution of this species and *C. nubica pallida* coincide for a large part without the presence of intergrades, they cannot be subspecies of the same typical race.

The range of this species is : Lamu, along the coast to Mombasa and into Tanganyika Territory.

Mombasa and Morogoro.

Of this there is apparently another subspecies in Portuguese East Africa which has been named *C. s. albifacies* by Gurney and Roberts, the characters being the wide white superciliary stripe extending back to the nape, throat and chin spotted as in the typical form.

**379. *Campothera abingoni mombassica* Fisch. and Rehw. Stripe-breasted Green Woodpecker.**

I have come to the same conclusions as Prof. Neumann (*Bull. B.O. Club*, 1908), with the exception that I consider the birds from Lake Kivu and Baraka to belong to a distinct smaller race.

Mombasa district north to Lamu and South Somaliland ; specimens from Mombasa, Changamwe, Mazeras obtained.

**380. *Campothera abingoni suahelica* Rehw. Pale Stripe-breasted Green Woodpecker.**

This race is characterised by having the abdomen and underside not so spotted or streaked as in the typical form, and is thus paler, besides being greener above. In the female the white spots to the fore part of the crown are elongated, not round.

The distribution is Tanganyika Territory from Vanga and Kilimanjaro to Mozambique : Lumbo, Portuguese East Africa, collected by Loveridge.

381. *Campothera cailliauti cailliauti* Malh. **Spotted-breasted Green Woodpecker.**

(= *C. malherbi*.)

My birds are typical, with the exception of those taken in July at Dar-es-Salaam. These two southern birds are heavily spotted on the underside with large spots, whereas the Mombasa and Changamwe ones are all uniformly small spotted. Wings, 93-99 mm. The spotting on the back is large (cf. *C. c. nyansae*).

Mombasa, Seyedi Province north to Malindi and south to Zanzibar, and Dar-es-Salaam.

382. *Campothera cailliauti nyansae* Neum. **Nyansa Spotted-breasted Green Woodpecker.**

I am satisfied that this is a good race. In the series of ten skins before me the backs are almost uniform green or only with small ill-defined spots, while on the underside the spotting is heavy and large. These birds are larger than the coastal form, having wings of 95-109 mm.

South of Victoria Nyanza, north-west to Kagua and Kasaka in Uganda, and south-west to Lake Kivu, Tanganyika, and North-east Rhodesia.

383. *Campothera cailliauti fülleborni* Neum. **Southern Spotted-breasted Green Woodpecker.**

Portuguese East Africa and Nyassaland.

Lumbo in Portuguese East Africa. ♂, August. Collected by Loveridge.

384. *Campothera caroli budongoensis* subsp. nov. **Uganda Chestnut-cheeked Woodpecker.**

Uganda birds are greener on the upper surface than *C. caroli caroli*, less golden, and have the spotting on the underside pale yellowish, except on the throat and fore neck, where it is whitish. Eighteen skins from Uganda show these characters to be constant. The young are altogether darker than adults, and are very like Gaboon birds.

Belgian Congo, east to Uganda as far east as the Mabira Forest and Elgon; Budongo, Bugoma, Mawakota, Lugalambo, Mubango, in Uganda. Type, ♀ ad., Bugoma Forest, 20.x.1913.

One other subspecies described by Oberholser as *C. caroli arizelus* from Liberia and Sierra Leone appears a good race, having the underside greener and the spotting bigger and more widely separated.

Another possible race are the birds from South Nigeria and North Kamerun, which have the throat much whiter, caused by the spotting being larger and show a tendency to run together.

385. *Campothera nivosa herberti* Alex. **Lesser Barred-breasted Green Woodpecker.**

Rather greener above than type. My series of thirteen agrees perfectly with the two birds I collected in 1913-14 in the Mabira Forest and which were compared with the type in the British Museum. This bird is no doubt a subspecies of *C. nivosa nivosa* from the Gambia; adult males, which apparently were unknown, are similar to the females, but possess a bright red nape-crest.

Kasala, Budongo, Bugoma, Mibira, Kyetume, Kyanja, in Uganda.



The following races can be recognised :

*C. nivosa nivos*a Sw. : Head brownish olive ; upper surface brownish golden green, underside brownish olive spotted whitish.—Gambia, Sierra Leone, Fanti, and possibly South Nigeria.

*C. nivos*a *poensis* Alex. : Very like *nivos*a *nivos*a, but more brownish olive above, not so golden, head brownish olive-green, underside darker olive-brown, throat buffy, streaked.—Fernando Po.

*C. nivos*a *efulensis* Alex. : Very like *nivos*a, but head darker, more olive-green, upper surface olive-green, under surface clear olive-green, throat yellowish washed and streaked.—Kamerun and Angola.

*C. nivos*a *herberti* Alex. : Head dark green, upper side bright olive-green, under surface bright olive-green, throat whitish, streaked.—Belgian Congo to Uganda, as far as the Mabira Forest.

*C. nivos*a ? subsp. nov. : Head greyish olive-green, back dull olive-green, no yellow tinge, underside greenish grey spotted and barred. As I have no fully adult birds, I refrain from naming this form.—Elgon, south to Nandi.

386. ***Campothera taeniolaema taeniolaema* Rehw. and Neum. Broad-barred Green Woodpecker.**

The type locality is not exactly given in the original description, but merely Mau and Eldoma Ravine. I have eight typical birds, agreeing perfectly. *C. hausburgi* Sharpe has been suppressed, but the differences between the Ravine birds and those from Kenia is so marked that I am inclined to reinstate the subspecies.

Elgeyu, Ravine, Marakwet, Nandi.

387. ***Campothera taeniolaema hausburgi* Sharpe. Narrow-barred Green Woodpecker.**

In comparing my series of 5 ♂ 5 ♀ with two topotypical skins this race appears quite evident, but intermediates occur where the races must meet.

Kenia, Fort Hall, Nairobi, Nakuru, intermediate at Molo.

Characters of races :

*C. taeniolaema taeniolaema* Rehw. & Neum. Type, Eldoma Ravine.—Dull green above, throat and cheeks white, barred blackish ; underside white, widely barred with green and washed faintly with green.

Mau, Sotik, to Elgeyu and Kakamegoes and Elgon.

*C. taeniolaema hausburgi* Sharpe. Type locality, Kenia.—Brighter green above with yellow tinge ; more finely barred below, especially on the cheeks and throat ; underside washed yellowish.

Mt. Kenia, Fort Hall, east to Nairobi and Aberdare Range, and south to Ukamba.

388. *C. taeniolaema barakae* van Someren. Type locality, Baraka, North Tanganyika (*Bull. B.O. Club*, February 1920).—Not so yellowish green above as *C. t. hausburgi*, but throat and breast more decidedly barred with blackish dark green and darker green on the abdomen, on a yellowish ground. Size generally

smaller. The black cap of female extends far back and the red nape-tuft is correspondingly decreased.

North-west of Tanganyika, Lake Kivu north to the Mpanga Forest in Toro. The specimen obtained by the Ruwenzori Expedition and called *taeniolaema* by Grant would probably belong to this new subspecies.

**389. *Mesopicos goertae centralis* Rehw.\* Uganda Golden-backed Woodpecker.**

This subspecies is quite distinct and easily recognisable by its much darker coloration compared with *M. goertae goertae*, from Senegambia.

Masindi, Toro, Entebbe, Kawala, Moroto, in Uganda; Soronko River, South Elgon, Kerio, and Baringo in East Africa.

**390. *Mesopicos goertae koenigi* Neum.**

I do not agree with C. Grant (*Ibis*, 1915) that this is a synonym of *M. g. centralis*. Eight birds from Nubia, Sudan, and west to Njam Njam, are uniformly paler below and above, with the back greyish olive-yellow, and the abdominal patch quite different from *M. g. centralis*, being more circumscribed, not so diffuse and of a bright red edged with golden.

Out of eighteen skins of *M. g. centralis* there is not one approaching the pale Nubian birds. I therefore uphold the subspecies.

*Mesopicos goertae abyssinicus* Rehw., North Abyssinia, is possibly a northern race of *M. g. goertae*, as there is a specimen in Tring which agrees with Reichenow's description and it is not *M. spodocephalus*, specimens of which Reichenow undoubtedly had.

The range, however, assigned to this race is too wide and included that of *M. g. koenigi*!

**391. *Mesopicos spodocephalus rhodeogaster* Fisch. and Rehw. East African Golden-backed Woodpecker.**

This is a good race. It is interesting to note that in part of their range *M. g. centralis* overlaps *M. spodocephalus rhodeogaster* without any interbreeding as far as we know (cf. Sclater & Praed, *Ibis*, 1919).

Fort Hall, Nairobi, Naivasha, Simba, and Kisumu.

**392. *Mesopicos ruwenzori* Sharpe. Ruwenzori Olive-bellied Woodpecker.**

Apparently limited to the "Central Lake region."

**393. *Mesopicos elliotti* subsp. ? Uganda Buff-cheeked Woodpecker.**

♂♀, 20. xii. 1915. These birds are brighter grass-green above than specimens from the Ituri and Lake Kivu, and have uniform buff cheeks without any greenish wash, this colour extending from the loreal spot to the ear-coverts. They have smaller bills but longer wings. Possibly an eastern race.

North Elgon.

\* Cf. Nov. Zool. 1921, p. 103.—[E. H.].

394. *Mesopicos xantholophus chloroticus* van Someren. **Uganda Yellow-crowned Olive Woodpecker.**

*Bull. B.O. Club*, xli. p. 105, 1921.

Greener above and below than *M. x. xantholophus*, generally with brighter golden tinge to the rump and less spotted below on the centre of the underside. Wings: 110–122, as against 100–120 mm. of Gaboon and N. Angola birds.

Uganda from Elgon and Nandi west to North Tanganyika (Bugoma, Lugalambo, Kasala, Mubango, Elgon, Kakamega). Type: ♂ Lugalambo, 5. xi. 1915.

395. *Thripias namaquus schoensis* Rüpp. **White-faced Black-breasted Woodpecker.**

Two races are distinguishable, but it appears that they can only be recognised in series. Thus eight out of ten of my birds agree better with *T. n. schoensis* than *T. n. intermedius*, though they are not absolutely identical.

Kerio River, Soronko River, Suk, and Baringo.

396. *Thripias namaquus intermedius* C. Grant. **White-faced Grey-breasted Woodpecker.**

My ten birds agree with Grant's description of the Ugogo birds and birds from S. Uganda, and thus the range of this race is extended into East Africa.

Nine out of ten have grey and barred undersurface, while two show a tendency to assuming a blackish-olive breast, spotted with white, showing gradation into the *schoensis* type of plumage. Such birds are found from Nairobi to Nakuru and the Elgeyu Escarpment.

Olgerei, Narorsera (A. B. Percival coll.), Tsavo, Kitui, Kyambu, and Nairobi in East Africa.

397. *Dendropicos poecilolaemus* Rchw. **Uganda Speckled-breasted Little Woodpecker.**

*D. p. nandensis* Neum. (Nandi).

The *young* birds agree perfectly with Neumann's description of *D. p. nandensis*, which becomes a synonym. They are greyish green above on the mantle and wings, and greyish below with blackish spots, thus looking very different from the adults.

Budongo, Bugoma, Entebbe, Busiro, Sezibwa, Lugalambo, Mubango, Kyetume, and Elgon in Uganda.

398. *Dendropicos lafresnayi lepidus* Rchw. **Uganda Streaky-breasted Small Olive-backed Woodpecker.**

The young are greyer on the back than adults and more heavily streaked. Some birds are less banded on the back than others and approach *D. abyssinicus hartlaubi*, but there should be no difficulty in distinguishing these two birds. The records of *D. hartlaubi* from Uganda undoubtedly refer to *D. l. lepidus*.

Nairobi, Escarpment, Aberdare Mts., Burnt Forest, Elgeyu, Elgon, Kendu Bay, Fort Ternan, in East Africa; Budongo, Kigezi, S. Ankole, Bugoma, Bumasifa, Kibengei, Entebbe, in Uganda.

**399. *Dendropicos abyssinicus hartlaubi* Malh. Zanzibar Golden-backed Woodpecker.**

(= *D. a. zanzibari*.)

Has been obtained at Mombasa and along the coast, but does not go far inland. Type locality Zanzibar and adjacent coast of mainland. Records of *D. hartlaubi* from Uganda are certainly erroneous. They refer, no doubt, to brightly coloured *D. lafresnayi*, which lack bars to the mantle.

**400. *Dendropicos fuscescens massaicus* Neum. Small Barred-backed Woodpecker.**

The reference given by Claude Grant for the type locality of this bird is misleading, as Lake Nguruman is not north of Lake Victoria. My large series of 17 ♂ and 13 ♀ is most uniform, with the result that those birds I have referred to other subspecies stand out quite conspicuously when placed alongside this series. The races admitted by Claude Grant are in the main correct, but I differ from him in recognising at least two forms which he unites, one as "*hemprichi*" and the other as "*massaicus*."

Changamwe, Maungu, Masongoleni, Voi, Taveta, Tsavo, Kerio River, Turkwell River, in East Africa; Mt. Moroto in Uganda.

**401. *Dendropicos fuscescens centralis* Neum. Golden-barred Little Woodpecker.**

♂, 3.vii.17; ♀, 25.vii.18. These birds differ so markedly from *D. f. massaicus* that I am compelled to recognise them as distinct. They are more distinct from *D. f. fuscescens* than "*massaicus*" is from the typical bird. Above they are more yellow-golden and distinctly barred, the golden colour being present on the wings, especially on the cross bars to the primaries and secondaries. The underside is less heavily streaked and washed with yellow. The females have a brown head lacking the black nape, and the males lack the red tips to the upper tail-coverts. Wings, 90 mm.

Central and South Tanganyika Territory to North Nyassaland and Mozambique.

(Morogoro in Tanganyika Territory and Lumbo in Portuguese East Africa.)

**402. *Dendropicos fuscescens albicans* Zedl. Pale-barred Little Woodpecker.**

Type locality Juba River. The Lamu and Manda birds are very much paler than *D. f. massaicus*, that I am prepared to support Zedlitz's subspecies. Eight specimens from this locality agree, with the exception of one youngish female.

Jubaland south to Lamu and Manda and adjacent portions of mainland.

**403. *Iyngipicus obsoletus obsoletus* Wagl. Western Grey Pigmy Woodpecker.**

Two birds from Masindi cannot be distinguished from the Senegal birds either in size or colour. They have wings of 80 and 81, while in Senegal birds they range from 75 to 82 mm.

Masindi to Gondokoro.

404. *Iyngipicus obsoletus ingens* Hart. East African Grey Pigmy Woodpecker.

I am satisfied that birds taken in Eastern Uganda, north to Moroto, cannot be separated from East African ones, and must all be placed under the name given above. Some birds are dark, some pale, but the proportion of dark and pale birds is equal in northern and southern specimens. Further, the wings of birds taken in North Elgon area are as large or larger than Nairobi birds (typical *I. o. ingens*). Young birds are much darker above and below than adults—thus I am inclined to view Neumann's *I. o. nigricans* from South Ethiopia with doubt, as he based it on insufficient material. *I. o. heuglini* is a good race, being paler throughout. The wing measurements of my series of fifteen vary from 84 to 92 mm.

Ukambani north to Elgon and Moroto, Turkanaland.

(Moroto in Uganda; Kerio, Suk, Soronko River, Kimiriri River, Fort Ternan, Kibos, Kisumu, Escarpment, Nairobi, Fort Hall, Kitui, in Kenya Colony.)

(In reviewing the Colies I have compared birds from type localities, and my results include only those species and races which concern the student of British East African and Uganda ornithology.)

405. *Colius striatus affinis* Shell. Dar-es-Salaam Coly.

Type locality, Dar-es-Salaam. 5 ♂, 1 ♀, 1 juv., all from the type locality and all uniformly coloured, showing no variation. The confusion which has arisen over this bird and its near relations must be due to the fact that authors have not compared typical birds. A description of the typical bird is as follows (colours as in Ridgway's *Nomencl. Col.*): Top of head, including crest, neck, and mantle, avellaneous brown, the mantle very faintly barred. Cheeks very pale smoke-grey, not sharply separated from the smoke-grey of the throat, which is uniform and a shade darker, while the rest of the throat is but faintly barred, especially where it merges into the avellaneous brown of the chest. The lower breast and abdomen are light buff. Wings and scapulars buffy brown, tinged with a slight olive wash. Rump and upper tail-coverts uniform avellaneous brown. Wings: 86, 89, 89, 89, 91, 91.—Young birds are like adults, but lack all signs of barring and have the back mottled with buff tips to the feathers, and the lesser coverts tipped with rusty. Lower mandible black, base of upper pinkish.

Dar-es-Salaam, Zanzibar and adjacent coast, inland to South Tanganyika Territory and coast of Mozambique.

406. *Colius striatus berlepschi* Hart.

The nearest to "*affinis*" inland is *C. s. berlepschi* Hart., which differs in having the back and wings darker, more tinged with olive-brown, and the under-side darker.

South-west Tanganyika Territory, round north of Lake Nyassa (type locality), and North-east Rhodesia.

407. *Colius striatus mombassicus* van Someren. **Mombasa Grey-cheeked Coly.**

*Bull. B.O. Club*, November 1919.

Type ♂, 19.vii.1918, Mombasa. These birds are quite distinct from *C. s. affinis*, from Dar-es-Salaam, being more greyish on the head, neck, and mantle, the neck and mantle being distinctly barred, the bars more widely separated than in *C. s. affinis*. The cheeks are whiter; the throat is more barred, in a similar way to the mantle. Breast and abdomen darker. Wings and tail more greyish; rump and upper tail-coverts barred. Wings: 87, 87, 90, 90, 92 mm.

Mombasa, north to Kismayu and possibly South Somaliland, on the coast and inland as far as Voi.

(Mombasa, Changamwe, Samburu, Lamu and Manda and M'koi.)

408. *Colius striatus kikuyensis* van Someren. **East African Black-throated Coly.**

*Bull. B.O. Club*, November 1919.

The central Kenya Colony or highland race differs from the coastal form in having the head and neck saccado-umber, mantle slightly darker, faintly barred, lores and base of forehead blackish, cheeks and throat blackish with the feathers tipped greyish, ear-coverts silver-grey. Lower throat and breast buffy brown, barred blackish; lower part of breast and rest of underside light buff. Wings and tail deep greyish olive; rump and upper tail-coverts saccado-brown, barred. A large bird, with wings of 100, 100, 101, 101, 102, 103, 104, 107 mm.

South Ukambani to Kavirondo, including the Loita Plains and east to Kenia. Thirteen skins from Nairobi, Ruiru, Fort Hall, Escarpment, Kyambu, Burnt Forest, Nakuru, Naivasha. Type ♂, 14.v.1918, Nairobi.

409. *Colius striatus ugandensis* van Someren. **Uganda White-cheeked Coly.**

*Bull. B.O. Club*, November 1919.

Type ♂, 28.v.06, Chagwe. Eighteen specimens examined.

Crown and mantle wood-brown to buffy brown, the latter barred; wings and tail not so dark as in *C. st. kikuyensis*, but greyish olive. Rump and upper tail-coverts brownish olive. Cheeks greyish, ear-coverts white, especially at the posterior border; throat blackish, tipped whitish. Upper breast ochraceous buff, barred with brownish black. Rest of undersurface ochraceous buff, thus darker brownish than in East African specimens. Wing, 100-99 mm.

Uganda, from Lake Albert and Ruwenzori to Elgon and Turkwell River.

(Ankole in Toro, Chagwe, Kampala, Entebbe, Jinja, Moroto, Kerio.)

The other recognisable races are:

*C. striatus striatus* Gm: Cape to Knysna district.

*C. s. nigricollis*: Portuguese Congo and possibly Cameroon.

If Cameroon birds differ, they will be called *C. s. nigriscapalis* Rehw.

*C. s. leucotis* Rüpp.: North Abyssinia, Eritrea.

*C. s. hilgerti* Zedlitz (? *C. s. erlangeri*): South Abyssinia, north South Ethiopia, Omo district, northern frontier of East Africa, North Somaliland.

*C. s. jebelensis* Mearns: Nile district, Gondokoro to Niam Niam.

*C. s. minor*: Natal to Transvaal and South Portuguese East Africa, South Nyassaland.

*C. s. cinerascens* Neum.: Central Tanganyika Territory to south of Lake Victoria.

410. *Colius leucocephalus leucocephalus* Reichw. **White-headed Coly.**

My series of 7 ♂, 4 ♀, 2 juv. of a species rare in collections shows no variation in colour. They were breeding at the time they were collected (August 1918), and eggs and young were taken. The eggs are white, or with a few brown marks and with a matt surface. The young resemble the adults, but the feathers of the mantle are tipped and edged with rusty. The pink on the breast is absent and the barring in the throat not developed. The whole of the lower bill is black. Crest well developed. In adult birds the crest is not pure white, but creamy, tinged with buff and greyish towards the tips of the hind feathers.

The range of the typical bird is the Teita country and south of Kilimanjaro. Possibly the specimens obtained by Zedlitz and Erlanger from South Somaliland are not typical, as those from north of Mt. Kenia differ and have been described as a new race.

Maungu, Masongoleni, and Taveta.

411. *Colius leucocephalus turneri* van Someren. **Grey-naped Coly.**

*Bull. B.O. Club*, xl. p. 27, 1919.

This race differs in having the neck and mantle more clearly barred, more greyish, and the wings, back, and rump deeper grey. The vinous pink is more restricted in area, being confined to the upper breast and sides, while the lower breast and abdomen are ochraceous buff. The throat is slightly darker. The cheeks are greyish, not brownish as in *C. l. leucocephalus*, and the crest feathers and those of the forehead are pure white, the former deeply tinged with smoke-grey.

The known range of this bird is the northern Guasso N'yiyo. (Archer's Post, five skins.)

412, 413. *Colius macrourus pulcher* Neum. **East African Blue-naped Coly.**

(Type locality, Bura.)

Claude Grant (*Ibis*, 1915) recognised only two races of *Colius macrourus*, but there are evidently more, and he can hardly have examined specimens from northern Abyssinia. The birds from Eritrea are Oberholser's *syntactus*; they are very pale.

The Bura birds are darkest, having the back deep ashy washed with bluish green, from the crown to the wings. The rump and upper tail-coverts are slightly paler. The undersurface of the wings darker than in *U. m. macrourus*. The throat not so whitish, more tinged with pinkish, the crest with a greyish tinge. The chest deep vinous pink and the abdomen darker. The nape-patch is shiny squil-blue, that of *U. m. macrourus* pale sky-blue. *U. m. pulcher* is a good race; the wing measurement of my series 86, 87, 87, 89, 90, 90 mm. The birds in the second series, collected during practically the same months but from farther north, i.e. Turkana to Uganda, are paler than typical *U. m. pulcher* and resemble more the birds from South Ethiopia. They have the throat and breast more pinkish than *U. m. macrourus*, but not so dark as in *U. m. pulcher*. The forehead, crest, and nape more brownish than typical race. The underside paler than *C. m. pulcher* and the upperside less bluish green—paler, and tinged with brownish,

The nape-patch is sky-blue, not squil-blue as in *C. m. pulcher*. It appears, therefore, that this race is intermediate between *C. m. syntactus* and *C. m. pulcher*; and as the type localities of these two are so widely separated, they may form another subspecies. Wings, 90–96 mm.

South Abyssinia and North-east Uganda to Lake Rudolf.

SERIES I.—Six specimens. Bura, Teita, Sagala, Magadi, Tsavo, M'buyuni, Escarpment and Kisumu, South Kavirondo, Island of Manda, Lamu.

SERIES II.—Twelve specimens. Kimiriri, Suk, Turkwell, Moroto, Rudolf.

In the Lake Edward and Kivu district to North Tanganyika we find a dark race which is near *C. macrourus pulcher*, but differs in having the crown more greyish; the blue nape-patch breman-blue, not squil-blue; the wings and mantle tinged more greenish, less bluish, and the throat not differently coloured to the breast, but the whole vinous, washed with grey. Abdomen tinged greyish, not buff. Wings, 88–95 mm. (four specimens).

This race I have named. I am inclined to separate also the birds from Manda and Lamu Islands, as they seem to me much paler than the other races.

#### 414. *Colius macrourus griseogularis* van Someren.

*Bull. B.O. Club*, November 1919.

With a range from Lakes Albert Edward and Kivu to North Tanganyika.

It is only by having large series that these races can be appreciated. I have endeavoured to compare only birds in similar and unworn stages of plumage. These races, having arisen from a common stock, do occasionally produce "reversions" or, where races meet, supposed "hybrids."

#### 415. *Apaloderma narina* subsp. ?

I cannot detect any difference between males from East Africa and Uganda and those from the type locality in South Africa. In the females, however, it is quite noticeable that South African birds are brighter rufous on the lores, throat, and breast, and lack the broad grey band on the chest which is present in East African and Uganda birds. In northern birds the brown of the chest is shot with greenish, giving this area a darker appearance. I have not sufficient South African females, but refrain from identifying the northern birds with the southern. Young birds, after passing through the spotted plumage, assume a plumage like that of the female, but differ in having pale terminal spots to the lesser coverts and occasionally on the secondaries. It is not until the third plumage that the red underside is assumed.

Bugoma, Budongo, Butambara, Mawakota, Elgon, in Uganda; Elgeyu, Naivasha, Nairobi, and Kyambu in East Africa.

#### 416. *Heterotrogon vittatum vittatum* Shell. Bar-tailed Trogon.

These birds are not so common as the white-tailed species. The call is much the same, but of a higher pitch. A series of eighteen adult birds. Owing to lack of material I am unable to compare these birds with typical specimens.

Elgon in Uganda; Elgeyu and Kyambu Forest in East Africa.



417. *Heterotrogon vittatum minus* Chapin.

Is probably the form which inhabits West Uganda, as it occurs in the forests of the Belgian Congo. I have no specimen from this locality for comparison, but do not think that Uganda birds are the same as East African examples. The males are darker crimson, and the females darker on the breast; I have, however, insufficient material.

418. *Pitta angolensis longipennis* Reichw. **Uganda Pitta.**

This bird must be more plentiful than supposed. I have records of its occurrence in the forests of Bugoma, Budonga-Mabira, in Uganda, and Kyambu in East Africa.

During the dry season this bird was not seen in Bugoma, but appeared again during the rains.

Bugoma Forest, Uganda. ♂, 7.vi; ♀, 4.vii.1919.

419. *Coracias naevia naevia* Daud. **White-naped Roller.**

(*C. sharpei*.)

I have compared my five birds with a large series of Senegal ones, and can find no constant difference. There is a tendency for eastern birds in fresh plumage to have the heads more rufous, without the greenish tips to the feathers of the crown which is present in most fresh Senegal birds. The forehead is more broadly whitish. More East African material is required.

Fort Hall, Kisumu, Nairobi, and Kitui.

420. *Coracias garrulus garrulus* Linn. **European Roller.**

In full plumage and showing no wear in February and March. A common winter visitor.

Tsavo and Nairobi.

421. *Coracias caudatus caudatus* Linn. **Lilac-breasted Long-tailed Roller.**

(*C. c. suahelicus* Neum.)

The colour of the rump varies from deep ultramarine to pale blue. Changamwe, Lamu, Kitui, Simba, Kimiriri River, Elgon.

422. *Coracias caudatus lorti* Shell. **Lilac-throated Long-tailed Roller.**

Type locality, Somaliland.

I wish to draw attention to the fact that these birds are found in localities where *C. c. caudatus* occurs, and this not at a period of migration, in January, March, April, June, and August. The question to be settled is, are these birds stragglers from Somaliland or are they resident, and should they not be reckoned a species!?

The rump varies from deep blue to pale blue in birds from the same localities. Lamu, Mombasa, Tsavo, Simba, Sagala, and Naivasha.

423. *Coracias abyssinus abyssinus* Bodd. **Blue-breasted Long-tailed Roller.**

This bird ranges over part of the distribution of *C. c. lorti* and *C. c. caudatus*, and is kept as a species. Full-plumaged birds, not worn, in March and April. Kobua River, Turkwell River, Moroto, in Uganda.

424. *Eurystomus afer suahelicus* Neum. **Eastern Yellow-billed Roller.**

Nairobi, Kitui, and Kyambu.

425. *Eurystomus afer rufobuccalis* Rehw. **Brown-cheeked Yellow-billed Roller.**

Type locality Lake District in Uganda.

These birds have no purplish violet on the side of the head, and are paler than the other subspecies. Apparently does not occur in East Uganda!

Bugoma, Toro, in Uganda.

426. *Eurystomus afer aethiopicus* Neum. **Black-tailed Yellow-billed Roller.**

I have compared my two birds with Neumann's type and cotypes. They agree perfectly, having the central pair of tail-feathers jet-black. The lateral rump and tail-coverts dull blackish blue, central ones brownish tinged with blackish; darker on the back than any other race of *E. afer*.

Moroto and Kisumu.

427. *Eurystomus gularis neglectus* Neum. **Blue-throated Chestnut Roller.**

1 ♂, August, agrees perfectly with birds collected in 1914. The majority of Angolan birds have blue rumps and blue central tail-feathers.

Bugoma Forest, Uganda.

428. *Bucorvus abyssinicus* Bodd. **Abyssinian Ground Hornbill.**

This species appears to extend as far south as the Turkwell River, but I am not aware that its range actually meets that of the southern species.

429. *Bucorvus cafer* Schleg. **Southern Ground Hornbill.**

I had a ♀ in captivity for almost two years, and previous to my obtaining it, it had been caged for about four months. When it died it was just beginning to assume the red-and-blue coloration of the throat pouch—that is, at practically two and a half years old. The parents of this bird nested in a hole in a cliff side at Naivasha year after year, one young being produced at a time. From my observations it would appear that the young of successive seasons do not leave their parents until they are mature; thus I have frequently noticed that when one finds a small party, there are usually two adult birds and perhaps three young of various ages, from a young of the year to a young of two to three years old.

**430. *Bycanistes subcylindricus* Sel. White-winged Crested Hornbill.**

(= *subquadratus* [♀] = *alloysii* Salvad.)

I do not consider *B. alloysii* to be distinct from typical *B. subcylindricus*; the amount of white to the tip of the central tail-feathers varies in individuals. Mabira Forest, Uganda; Yala River, in East Africa.

**431. *Bycanistes cristatus* Rüpp. Black-winged Crested Hornbill.**

Common in the larger forests, but occasionally wandering to the larger trees on open land near forest country.

Nairobi, Kyambu.

**432. *Bycanistes buccinator* Temm. White-breasted Crowned Hornbill.**

Sometimes numerous in the thick thorn-bush country of the Taru district. Samburu, Manugu.

**433. *Lophoceros fasciatus fasciatus* Shaw. Ivory-billed Hornbill.**

Certain specimens from Uganda and Gaboon show a tendency for the second and third tail-feathers from the outer side to be black for the basal two-thirds, but the majority are typical.

Jinja in Uganda.

**434. *Lophoceros melanoleucus suahelicus* Neum. Red-billed Pied Hornbill.**

(? *L. m. geloensis* Neum.)

The amount of white on the side of the head and nape varies greatly, so that I am inclined to doubt the validity of *L. m. geloensis* Neum. from South Ethiopia (the supposed differentiating character being the greater amount of white on the head). I have examined the type, a much-damaged bird. *L. m. suahelicus* is a sound race.

Mubendi, Jinja, in Uganda; Sagala, Kyambu, and Lake Jipe in Kenya Colony; Morogoro in Tanganyika Territory.

**435. *Lophoceros hemprichi* Ehrb. Abyssinian Red-billed Hornbill.**

Mt. Moroto in Turkana in Uganda. A head only obtained.

**436. *Lophoceros pallidirostris neumanni* Rehw. Neumann's Pale-billed Hornbill.**

One specimen from the type locality. Not common in East Africa. Taveta, Morogoro.

**437. *Lophoceros flavirostris flavirostris* Rüpp. Yellow-billed Hornbill.**

It seems to me that *L. f. somalicus* is founded on a female of the typical race. Seven adult males from Somaliland show no red on the lower mandible, two females have the basal half and the tip reddish, but this is also found in East African birds. Two birds, differing only in the colour of the lower mandible, otherwise alike, can hardly occupy the same locality.

Bura, Sagala, Tsavo, Manugu.

438. *Lophoceros deckeni* Cab. Von der Decken's Hornbill.

Quite distinct from the northern species. In referring to the text figure 3, p. 275, of C. Grant's paper in *Ibis*, 1915, I find that an apparent error has been made in the figuring, the males being transposed.

Samburu, Tsavo, M'buyuni.

439. *Lophoceros jacksoni* O.-Grant. Jackson's Hornbill.

A good species. One might at first be inclined to treat it as a northern race of *L. deckeni*, as the only difference other than the curve of the culmen appears to be that *L. jacksoni* is spotted on the wing-coverts and *L. deckeni* not, but I think it best to keep them as species.

Suk, Kerio River, Mt. Moroto, in Uganda.

440. *Lophoceros nasutus nasutus* Linn. Black-billed Grey Hornbill.

All fully adult.

Fort Hall and Kendu Bay in East Africa; Kyetume in Uganda.

441. *Lophoceros erythrorhynchus erythrorhynchus* Temm. Red-billed Hornbill.

It seems that the Abyssinian and N. Somaliland birds should be kept distinct from the Senegal one (on account of the narrower, less curved bill which these birds possess), as *L. e. leucopareus* Hempr.

Tsavo, Simba, Nairobi, in East Africa; Kacheliba, Suk, and Turkana.

442. *Halcyon chelicuti* Stanley. Striped Kingfisher.

A very variable common species.

Changamwe, Samburu, Simba, Kisumu, Kimiriri River, in East Africa; Entebbe, Masindi, Kyanja, and Kawala in Uganda.

443. *Halcyon albiventris orientalis* Peters. Buff-breasted Kingfisher.

No birds from the typical locality are available for comparison.

Mombasa, Changamwe, Kitui.

*Halcyon leucocephala* and subsp.

There is an interesting revision of this group by C. Grant in the *Ibis*, 1915, pp. 265-7. This has helped considerably to clear up the state of confusion into which these birds had fallen. Before coming to England I endeavoured to collect a large series of these birds from East Africa and Uganda, from the coast up to Lake Albert.

As to the name *A. semicaeruleus* Forsk., C. Grant has shown that this name must be limited to the South Arabian bird, and states that the Uganda and North-east African birds are the same as Senegal specimens, placing them all under the name *H. leucocephala*. I have, however, examined a series of Senegal birds and find them to be quite distinct from Uganda and East African ones, therefore the name *leucocephala* cannot be applied to these latter. The next names available are *hyacinthinus* Rehw. and *centralis* Neum. The first name must be restricted to birds inhabiting Zanzibar and the adjacent coast and North Mozambique.

Thus *centralis* must be used for the East African inland race, but cannot be applied to Uganda and South Abyssinian birds, which I name *H. l. ugandae*.

A careful study of the description and the figure of *swainsoni* Smith and a comparison with South African specimens reveals the fact that the bird described is certainly not the form which inhabits South Africa. In the Monograph of the Kingfishers it is stated (on the authority of Verreaux) that the specimen which Sir A. Smith described as coming from the "interior of South Africa" was in reality a Senegal specimen which Verreaux had given to Sir A. Smith. Hence the discrepancy between the description and South African specimens. The description fits Senegal birds only. *H. swainsoni* cannot be used for the pale brown-bellied birds which inhabit South Africa and Angola, and the next name available is *pallidiventris* Cab., type locality Angola. I find, on laying out my large series along with that of Tring, that these brown-bellied Kingfishers fall naturally into two groups: a dark-bellied and a pale-bellied one, and dark- and pale-bellied birds occur together in a large part of their distribution but remain distinct! I therefore recognise two species, each with several races, and classify them as follows:—

I. *Halcyon leucocephala*.

*Halcyon leucocephala leucocephala* Swains: Senegal, east to West Soudan.

*H. l. semicaerulea*: South Arabia.

*H. l. ugandae*: Uganda, South Abyssinia, Somaliland, and Lake Rudolf district.

*H. l. centralis*: East Africa south of Victoria Nyanza, Northern Tanganyika Territory, and Taru.

*H. l. hyacinthina*: Zanzibar and adjacent coast and North Mozambique.

II. *Halcyon pallidiventris*.

*Halcyon pallidiventris pallidiventris* Cab: Angola, Damaraland, to South Africa and Transvaal.

*H. p. ogilviei*: Nyassaland, Angoniland, to South Tanganyika.

*H. p. kivuensis*: North Tanganyika, Kivu, Albert Edward, and South Victoria Nyanza.

444. ***Halcyon leucocephala ugandae* subsp. nov. Uganda Brown-bellied Kingfisher.**

Uganda birds cannot be united with the Senegal birds, nor with the East African race. They are intermediate between the Senegal form and that of Arabia, *H. leucocephala leucocephala* and *H. l. semicaerulea*. They agree, however, with the birds from South Abyssinia and North Somaliland. They have light blue wings and upper tail-coverts, not tinged with greenish.

Masindi, Entebbe, Jinja, Mabira, Sio River, in Uganda; Kisumu and Kavirondo in East Africa. Type Kisumu, collected by Turner for Col. Meinertzhagen, in Tring Museum.

445. ***Halcyon leucocephala centralis* Neum. East African Brown-bellied Kingfisher.**

With a series of twenty skins it is obvious that one cannot unite these birds with *H. l. leucocephala* or with the Uganda race. The coloration of the blue of

the wings and tail, etc., is strikingly different and is, with the exception of one or two birds which are worn, deep blue with a slight violet tinge, quite uniform in the series. Furthermore, these birds are darker on the head than Senegal birds.

Lamu, Mombasa, Changanwe, Manugu, Voi, Sagala, Taveta, Simba, Nakuru.

**446. *Halcyon pallidiventris* ?subsp. nov. Uganda Pale-bellied Violet-winged Kingfisher.**

This bird undoubtedly belongs to the smaller, pale-bellied, violet-winged birds of the central lake district, which I have named above. I have now met with it on the east shore of Victoria Nyanza, from where I obtained 2 ♂, and conclude that it must have wandered out of its true habitat. There can be no doubt, however, as to its correct identification. The birds obtained by the Ruwenzori Expedition belong to this race.

*Halcyon pallidiventris ogilviei* Grant is a bird with a darker brown belly and probably belongs to the southern species.

Kendu Bay south of Speke's Gulf and South Ankole in Uganda.

**447. *Halcyon senegalensis senegalensis* Linn. Grey-headed Blue-backed Kingfisher.**

Three birds from Bale, Burumezi in Uganda, and Kisumu in East Africa are inseparable from Senegal examples.

**448. *Halcyon cyanoleuca* Vieill. Blue-headed Blue-backed Kingfisher.**

I prefer not to treat this bird as a subspecies of *H. senegalensis* as it appears to occupy so much of the same territory together with the latter. I should imagine that the birds which look like hybrids are merely highly coloured *H. senegalensis*, for even amongst Senegal birds one finds a few with quite bluish green heads. The black stripe going through the eye in *H. cyanoleuca* distinguishes such birds from this species.

Sezibwa River, Uganda.

**449. *Halcyon senegaloides* A. Smith. Red-billed Grey-breasted Kingfisher.**

Has been obtained at Mombasa.

**450. *Halcyon malimbicus prenticei* Mearns. Black-backed Blue Kingfisher.**

Type locality, Sesse Islands. A good race, having the head much less blue than in *H. m. malimbicus*.

Sezibwa River, Uganda.

**451. *Halcyon badia budongoensis* van Someren. Uganda Brown-backed Kingfisher.**

*Bull. B.O. Club*, November 1919.

This bird and three others in the Tring Museum from Uganda and Ituri Forest are much bigger than typical *H. badia badia*, from Gaboon. They are also paler, the blue of the rump darker, but not so wide. Bill larger. Wings 100-105 mm. as compared to 90-98 in *H. badia badia*.

West Uganda to Belgian Congo; Budongo and Bugoma Forests in Uganda. Type ♀, Budongo, 27.xii.1918.

452. *Alcedo semitorquata* Swains. **Black-billed Blue and Brown Kingfisher.**

Not common in East Africa, but occasionally obtained. Frequents the Kilimanjaro area.

453. *Alcedo güntheri* Sharpe. **Günther's Blue and Brown Kingfisher.**

This bird has been obtained in the forest north of Entebbe by C. F. Belcher.

454. *Ispidina picta* Bodd. **Violet-eared Little Kingfisher.**

A Bugoma specimen is a variety, having the back light blue, not dark blue as in normal birds.

Fort Hall and Kisumu in East Africa; Lugalambo, Bugoma, and Entebbe.

455. *Myioceyx ruficeps ugandae* van Someren. **Little Red-headed Kingfisher.**

*Bull. B.O. Club*, xli. p. 105, 1921.

These birds have more decided blue spots on the head than Gaboon and Fantee specimens.

Lugalambo, Mabira, and Budongo in Uganda. Type ♂, Budongo, 1. vi. 1919. Tring Museum.

456. *Corythornis cristatus* Pall. **Little Crested Kingfisher.**

Kisumu, Kibos, Nairobi, in East Africa; Entebbe in Uganda.

457. *Ceryle maxima* Pall. **Eastern Giant Kingfisher.**

A ♂ bird was shot by a small pool which had formed in a disused quarry, a most unusual locality.

Nairobi, 4. i. 1917.

458. *Ceryle rudis rudis* Lin. **Pied Kingfisher.**

♂ ♀, Kisumu.

459. *Melittophagus revoili* Oust. **Little Buff-breasted Blue Bee-eater.**

Insufficient material prevents me from ascertaining whether these are the same as typical birds, but they probably are.

Northern Guasso N'yiyo. Only two obtained.

460. *Melittophagus lafresnayii oreobates* Sharpe. **Large Brown-breasted Yellow-throated Bee-eater.**

It is a pity the type locality, Elgon, is so far north, because birds from the Turkwell are sometimes very like the Abyssinian birds, having the blue forehead and supercilium and the blue neck-patch.

Nairobi, Kyambu, Kisumu, Marakwet, Elgon, and Turkwell River.

461. *Melittophagus variegatus lorongi* Mearns. **Uganda White-cheeked Yellow-throated Bee-eater.**

The Uganda race of *M. variegatus* can be recognised, differing from the western bird in having a distinct blue forehead and supercilium.

Budongo, Bugoma, Masindi, Mubendi, Entebbe, and Jinja in Uganda; Kisumu in East Africa.

462. *Melittophagus pusillus cyanostictus* Cab. **Little Blue-eyebrowed Bee-eater.**

(*M. p. sharpei* Hart.)

All my twenty-five birds have blue foreheads and superciliary stripes. The distribution of this race and the next is such that they run parallel for part of their distribution. In the Kisumu and East Uganda-Turkwell districts they interbreed.

Mombasa, Changamwe, Lamu, Maungu, Tsavo, M'buyuni, Voi, Simba, Nairobi, Fort Hall, Kibos, Kisumu, Kibingei, Turkwell River.

463. *Melittophagus pusillus meridionalis* Sharpe. **Southern Little Bee-eater.**

These birds have a small pale blue patch over the eye. From South Africa they range to North Abyssinia *via* the lake districts. Some of the birds taken in East Africa are intermediate.

Masindi, Busiro, Kyetume, Sezibwa, in Uganda; Kendu Bay, Kisumu, Kibengei, and Elgon in East Africa.

464. *Melittophagus mülleri yalensis* van Som. **Uganda Red-throated Blue Bee-eater.**

*Bull. B.O. Club*, xl. p. 26, 1919.

This is a pale form of *M. mülleri mülleri* (from Gaboon), having the back lighter chestnut and the blue of the underside not so deep.

North Kavirondo, Elgon, and Kakamegoes.

465. *Melittophagus bullocki frenatus* Hartl. **Red-throated Green Bee-eater.**

Ranges into the north-west corner of Uganda as far south as Masindi.

466. *Melittophagus bullockoides* Smith. **White-headed Red-throated Bee-eater.**

Nakuru, Naivasha, Kisumu, Turkwell River.

467. *Dicrocerus hirundineus hirundineus* Licht. **Fork-tailed Bee-eater.**

Specimens from Vanga undoubtedly belong to the southern race.

468. *Dicrocerus hirundineus heuglini* Ncum. **Blue-vented Fork-tailed Bee-eater.**

A ♂, January, belongs to the northern form, which, if the Abyssinian birds are a valid race, under the name of *D. h. omoensis*, would probably have to be so named.

Mt. Moroto, Turkana.



469. *Merops apiaster apiaster* Linn. **European Bee-eater.**

This is a common species on migration.  
Kikuyu, Kyambu, Kitui, Tsavo.

470. *Merops albicollis maior* Parrot. **East African White-throated Long-tailed Bee-eater.**

Type locality, Bagamoyo. Length of wings, 100-108 mm. The longest tail 220 mm.

Masindi, Bugoma, Budongo, Busiro, Singo, in Uganda; Kisumu, Kendu Bay, Rudolf, N'zoia River, in East Africa.

471. *Merops nubicus nubicus* Gm. **Crimson Long-tailed Bee-eater.**

Tsavo and Mombasa.

472. *Merops persicus persicus* Pall. **Yellow-throated Green Long-tailed Bee-eater.**

Two birds have tails with the central feathers 70 mm. beyond the rest and as long and as graduated as the North-west African birds, *M. p. chrysocercus*. It is quite possible that the north-west race (the eastern extension of breeding range is perhaps not known) migrates to West Uganda and that these birds belong to it.

Masindi, Entebbe, in Uganda; Kisumu, Kobua, Lake Rudolf, and Nairobi.

473. *Merops superciliosus* Linn. **Brown-throated Long-tailed Bee-eater.**

Masindi, Mubendi, in Uganda; Kisumu, Simba, and Tsavo in East Africa.

474. *Upupa epops epops* Linn. **European Hoopoe.**

Two specimens belong undoubtedly to the European form. Dr. Hartert confirms this identification. Two other birds were obtained by local ornithologists.

Kyambu and Naivasha.

475. *Upupa epops somalensis* Salvad. **Somali Hoopoe.**

This race can be distinguished from the European bird by having more rufous on the mantle and the breast, and by having no white band on the crest before the black tips. It has the white band on the primaries, thus distinguishing it from *U. epops africana*.

Nairobi in East Africa; Singo in Uganda.

476. *Upupa epops africana* Bechst. **African Hoopoe.**

This race is resident in East Africa throughout the year and breeds regularly in suitable localities. Much variation exists in the coloration. Young males are much richer in coloration than young females. It is particularly common in the dry thorn-bush country.

Kisumu, Nairobi, Simba, Tsavo, M'buyuni, Lake Jipe.

(C. Grant's review of the genus *Irrisor* in the *Ibis*, 1915, simplifies the division of these birds into races. In the main he is correct; but my series shows that certain modifications will have to be made in the matter of distribution.)

477. *Irrisor erythrorhynchus marwitzi* Rehw. **Green Red-billed Wood Hoopoe.**

An old male collected at Kibos has several white feathers on the head and throat, but is not *I. jacksoni*! One female has the primary coverts uniform green, not tipped white, as is usually the case. Two young birds have these coverts entirely white. A female shot with the nestlings, 23.vii.1918, has the culmen and the whole of the lower bill black, but is not a specimen of *I. d. granti*. It is perfectly adult.

Mubango, Lugalambo, Elgon, Kimiriri River, in Uganda; Nairobi, Kisumu, Burnt Forest, Marakwet, Simba, Tsavo, and Changamwe in East Africa.

478. *Irrisor erythrorhynchus niloticus* Neum. **Blue-tailed Red billed Wood Hoopoe.**

All my five birds have heads and throats and breasts with bluish gloss, and blue tails without any purplish tinge, or just a shade of purple at the base of the central rectrices. They have much larger and longer bills than *I. e. marwitzi*.

Mt. Moroto, Kabua River, Rudolf, and Turkwell River.

479. *Irrisor damarensis granti* Neum. **Purple-headed Red-billed Wood Hoopoe.**

Although the majority of adults have black-and-red bills, nevertheless, very *old birds* have bright *red* bills.

Simba, Kitui, Tsavo, Samburu, and Lake Jipe.

480. *Irrisor somaliensis* Grant. **Black-billed Wood Hoopoe.**

♂, December 1912 (A. B. Percival coll.).

Occurs on the Juba River.

481. *Irrisor bollei jacksoni* Sharpe. **White-headed Red-billed Wood Hoopoe.**

There are three groups which may turn out to be recognisable races of this species. I append measurements of bills and wings and other characters, including the series in the Tring Museum.

SERIES I. : 11 ♂ 6 ♀. Wings, ♂ 125-131, ♀ 123-127 mm. Bills, *from nostril to tip*, ♂ 26-38 mm. Head and mantle on the average bluer than in Kikuyu birds. Heads purer white.

Elgon, Mabira, Bumasifa, Mubango, Bugoma, in Uganda.

SERIES II. : 5 ♂ 2 ♀. Wings, 130-145 mm. Bills, *from nostril to tip*, ♂ 35-41, ♀ 27-37 mm.

These are typical *I. b. jacksoni*. General colour of head and mantle more golden green.

Kyambu, Molo, Escarpment, Kenia.

SERIES III. : 7 ♂ 4 ♀. Wings, 120-135 mm. Bills, *from nostril to tip*, ♂ 27-37, ♀ 25-27 mm.

Males with distinct bluish wash on head and mantle; only two birds with white heads as in Kikuyu birds, though less extensive on the throat. The others

have the white limited to the forehead and a few feathers on the throat; some have altogether green heads. They are all adult. Apparently a small mountain race, showing a strong tendency to loss of white feathers on the head. I refrain from naming this race, as I find a bird in the Tring Museum, collected at Escarpment Station, with uniform green head; it, however, is long-billed. A larger series from the Sherengani is required.

North end of Elgeyu Escarpment, 8,000 feet, Sherengani Hills.

482. *Scoptelus aterrimus emini* Neum. **Uganda Black Wood Hoopoe.**

♂, 17.vi.1916. This bird has no white on the tail-feathers, and is not so large as the type of *S. a. maior* Neum. which I have examined. Wing, 101 mm. In *S. maior* the wings are 112 mm.

Bukedi in Uganda.

483. *Scoptelus pallidiceps* van Someren. **Pale-headed Wood Hoopoe.**

*Bull. B.O. Club*, 1915.

I described this bird on the evidence of eight males and females. Since then I have collected four more birds, and these bear out the characters given for this species. Wings, 90–105 mm.

This bird has a darker, more brownish head and greener belly than *S. adolfriedrici* Reichw. from Belgian Congo.

Lugalambo, Mubango, Elgon.

484. *Rhinopomastus cyanomelas schalowi* Neum. **Black Scimitar-billed Wood Hoopoe.**

The inner primary coverts are white in the majority of specimens, but in some uniform bluish. One old male from Lamu has not only all the primary, but also all the secondary coverts pure white. It is probably an aberration.

Lamu, Manda, Changamwe, Sagala, Simba, Nairobi, Naivasha, Elgeyu.

485. *Rhinopomastus cabanisi* Filippi. **Yellow-billed Scimitar-billed Wood Hoopoe.**

One male has a white bar on the fourth primary of the right wing, indicating close relationship to *R. minor*.

As I have no birds from near the type locality I cannot compare my specimens, but from the measurements given by Reichenow it would seem that my birds are larger: wings, 108–112 mm.

Mt. Moroto and Kobua River in Uganda; Kisumu, Kerio River, Kendu Bay, Tsavo, Voi, M'buyuni, Campi-ya-bibi, and Maungu in East Africa.

486. *Caprimulgus europaeus europaeus* Linn. **European Nightjar.**

I saw a bird of this species as late as April 24th in my garden at Nairobi.

487. *Caprimulgus europaeus meridionalis* Hart. **Mediterranean Nightjar.**

♀, 29.iii.1917, Nairobi. This bird agrees perfectly with the type. Identification confirmed by Dr. Hartert.

488. *Caprimulgus europaeus unwini* Hume. **Unwin's Nightjar.**

♀, 31.iii.1918; ♂, 12.iv.1917. Very pale birds with silvery backs and pale undersurfaces with clear bars. Dr. Hartert has verified my identification. These migratory Nightjars roost in trees more frequently than do the local species.

Tsavo and Mombasa.

489. *Caprimulgus fraenatus* Salvad. **Salvadori's Nightjar.**

Young birds are very like *C. inornatus*, but more rufous on the back, and the spotting is larger. A common species in suitable localities. Wings measure 165–175 mm.; average length, 170 mm.

Kisumu, Nakuru, Nairobi, Fort Hall, Simba.

490. *Caprimulgus keniensis* van Someren. **Kenia Nightjar.**

*Bull. B.O. Club*, November 1919.

♂ ad., April 1919 (A. B. Percival coll.), type!

Superficially resembles *C. fraenatus*, but very dark with much bigger and more numerous dark buffy tips to the wing-coverts on an almost black ground, the vermiculations almost invisible. The longitudinal pale markings on the scapulars are golden buff on blackish ground. The inner webs of the upper scapulars have a silvery tinge contrasting with the rest of the black plumage. The shafts of the primaries are white for a part of the length of the white spots and about 30 mm. beyond; the white in the outermost primary does not extend to outer web. The breast is blackish with rusty buff spots. Throat with two white patches.

Northern Uasso N'yiyo.

491. *Caprimulgus nigriscapularis* Rehw. **Black-winged Nightjar.**

This is not a common species in East Africa, but more frequently met with in Uganda.

♂ ♀, Nairobi, Entebbe, in Uganda.

492. *Caprimulgus inornatus* Heugl. **Plain-backed Nightjar.**

There appear to be two extreme types of coloration in this species, grey and rusty brown. Intermediate colours are common. The young of *C. fossei* in first plumage are very like the greyish form, but can be recognised by the outer web of the outer tail-feather being whitish, not white tipped as in *C. inornatus*.

Taveta and Kisumu in East Africa; Lugalambo in Uganda.

493. *Caprimulgus trimaculata tristigma* Rüpp. **Black Nightjar.**

♂ ♀, 7.viii.1917. These birds have wings of 174–175 mm. respectively. It is not a common species, and appears to frequent rocky hillsides in preference to plains.

Fort Hall, Kenia Province.

494. *Caprimulgus nubicus taruensis* van Someren. **Taru Desert Nightjar.**

*Bull. B.O. Club*, xl. p. 25, November 1919.

The coloration of the specimens is similar. Not rare in the desert thorn-bush country, yet not common. More rufous than *C. nubicus torridus*, and smaller. Wings 43-51, as compared with 52-58 mm.

Tsavo and M'buyuni. 3 ♂ 2 ♀, type, 17.iii.1918.

495. *Caprimulgus donaldsoni* Sharpe. **Little Desert Nightjar.**

My series shows a great range of coloration, from bright chestnut to pale greyish. It is a most beautiful sight to see these birds sitting on an open bit of ground with the sun shining on them, the yellow markings glistening like gold. When I visited Tsavo I saw no less than forty of these beautiful little birds! They were nesting in the district at the time.

M'buyuni, Tsavo, and Taveta.

496. *Caprimulgus poliocephalus poliocephalus* Rüpp. **White-tailed Nightjar.**

After comparing my series and the birds in Tring, I have been compelled to recognise two races: the typical bird ranging from Abyssinia to North Kenya Colony, and a southern darker race inhabiting the Kilimanjaro district to Nairobi and Kenia. The latter must bear the name *C. p. palmquisti* Sjöstedt. In both the northern and the southern race, birds occur which have no white on the throat! Thus one of the characters claimed for Sjöstedt's form does not hold good.

Kyetume in Uganda; Kisumu, Elgeyu, Eldoret, Nakuru, in East Africa.

497. *Caprimulgus poliocephalus palmquisti* Sjöstedt. **Kilimanjaro White-tailed Nightjar.**

Differs from the northern race by being slightly larger and darker, and showing a strong tendency to lose the white on the throat. Two of my birds agree perfectly with the figure of this bird, allowing, of course, for slight faults due to colour reproduction. The amount of black on the outer penultimate pair of feathers of the tail varies. In some birds the second outer feather is pure white, in others it is edged with sandy or even brownish black.

Taveta and Simba.

498. *Caprimulgus natalensis chadensis* Alexander. **Spotted Golden Nightjar.**

Eight birds belong to the northern race. One is just as fulvous as a specimen from Angola. It is not stained, but a beautiful clean specimen. The wings vary from 150 to 155 mm.

Mubendi and Kyetume in Uganda; Eldoret in East Africa.

***Caprimulgus fossei* and supposed races.**

I have gone carefully into the supposed races of this bird and have arrived at the conclusion that *C. clarus* and *apatelius* are in reality a distinct species.

First of all, throughout a large part of the range of *C. fossei fossei* the form *clarus* occurs as a breeding species, though elsewhere *C. clarus* is found where *C.*

*fossei fossei* is unknown. Now, as regards the supposed character of elongation of central tail-feathers and graduation of the others in *C. fossei*, I find that this is not a marked feature and *not any more emphasised than in C. europaeus*. But in *C. clarus* and *C. apatelius* the graduation is marked, the average length of the central rectrices over the outermost being 30 and in some as much as 50 mm.

I am therefore compelled to treat *C. fossei* as a species with a small race in Mozambique ranging into Tanganyika Territory, and also to treat *C. clarus* as a species or parent race with one subspecies, *C. c. apatelius*, and would suggest that possibly "*Scotornis climacurus*" should not be kept in a distinct genus, but united with *Caprimulgus*. The body marking in *Scotornis* is no different in pattern from that of *C. clarus*, and the bird differs only in the exaggerated elongation and graduation of the tail. I have compared a large series in coming to these conclusions. Lord Rothschild concurs in my opinion. I thus treat my birds as follows:—

499. *C. fossei fossei* Hartl. **Gaboon Nightjar.**

These birds are large and dark and have the *tail not graduated*. Wings 160–162 (in Gaboon and Angolan birds 155–165 mm.). These large birds range from Gaboon to Uganda and Angola and thence to Transvaal.

Unyoro, Duro River, Kampala, in Uganda; Kisumu and Kenia in East Africa.

500. *C. fossei mosambicus* Hartl. **Mozambique Nightjar.**

Rather more boldly marked than *C. fossei fossei* and darker, besides being smaller. Wings, 145–152 mm. Range: Mozambique to Central Tanganyika Territory (Lumbo, Morogoro).

501. *Caprimulgus clarus clarus* Reichw. **Little Pale Nightjar.**

This form cannot be a subspecies of *C. fossei*, as they occur together throughout Uganda and East Africa. My series of adult birds has been collected practically throughout the year. One of the characters of the "*clarus*" group is the marked elongation of the central tail-feathers and graduation of the rest towards the outer ones, the central ones projecting about 50 mm. beyond the outer ones. Smaller than *C. fossei*. It is much paler, more greyish on the back, with golden or sandy markings. The wing measurements of a large series of adults are 135–150 mm.

Of *C. clarus* there is one subspecies, *C. c. apatelius* Neum., South Ethiopia. It is larger than *C. clarus*, rather more greyish, and has the same elongated tail-feathers. The wings measure 147–162 mm. The character on which Neumann separated this bird from *C. fossei* and *C. clarus*, viz. the white wing-spot extending over both webs in all the primaries, does not hold good in *all* South Ethiopian birds, and it is found in specimens of true *C. fossei*, *C. clarus clarus*, and *Scotornis climacurus*. I have maintained Neumann's name for the South Ethiopian race, because it is larger, not because of the character of the wing-spot. Records of *C. clarus apatelius* from Kilimanjaro and Taveta should be referred to *C. clarus clarus*!

Lamu, Manda, Mombasa, Manugu, Voi, Taveta, Nairobi, Kyambu, Kisumu, in East Africa; Jinja, Kampala, Bugoma, in Uganda.

502. *Scotornis climacurus* Vieill. **Long-tailed Nightjar.**

The variation in this species is enormous, from black and deep chestnut to fulvous and greyish.

Masindi, Unyoro.

503. *Macrodypteryx longipennis* Shaw. **Racquet-winged Nightjar.**

In February males are in the non-breeding plumage, lacking the long wing-plumes.

Kisumu. Not common.

504. *Macrodypteryx vexillarius* Gd. **Standard-winged Nightjar.**

One male has white plumes, the other greyish, while the third has them white at the basal half and grey for the rest. A ♂ in August was shot high up in the air, catching flying white ants.

Kisumu, Kendu Bay, in East Africa; Mubendi in Uganda.

505. *Apus apus apus* Linn. **European Black Swift.**

♂, 7.iii.1917, Nakuru. This specimen has a wing of 175 mm. and is no doubt an example of *Apus apus*. It lacks the dark bluish mantle of the next species.

506. *Apus roehli* Rehw. **Blue-backed Black Swift.**

This race is very much like the European bird, but can be recognised by having the head and rump blackish brown and the mantle glossy blue-black. In size it is very little smaller, having wings of 161–175 mm. It is a resident breeding bird in East Africa and nests in the cliffs at Longonot, Naivasha, and Nakuru Lake.

507. *Apus shelleyi* Salvad. **Shelley's Brown Swift.**

2 ♂ 1 ♀, November, December, show no wear. This is a small brownish bird with greenish gloss, which is very much like *Apus apus pekinensis*, but much smaller. I have found it breeding at Nakuru in some crevices of a cliff side and obtained the eggs. As a nesting bird it ranges from Abyssinia to British East Africa. It nests alongside a black swift which I describe later.

Naivasha and Nakuru.

508. *Apus nakuruensis* van Someren. **Nakuru Swift.**

♂, 14.v.1917, type. I had noticed that from the same cliff issued three distinct swifts—one a brownish bird, *A. shelleyi*, the second a large white-rumped species, and a blackish one. On obtaining specimens, I found them to belong to distinct species. As *Apus shelleyi* has been admitted a subspecies of *Apus apus*, we cannot recognise these blackish birds also as a subspecies of *Apus apus*, though they are nearer to *Apus apus* than to *A. "pekinensis."* These birds differ from *Apus shelleyi* in being altogether blacker above and below and from *Apus apus rhoeli* in lacking the deep bluish gloss to the mantle, which is glossy black, and in being smaller; wings 150–159 as compared with 161–175 mm. They are also distinct from *Apus niansae* of Reichenow.

To my knowledge the following birds nest together or in close proximity: *A. shelleyi*, *A. roehli* and *A. nakuruensis*, *A. horus* and *A. streubeli*! The latter two, of course, have white rumps, and do not come into the *Apus apus* group.

I would suggest that *Apus pekinensis* should be raised to specific rank and *Apus shelleyi* admitted as a subspecies of this parent race. The dark Swift which I have described would be a race of *Apus apus apus*, as it resembles this bird in appearance, and is merely smaller,

Nakuru, Naivasha, Kisumu.

509. *Apus pekinensis* Swinhoe. **Pekin Swift.**

Is a regular migrant to East Africa and has been obtained in Uganda.

510. *Apus aequatorialis* Müll. **Giant Black Swift.**

*A. reichenowi* Neumann.

I have no doubt that *Apus reichenowi* of Neumann is identical with this species, the character given, viz. the uniform undersurface, being sometimes seen in old birds, and one of my specimens is uniform brownish for more than half the underside and faintly barred over the lower abdomen. Added to this is the fact that this single specimen was obtained from a flock of typical birds. The Nyassaland birds should be kept as a race under the name *A. aequatorialis alfredi* Shelley.

Nairobi, Kyambu, Naivasha.

(*Apus schubotzi* Rehw. from Ruwenzori has been compared by Hartert, who says that it is not different from *aequatorialis*.)

511. *Apus niansae* Rehw. (*A. kittenbergeri* Mad.).

These two names would appear to be synonymous, the older name being *A. niansae*. These birds have been taken in the Bukoba district and at Buddu.

512. *Apus murinus* subsp. ?

Similar in colour to *A. murinus murinus*, but rather smaller. Occurs in East Africa, probably as a migrant. A similar bird is found in Somaliland. (Archer's collection from North Somaliland.)

513. *Apus affinis* Gray. **Square-tailed White-rumped Swift.**

Three Mombasa specimens have black shafts to the feathers of the throat. Wings, 128-130 mm.

Mombasa and Makindu.

514. *Apus horus* Heugl. **Large White-rumped Swift.**

2 ♂, July and August. The August bird is not typical, being paler on the head and underside and being more purply blue on the back. The white on the rump is less extensive and the white area on the throat wider than in typical Abyssinian birds.

Lakes Nakuru and Naivasha.



515. *Apus caffer streubeli* Hartl. Fork-tailed White-rumped Swift.

A common species in East Africa and Uganda.

Lake Nakuru, Nairobi, Kisumu, Fort Hall, and Entebbe.

516. *Tachornis parvus myochrous* Rehw. East African Palm Swift.

Some of these birds have grey throats, others white with blackish streaks.

Mombasa and Tsavo; Entebbe in Uganda.

Nesting habits of Swifts:—

*Apus shelleyi*: Nests in holes and crevices in cliffs, sometimes adding no material to the hole or at others using mud to enclose a small area. Lining of nest varies: occasionally straw, feathers (seldom), and sometimes small bones from bats which inhabit these cliffs. Eggs, one or two.

*Apus nakuruensis*: As above. Eggs, two.

*Apus roehli*: As above. Eggs, two.

*Apus aequatoralis*: All nests of this bird seen have been out of reach, situated in high cliffs.

*Apus affinis*: Nests constructed entirely of mud or mud and straws, complete or in apertures in walls of dwelling-houses, or in spaces between heads of pillars and roofs. Lined with feathers and straws. Eggs, two.

*Apus horus*: Not examined.

*Apus streubeli*: Utilises old or unfinished nests of swallows with tubular entrances. It lines with straws and feathers if the nest be unlined. It also nests in nests of other swifts. Eggs, two.

*Tachornis parvus myochorus*: Constructs nests to palm leaves, using feathers and cobwebs which are stuck together with saliva. Eggs, two, glued to the bottom of the nest.

517. *Riparia riparia fuscocollaris* Tschusi. Little Black-collared Sand Martin.

When my series is compared with typical birds from Sweden or Britain, it is at once apparent that they are darker; especially is this the case in the blackish breast band. They agree well with birds from Turkestan and are probably migrants from that country. There are autumn and spring birds, and all are alike dark.

Kisumu, Kibigori, Naivasha, Nairobi, Nakuru. January, March, April, October, December. 12 ♂ ♀. These birds are evidently Tschusi's *fuscocollaris* (*Orn. Jahrb.* xxiii. p. 216, 1912, from migrants in Dalmatia).

518. *Riparia riparia riparia* Linn.

7 ♂ ♀ from Kisumu and Nairobi I consider to be typical *riparia*.

519. *Riparia paludicola ducis* Rehw. Little Sooty Sand Martin.

*Riparia ducis* Reichenow, 1908.

*Riparia paludicola dohertyi* Hartert, 1910 (Kikuyu Escarpment—not Mau!).

These birds are much darker than *R. p. minor*. Full-plumaged birds are almost blackish above, especially birds from 8,000 feet upwards. Hartert has compared the type of *R. p. ducis* Rehw. and found it identical with his *dohertyi*.

Nairobi, Kikuyu, Kisumu, Nakuru, Naivasha, Elgeyu, Lake Narasha. 6 ♂, 3 ♀, 2 juv., January, July, August, September, October.

520. *Riparia cincta suahelica* subsp. nov. **Large Black-collared Sand Martin.**

Separable from South African and Angola birds by being much darker above and having a darker, more blackish breast band. Wings, 120–140 mm.

East Africa and Uganda. Eleven specimens. Type ♂, Escarpment, 1901, W. Doherty leg., Tring Museum.

521. *Riparia fuligula rufigula* Fisch. & Rehw. **Brown-throated Rock Martin.**

The birds from Angola are very much more rusty on the throat and should be kept separate as a distinct race. They differ also in having the spots on the tail smaller, and are generally smaller.

Nakuru, Naivasha, Kisumu, Kyambu, Nairobi.

522. *Hirundo griseopyga* Sund. **Grey-rumped Swallow.**

East African specimens have much whiter rumps than the few birds available from the type locality. The tails are longer and more graduated. It is possible that the East African birds are separable as a southern race, but more material is necessary before a decision can be arrived at.

Kisumu, Nakuru, Naivasha, and Nairobi.

523. *Hirundo aethiopica* Blanf. **Red-fronted Swallow.**

As I have no birds from the type locality I cannot say whether my specimens are quite typical.

Mombasa, Tsavo.

524. *Hirundo angolensis arcticincta* Sharpe. **Eastern Red-faced Swallow.**

Some of my birds are very close to the typical race, but on the whole these Eastern birds are larger and more whitish below.

Masindi, Entebbe, and Jinja in Uganda; Elgon, Kisumu, Nakuru, Naivasha, and Escarpment in East Africa.

525. *Hirundo rustica rustica* Linn. **European Swallow.**

Some of these birds are very rufous on the underside and others are very white. Young January birds are, of course, much more advanced than August ones, the former being in the first winter plumage, the latter still in the nest plumage. The moult of this bird appears to be a regular irregularity, that is, the feathers are moulted in pairs; but in my series no two birds taken in the same month are in the same stage of moult nor are the feathers which have been shed always a similar pair. Freshly moulted birds are darker.

Kendu Bay, Kisumu, Nakuru, Naivasha, Nairobi.

526. *Hirundo smithii smithii* Leach. **Wire-tailed Swallow.**

My series is uniform in having paler brown heads than Angolan specimens. Series of fresh birds should be compared.

Entebbe, Uganda; Kisumu, Nakuru, Nairobi, Tsavo, and Simba.

**527. *Hirundo puella abyssinica* Guér. Northern Striped-breasted Swallow.**

I cannot agree with Sclater and Praed (*Ibis*, 1918) that the East African and East Uganda are the same as the South African birds. To say that the Uganda and East African birds are heavily spotted and streaked, "having as much black as white," is not correct. My birds agree with the Abyssinian race. Wings, 105–110 mm. It is noticeable, however, that West Uganda birds from about Entebbe to Lake Edward, Bukoba, and Lake Kivu are heavily streaked, and these may be similar to *H. p. unitatis* Scl.

Pale race: W. Rudolf, Kisumu, Nairobi, Archer's Post, Kenia.

Dark race: Entebbe, Masindi, Bukoba.

**528. *Hirundo senegalensis senegalensis* Linn. Large Brown-breasted Swallow.**

I have made a careful examination of these birds, and I find that they remain true to type until they reach the eastern boundary of Uganda and North British East Africa. Here they meet with a race which shows characters of both *H. senegalensis* and *H. monteiri*. As I find that birds with the white spots on the tail, as in "*monteiri*," but with paler breasts, are confined for the most part to Tanganyika Territory and southern British East Africa, while true *H. senegalensis* does not appear to occur in these parts, I have been compelled to place these intermediates under a new name, as follows later.

The wings measure 143–155 mm. in *H. senegalensis*. I have five typical birds from Senegal and twenty from countries between Senegal and Uganda. These birds show no indication of spots on the tail.

Senegal to Abyssinia, Uganda, and North British East Africa (Masindi, Unyoro, Kyetume, Kavirondo, Kisumu).

**529. *Hirundo senegalensis hybrida* van Someren. Spotted-tailed Brown-breasted Swallow.**

*Bull. B.O. Club*, xli. p. 104, 1921.

East African specimens hitherto referred to *H. monteiri* are not true *monteiri*, but much paler below. True *H. monteiri* is a dark bird. Further, they show characters of both *H. senegalensis* and *H. monteiri*. If these birds were found only where *H. senegalensis* and *monteiri* meet, there would be no need for a name, but they are widespread in the distribution given. It is therefore impossible to recognise these birds as *H. monteiri*, and as it is a common bird in East Africa I have given them a name. Besides my birds I have examined a series of ten in Tring Museum and a number in Nairobi.

Tanganyika Territory and Kenia Colony to south of Lake Victoria, where it meets *H. senegalensis* (Mombasa, Changamwe, Tsavo, M'buyuni, Samburu, Nairobi).

**530. *Hirundo gordonii neumanni* Rehw. Massai Long-tailed Brown-breasted Swallow.**

There is no doubt that *H. neumanni* is a race of *H. gordonii*, and that the latter is not a subspecies of *H. semirufa*; *semirufa* and *gordonii* occur side by side in Angola. Further, the scheme of colouring is different. All

Uganda birds would be *H. g. neumanni*, not *H. gordonii*, as they are darker below than *H. gordonii*, and larger.

The specimens of *H. semirufa* from Kivu and Belgian Congo are probably a race of the southern bird.

Kisumu, in East Africa; Masindi and Entebbe in Uganda. (It is possible that the birds from Angola will have to be recognised as a race of *H. gordonii*, as they are larger than typical birds, and somewhat darker. Material at present insufficient to decide.)

531. *Hirundo melanocrissa emini* Rchw. **Black-vented Swallow.**

The female has the throat and breast distinctly streaked.

Nairobi, Kendu Bay.

532. *Hirundo atrocoerulea christyi* Sharpe. **Black Wire-tailed Swallow.**

This race is so very near the South African race as to be hardly distinguishable.

Nambigirwa, Uganda.

533. *Delichon urbica urbica* Linn. **European House Martin.**

Hartert states in *Vögel pal. Fauna* that the wings of this species measure 108–114, while a specimen from Turkestan has a wing of 115 mm. In my series is a bird with a wing of 117 mm. !

Naivasha and Nakuru Lake.

534. *Psalidoprocne albiceps* Sel. **White-headed Martin.**

Very common in the Kisumu scrub.

Entebbe and Bugoma in Uganda; Kisumu, Nakuru, Nairobi, Fort Hall.

535. *Psalidoprocne holomelaena massaica* Neum. **Black Rough-winged Martin.**

Kyambu, Fort Hall, Nakuru, Elgon.

*Note.*—It appears to me that the present division of the Swallows and Martins into genera is not satisfactory. I am unable to go into the matter fully, but would like to draw attention to the nesting habits of the several species which nest in East Africa and Uganda.

*Riparia paludicolor dohertyi*: Nests in holes in banks, natural or excavated by the bird, or occasionally in a mere depression under an overhanging tuft of grass growing on an embankment. Nest lined with grasses. Eggs white.

*Riparia cincta*: Nests in holes in banks. Nest lined with grass. Eggs white.

*Riparia fuligula rufigula*: Builds a "half-cup" nest of mud—mixed with grass—lined with grass and feathers. Eggs pale pink to white spotted with reddish or liver. Nest built in caves on cliffs and houses.

*Hirundo griseopyga*: Nests in tunnels in banks, natural or excavated by bird; little or no lining of grass. Eggs white.

*Hirundo aethiopica*: Builds a "half-cup" mud nest placed in caves or houses; nest lined grass and feathers, sometimes string and paper. Eggs white to pinkish, spotted liver and reddish.

*Hirundo arcicincta* : Similar to above.

*Hirundo smithi* : Ditto to above.

*Hirundo puella abyssinica* : Makes a mud nest with a half tubular entrance ; lining grasses and feathers. Placed in houses, culverts, caves, and cliffs. Eggs white.

*Hirundo senegalensis* : Ditto, ditto.

*Hirundo senegalensis hybrida* : Ditto, ditto.

*Hirundo gordonii neumanni* : Ditto, ditto.

*Hirundo melanocrissa emini* : Ditto, ditto.

*Hirundo atrocoerulea christyi* : Ditto, ditto.

*Psalidoprocne albiceps* : Nests in holes in banks, usually natural ones adapted by bird, lined with grass and a feather or two. Eggs white.

*Psalidoprocne holomelana massaica* : Nests in holes in banks, natural or excavated by bird ; nest substantial, constructed of " beard lichen " and grass. Eggs white.

536. **Melaenornis lugubris ugandae** subsp. nov. **Uganda Black Flycatcher.**

Differs from the Abyssinian race (*schistacea*, not *pammelaina* Stanley) in being much more glossy black, especially the males, and in having the inner webs of the primaries and secondaries greyish ashy, not whitish, and from *M. p. edoloides* in lacking the bluish-black gloss, in being smaller, and having shorter tails and wings.

Masindi, Budongo, Entebbe, Sezibwa, in Uganda ; Kisumu and Kavirondo in East Africa.

I have examined the type of *pammelaina* Stanley, which is a blue-black bird of the *ater* group. The next name for the grey-black birds is *M. lugubris lugubris*, North Abyssinia. Dull grey-black ; bases to inner web of quills white. Wings, 90-103 mm.

The recognisable races are :—

*M. l. schistacea* Sharpe : S. Ethiopia, Somaliland. Grey-black. 90-104 mm. Wings inside whitish.

*M. l. ugandae* : Uganda and Kavirondo. Glossy black ; wings, inner webs greyish ashy.

*M. l. edoloides* : Senegal. Larger, wing 95-108 mm. Dark blue-black ; inner webs of wing feathers dark ashy.

537. **Melaenornis ater pammelaina** Stanley. **Blue-black Flycatcher.**

(= *tropicalis* Cab.)

An excellent race of the South African bird, but the name will probably have to be altered to *pammelaina* Stanley, as the type of this is a blue-black bird which agrees absolutely with *tropicalis*, and probably did not come from Abyssinia. As *pammelaina* has priority, this name will have to be used.

Simba, Tsavo, Nairobi, Fort Hall, Teita.

538. **Empidonis semipartitus kavirondensis** Neum. **Grey and Brown Flycatcher.**

As I have no birds from the type locality of *E. semipartitus* I am unable to verify this race. Wings, 90-100 mm.

Birds from Gondokoro and Nile east to Rudolf and Soroti are 95, 98, 100 mm. Kendu Bay, Kisumu, Kachiliba, Baringo, in East Africa; Soroti and Lali in Uganda.

539. *Dioptornis toroensis* Hart. **Toro Grey Flycatcher.**

Very like *D. fischeri*, but lacking the white ring round eye.

Found in South-west Uganda, Kigezi, South Ankole.

540. *Dioptornis fischeri* Rehw. **White-eyed Grey Flycatcher.**

Mporogoma, West Elgon, in Uganda; Kibingei and Kimiriri Rivers, Elgon, Kakamega, Elgeyu, Burnt Forest, Londiani, Molo, Nairobi, in East Africa. Twenty-five specimens.

541. *Bradornis murinus suahelicus* van Someren. **Eastern Ashy Shrike Flycatcher.**

*Bull. B.O. Club*, xli. p. 104, 1921.

I have had a large series of birds from the type locality before me, also a good series of this race. It is evident that the typical birds are much greyer above and below, not so brownish. The eastern ones are larger.

Masindi, Entebbe, Kyetume, Jinja, Soronko, Elgon, in Uganda; Kibingei, Suk, Kisumu, Nakuru, Londiani, Kakamegoes, Nairobi, Kitui, and Sagala in East Africa (type Londiani).

542. *Bradornis griseus griseus* Rehw. **Large White-throated Grey Shrike Flycatcher.**

These are large greyish birds with striped heads and greyish undersides, except for the throat and abdomen, which are white. Wings, 85-90 mm.

Magadi Lake, Srita, Kendu Bay.

543. *Bradornis taruensis* van Someren. **Lesser White-throated Grey Shrike Flycatcher.**

*Bull. B.O. Club*, xli. p. 104, 1921.

Smaller than *B. griseus* or *B. griseus pumilus* and darker above, having a brownish tinge to the grey back. I have compared unworn full-plumaged birds. They differ from *B. g. pumilus* in having the white throat more extensive and clearly demarked, and in having the abdomen whiter, not tinged with greyish. Wings, 70-80 mm. Head streaks distinct.

Thorn-bush country of the Taru: Manugu, Samburu, Sagala, Taveta, M'buyuni, Campi-ya-bibi (type). Thirty-one specimens.

544. *Bradornis griseus pumilus* Sharpe. **Northern Lesser White-throated Shrike Flycatcher.**

Agree perfectly with the South Abyssinian birds. Meuressi, Turkwell, Uganda.

545. *Bradornis griseus* ? subsp.

Much more heavily built than the birds from Tsavo and nearer to *B. griseus* and *g. pumilus*. Wings, 80–87 mm. They are, however, rather worn, heads striped.

Simba, Kitui, Nairobi.

546. *Bradornis pallidus pallidus* v. Müll. **White-throated Brown Flycatcher.**

These birds agree with typical *pallidus* in the Tring Museum. They are totally different from the next race, which is a coastal form.

Masindi and Unyoro, Uganda.

547. *Bradornis pallidus subalaris* Sharpe. **Pale-breasted Coast Flycatcher.**

These birds are distinctly different from birds collected farther inland in the Taru district and also from *B. pallidus* of Abyssinia or Nile districts. The series is constant and not damaged by wear. As Sharpe described "*subalaris*" from a Mombasa bird, I am compelled to adopt his name for these specimens.

Mombasa, Changamwe, Mazaras.

548. *Muscicapa striata striata* Pall. **European Spotted Flycatcher.**

Kisumu, Nakuru, Naivasha, Nairobi, Tsavo, Limba ; Masindi.

549. *Muscicapa striata neumanni* Poche. **Neumann's Spotted Flycatcher.**

These birds are paler greyish on the back, larger, and with the breast markings pale.

Lake Jipe, Tsavo, Changamwe, Nairobi.

550. *Alseonax lugens melanoptera* Jacks. **White-throated Dark Grey Flycatcher.**

Erroneously referred by me to *A. lugens* in *Ibis*, 1916. They are darker than *A. lugens lugens* and, according to the description, whiter on the belly and under tail-coverts.

Chamburu River, Toro.

551. *Alseonax griseigularis* Jacks. **Little Grey-throated Flycatcher.**

The birds referred by me to *A. ansorgei* Hart. in *Ibis*, 1916, should belong to this species. I consider that *A. ansorgei* should be kept distinct from *A. griseigularis*, as the type is darker than any bird in my series. It is probably a race of the Uganda bird.

Bugoma, Budongo, Lugalambo, Mubango, Kyetume.

552. *Alseonax cinerea brevicauda* Grant. **Little Pale-breasted Grey Flycatcher.**

As in the majority of cases, the Uganda "Grey" Flycatchers are not the same, but races of the West Coast birds. I prefer to keep these specimens under Grant's name for them, until typical specimens of *A. cinerea* can be compared.

Ogilvie-Grant's remarks on the groups of "Grey" Flycatchers in *Ibis*, 1917, require considerable modification, as my series of birds of this group shows his conclusions to be wrong in many instances.

Masindi, Kyetume, Mabira, in Uganda.

553. *Alseonax coerulescens kikuyuensis* van Someren. **Kikuyu Flycatcher.**

*Bull. B.O. Club*, xli. p. 102, 1921.

These birds are very much like *A. c. coerulescens* from Natal and Angola, but distinctly greyer below, the white throat is more restricted, with a wide grey chest-band, the abdomen more or less flecked with greyish. Wings, 74–80 mm.

Nairobi, Kyambu, in the Kikuyu Mountains, 5,000–6,000 feet. Type ♀ ad. Kyambu Forest, 19.iii.1916. Eight specimens.

554. *Alseonax coerulescens ? cinereola* Finsch and Hartl. **Coast Grey Flycatcher.**

These birds are greyer than *A. c. kikuyuensis* and have heavier bills. They are found in the desert thorn-bush country, not dense forests. As Finsch and Hartlaub described a bird from the coast of Tanganyika Territory under the name of "*cinereola*," I have had to apply this name to these birds, even though they do not agree with the coloured plate of Hartlaub's type in Von der Decken's book on *East Africa*.

Tsavo, Sagala, Teita.

555. *Alseonax infulata infulata* Hartl. **White-throated Brown Flycatcher.**

South Ankole and Entebbe in Uganda; Kisumu in British East Africa.

556. *Alseonax murinus murinus* Fisch. & Rehw. **Little Brown Forest Flycatcher.**

Birds from Molo Forest at 9,000 feet are rather richer brownish below than others from Nairobi district, but such birds can be matched by Escarpment specimens. Unfortunately Kilimanjaro birds are not available to me for comparison.

Nairobi, Molo, Burnt Forest, Elgeyu.

557. *Alseonax murinus pumilus* Rehw. **Uganda Little Brown Forest Flycatcher.**

Birds from Elgeyu west to Masindi are much paler below and have white not buffy throats; but as the variation is great between birds from type locality of *A. pumilus* (Bukoba), I have no hesitation in referring all to this race, though in East Uganda one gets birds which are hardly separable from Nairobi specimens.

Masindi, Kyetume, Elgon, and Budu in Uganda.

558. *Pedilorchynchus comitatus stuhlmanni* Rehw. **Little Dark Grey Forest Flycatcher.**

Busiro, Budongo, Lugalambo, Mubango, in Uganda.

559. *Pedilorchynchus epulatus seth-smithi* subsp. nov. **Little Yellow-legged Flycatcher.**

Six specimens, Seth-Smith coll., from Budongo are richer, darker grey than birds from West Africa, i.e. *epulatus* and *flavipes*. These birds have ochre-yellow legs; the lower mandible is yellowish.

Budongo Forest, Uganda.



**560. *Artomyias fuliginosa* ? subsp. Uganda Dusky Flycatcher.**

Specimens from Uganda, though agreeing in colour with birds from Gaboon and Angola, are smaller. Wings, 78-80, as compared to 80-87 mm. in western birds. As my series is not large enough, I refrain at present from separating them. Mubango and Mabira.

**561. *Cryptolopha budongoensis* Seth-Smith. Uganda Green Flycatcher.**

The birds from Elgon and North Kavirondo do not differ from birds from the type locality. It is an excellent species.

Elgon and Budongo in Uganda; Nyarondo in East Africa.

**562. *Cryptolopha mackenziana* Sharpe. East African Green-winged Brown Flycatcher.**

My series of 13 ♂ 7 ♀ is made up of birds from various parts of the highlands of East Africa, and very little variation exists in coloration. Young birds are rather more olive on the head.

Kenia, Escarpment, Molo, Burnt Forest, Londiani, Aberdares, Elgeyu, and Elgon.

**563. *Cryptolopha alpina* Og.-Grant.**

Limited to the highlands of the "central lake district."

**564. *Cryptolopha laeta* Sharpe. Little Rufous-faced Flycatcher.**

This form is found in hills of the Ruwenzori area, south to Ankole and Kivu, Lukiga, S. Ankole.

**565. *Chloropeta massaica storeyi* Grant. East African Yellow Flycatcher.**

The young birds, compared with young of the Uganda race, exhibit marked differences. The East African ones have dark brownish black heads, the northern dull brownish. I have compared my birds with the type of *C. storeyi*, and they agree; but my birds from the type locality vary somewhat in the intensity of the dark blackish brown crown.—I have no typical *massaica*, and it is quite possible that *storeyi* is not separable.

Kenia, Nyeri, Fort Hall, Kyambu, Nairobi, Kavirondo, South-east Elgon.

**566. *Chloropeta massaica umbriniceps* Neum. Northern Yellow Scrub Flycatcher.**

As remarked above, the young of this race and of *C. massaica storeyi* differ. The Uganda birds agree exactly with S. Ethiopian specimens, and they have the head olive-brown, not black-brown as in the East African race. One specimen from Mubendi, Uganda, has a dark head hardly distinguishable from southern birds; however, seven adults from Uganda agree with Neumann's cotypes.

Kigezi, South Ankole, Kyetume, Mubendi, Busindi, Jinja, in Uganda.

567. *Chloropeta natalensis kenya* Sharpe. **East African Green-headed Yellow Flycatcher.**

Whether these birds are really separable from *C. similis* from Kilimanjaro is difficult to say, as we have no specimen from Kilimanjaro for comparison. It is a bird of the high country. The wings of this series vary from 56–63 mm.

Kenia, Escarpment, Aberdares, and Molo.

568. *Stizorhina fraseri vulpina* Rehw. **Large Rufous Flycatcher.**

*S. f. intermedia* Clarke.

I very much doubt whether *S. intermedia* of Stephenson Clarke is really a good race. My series gives the wing measurements of 93–106. My series of 1906–1914 corroborate these measurements. The largest bird comes from Bugoma. Thus it will be seen that my birds range from the minimum of *S. vulpina* to the maximum of *S. v. intermedia*. Further, one must remember that males are very much larger than females in this species. As Colonel Clarke says nothing about coloration, I presume the birds to be alike in this respect. Certainly birds from west of the Semliki, *i.e.* type locality of *S. vulpina*, do not differ from Uganda birds, but birds from North Tanganyika do differ. They are smaller, wings 92–100 mm., and have the central tail-feathers rather darker.

569. *Megabias atrialatus aequatorialis* Jacks. **Large Broad-billed Pied Flycatcher.**

This is an excellent and constant race.

Kyanja, Mabira, Bugoma, Uganda.

570. *Bias musicus femininus* Jacks. **Crested Flycatcher.**

The birds from Uganda, separated from the typical *B. musicus* from West Africa on account of the paler backs and paler undersides in the females, are a recognisable race. They, however, do not differ so much as do the Angola females. These are much the same on the back as typical birds, but the underside lacks the rufous tinge except on the sides of the chest. This race I name *Bias musicus pallidiventris* subsp. nov.

Angola to Tanganyika. Type ♀, 23.xi.1903, Angola, Ansorge coll. Six skins examined, all constant. (Tring Museum.)

A third race is easily separable and is described below.

Budu, Entebbe, Mubango, in Uganda.

571. *Bias musicus changamwensis* van Someren. **Coast-crested Flycatcher.**

*Bull. B.O. Club*, November 1919, p. 24.

Very like *Bias pallidiventris* from Angola, but clearer white below, and very pale rufous above, lacking entirely the dark blackish centres to the feathers of the mantle, and it is smaller. The male differs from typical *B. musicus* and *B. m. pallidiventris* in being more oily-greenish above, especially on the head. Wings, 80–82 mm.

Coast lands of East Africa. Changamwe, Mombasa. (Type, ♀ Mombasa, 21.vii.1918.)

The races of this bird are :—

*Bias musicus musicus* Vieill. (Type, Gold coast.)  
Liberia, Sierra Leone to Camaroon.

*Bias musicus pallidiventris* van Som. (Type, Angola.)  
Angola to West Tanganyika.

*Bias musicus femininus* Jackson. (Type, Entebbe.)  
Uganda.

*Bias musicus changamwensis* van Someren. (Type, Changamwe.)  
Coast of East Africa.

572. *Smithornis capensis medianus* Hart. and van Som. **East African Broad-billed Flycatcher.**

This bird was described in the *Bull. B.O. Club*, 1916, and we united with the East African bird five specimens from North Tanganyika. Now that I have procured a large series of eastern birds, it appears that the Tanganyika ones do not quite agree. They are rather more ochraceous on the sides of the breast and more brownish on the back. That they may possibly be distinct is strengthened by the distribution: first of all the bird does not occur, to our knowledge, anywhere between Nairobi and Baraka; and further, in between, in North Kavirondo, there is a markedly distinct bird.

Nairobi and Kyambu Forests.

573. *Smithornis capensis meinertzhageni* van Someren. **Kavirondo Broad-billed Flycatcher.**

*Bull. B.O. Club*, p. 24, November 1919.

These birds are smaller than *S. capensis* and *S. medianus*, and besides lacking any ochraceous on the sides of the chest, they are very heavily streaked with black on the breast and flanks; further, the mantle, which is olive tinged with brownish, has the centres of the feathers blackish, giving the upper surface a mottled appearance. Besides my three birds, there are six other specimens procured in the same locality by Allan Turner, when collecting for Major Meinertzhagen. Type in the Tring Museum.

Nyarondo, North Kavirondo.

574. *Smithornis rufolateralis budongoensis* subsp. nov.

*Bull. B.O. Club*, xli. p. 103, 1921.

These birds are much like *S. rufolateralis* from Camaroon, but have smaller bills and the heads greyish, not brown.

Bugoma and Budongo Forest. Only three females examined.

The races of *Smithornis* and their known distribution is as follows :—

*Smithornis capensis capensis* Smith. (Type, Cape.)  
South Africa.

*Smithornis capensis camarunensis* Sharpe. (Type, Camaroon.)  
Camaroon.

*Smithornis capensis albigularis* Hart. (Type, Angola.)  
Angola.

*Smithornis capensis medianus* Hart. and van Som. (Type, Kyambu.)  
Nairobi district and ? North Tanganyika and West Toro.

*Smithornis c. meinertzhageni* van Som. (Type, Nyarondo.)  
North Kavirondo.

*Smithornis rufolateralis rufolateralis* Gray. (Type, Gold Coast.)  
Camaroon to Liberia.

*Smithornis r. budongoensis* van Som. (Type, Budongo Forest.)  
Forests in western Uganda and eastern Belgian Congo.

*Smithornis sharpei* Alex. (Type, Fernando Po.)  
Fernando Po.

*Smithornis zenkeri* Rehw. (Type, Camaroon.)  
Camaroon.

**575. *Hyliota flavigaster* ? Violet-backed Flycatcher.**

3 ♂ 3 ♀, which I cannot place with certainty. They exhibit the characters of both races. Some of these birds are like *H. flavigaster*, others like *H. f. barbozae*—that is, with the third and fourth secondaries widely edged with white. Every intermediate stage is found. As regards size, the wing measurements come within the extremes of the two races recognised.

Kyetume, Elgon, in Uganda; North Kavirondo and Fort Ternan in East Africa.

**576. *Batis minor suahelica* Neum. Coast Brown-barred Puff-backed Flycatcher.**

This appears to be quite a good race, ranging from Mombasa to the Taru and to the coast of the Tanganyika Territory. Wings, 55–58 mm. It is very like *B. minor nyansae*, but smaller.

Mombasa, Changamwe, Samburu, Taveta, Sagala.

**577. *Batis minor nyansae* Neum. Uganda Brown-barred Puff-backed Flycatcher.**

I do not agree with Selater and Praed (*Ibis*, 1918) that "*minor*" is a synonym of "*bella*." *B. minor* came from South Somaliland, while the type of "*Bella*" is from E. Abyssinia. I have gone carefully over Neumann's review of this series and uphold this race as being perfectly good.

South Ankole, Budongo, Sezibwa, Jinja, Soronko, in Uganda; Kisumu, Kakamega, and Kendu Bay in East Africa.

**578. *Batis molitor puella* Rehw. Kilimanjaro Brown-chin Puff-backed Flycatcher.**

This is a race with dark chestnut breast-band and chin-patch, and considerably larger than the coastal form. It occurs inland, from Kilimanjaro to Uganda.

Simba, Nairobi, Kyambu, Naivasha, Nakuru, Burnt Forest, Elgeyu, Marquet, S. Elgon.

**579. *Batis molitor taruensis* van Someren. Coastal Brown-chin Puff-backed Flycatcher.**

*Bull. B.O. Club*, xli. p. 103, 1921.

These birds, which range from the coast and into the Taru desert, are a small race, characterised by the males having a rather large pre-orbital spot, which is

extended back over the eye as a broad superciliary stripe. Thus they resemble somewhat the male of *Batis minor suahelica*, but are larger and grey on the head and mantle. The females possess this same white superciliary band extending to the hind neck, and differ from females of *B. minor suahelica* in having the brown chin-patch.

As *Batis m. suahelica* is to *B. m. nyansae*, so is *Batis molitor taruensis* to *Batis molitor puella*.

Samburu, Maungu, and Changamwe.

580. ***Batis soror perkeo* Neum. Pigmy Puff-backed Flycatcher.**

These birds agree well with two specimens from Somaliland collected by Donaldson Smith and referred to this race by Neumann. They have rather less yellowish ochre on the chins than the two Somali birds. In Somaliland is also found *B. minor*. This led Neumann to consider *B. perkeo* a species, but I suggest that it is really a small race of the pale-banded birds of *Batis soror*. In support of this I indicate below the presence of a race linking up the two extreme types. That *B. perkeo* is distinct from the "*molitor*" group is proved by the fact that a form of *B. molitor* inhabits the area of *B. perkeo* in East Africa!

Tsavo, M'buyuni, Campi-ya-bibi, Maungu.

581. ***Batis soror pallidigula* van Someren. North Mozambique Pale-breasted Puff Flycatcher.**

*Bull. B.O. Club*, xli. p. 103, 1921.

In the coastal districts of Portuguese East Africa is found a *Batis* belonging to the *B. soror* group which differs from typical *B. soror* by having the breast-band somewhat paler and the chin-spot much paler. Such birds have hitherto been regarded as *B. soror*. On the island of Zanzibar is found a race which Neumann calls *Batis littoralis*. This has the breast-band darker than *B. soror*.

Lumbo, North Mozambique to Tanganyika Territory, and Vanga. Type ♀, Lumbo, 17. vii. 1918.

582. ***Platystira peltata peltata* Sund. Kilimanjaro Black-throated Wattle-eyed Flycatcher.**

*P. p. cryptoleuca* Mearns.

These birds have been collected from the coast up to Escarpment. It is noticeable that up-country birds are larger than coastal ones, the former males having wings of 67-68 and the latter 60-65 mm. A larger series may show this to be constant or otherwise.

Changamwe, Tsavo, Taveta, Nairobi, Naivasha.

583. ***Platystira peltata jacksoni* Sharpe. Elgon Black-throated Wattle-eyed Flycatcher.**

This is an excellent race, differing from the southern form by having the throat and head in the female blue-black, not green-black. So far I have not obtained this bird farther south than Molo.

Elgon, Kibingci River, Maraquet, Elgeyu, Molo.

584. *Platystira cyanea nyansae* Neum. **Brown-throated Wattle-eyed Flycatcher.**

Common in Uganda and lake district.

Budu, Bugoma, Budongo, Sezibwa, Kasala, Mubango, Kawala, North Elgon, in Uganda; Kisumu and Kakamegoes in East Africa.

585. *Diaphorophya jamesoni* Sharpe. **Brown-cheeked Puff-backed Flycatcher.**

A common species in Uganda forests; a few tend to exhibit less chestnut on the cheeks than normal, showing their close relationship to the western species.

Budongo, Bugoma, Kasala, Mubango, Lugalambo, and Elgon in Uganda; Kakamegoes and Nandi in East Africa.

586. *Diaphorophya castanea* Fras. **Little Brown Puff-backed Flycatcher.**

I have compared my large series with West African birds and can find no difference in colour, with the exception of the somewhat larger white chin-spot in eastern birds, but this is variable. On the other hand, measurements of the wings show that the eastern birds are larger by 3 mm. (to 5 mm. in one bird); but as the colour does not vary, I do not separate them.

Budongo, Bugoma, Masindi, Mubendi, Kawala, Mubango, Mabira, Sezibwa, Elgon, in Uganda.

587. *Erythrocerus holochlorus* Erl. **Little Golden Flycatcher.**

Not a common bird and appears to be limited to the coast region. A. B. Percival procured two specimens on the coast in 1913.

Changamwe, Mombasa.

588. *Erythrocerus thomsoni* Sharpe. **Little Bar-tailed Golden Flycatcher.**

This bird has been taken on the coast of Vanga district in East Africa. Whether or not it is related to *E. holochlorus* I am unable to say.

589. *Erythrocerus maccalli conigicus* Grant. **Little Chestnut-capped Flycatcher.**

This is apparently as rare as the two preceding, but several specimens are now in collections. The young bird lacks the chestnut cap, and has the crown merely tinged with brownish and the throat very pale brownish.

Budongo Forest, Uganda.

590. *Elminia longicauda teresita* Antin. **Blue Paradise Flycatcher.**

The amount of blue on the throat and breast varies in individuals—in some it extends to the lower breast. Occasionally one meets with specimens which show an affinity with *E. albicauda* Boc.

Budongo, Bugoma, Masindi, Entebbe, Kyetume, Jinja, in Uganda; East Elgon, Nandi, and Kibegori in East Africa.

591. *Elminia longicauda albicauda* Boc. **White-tailed Blue Paradise Flycatcher.**

South Ankole, Kigezi, Uganda.

592. *Trochocercus cyanomelas bivittatus* Rehw. **Blue-throated White-bellied Crested Flycatcher.**

I have no birds from the type locality to compare, but my males show rather less white on the wing-coverts than does a single male from the Tanganyika Territory which has been identified as "*bivittatus*" by Neumann. Young birds are like the females in general colour, but greyer, lacking the greenish-blue metallic gloss of the head and mantle. The well-developed crest is grey, the wing-coverts are tipped with rusty.

This is not a common bird, and has to be hunted for. One can always recognise its call from that of *Tchitrea suahelica*, on account of its higher pitch and more penetrating character. I have not met with this bird except in the places mentioned below. The eggs are whitish, tinged pink, speckled brownish and purplish.

Nairobi and Kyambu Forests.

593. *Trochocercus vivax* Neave. **Spotted-wing Crested Flycatcher.**

The occurrence of this species in Uganda is rather curious, as the type came from Kitanga. An adult male and female were collected by Seth-Smith at Mubendi.

Lugalambo, ♀, 3.ii.1919.

594. *Trochocercus nitens* Cass. **Blue-headed Crested Flycatcher.**

*T. reichenowi* (nec Sharpe ?) van Someren (*Ibis*, 1916).

With additional material I am convinced that the birds I placed as a distinct species in 1916 are extremes of one form. My 1914 birds were taken up to the British Museum and compared for me by Ogilvie-Grant, who reported them to be *T. reichenowi*. In one male there is a decided area of white between the blue of the throat and the grey of the breast. This white line is indicated in a second specimen and entirely absent in the other two. The females are alike. Two males thus agree with the original description of "*nitens*." It would appear, then, that *T. reichenowi* is doubtfully distinct from "*nitens*," as my birds agree with both forms; more material from the type locality of "*reichenowi*," i.e. Fanti, is required. Two males from Camaroon identified as *nitens* are without white on the breast. Type locality of *T. nitens* is Gaboon.

Mabira, Mubango, Lugalambo.

595. *Trochocercus albonotatus* Sharpe. **Dusky White-tailed Crested Flycatcher.**

These birds can always be distinguished from *T. albiventris* (Jacks) by having the outer tail-feathers white or almost entirely white. Young birds are rather duller above and below and resemble the adults of the race found in the Tanganyika district. The distribution of this race is important and should be noted.

Elgon (type locality), Kakamegoes, Elgeyu, Sherengani, Marakwet, and Molo.

596. *Trochocercus albonotatus* ? subsp. nov. **Tanganyika Dusky-crested Flycatcher.**

This race may differ from typical *albonotatus* (Sharpe) of Elgon by being paler greyish above and below and in having the crown and throat sooty matt-black—

not pure black. The distribution would support the contention that this is a recognisable race. The typical bird ranges from Elgon along the line of forests on the east of the Rift Valley, and does not occur in Uganda nor yet in German East Africa; and this race is apparently found along the chain of forests from south Lake Albert, Semliki to Tanganyika.

♂, 16. vi. 1908, Tanganyika. Grauer coll., in Tring Museum.

**597. *Trochocercus albiventris toroensis* Jacks. Toro Dusky-crested Flycatcher.**

I consider this to be the Uganda race of *T. albiventris* Sjöst. from Camaroon. It differs in having much less white on the abdomen. It ranges from the Albert Edward Lake, through the Semliki Valley, to North Tanganyika.

**598. *Trochocercus nigromitratus kibaliensis* Alex. Black-capped Crested Flycatcher.**

This race is very close to *T. nigromitratus*. It is rather plentiful in the forests of Western Uganda, but also found in the eastern forests though not commonly.

Bugoma, Budongo, Mubango, Lugalambo, in Uganda.

**Genus *Tchitrea*.**

I have gone over the series in Tring, in the hopes that with my material something might be found out with regard to the ranges of the several races named. Apparently even this mass of material is not sufficient. In the Tring Museum there is a most remarkable series from Gaboon, exhibiting every variation in colour to which these birds are subject. There, however, appear to be certain types of plumage which are more constantly met with in some regions, and as names are applicable to such, we must for the time being refer to these names, birds which conform more or less to these types. Further than this one cannot go, at present. Neumann's review of this group is certainly the best so far, but I cannot agree with him that *T. v. suahelicus* is constantly brown, never assuming a white plumage—my large series shows otherwise; but, as I shall explain later, evidence with regard to habitat would seem to support his contention, but to agree would mean recognising two distinct species of the "*viridis*" group in East Africa.

In Uganda we find the most extraordinary birds—an apparent mixture of three types: *viridis*, *melanura* or *duchailui*, and *ferreti*.

I thus classify my series as follows:—

**599. *Tchitrea viridis viridis* S. Müller. Blue-bellied Paradise Flycatcher.**

Dark brown backs, wings, and tails. *The wings and tails with a certain amount of white.* Head, neck, breast, and abdomen glossy blue, *black* on abdomen. Kyetume and Toro, Uganda.

**600. *Tchitrea melanura* subsp. Brown-winged Paradise Flycatcher.**

Adults with bright chestnut backs, wings, and tails, *no white whatever.* Tail long. Breast and abdomen bluish grey. Head and crest blue-black. This type predominates in the Kivu and Lake Edward district. Some males slaty on mantle; rather a patchy plumage, apparently not a fixed race.

Kigezi, South Ankole, Nazigo Hill, Budongo, Uganda.



601. *Tchitrea suahelica* Rehw. Grey-breasted Paradise Flycatcher.

Adult males exhibiting brown backs, wings, and tails; wings with varying amount of white. Heads and throats glossy blue-black—*chest greyish*, abdomen *greyish to whitish at vent*. Under tail-coverts *buff to white*. Only this type is found in the FORESTS round Nairobi and Kyambu, where I have collected, one day every week, for the last four years.

Kyambu, Nairobi, forests at Taveta.

602. *Tchitrea ferreti* Guér.

FIRST VARIETY.—9 ♂ 3 ♀, Uganda. *Brown-backed* birds with large amount of white on wing, tails brown. Head and neck glossy dark bluish, breast and abdomen grey. Forest and game country.

SECOND VARIETY.—11 ♂, Uganda. *Back, wings, and tail white*, head and neck glossy dark bluish, breast and abdomen grey, fading to white or buff at vent and under tail-coverts. In some birds two or three outer tail-feathers streaked with brown. Forest and cultivated land.

THIRD VARIETY.—2 ♂, Uganda. *Back wings and tail white, heavily streaked with brown*. Undersurface grey. Forest and cultivations.

All three varieties: Bugoma, Budongo, Masindi, Entebbe, Turkana, Moroto, Meuressi, in Uganda.

603. *Tchitrea ferreti* or *suahelica*.

Three with brown back, wings, and tails; white in wings and tails, heads bluish, breasts grey, abdomen grey, vents white or buffy. Four with backs, wings, and tails white; two streaked brownish on these parts. Breasts and abdomens grey. Inhabits *scrub, thorn-bush, and cultivations*.

Fort Hall, Lake Jipe, Simba, Kitui, N'ziu, and Elgeyu in Kenya Colony.

604. *Tchitrea emini* Rehw. Emin's Paradise Flycatcher.

Males on the whole more brightly and richly coloured than females—undoubted hybrids between *T. emini* and *ferreti* occur! Males shot 4.ii.1913 and 18.xii.1918 are coloured on the head and back as *emini*, but have much longer tails than normal; they have the underside whitish, streaked with pale chestnut and a white line on wings: apparently varieties.

Bugoma, Budongo, Lugalambo, Sezibwa, and Mabira. Of my large series of 26 ♂, 16 ♀, and 8 juv., five appear to be hybrids!

605. *Coracina pectoralis* Jardine and Selly. White-bellied Grey Cuckoo Shrike.

The Uganda specimens are larger than birds from West Africa by 5 mm. in the wing, but this is insufficient to warrant racial distinction. The coloration is the same.

Buremezi, Bukedi, Kibanda, Soronko, in Uganda; North Kavirondo.

606. *Coracina caesia pura* Sharpe. Grey Cuckoo Shrike.

Elgon, Elgeyu, Nairobi, Fort Hall, Kenia. 5 ♂ 5 ♀.

607. *Campephaga phoenicea* Lath. **Red-shouldered Cuckoo Shrike.**

*C. xanthornoides* Less. }  
*C. rothschildi* Neum. } = synonyms.  
*C. ignea* Rehw. }

For other synonyms see Neum. *Journ. f. Orn.*, 1915, p. 154.

There is not the slightest doubt that all the names mentioned above are synonyms of *C. phoenicea*, being merely varieties of true *C. phoenicea*. An important point to note is the fact that in all these birds the "shoulder" patch is large, extending in some cases on to the secondary coverts. The females of *C. phoenicea* can always be distinguished from females of the *nigra* group by having the head and mantle always brownish, and the yellow margins and tips to the wing-coverts and secondaries very narrow or entirely absent, giving the wing a more uniform appearance. Thus on account of the distinct females this bird cannot be the same as *C. nigra*.

Budongo, Bugoma, Gulu, Kalwanga, Entebbe, Sezibwa, in Uganda; Kisumu and Kakamega in East Africa. Of eight males, two are of the *xanthornoides* variety.

608. *Campephaga nigra nigra* Vieill. **Black Cuckoo Shrike.**

At first sight it would appear that Neumann's suggestion (*Journ. f. Orn.*, 1915, p. 154) that the bird hitherto known as *C. hartlaubi* is merely a variety of *C. nigra* is unsound, but on examination of a large series of males and females it is at once evident that Neumann is doubtless correct. First of all with regard to the males, it will be noticed that the yellow patch is never pure, that is, the majority of feathers have some black in them, and the whole patch is limited to the lesser coverts—in some cases—the area being very small and never as large as in *C. phoenicea* and its varieties. Both males possess a yellowish wash to the inner webs of the primaries and secondaries, young males having the greatest amount of yellow wash.

Now, comparing authentic females of *nigra* and var. *hartlaubi*, it will be seen that they agree absolutely. They both have the head and mantle olive-green with slight brownish tinge and yellowish wash, and the wing-feathers are broadly edged with yellow.

In size they agree perfectly, and they occur together in the same districts.

Kobua, Rudolf, Kacheliba, Kisumu, Kendu Bay, Sio River, Burnt Forest, Nairobi, Embu, Tsavo, Changamwe. Of fourteen males, five are of the var. *hartlaubi*.

According to Oberholser, "*flava*" is the same as "*nigra*" and has priority.

609. *Campephaga petiti* Oust. **Petit's Cuckoo Shrike.**

(Type Landana.)

North Kavirondo and Nandi.

I have only seen birds collected by Mr. Allan Turner in North Kavirondo. There are also five females and presumably four males in the Tring Museum, collected by Dr. Ansorge at Nandi and North Angola, and by Grauer in the Kivu-Bukoba district and Mpanga Forest. When I worked out my collection of 1906—

14 at Tring in 1915 I accepted the two males labelled *petiti* and collected by Ansorge in North Angola (during the same week as the two undoubted females) as the true males of *C. petiti*. They did not, however, agree with the male described by Ogilvie-Grant (*P.Z.S.*, 1910) from M'panga. I was unable to accept Grant's bird as the true male, because the female had not been obtained along with it, nor yet was I prepared to look upon Grauer's birds as true pairs, because they had not been collected together, and this, combined with Grant's statement that the males were like *C. nigra*, but had the inner webs of the primaries without or with just a trace of yellowish wash, made me doubtful of the correct identification of these specimens. Neumann evidently accepted these birds as true males of *C. petiti* (*Journ. f. Orn.*, 1915, p. 151, 152) on Grant's statement. Now that I have seen the birds collected by Mr. Turner, as *shot together*, it establishes beyond doubt the fact that the male of *C. petiti* is like *C. nigra*, and not like *C. quiscalina*. I might mention that Mr. Turner knew nothing about the controversy regarding the male of *C. petiti*. It is extraordinary that the male of *C. petiti* should be exactly like the old male of *C. nigra*. Neumann places *C. petiti* as a subspecies of *C. nigra*, but as they occur together and the females are so distinct, I prefer to keep both as species. The range of this bird appears to be from the coast of Gaboon and North Angola to the Congo, through Kivu and Lake Albert to Elgon and Nandi, occurring in these localities with *C. quiscalina* and its subspecies *C. q. martini*.

Kakamegoes, Nyarondo.

610. *Campephaga quiscalina martini* Jacks. **Uganda Purple-breasted Cuckoo Shrike.**

The range of this bird has been considerably extended within recent years, as indicated below. The differences between the adult female of this and the parent race from Fantee have been given by me in *Ibis*, 1916. I should here like to emphasise that, whereas, according to the original description and skins from Sierra Leone, true *C. quiscalina* is greenish black, with a purplish throat and sides of head, *C. quiscalina* from North and South Angola has the purplish gloss extending on to the breast and abdomen! I would suggest that these latter birds belong to another recognisable race!

Mubendi, Mabira, north South Elgon, in Uganda; Kibingei River, Kakamega, Elgeyu, Escarpment, Nandi, Nairobi, Kyambu, Kenia!

KEY TO THE SPECIES AND SUBSPECIES OF CAMPEPHAGA.

Adult males :—

- |    |   |   |   |
|----|---|---|---|
| 1. | { | Black with purple gloss on underside . . . . .      | 2   |
|    |   | Black with blue-green gloss on underside . . . . .  | 3   |
|    |   | Black with green gloss on underside . . . . .       | — <i>C. q. münzneri</i> .                                     |
| 2. | { | Purple limited to throat . . . . .                  | — <i>C. q. quiscalina</i> .                                   |
|    |   | Purple extending to throat, breast, and abdomen     | — <i>C. quis. martini</i> and<br><i>C. quis.</i> from Angola. |
| 3. | { | With red shoulder-patch . . . . .                   | — <i>C. phoenicca</i> .                                       |
|    |   | With a yellow shoulder-patch . . . . .              | — <i>C. nigra</i> var. <i>hartlaubi</i> .                     |
|    |   | With no shoulder-patch . . . . .                    | 4   |
| 4. | { | Inner webs of primaries washed yellow . . . . .     | — <i>C. nigra</i> .   |
|    |   | Inner webs of primaries not washed yellow . . . . . | — <i>C. petiti</i> .  |

Adult females :—

- |    |   |                                 |
|----|---|---------------------------------|
| 1. | { Underside white, more or less barred . . . . .  | 2                               |
|    | { Underside yellow, uniform or barred. . . . .    | 3                               |
| 2. | { Head brownish, same as mantle . . . . .         | — <i>C. phoenicea</i>           |
|    | { Head olive-green, same as mantle . . . . .      | — <i>C. nigra</i>               |
| 3. | { Head olive-green, like mantle . . . . .         | — <i>C. petiti</i> .            |
|    | { Head greyish, contrasting with mantle . . . . . | <i>C. quiscalina</i> and subsp. |

611. *Eurocephalus rueppelli rueppelli* Bp. **Pale-backed White-headed Shrike.**

This race, which I do not consider a subspecies of *E. anguimans* of South Africa, is smaller than the other more southern forms.

Gulu, Nile Province of Uganda.

612. *Eurocephalus rueppelli erlangeri* Zedl. **Abyssinian White-headed Shrike.**

*E. r. fischeri* and *E. r. deckeni* of Zedlitz are synonyms !

This race is larger and darker than *E. r. rueppelli*. This series represents birds which would be referable to *E. fischeri* and *E. deckeni* if these races could be upheld. I have compared my birds with the material in Tring on which these races were partly founded. I am of the opinion that if birds in fresh plumages from the ranges of these supposed races (such as mine are) are compared, they differ neither in size nor colour. As *E. erlangeri* is the first named race, this name must be adopted for the birds inhabiting Abyssinia, Somaliland south to Kenya Colony, and east and central Tanganyika Territory. *E. böhmi* from Western Tanganyika Territory and Nyassaland is a large pale form of *E. rueppelli* of the Nile district and Sudan. My birds are smaller and larger than the limits given by Zedlitz.

Changamwe, Samburu, M'buyuni, Tsavo, Kitui, Marich, Suk, Kacheliba, in East Africa.

613. *Prionops concinnata* Sundev. **Long-crested White-winged Prionops.**

This species occurs in the Nile Province of Uganda south to Unyoro and Chagwe.

614. *Prionops poliocephala* Stanl. **Short-crested White-winged Prionops.**

This bird occurs in the Vanga district of South British East Africa, and into Ukambani and Loita, where it occupies the same territory as *P. vinaceigularis* Richd.

Morogoro, Manugu. Collected by Loveridge.

615. *Prionops melanoptera vinaceigularis* Richmond. **Short-crested Black-winged Prionops.**

*P. intermedia* Sharpe.

In this series are rather striking differences. Four birds have much darker blue-black backs, the hind part of the head very dark ash-grey and the throats dark greyish. Wings, 108–115 mm. These birds come from the Teita Hills, 5,000 feet.

Nine specimens have the backs not so dark, rather greenish black, the nape

lighter ashy grey and the throat pale greyish to brownish. One specimen from Voi is nearer to the Sagala birds than the others. Wings, 103–114 mm.

I emphasise these differences because we meet with the same thing in the next group, *P. cristata*.

Sharp's *P. intermedia* came from Taveta and was described in 1901. Richmond's *P. vinaceigularis* (1898) came from east of Kilimanjaro.

Sagala, Teita Hills, Taveta, M'buyuni, Voi, and Tsavo.

#### 616. *Prionops cristatus* Rüpp. Long-crested Black-winged Prionops.

? *P. c. omoensis* Neum.

Here again my series might be divided into two groups, for practically the same reasons as in the preceding species. Seven birds agree absolutely with the type of Neumann's *omoensis*, except that they are larger, wings 115–120 mm.; in other words, they are very dark grey on the posterior parts of head and hind part of crest tinged grey, throat dark. Thus we have seven birds collected south of Neumann's type locality agreeing with his bird. His birds were compared with a series of nine birds in Tring from Eritrea and South-east Ethiopia, which are all pale-headed with whitish throats, *except two*, one from Eritrea and one from South-east Ethiopia, which approach very closely the southern birds. Thus the typical birds vary, and in so doing render the validity of *P. c. omoensis* questionable. Five other birds, all collected at one spot to the south-west of Lake Rudolf on the Turkwell River, differ from the dark-headed birds by having the hind part of the crest cream-colour, the hind part of the sides of the head and the nape brownish ashy, and in having the throat tinged brownish. Wings, 121–123 mm. They are fully adult and in fresh plumage. If, therefore, birds from the type locality differ, and southern birds from a comparatively small area also vary, it is not unreasonable to suggest that *P. c. omoensis* is not a good race.

Dr. Hartert, in fact, is inclined to this view, but I am not in agreement with this. I suggest that *omoensis* is a good race, and that possibly there is another race inhabiting the south-end of Rudolf and Baringo districts, with characters as given above.

Mt. Moroto, Simu River, Kimiriri River; Elgon and North Turkwell River.

#### 617. *Prionops poliophus* Fisch. and Rehw. Ashy-headed Crested Prionops.

This species was collected by Doherty at Escarpment Station. It is of interest to note that a large portion of the forest and scrub in which Doherty collected no longer exists. The forest has been burnt and cut down and the entire aspect of the country altered.

#### 618. *Sigmodus retzii graculinus* Cab. Orange-billed Helmeted Shrike.

I collected fourteen specimens. Some adults show traces of white on the inner webs of the primaries, and all the young and immature birds exhibit this character, indicating a very close relationship to *S. r. intermedius* and *tricolor*.

Mombasa (type locality), Changamwe, Sagala, Teita, Bura, Kitui, Nairobi, and Kyambu in East Africa.

619. *Nilaus afer erythrae* Neum. **Dark-flanked Brubru.**

My birds agree absolutely with the type and a series of the North Abyssinian birds in the Tring Museum, not with *N. afer afer* from Senegal. Other Uganda skins in Tring are also not typical *N. afer afer*. The Uganda specimens are distinct from the South-east Ethiopian birds, which have a broad chestnut flank, and have been called *N. afer hilgerti* Neum.

Soronko and Simu River in Elgon; Jinja and Kaina in Uganda.

620. *Nilaus afer massaicus* Neum. **Massai Chestnut-flanked Brubru.**

Seven birds are all alike and undoubtedly belong to this race. They have broad dark chestnut flank streaks. The localities are of great interest, as they show the line of extension from the type locality into Uganda. It will be seen that in no less than two widely separated districts this race of *afer* and a pale-flanked bird occur together. I would suggest that the "*minor*" or pale-flanked form be kept apart from the "*afer*" or dark-flanked group.

Taveta, Loita, Simba, Archer's Post, Northern Guasso N'yiyo, Kendu Bay, in East Africa, and Toro in Uganda.

621. *Nilaus minor* Sharpe. **Pale-flanked Brubru.**

Neumann, in his review of the *Nilaus* group of shrikes (*Journ. f. Orn.*, 1907), places a bird from the Taru district under the South Somali race, *N. m. erlangeri*. Now, with my series, I fail to see how these birds differ from typical *N. minor*, of which Tring contains a good series, including a cotype collected by Donaldson Smith. Unfortunately, there are no South Somaliland birds available for comparison, so I am unable to say whether *N. m. erlangeri* Neum. from the type locality is really different from *N. minor*; certainly my Taru birds do not differ.

Samburu, Masongoleni, Kibwezi, Maungu, Voi, Taveta, Campi-ya-bibi, M'buyuni, Tsavo, Olgerei, Simba, Kitui, Lodomeru, Kerio River, South Lake Rudolf, in East Africa. Twenty-five skins.

622. *Harpolestes* \* *australis emini* Rehw. **Lesser Scrub Shrike.**623. *Harpolestes australis minor* Rehw.624. *Harpolestes australis dohertyi* Neum.625. *Harpolestes australis kivuensis* Rehw.

I have below separated four groups, according to their distribution and coloration, because it appears to me somewhat doubtful whether all of the names mentioned above can be upheld. It has been suggested that all the birds from the Semliki and Kivu district, through Uganda, south to Kenya Colony and Tanganyika Territory, should be united under the oldest name of the three—i.e. *H. minor*, type locality Kagehe, Simiu River, south shore Lake Victoria. Even with my series of thirty-six skins and with the Tring series I am unable to come to any final conclusions about these races. Workers will readily appreciate the difficulties after perusing the characters I give for the four groups.

GROUP I. (a) West Uganda (Kivu, Bukoba, Budongo, Bugoma, north to Masindi). These birds, on the whole, have very white undersides tinged greyish

\* = *Telephonus*, *Telophonus*, *Pomatorhynchus*, *Tschagra*!

on the flanks and breast. A few soiled birds have the breasts washed olive-brown. The bills are large. (b) South Ankole, Budu, Kigezi. Very dark above and heavily washed greyish below, especially on the chest and sides of body. Eleven specimens collected by me.

GROUP II. Upperside similar to Group (I), but underside darker breast and flanks washed olive-brown. Bills on an average smaller. East Uganda, Entebbe to Jinja and Turkana. Six skins collected.

GROUP III. North Kavirondo and South Elgon (Lucosi, Nyarondo, Kakamegoes, Kimiriri). Very like Group (I), but rather greyer, and flanks much more tinged olive-brown. Bills larger than Group (II). Six skins.

GROUP IV. (Kitui, Simba, Nairobi, Kyambu, Fort Hall, Kenya, Naivasha, Nakuru.) Upper parts as in Group (I), but underside as in Group (II), and very frequently more olive-brown—two birds from Escarpment as pale as Elgon birds. The size is the same in all groups. Wings, 76–85 mm. It is apparent that the series of skins collected by Doherty at Escarpment, one of which is the type of *H. a. dohertyi*, are worn birds and a bit soiled; but many of my East African skins are not worn, but fresh, and they are darker than even the type. We have, then, in point of distribution, the following: Pale, dark, pale, dark. I unfortunately have no birds from type-locality of "*emini*." I do not think this variation can be due to season, but probably to age (not including quite young birds, which are always darker and have pale bills) and, I think, character of the soil in the district. The nature of the soil undoubtedly affects the coloration, without the birds being actually stained by it; it is more a colour adaptation.

626. *Harpolestes australis littoralis* van Someren. Coastal Shrub Shrike.

*Bull. B.O. Club*, xli. p. 102, 1921.

Smaller than the up-country species, having wings of 63–73 mm. compared to 75–85 mm. in *H. australis australis emini* and *minor*. Further, they are very pale on the underside, being whiter on the throat and abdomen, with a faint tinge of grey on the breast and flanks. Bills much smaller than in *minor*. Coast of Kenya Colony and Tanganyika Territory (Changamwe, Mombasa). Seven skins.

One male has a black crown as in *H. senegalus* group, and others show a strong tendency towards this character.

627. *Harpolestes senegalus orientalis* Cab. Coastal Large Bush Shrike.

Twenty of my own collecting, twelve in Nairobi Museum. Mombasa, Changamwe, Mazaras, Samburu, Lamu.

This is an easily recognisable race when compared with birds from South Africa, or inland British East Africa. It is characterised by having the underside clear whitish, the mantle sandy brown with an olive tinge.

Most of my birds are from the type-locality—Mombasa—to about Maungu, where it perceptibly changes, becoming greyer on the underside. From Taveta district, this intermediate form has received the name of *H. s. armenus* Oberh. This again ranges further inland, gradually becoming much greyer on the underside and still retaining the darker, richer brown back of the Taveta birds, the darkest and most greyish birds being found from Nairobi district, north into south Central Uganda, or Uganda Proper.

628. *Harpolestes senegalus armenus* Oberh.

9 ♂ 3 ♀ from the type locality of *H. senegalus armenus* to Voi and Kibwezi (Taveta, Lake Jipe, M'buyuni, Maungu, Masongoleni, Tsavo).

19 ♂, 4 ♀, 4 juv. from Simba north to Elgon and Uganda Proper (Kitui, Nairobi, Kyambu, Fort Hall, Kenya, Naivasha, Nakuru, Fort Ternan, Kisumu, North Kavirondo, Kerio River, Jinja, Lugalamba, Kyetume, Entebbe).

The last twenty-seven birds, on account of their marked greyish undersides, especially on the breast and flanks, cannot be confused with the coastal birds; but birds from Taveta and Voi, called "*armenus*," run so very close to the latter that it seems a great pity that intermediates, such as these Taveta birds certainly are, should have received a name and not the birds from inland, at about 6,000—7,000 feet (Kikuyu). As matters now stand, the birds from Taveta north to Entebbe will have to bear the name *Harpolestes senegalus armenus* Oberh.

Besides my big series, I have used the material in Tring for comparison, and have endeavoured to compare birds in clean fresh plumages only. I brought home with me, for purposes of comparison, six skins from Lumbo, North Portuguese East Africa, and these turn out to be quite distinct from any of the described races and, being a recognisable race, require naming.

It will be seen that the localities comprise a series of birds from Mombasa at the coast up to Uganda, taking in all types of country and starting from sea-level, going up to 8,500, to drop again to 3,500 feet.

629. *H. senegalus mozambicus* van Som. **Mozambique White-bellied Scrub Shrike.**

*Bull. B.O. Club*, xli. p. 103, 1921.

I have before me six of a series of over a dozen which were collected at Lumbo, North Portuguese East Africa. They come from a locality little explored, ornithologically, and prove to be a very pale race. The characters are: Mantle very much paler than *H. s. orientalis* from Mombasa and whiter on the underside. Rump greyish. Size as in *H. s. orientalis*. The series is remarkably constant.

When working out this group I went into the question of the names "*senegalus*," "*erythropterus*," and "*tshagra*." Both Neumann and Shelley (*Birds of Africa*, v. pt. 2, edited by Selater) adopt the name *erythropterus* for the South African bird and *senegalus* for the Senegal form. A study of the original descriptions and plates, however, reveals the fact that Neumann is wrong in applying *erythropterus* of Shaw for the South African bird, because Shaw founded this name on Daubenton's (Buffon's) *Planche Illuminée*, 479, which distinctly depicts a bird with a black head, and the locality given is "senegal"! Shaw states that possibly his bird is the same as the Senegal Shrike of Linnaeus, *H. senegalus*, and in this he is correct. His further remarks to the effect that Levaillant had accurately described "*erythropterus*," in *Hist. Natur.* (1799), no doubt referred to the second part of the general remarks made by Levaillant and not to his diagnosis. Now, turning to Levaillant's plate 70 (1799), we find that the bird there depicted is one with a *brown crown and a long slender bill*, i.e. undoubtedly the bird now known as *H. longirostris*, the Tshagra Shrike! The first description, which we must accept, says that the bird has the top of the head *black-brown with olive wash—not black*, and further describes a *white line* from



base of bill to nape, passing over the eye, and the whole of the underside "ashy." That fits undoubtedly *H. longirostris*, not *senegalus*. In further remarks it appears, no doubt, that the black-headed South African bird was confounded with the brown-headed; but this *does not alter the first description*, nor the plate of an "adult male and female."

The only South African bird with a black head belonging to the *senegalus* group (because it is distinct from typical Senegal birds) requires a name. The name *coronatus* Vieillot is not available, because no type locality is given, and it was probably a western bird. I therefore name it **Harpolestes senegalus confusus**.

Type ♂, Umfalosi, Zululand, 2.viii.1904. C. H. B. Grant coll. (Tring Museum).

630. **Harpolestes senegalus soudanensis** Sel. and Pracd. **Ashy-backed Bush Shrike.**

This has an ashy brown mantle, with practically no rufous tinge, and is somewhat smaller than *H. senegalus armenus*. It is found in Uganda in the northern province and also west of Lake Albert.

631. **Harpolestes jamesi jamesi** Shell. **Somali Stripe-headed Bush Shrike.**

Ten birds agree with specimens from Somaliland in having dark heads and distinctly greyish undersides. The peculiar spotted iris is remarkable, the size of the spots varying with the state of excitability of the bird, being large when the bird is excited, and contracting to mere pin-points when frightened.

Tsavo, M'buyuni, Maungu, and Kerio River.

632. **Harpolestes jamesi mandana** Neum. **Manda Stripe-headed Bush Shrike.**

I have compared my ten birds with typical ones, and they certainly are paler on the head and have a much wider black central stripe on the crown, and the underside is more whitish. I, however, also agree that the Kismayu birds are different, and place *H. jamesi kismayensis* Neum. as a good race.

Manda, Witu, Lamu.

633. **H. jamesi kismayensis** Neum.

♂, December 2nd, 1912; ♀, December 1912.

Juba River. ♂♀, December 1912. Percival coll.

634. **Harpolestes minutus minutus** Hartl. **Black-saddled Bush Shrike.**

I have no typical birds from Fanti, but Camaroon birds are more reddish above and more ochraceous below than East African specimens. I unfortunately have insufficient material of fresh unworn birds, in order to come to a final conclusion.

S. Ankole, Bugoma, Masindi, Kalwanga, in Uganda; Kisumu, Nyarondo, Fort Hall, Nairobi. 6 ♂, 3 ♀, 1 juv.

635. **Harpolestes minutus reichenowi** Neum. **Lesser Black-saddled Bush Shrike.**

Two specimens from Mombasa bear out the characters given by Neumann. They are smaller and rather paler.

636. *Nicator chloris chloris* Val. **Nicator.**

Though no specimens from Senegal are available for comparison, it appears that this bird does not vary, except very slightly in size, throughout its range from west to northern East Africa.

Bugoma, Budongo, Mubango, Kyetume, Mubendi, Sczibwa River, W. Elgon.

637. *Nicator chloris gularis* Finsch. **Brown-throated Nicator.**

I have no typical birds for comparison, but my six specimens are not as green on the back as depicted in the plate in Shelley, vol. v. pt. 2.

Sagala, Lamu, Mombasa, Bura.

638. *Urolestes torquatus* Cab. **Blue-banded Shrike.**

Has been obtained by Grauer in the Albert Edward district and is in the Tring Museum.

639. *Chlorophoneus rubiginosus rudolfi* Hart. **Buff-breasted Green Shrike.**

Obtained in the Kivu-Albert district by Grauer.

640. *Chlorophoneus rubiginosus andaryae* Jacks. **Uganda Buff-breasted Green Shrike.**

This bird was described by Jackson in the *Bull. B.O. Club*, June 1919. It is apparently near *C. rudolfi* and *C. r. minzneri* from Tanganyika Territory, but differs from both in having the mantle and central tail-feathers grey and the underside paler. It thus resembles very closely the young of *Dryoscopus jacksoni* (*Laniarius* auct.), but is rather greener, and the spotting on the tail and coverts larger. It is also bigger.

The type, the only specimen known, came from near Entebbe.

641. *Chlorophoneus sulphureopectus suahelicus* Neum. **Orange-breasted Shrike.**

The name *C. chrysogaster* cannot be used for this race, as it was founded on a Senegal bird. These birds are much more richly coloured than Uganda birds, and have wider and deeper orange breast-bands. As these birds extend inland they become paler; thus we find intermediates in the higher altitudes from Nairobi to Elgon—but west of this the birds are as pale yellow and have breast-bands as in *C. s. modestus* Bocage, from Angola. I separate these pale birds under the latter name. One adult female from Teita has the whole underside dull ochre yellow, without the orange breast.

Lamu, Changamwe, Mombasa, Samburu, Masongoleni, Teita, M'ziu, Ukamba, Simba. 16 ♂ 2 ♀.

642. *Chlorophoneus sulphureopectus modestus* Boc. **Western Orange-breasted Shrike.**

In these birds the females are paler than the males, which is not the case in coastal birds.

Nandi, Elgeyu, Escarpment, in East Africa; Elgon, Jinja, Entebbe, Bugoma, in Uganda. 8 ♂, 6 ♀, 2 juv.

643. *Chlorophoneus nigrifrons* Rehw. **Black-fronted Forest Shrike.**

My series of 11 ♂, 5 ♀, 2 juv. exhibits males and females in full plumage, many of them breeding birds. The young are in two stages: the youngest is a bird with the head and ear-coverts green, the other with the crown becoming grey while the ear-coverts are jet black, the undersurface olive-yellow, faintly barred. As I have no typical *nigrifrons* from Kilimanjaro I am unable to state whether my birds are quite identical. If they are, I would suggest that *C. abbotti* of Richmond, and possibly *C. manningi* Shelley, are not separable from *nigrifrons*, for my birds agree well with the plate of *manningi* in the *Ibis*. The type of "*nigrifrons*" is probably a female and the type of "*abbotti*" a male.

Nairobi, Elgeyu, Molo, Elgon, and Escarpment.

644. *Chlorophoneus elgeyuensis* van Som. **Fire-breasted Forest Shrike.**

*Bull. B.O. Club*, November 1919, p. 23.

This extraordinary bird—of which my three females and one young appear to be the only ones so far known—differs from all the described forms of *Chlorophoneus*. The adult female is as follows: On the forehead a narrow black band. Crown, nape, and upper part of mantle dark grey, the rest of the back and rump bright olive-green. Wings green, with the inner webs of the primaries and secondaries edged yellowish; tail green. The ear-coverts are jet black and continuous with the black frontal band; below the lower edge of the ear-coverts is a clear bright yellow line; the throat and breast are a bright orange-red; abdomen and flanks olive-yellow, faintly barred on the latter. Thus these females are brighter than the males of *C. nigrifrons*, from which bird this new species can be easily distinguished, also by a comparison of the young. The young in this new species has the *crown and nape and ear-coverts grey*—not olive-green as in *C. nigrifrons*. The lower surface is yellowish green, faintly barred. One of the females moults from the first plumage described above, and has the ear-coverts black; on the throat and breast fiery orange feathers are appearing. Wing, 82 mm. This species is smaller than *C. nigrifrons* and has a longer, more slender bill. Wings, 87 mm.

Maraquet and Sherengani Hills, 8,000–9,000 feet.

645. *Chlorophoneus quadricolor nigricauda* Clarke. **East African Crimson-throated Green Shrike.**

*T. q. intermedius* Rehw.

In my series of 12 ♂ 4 ♀ I find six males have the central tail-feathers green or almost entirely green. Four old males have the tail-feathers entirely black, even at the base; in two the bases for the terminal 20 mm. are greenish! As I have not sufficient material of old males from South Africa I admit this race, presuming that typical *quadricolor* never gets an entirely black tail. The difference in the females mentioned by Colonel Clarke does not hold good—females of South African birds do have a black gorget. The amount of red on the breast is variable; in some birds, even in those younger males with green tails, the red extends to the abdomen, yet in some old males with black tails the red is limited to the throat above the black gorget.

Mombasa, Changamwe, Malindi, Sagala, Teita,

646. *Chlorophoneus dohertyi* Roths. **Doherty's Forest Shrike.**

This beautiful bird is fairly common in the forests at high altitudes. The southernmost locality appears to be Limuro, from which it extends up to Mt. Elgon. It then appears again in the Semliki and Kivu districts. In the last-mentioned district the bird becomes somewhat larger, and the crimson throat takes on a deeper shade, more magenta tinged. Wings, 75-86, as compared with 75-80 mm. in my series. It seems strange that this form should not be otherwise different, seeing that there seems to be a large break in its distribution, but possibly connecting links will be found later.

Kijabe, Aberdares, Molo, Elgeyu, Maraquet, Kakamegoes, Elgon. 9 ♂, 5 ♀, 4 juv.

647. *Rhodophoneus cruentus hilgerti* Neum. **Southern Red-breasted Desert Shrike.**

I have carefully gone into the races of *R. cruentus*, and this is a good subspecies. My series of this species are of extreme interest, because the form *hilgerti* and *cathemagmenus* must meet just about the line of the Athi-Tsavo River. Now, out of six males collected at Tsavo Station, five are certainly *hilgerti*, that is, they have no black band dividing the red streak on the underside, or it is only just indicated by a few black feathers as in North Somali birds! On the back these birds are washed with brownish crimson, but not to the same extent as in *R. c. cathemagmenus*, typical birds of which occur farther south. The pink breast-streak is paler than in *R. c. cathemagmenus*.

Tsavo, and Athi River junction. 5 ♂ 5 ♀.

648. *Rhodophoneus cruentus cathemagmenus* Rehw. **Black-collared Red-streaked Desert Shrike.**

This southern race can be distinguished from all others by the deep crimson-brown of the upperside, the bright crimson (not pinkish) breast-streak, and by the males having a decided black gorget. This form is fairly common in the dry thorn-bush country of the Taru Desert and Kilimanjaro districts.

Lake Jipe, Taveta, Maktau, M'buyuni. 13 ♂ 6 ♀.

649. *Laniarius leucorhynchus* Hartl. **Sooty-black Shrike.**

There appears to be no difference between the western and eastern birds, except in size—the wings of the former ranging a few millimetres larger.

Sezibwa River, Kyetume, Lugalambo, Mubango, in Uganda.

650. *Laniarius holomelas* Jackson. **Velvet-black Shrike.**

This species ranges in the Kivu and Albert Edward district, up to Lake Albert.

651. *Laniarius nigerrimus* Rehw. **Coast Black Shrike.**

? *L. n. erlangeri* Rehw.

I very much doubt if *L. erlangeri* is a good race. In my series of birds from Lamu and district I find the amount of white on the rump varies greatly, as does

also the colour of the inner webs of the wing-feathers. I find some white, others blackish, so that these characters are evidently not constant. The wings vary from 82 to 93 mm.

Manda and Lamu Islands.

**652. *Laniarius funebris funebris* Hartl. Large Grey-black Shrike.**

*L. f. bergeri* Rehw.

*L. f. rothschildi* Neum.

My series is made up of birds from North British East Africa and Uganda. They are quite distinct from the next race mentioned, by being larger and blacker. Birds from Baringo—type locality of *L. bergeri*—do not differ from specimens from Suk, and these are identical with Escarpment birds. The type of *L. funebris* came from the country east of Tanganyika, and though I have not sufficient material from this locality to state with absolute certainty that the Suk and Uganda birds are the same, my birds do not differ from the specimens available. I have examined the type and cotype of *L. rothschildi*, and consider that they are not separable. The characters given by Neumann are not exhibited in the specimens before me. One has lost all its rump-feathers, and they are specimens which have been mounted and sadly maltreated. This species does not appear to extend farther south in East Africa than South Kikuyu. South of this we get the smaller greyer race mentioned below. In the districts where the two races meet, interbreeding apparently takes place. Wings, 85–95 mm.

Mt. Moroto, Meuessi, Kerio, in Uganda; Suk, Baringo, and Escarpment in East Africa.

**653. *Laniarius funebris degener* Hilgert. Lesser Grey-black Shrike.**

These birds are really a smaller darker form of *L. f. atrocaeruleus* of N. Somaliland. Whereas in the latter the wings range from 86 to 95 mm., they are 80–85 mm. in the former.

This race is particularly plentiful in the Taru country, but very difficult to procure, owing to its skulking habits.

Simba, Kitui, Tsavo, Voi, M'buyuni, Maktau, Lake Jipe, Taveta, Maungu, Masongoleni, and Changamwe in East Africa. Twenty-two specimens.

**654. *Laniarius aethiopicus major* Hartl. Great Pied Shrike.**

I consider that this bird is a subspecies of *L. aethiopicus*, because I find, on examining a large series of typical *L. aethiopicus*, that there are quite a number of specimens which show a white margin to the inner secondaries. I find in my series that birds indistinguishable from Western Uganda specimens range as far south as Kikuyu, thus occupying part of the same territory as *L. a. ambiguus* Madaraz, that is, from Nakuru south to Kikuyu. Within this area hybrids are found. We must, however, retain the name *L. a. ambiguus* for the southern British East African bird, because in its southern limits it remains true to type. The following localities will exhibit the range of *L. ae. major* :

Budongo, Bugoma, Masindi, Mubendi, Singo, Entebbe, Sezibwa, Kyetume, Jinja, Elgon, in Uganda; Nandi, Elgeyu, Maraquet, Molo, Nakuru, Aberdares, Naivasha, and Kikuyu in East Africa. Thirty-seven specimens.

655. *Laniarius aethiopicus ambiguus* Mad. **White-shouldered Pied Shrike.**

My nine birds are true to type, and have the white feathers limited to the coverts. Whether this race interbreeds with *L. sublacteus* in the Kilimanjaro area, I am unable to say, but they both occur there.

Molo, Naivasha, Nakuru, Nairobi, Kyambu, Fort Hall.

656. *Laniarius sublacteus* Less. **Black-winged Pied Shrike.**

Does not appear to penetrate farther than South Ukambani. I have procured it at Mombasa, Changamwe, Sagala, Teita, Samburu, Lake Jipe, Makindu.

657. *Laniarius ruficeps cooki* van Som. **Taru Red-naped Shrike.**

*Bull. B.O. Club*, November 1919.

Distinguished from the typical North Somali form in having the forepart of the crown jet black, the hind half and part of the mantle bright red, and from *L. r. nuchalis* by having the nape-patch much larger and brighter red. In this way it also differs from *L. r. kismayensis* of Jubaland.

Maungu and Tsavo, Taru desert.

658. *Laniarius ruficeps kismayensis* Erl. **Crimson-naped Shrike.**

Apparently a good race, with a dull crimson nape-patch.

Juba River. ♂, 7. x. 1912. A. B. Percival coll.

659. *Laniarius lühderi castaneiceps* Sharpe. **Cinnamon-breasted Shrike.**

When my twelve skins are compared with typical *L. lühderi* from Camaroon, it is at once obvious that the Elgon and Nandi birds are smaller and paler; the wings measure 80–86, as compared with 85–95 mm. in the typical race. As Sharpe described a young bird from Elgon as "*castaneiceps*," and although he afterwards suppressed it, finding out that it was an immature specimen, this name nevertheless is available and must be reinstated for the East African race of *L. lühderi*. This bird has not been procured in the forests of Uganda Proper, though Mr. Grauer obtained it in the Mpanga Forest, Toro. I have compared twenty-five Elgon birds.

Elgon, North Kavirondo, and Nandi.

660. *Laniarius lühderi lühderi* Rehw.

It seems that my two specimens from Lukiga and Kigezi, as well as a large series collected by Grauer in the Kivu-Tanganyika district, belong to the typical form.

661. *Laniarius mufumbiri* Og.-Grant. **Golden-crowned Red-breasted Shrike.**

My series greatly extends the range of this rare shrike. It has now been obtained from the Kivu district east to Mt. Elgon. The Elgon bird, however, is not quite typical, having the underside paler red-pink, not orange-crimson. The gold of the crown is paler. I find that the amount of white on the coverts is not constant; thus in some specimens several feathers are white both on the

secondaries and tertiaries, but in others only one or two feathers are tipped with white. The small size of this bird, however, at once separates it from the West African race.—The first plumage has apparently not been described. It is as follows :

Upperside dull black with some pale tips to the feathers of the mantle, crown-feathers broadly tipped ochraceous-buff, coverts of wings tipped and margined with buff. Underside yellowish pink, the feathers slightly more dull reddish on the breast, all the breast feathers tipped buffy white. Vent and thighs buff.

Mufumbiro, South Ankole, Kigezi District, Sezibwa River, Entebbe, and W. Elgon in Uganda.

662. *Laniarius erythrogaster* Cretzschm. **Crimson-breasted Shrike.**

*L. e. chrysostictus* Rehw. ? Synonym.

Out of my series of twenty, there are ten males with well-developed yellow tufts at the junction of the breast-feathers with the scapulars ; thus I do not consider this a character on which to separate the Camaroon bird ; further, this yellow bunch of feathers is present in some Eritrean specimens. The males which show the yellow feathers to the greatest extent are those which have the buff vent and under tail-coverts widely tipped with crimson, indicating a strong development of pigment cells. One male from Budu has several yellow feathers on the forepart of the crown.

Budu, South Ankole, Singo, Busiro, Buremezi, Jinja, in Uganda ; Elgon, Marich, Kisumu, Kendu Bay, Nyarondo, in East Africa.

663. *Dryoscopus bocagei jacksoni* Sharpe. **Jackson's Black-capped Shrike.**

Four birds, along with thirteen others collected during 1907–14, show some variation, and specimens can be picked out which match the Angolan race, which has been named *D. b. ansorgei* by Selater. The majority of Uganda birds, however, are purer grey on the back, and lack the olive tinge which is a constant character in the Angolan specimens.

I am of the opinion that this bird should not be placed in the genus *Dryoscopus* but in *Chlorophoneus*, because the bill and feet are characteristic of this latter genus, and the young in first plumage has the mantle, wings, and rectrices distinctly greenish, and with large pale tips to the secondary coverts. In fact, the young birds closely resemble the Shrike described by Jackson in *Bull. B.O. Club*, September 1919, as *C. andaryae*, which, however, is distinct and rather larger. The black cap so characteristic in adult *jacksoni* is greyish in the young.

Bugoma, Entebbe, Mabira ; Nyarondo, Nandi.

664. *Dryoscopus angolensis nandensis* Sharpe. **Nandi Blue-headed Shrike.**

These birds, eight collected by my men, three by Turner, when compared with specimens from Angola and the Kivu and Semliki districts, show that there are three subspecies :

1. *Dryoscopus angolensis angolensis* : ♂, head blue-black ; ♀, underside pale, back greyish.—Angola and Camaroons.

2. *Dryoscopus angolensis nandensis* : ♂, head grey-blue ; ♀, darker cinnamon,

back with olive wash.—Uganda, east to Elgon, Nandi, and Elgeyu (Mabira, Nyarondo, etc.).

3. *Dryoscopus angolensis adolphi-friderici*: ♂, head darker grey-blue than in *nandensis*, back more olive.—Lake district, Semliki, Kivu, North Tanganyika. Though Reichenow suppressed his *adolphi-friderici*, I consider that it must be reinstated.

665. *Dryoscopus gambiensis nyansae* Neum. **Grey-winged Shrike.**

There is such an amount of variation in my series of twenty that I find it difficult to distinguish these birds from the few specimens from the White Nile at my disposal. The darkest and most intensely coloured females are from the Moroto district in Turkana.

Bugoma, Bira, Mawakota, Masindi, Moroto, Entebbe, and M'porogoma River in Uganda; South Elgon, Kibingei River, Soronko River, Kacheliba, Nyarondo, Elgeyu, and Nandi in East Africa.

666. *Dryoscopus pringlei* Jackson. **Desert Grey-winged Shrike.**

I have a series of twelve skins of this somewhat rare bird. Its range appears to be limited to the Taru Desert country.

Tsavo, Maungu, Maktau, Taveta, M'buyuni, and Campi-ya-bibi.

667. *Dryoscopus cubla hamatus* Hartl. **East African Puff-backed Shrike.**

*D. c. suahelicus* Neum. ? Synonym.

I find that sixteen birds from the coast and desert country are smaller than eight inland specimens, having wings of 75–82 as compared to 84–87 mm. in the latter. Further, I find that the females of coastal birds have white breasts, while inland birds have the breast tinged buffy. This character is also present in the large series I have examined in Tring. Similar large birds are found in the Kivu-Kagera Tanganyika district.—I have not taken or seen specimens of this bird from Uganda proper. It apparently does not go so far north.

Smaller form: Mombasa, Masongoleni, Maungu, Teita, Kitui, Lake Jipe.  
Larger form: Kyambu, Escarpment, Nairobi, Molo, Ravine.

668. *Dryoscopus affinis* Gray. **White-shouldered Puff-backed Shrike.**

*D. salimae* Hartl.

There are two youngish birds in my series which show indications of white on the outer webs of the inner secondaries, thus showing close relationship to the previous species. They, however, occupy part of the same territory and may occasionally cross, while in the Lamu district they remain true to type.

Mombasa, Changamwe, Lamu, and Manda Islands.

669. *Fraseria ocreata* Strickl. **Speckle-breasted Flycatcher Shrike.**

These birds, as also specimens in Tring from Uganda, are larger than the birds from the type locality, but I can find no other difference.

Budongo Forest, Uganda.



670. *Malaconotus monteiri catharoxanthus* Neum. **Great Yellow-breasted Shrike.**

I prefer to keep the uniform-breasted birds in one group and those with a chestnut band or wash on the breast in another; for the reason that we find both types occupying the same territory in part of the distribution of their races. Thus in Angola we find *M. monteiri* and typical *poliocephalus* together; and in Uganda *M. catharoxanthus*, *interpositus*, and *schoanus* side by side.  
Masindi, Meuessi, North Kavirondo.

671. *Malaconotus interpositus* Hart. (?). **Hartert's Giant Shrike.**

One cannot distinguish my four birds from typical *M. interpositus*, yet as they occur in the same locality as *M. p. schoanus*, it seems to me that they must rank as a species or be united. I prefer for the time being to keep them separate.  
Mt. Moroto, and Meuessi, Turkwell, Uganda.

672. *Malaconotus poliocephalus schoanus* Neum. **Northern Brown-chested Giant Shrike.**

Six birds agree in colour and size with this race, and are distinct from the birds inhabiting the highlands of East Africa and also from the birds of the coast and desert belt. They have wings of 110–125 mm. The plumage is constant.

Meuessi and West Rudolf in Uganda.

673. *Malaconotus poliocephalus approximans* Cab. **Mombasa Yellow-breasted Giant Shrike.**

Six birds, which are quite distinct from the highland form, are characterised by having a deep, bright chrome-yellow throat, sharply differentiated from the dark chestnut breast-band, which does not extend on to the lower breast, but is well demarked from the bright yellow of the lower breast and abdomen. The flanks are shaded chestnut.

This form ranges from the coast, from Pangani River to Malindi and inland through the Taru Desert to South Ukambani and East Kilimanjaro.

Changamwe, Lake Jipe, Masongoleni, Tsavo, Teita, Kitui.

674. *Malaconotus poliocephalus* subsp. nov. ?

Nineteen specimens of both sexes collected between 6.iv.16 and 20.v.16 on Manda and Lamu Islands and coast of the mainland opposite. These birds are very much paler yellow on the abdomen and throat and considerably smaller. They should probably be kept separate from *M. p. approximans*. Most specimens have the pale tips to the coverts tinged reddish. Wings, 105–115 mm.

675. *Malaconotus poliocephalus blanchoti* Steph. **Brown-breasted Giant Shrike.**

*M. p. starki* Sclater.

*M. p. hypopyrrus* Hartl.

Birds which are found in the highlands of East Africa are characterised by having the breast with a broad chestnut band, not sharply differentiated from

the throat, and extended well on to the flanks and upper abdomen. These are larger birds, with wings of 125-130 mm. Others in Tring from Kikuyu agree perfectly. I fail to distinguish them from South African specimens, and much as I dislike the distribution, I cannot do else but unite them with this race.

Birds from Lumbo, coast of North Mozambique, Portuguese East Africa, and from the coast south of Dar-es-Salaam are not the same as South African birds, having the brown breast-band more restricted, and they differ markedly from the Mombasa birds, *M. p. approximans*. They are quite different from the upland East African birds, yet, coming as they do from a southern country, I am compelled to keep them with the South African race for the time being, but a larger series may prove them different.

Highland form: Nairobi, Escarpment, Morogoro.

Southern coastal form: Lumbo, North Mozambique, and South Dar-es-Salaam.

**676. *Lanius collaris smithi* Fraser. Western White-shouldered Fiscal Shrike.**

Nine birds do not agree with the East African race, and are apparently referable to the western form. No doubt this bird meets and interbreeds with the Abyssinian form, *F. c. humeralis*, so that it is difficult to place these intermediate forms. The character of the tail-feathers is of some help, the western birds having rather more black on the outer rectrices.

Masindi, Budongo, and Bugoma in Uganda.

**677. *Lanius collaris humeralis* Stanley. Abyssinian Fiscal Shrike.**

? *F. c. uropygialis* Rehw.

I cannot see any constant characters for separating the Kilimanjaro birds from the North-east African race. The rump varies in colour from dark grey to grey and white! It appears, therefore, that no great reliance can be placed on this character.

Nairobi, Fort Hall, Naivasha, Kisumu, Kendu Bay.

**678. *Lanius dorsalis* Cab. Saddled Fiscal Shrike.**

Eight specimens from practically the type locality, and all constant in showing no white tips to the inner secondaries. This race must extend through the Ukamba country and to the east of Kilimanjaro, thence to Suk and north-west to Lake Stephanie, whence came specimens collected by Smith and Jackson. These latter specimens are interesting, because to the south-west of Rudolf at the Karoli Escarpment a form of *F. somalicus* is found. No doubt the two forms meet in this neighbourhood. There is one specimen in the Nairobi Museum from Simba which is white on the back.

M'buyuni, Teita, Tsavo, Simba, Thika.

**679. *Lanius somalicus mauritii* Neum. White-rumped Saddled Fiscal Shrike.**

Although Neumann described this bird from a single mounted specimen, his risky action has fortunately turned out all right. The specimens agree exactly with the type, except that the black of the head is not sharply differentiated from the grey of the mantle. The general coloration is like *F. somalicus*, but in this

form the rump and upper tail-coverts are white and the underwing-coverts dark ashy grey, not jet black. My specimens are in full clean plumage. I should like to point out that the Karoli Mountains or Escarpment are just south of Karoli Lake, and this, again, is south-east of Lake Rudolf, not in West Somaliland, as has been stated. My specimens of this rare Shrike, known hitherto from the type only, came from west of Rudolf.

Meuressi, on Upper Turkwell River.

680. *Lanius cabanisi* Hart. **Long-tailed Fiscal Shrike.**

*F. caudatus* Cab.

Unlike *Lanius excubitorius princeps*, these birds are resident in East Africa. M'buyuni, Tsavo, Simba, Lamu, Kitui, Fort Hall, Kyambu.

681. *Lanius mackinnoni* Sharpe. **African Grey-backed Shrike.**

This species is particularly common in the Elgon district. Busmasifa, Elgon, Elgeyu, and Entebbe in Uganda.

682. *Lanius excubitorius excubitorius* Prév. **African Great Grey Shrike.**

*Lanius e. intercedens* Neum.

5 ♂ ♀, wings 120–130 mm. This is the resident breeding bird of Kavirondo district and Elgon. These birds agree perfectly with Abyssinian specimens and birds from South Ethiopia, called by Neumann *intercedens*. I find, on reference to his original description and to his actual specimens, that the birds which he took to be *L. excubitorius excubitorius* are in reality *L. ex. princeps*, the small race which inhabits the Nile districts, passing south into the whole of Uganda, and migrating in numbers to East Africa in the winter. His specimens of *L. ex. intercedens* are really *L. ex. excubitorius*. Besides being larger, this race is also darker grey on the head and mantle than *L. ex. princeps* or *L. ex. bohmi*: *L. ex. bohmi* is merely a larger edition of *L. ex. princeps* Cab. I have come to this conclusion after nine years' observation in the field, and after going over the material in the Tring Museum as well. I have taken eggs and young.

Kisumu, Kibos, Elgon.

683. *Lanius excubitorius princeps* Cab. **Lesser African Great Grey Shrike.**

5 ♂ ♀, with nine birds in the Tring Museum collected by Turner at Naivasha, agree in colour and measurements with the birds from the White Nile district. They are smaller and paler grey than the Abyssinian bird, having a wing-measurement of 105–115 mm. During the winter large numbers of this race migrate to East Africa, especially to Lakes Nakuru and Naivasha. Owing to their migratory habits they have been mistaken for *L. e. excubitorius*.

Masindi, Mubendi, in Uganda; Naivasha in East Africa.

684. *Lanius excubitorius* Rehw. **Southern Intermediate Great Grey Shrike.**

Specimens of this race have been taken in the Kagera district of Uganda, and my present collection includes this race, from South Ankole and Mufumbiro, Budu in Uganda.

685. *Lanius minor* Gm. **European Lesser Grey Shrike.**

Between April 20th and 24th, 1918, these birds passed north through Tsavo in large numbers. They were in perfect full plumage.

Tsavo, Nairobi, Kimiriri, in East Africa; West Elgon in Uganda.

686. *Lanius senator niloticus* Bp. **Nile Woodchat Shrike.**

These birds have a wide wing-speculum and the bases of the rectrices white.

2 ♂ 1 ♀. Elgon.

687. *Lanius collurio* Linn. **European Red-backed Shrike.**

Twelve males from April are all normally coloured birds, the winter birds being pale brownish. A female shot 5.iv.1918 is coloured on the back somewhat like the adult male, the head being greyish, the feathers tipped brownish, the mantle reddish brown, but the underside is marked with wavy bars and the sides of the body washed with rufous. It agrees very well with the description of the variety which Shelley believed to be a different species and called *reichenowi*, from Dar-es-Salaam, and which is the same as *affinis* of Fischer. Common during the winter and early spring.

Mombasa, Changanwe, Maungu, Tsavo, Nairobi, Kisumu; also Masindi and Lugalambo in Uganda.

688. *Lanius collurio* subsp. ?

2 ♂ from Dar-es-Salaam have caused me some trouble. One is very like *L. collurio*, but the forehead is whitish, crown grey, mantle and back dark earth-brown, not reddish. Wing dark, with a large white speculum at base of primaries. Underside pale pinkish, 90 mm. Can this be *L. c. kobylini*? The other has wings and back as in *L. collurio*, but crown and neck brownish as in *L. phoenicuroides*. Loral spot black, ear-coverts black, with white streaks. Breast and flanks pinkish.

689. *Lanius cristatus isabellinus* Hempr. and Ehrenb. **Isabelline Shrike.**

4 ♂ 3 ♀, but only one male is fully mature.

Simba, Tsavo, Nakuru, Kisumu. January, December, March.

690. *Lanius cristatus phoenicuroides* Schal. **Brown-capped Red-tailed Shrike.**

I am not satisfied that all my eighteen birds belong to this race of *E. cristatus*. There are males in full fresh plumage which have no brown on the crown, but have the top of the head the same colour as the back; these are smaller than typical birds. Others, again, have greyish crowns, all being in good plumage. They have black ear-coverts, not brownish as in female birds.

Changanwe, Maungu, Tsavo, Fort Hall, Nairobi, Nakuru, Simba, Kisumu; and Mt. Moroto in Uganda.

691. *Corvinella corvina affinis* Heugl. **Yellow-billed Giant Shrike.**

3 ♂, 1 ♀, 1 juv. One specimen is very like the western typical race. Elgon, Simu River, in Uganda; Nandi, Kibigori, Lumbwa, in East Africa.

692. *Dicrurus modestus coracinus* Verr.

The typical bird does not occur. The race of Uganda is not so purplish blue on mantle and breast and is a recognisable form. This race I name :

693. *Dicrurus modestus ugandensis* van Som. **Uganda Velvet Drongo.**

*Bull. B.O. Club*, xli. p. 102, 1921.

The birds which inhabit Uganda from Toro to Elgon are more blue-black, less purplish black than typical "*coracina*" from Gaboon and Nigeria, of which there is a series at Tring. In size, the races are practically alike, though on an average the Gaboon birds are larger. The largest Uganda bird has wings of 135 mm.

Bugoma, Budongo, Lugalambo, Mabira, Elgon, in Uganda ; and Kavirondo in East Africa. Type ♂, Budongo, 10.xii.1918. Nineteen examined.

694. *Dicrurus ludwigi elgonensis* van Som. **Elgon Little Drongo.**

*Bull. B.O. Club*, February 1920.

The appearance of this small Drongo in the Elgon district is extremely interesting. In coloration it is very like *D. sharpei*, but it is larger. These specimens have been compared at the British Museum. They are darker, and lack the blue gloss of *sharpei*. The known range of this form is limited to North Kavirondo and Elgon.

695. *Dicrurus adsimilis divaricatus* Licht. (Senegal) **Pale-winged Drongo.**

*D. adsimilis lugubris* Hempr. (Nubia).

696. *D. adsimilis fugax* Peters (Nyassaland).

The coast birds are smaller, and on the whole more greenish, less bluish black. Uganda, ♂ 130-136, ♀ 120-130 mm. Coast to Simba, ♂ 117-127, ♀ 117-119 mm.

*D. a. divaricatus*: Masindi, Bugoma, Mubendi, Elgon, Kisumu. Ten specimens.

*D. a. lugubris*: Nairobi, Thika, Kitui, Simba. Five specimens.

*D. a. fugax*: Coast and Taru: Changamwe, Mombasa, Sagala, Tsavo, Taveta. Ten specimens.

*D. a. divaricatus* and *lugubris* are probably not separable.

697. *Corvus rhipidurus* Hart. **Fan-tailed Raven.**

(*C. affinis* auct.)

Occurs in fair numbers in the Suk and Turkana countries. I obtained it at Mt. Elgon.

698. *Corvus capensis minor* Heugl. **Slender-billed Crow.**

A very common species in the highlands and plains.  
Nakuru.

699. *Corvus ruficollis* Less. 1831. **Brown-necked Raven.**

*C. umbrinus* Sund. 1838.

Seen in the Suk and Kavirondo country, but not common.

700. *Corvus scapulatus* Daud. **White-bellied Raven.**

Very common.

Nairobi, Fort Hall, and Kisumu.

701. *Corvus edithae* Phillips. **Somali Raven.**

Has been recorded from Lake Rudolf.

702. *Corvus albicollis* Lath. **White-necked Raven.**

Kisumu, Tsavo, M'buyuni.

703. *Corvultur crassirostris* Rüpp. **Giant Thick-billed Raven.**

Was obtained in Uganda by my collectors in 1912.

704. *Cryptorhina afra* Linn. **Long-tailed Crow.**

Occurs in the Nile Province of Uganda.

705. *Oriolus oriolus* Linn. **European Golden Oriole.**

About a dozen were taken in Nairobi. They arrive mid-September and October and return in April, but very few stay throughout the winter in Nairobi district. They prefer the open park country to forest. It would appear that the young male assumes an intermediate plumage, somewhat like that of the female, before becoming fully adult. These birds are particularly fond of the flowers of *Grevillia robusta*.

Nairobi, Tsavo, Nakuru, West Elgon, in Uganda.

706. *Oriolus auratus* Vieill. **West African Black-winged Oriole.**

A ♂ shot 17. xii. 1917 is in full fresh plumage. It is not a common species in Uganda.

Mt. Moroto, Uganda.

707. *Oriolus notatus* Pet. **South African Golden Oriole.**

When comparing my series of twenty-two with the material in Tring, it was obvious that the East African birds were smaller than birds from Angola, the eastern birds having wings of ♂ 130-137, ♀ 130-135 mm., the western birds ♂ 140-147, ♀ 135-145 mm. As we have no Nyassaland birds, I am unable to say which are typical. Adult females apparently never lose the indications of striping on the breast and flanks.

Mombasa, Changamwe, Nairobi, and Fort Hall; also Masaka and Budu in Uganda.

708. *Oriolus brachyrhynchus laetior* Sharpe. **Grey-winged Black-headed Oriole.**

I consider that the grey-winged *Orioles* should be kept as a separate race from the *larvatus* group. Races of both groups are found together. The young differ markedly.

Two birds from Budongo appear to me to be hybrids between *O. l. rolleti* and *O. b. laetior*.

Bugoma, Budongo, Masindi, Mubendi, Sezibwa, Elgon, in Uganda.

**709. Oriolus larvatus rolleti** Salvad. **Nile White-winged Black-headed Oriole.**

Seven birds from Uganda, with wings of 125–135 mm., I consider the same as others from the White Nile with wings of 125–130 mm. These should bear the name given above; but the following birds from East Africa, which are larger, should, in my opinion, be recognised as a large highland race, while we have the name *O. l. reichenowi*, for a small race, inhabiting the coast and desert districts. The large birds and the small coast form meet in the Ukambani country.

Bugoma, Budongo, Sezibwa, Marich, Elgon.

**710. Oriolus larvatus kikuyuensis** subsp. nov.

These birds have wings of 135–147 mm. The range appears to be from North Ukambani north to Elgeyu Escarpment and east to Kenia. Type ♂, Nairobi, 2.x.1915, in my collection. Nine specimens compared.

Elgeyu, Nairobi, Escarpment, Kitui, Kyambu.

**711. Oriolus larvatus reichenowi** Zedl. **Coastal Black-headed Oriole.**

As far back as 1914 it was obvious to me that the Coastal Black-headed Oriole was smaller than the up-country bird, and in order to satisfy myself on this point I measured the material in the Nairobi Museum (thirteen specimens). These, together with nineteen recently collected skins, show a variation in wing-measurements from 115 to 125 mm., thus being smaller than the Kikuyu form.

Lamu, Manda, Mombasa, Maungu, Taveta, Voi, Tsavo, Kitui, Sagala.

**712. Oriolus percivali** Og.-Grant. **East African Black-tailed Oriole.**

These birds are inhabitants of the forests of the higher altitudes, and one seldom sees them in the open, park-like country where the large race of *O. larvatus* is principally found. I am not at all certain whether there is any interbreeding between these two birds, but one certainly finds specimens which appear to be hybrids. There is no doubt in my mind as to *O. percivali* being a good species distinct from *O. larvatus*, but whether it should be considered a subspecies of *O. nigripennis* I am not prepared to say; the main difference is that *O. nigripennis* has the tip of the primary coverts white—*O. percivali* not.

Kikuyu, Elgeyu, Elgon, in East Africa; Bale, Bumasifa, Bugoma, in Uganda.

**713. Buphaga erythrorhyncha** Stanl. **Red-billed Ox-pecker.**

A female was caught on its nest in a stone wall on 10.xii.1918. The nest was constructed entirely of ox, goat, and sheeps' hair, felted together.

Kisumu.

**714. Buphaga africana** Linn. **Yellow-billed Ox-pecker.**

Not at all common in East Africa, whereas the preceding is plentiful.

Kibigori.

715. *Perissornis carunculatus* Gm. **Wattled Starling.**

Two of nine males have fairly large wattles, but the others, though in full plumage and many in breeding condition, have the heads still covered with feathers, though wattles are present. As this species was particularly common near Nairobi, I shot and trapped over a hundred birds and examined them carefully. In no single instance were the head or throat wattles more than three-quarters of an inch long, and I found that the state of the wattles in no way indicates the condition of the reproductive organs. I am led to believe that the large wattles are only found in very old birds. I kept several males in captivity for two years and more, and although these had fairly respectable wattles under the feathers, they did not shed the head feathers at any time, though the bare patch at the side of the throat became bright yellow in the breeding season.

Kendu Bay, Lake Nakuru, Naivasha, Nairobi, and Masindi in Uganda.

716. *Spreo superbus* Rüpp. **White-banded Glossy Starling.**

The average wing-measurement of the East African adult males is 125 mm., the maximum 128 mm., i.e. larger than in birds from the White Nile district. There is, however, no difference in coloration.

Masindi, Gondokoro, Moroto, Kerio, in Uganda; Marich, Nakuru, Naivasha, Simba, Campi-ya-bibi, Lake Jipe, and Voi in East Africa.

717. *Spreo hildebrandti* Cab. **Hildebrandt's Glossy Starling.**

Some of my birds come from the type locality. In habits they are like *S. superbus*, but not quite so tame, nor do they frequent dwellings to the same extent. I wish to draw attention to the distribution of this bird and *S. shelleyi* in East Africa. I am of the opinion that these birds should be kept as distinct species, for although they overlap, they do not interbreed. I have examined a good many specimens and have seen no evidence of mixing.

Simba, Kitui, M'buyuni, Voi, Tsavo, Kibwezi, Campi-ya-bibi.

718. *Spreo shelleyi* Sharpe. **Shelley's Glossy Starling.**

The occurrence of this species in East Africa is of great interest, the typical birds coming from *N. Somaliland*. My birds, however, differ from the few Somaliland skins that I have been able to examine by being rather larger. They have wings from 110 to 117 mm., while four typical birds range from 105 to 110 mm. It is possible, therefore, that the East African race is larger. More typical birds are required.

Tsavo and Maungu. Eleven specimens.

719. *Spreo fischeri* Rehw. **Fischer's Grey Glossy Starling.**

Fairly common in the thorn-bush country, and extending up to Nairobi. Maungu, Teita, Tsavo, Taveta.

720. *Speculipastor bicolor* Rehw. **Pied Glossy Starling.**

I have seen these birds in large flocks on Mombasa Island, on the wild fig trees which line the main thoroughfares. They appear to know, to a day, exactly



when the figs are ripe and make short work of stripping the trees bare. Their bold orange or crimson eyes are most conspicuous.

I was greatly surprised to discover this species just on the outskirts of Nairobi in 1917. They apparently had noticed during their wanderings a crop of wild tomatoes growing on the Municipal Dump. In two days there wasn't a ripe fruit in the whole ten-acre plot. The next time these birds were met with was in the dry country round Mt. Moroto in Turkana, Uganda. They were in full breeding condition.

The young birds in first plumage are interesting, because, except for their heavier build, they might easily be mistaken for adult *Spreo fischeri*. They have, however, a white wing-speculum, and the secondaries are tinged with purplish, not greenish. The grey of the throat and breast is not so extensive. These birds are the greatest wanderers of any species of glossy starling I know.

Mombasa, Magadi, Nairobi, in East Africa; Meuressi, Turkwell River, Mt. Moroto, Kobua and Kozibiri Rivers in Turkana, Uganda.

**721. Pholidauges sharpei** Jacks. **Sharpe's Buff-breasted Blue Starling.**

The young of this bird is distinguishable from the adults by being duller on the back and by having the whole underside speckled with arrow-shaped terminal spots to the feathers, thus being quite different from the young of *P. femoralis* Rehw.

This species is particularly common on the Nandi and Elgeyu ranges. The occurrence in the Kivu area is interesting.

Elgon, Nandi, Elgeyu, and Burnt Forest.

**722. Pholidauges femoralis** Rehw. **Buff-bellied Purple Starling.**

The seven specimens collected by Doherty at Escarpment in 1901 certainly belong to this species. These young birds differ from the young of *P. sharpei* in being somewhat smaller and much more heavily mottled and streaked on the underside, and in having the belly whitish.

When adults are obtained it may be shown that the Escarpment birds are different from the Kilimanjaro ones.

**723. Pholidauges verreauxi** Finsch and Hartl. **Verreaux's White-breasted Purple Starling.**

A common and widely distributed species. I have procured them at :

Manda, Changamwe, Samburu, Simba, Nairobi, Burnt Forest, Elgon, Kerio, Kacheliba ; and Bugoma in Uganda.

**724. Pholidauges leucogaster** Gm. **White-bellied Purple Starling.**

Several examples have been taken in Uganda and East Africa, and these birds occur in localities occupied by *P. verreauxi* and do not interbreed.

Elgon. ♂ ♀, July.

**725. Lamprocolius corruscus corruscus** Nordm. **Black-bellied Glossy Starling.**

*L. melanogaster* Swains.

The typical bird does not occur within the limits of East Africa. The birds from these areas are the following subspecies :—

726. *Lamprocolius corruscus mandanus* van Som. **Northern Black-bellied Glossy Starling.**

*Bull. B.O. Club*, xli. p. 124, 1921.

The birds north from Dar-es-Salaam to Manda and Lamu are smaller and have much slenderer, smaller bills and have wings of 100–105 mm. The young bird is dull black on the head and mantle, with a green gloss, without any purplish tinge to the lower back, and it has the whole of the lower breast and abdomen dull brown-black. This does not agree with Shelley's description of the young of *corruscus*.

Lamu, Manda, M'koi, and Mombasa. Type from Manda, in my own collection.

727. *Lamprocolius purpureiceps* ? subsp. nov. **Eastern Lesser Purple-headed Glossy Starling.**

Five birds differ from typical *L. purpureiceps* from Gaboon in lacking the distinct purplish tinge to the wings. In eastern birds the wings are bluish, with the purple limited to the primaries, not extending on to the coverts. More material from Elgon is wanted.

Budongo, Lugalambo, Elgon, in Uganda.

728. *Lamprocolius chalybeus* Ehrenb. **Ehrenberg's Green Glossy Starling.**

2 ♂, Mt. Moroto, Uganda.

As contrary views have been expressed and published regarding the above name, I have gone very carefully into the question of the original description and plate. Neumann, in *Journ. f. Orn.*, 1905, states that the type is a small bird with wings of 122 mm., and says *L. chalybeus* cannot be used for the big bird, but for the small form, that is for *L. c. schraderi* Neum. Sclater and Praed in *Ibis*, July 1918, also make the same statement; Hartert in *Nov. Zool.*, May 1919, has endorsed these views. I cannot understand this, as (1) Ehrenberg's type is a female; (2) the rump is coloured like the belly, and tinged purplish; (3) the wings measure 4.7 inches, Paris measure (not English), = 130 mm. (old way), modern method no doubt 132–133 mm.; (4) the size of the bill and foot as depicted on the plate, below the figure of the bird.

Now, all these characters are found in the females of the *large* species, *not the small*. Lord Rothschild and now Dr. Hartert agree with me in this matter.

As all the other names apply to this large bird, I admit *L. schraderi* Neum. for the smaller bird found in Abyssinia and the Nile district. Type in Tring.

In the south-east of Uganda and in East Africa north of the Taru and desert country we find a small race of *L. chalybeus* which Neumann has named:—

729. *Lamprocolius chalybeus massaicus* Neum. **Massai Green Glossy Starling.**

This race is smaller than *L. chalybeus chalybeus*, with wings ranging from 140 to 150, as compared with 145–157 mm. in typical race. Absence of or only slight indication of a shoulder-patch, and not dark well-defined ear-coverts.

As I find no adult males with larger wings than 150 mm., and as the largest female is equal in size to the smallest female of the typical form, I admit this bird as a race.

Kisumu, Nakuru, Naivasha, Nairobi, Fort Hall.

730. *Lamprocolius sycobius pestis* van Som. **Southern Glossy Starling.**

*Bull. B.O. Club*, xli. p. 124, 1921.

In the thorn-bush country of East Africa from Mombasa north to South Ukamba and Teita and ranging west to Lake Kivu and Tanganyika we have a race of *L. sycobius* which is larger than the typical southern African (Nyassaland) bird, having wings of 130–135 in males and 120–125 mm. in females. Abdomen purplish. Has a well-developed purple shoulder-patch and very clearly well-defined dark purplish-blue ear-coverts.

Mombasa, Samburu, Maungu, and N'di. Type, ♂ ad., Samburu, 18.x.1917. Tring Museum.

731. *Lamprocolius chalcurus* Nordm. **Violet-tailed Green Glossy Starling.**

Seven specimens obtained on the foothills of Mt. Elgon undoubtedly belong to this race. The whole of the rump and tail-feathers are purplish violet. The young bird is blackish above with a slight blue tinge. Underside dull sooty black with a green-blue sheen on the breast. Tail-feathers greenish blue with the basal half of centre pair violet purple.

Kerio River, Kimiriri River, Nyarondo.

732. *Lamprocolius chloropterus* Swains. **Golden-green Glossy Starling.**

1 ♂, 21.vii.1910, agrees with *L. chloropterus*, and not with *L. sycobius*. It is golden greenish on the wings and back. Probably a stray bird. These birds are great wanderers.

Buddu in Uganda.

733. *Lamprocolius purpureus amethystinus* Heugl. **Large Violet-headed Glossy Starling.**

Five specimens in beautiful condition. One male has the feathers of the forehead exceptionally long and directed forward, forming a distinct ridge.

Elgon and Bulamezi in Uganda; Soronko River and Nyarondo in East Africa.

734. *Lamprocolius splendidus* Vieill. **Great Fiery-breasted Glossy Starling.**

My seven birds come from a locality far removed from where the type of *L. splendidus* was obtained (mouth of Congo) and probably belong to a distinct race.

Mubango, Bugoma, Budongo, Mabira; Elgon and Nyarondo.

735. *Lamprotornis purpuropterus* Rüpp. **Green-headed Long-tailed Starling.**

Three of thirteen adult specimens lack the blue band on the breast, so that their lower surface is almost entirely violet-purple. As a rather worn specimen shows a somewhat similar change, I have no doubt this variation is due to wear.

Wings: ♂ 149–160, ♀ 135–150 mm. The young bird has the head black, with a faint purplish lustre to the crown. Mandible blackish with light purplish gloss. Wings bluish. Underside sooty black with slight bluish tips to feathers.

Bugoma, Budongo, Masindi, Busiro, Singo, in Uganda; South Elgon, Kisumu, Kenda Bay, and Kavirondo in East Africa.

736. *Cosmopsarus regius regius* Rehw. **Golden Long-tailed Glossy Starling.**

Eight birds in perfect condition, and typical.

Young birds in first plumage differ markedly from the adults. They have the head, mantle, throat, and breast greyish brown. Wings darker, glossed greenish. Lower breast and abdomen yellowish buff; tail blackish with greenish tinge.

Maungu, Tsavo, Taveta.

737. *Cosmopsarus regius donaldsoni* van Som. **Somali Golden-bellied Starling.**

*Bull. B.O. Club*, December 1919.

When I compared my birds with the series of Somali birds in the Tring Museum, it was at once evident that there were two races of this splendid starling. The North Somali birds from Wagar Mountains differ from the typical *C. regius* by being slightly smaller, in having smaller bills, and particularly in having the breast-band reddish violet-blue, not golden bronze-violet, and in having a well-defined dark ear-patch. Further, the underside is more orange-gold, darker than in typical specimens. Birds from South Ethiopia are like the North Somali birds, but are larger. With more material it may be possible to recognise a third race.

Marsabit and Lorian. 2 ♂ ♀, from Marsabit. Type in Tring Museum.

738. *Cosmopsarus unicolor* Shell. **Olive Long-tailed Glossy Starling.**

Lake Jipe, South-east Kilimanjaro.

739. *Onychognathus morio shelleyi* Hart. **Great Red-winged Starling.**

This race must be admitted. It is (as Dr. Hartert stated in *Cat. B. Mus. Senckenb.*) intermediate between two well-defined races, *A. m. morio* and *A. morio rüppelli*. No type locality is given in the original description and no type designated, but the author gives the name *shelleyi* to specimens from Mamboio and Ugogo in East Africa. I find in my series a male from Naivasha, which is only just a little smaller than Abyssinian specimens; but my Uganda birds are considerably smaller and agree with specimens from East Africa.

Mt. Moroto and Meuessi in Uganda; Naivasha, Nairobi, Narossera, Morogoro. Nine skins.

740. *Onychognathus morio montanus* van Som. **Elgon Great Red-winged Starling.**

*Amydrus montanus*, *Bull. B.O. Club*, December 1919.

Differs from *O. m. morio* and *O. morio rüppelli* in having the bill as long as in the Abyssinian race but more slender, and from the typical form in being slightly larger and having the bill longer and slenderer. Wing, 155-160 mm.

Mt. Elgon, at 9,000 feet. 5 ♂ ♀, ad., 1 juv. Type, 15.iii.1916.

741. *Amydrus walleri* (? subsp.). **East African Small Red-winged Starling.**

I have compared my four birds with the type and find that they agree fairly well, but the type is so poor a skin as to be almost useless for comparison. I doubt if *A. nyassae* is a good race. The type is certainly a large bird.

Mt. Kenia.

742. *Amydrus walleri elgonensis* Sharpe. **Elgon Little Red-winged Starling.**

Wings, 123–127 mm. in the males. In the Kivu district we find a representative with a wing of 120–123 mm, but no other difference that I can see. They are larger than the birds from Camaroon which have been called *A. w. preussi*. The type of *elgonensis* is a small female.

Elgon, Nandi.

743. *Cinnamopteryx tenuirostris* Rüpp. **Slender-billed Red-winged Starling.**

Wings, 155–157 mm., smaller than Abyssinian birds. The young in first plumage are dull sooty black above and below, with a bluish wash on the wings and tail; the cinnamon speculum is present on the primaries.

Nairobi, Kyambu, and Fort Hall.

744. *Poeoptera stuhlmanni* Rehw. **Slender Purple Starling.**

*P. greyi* Jackson.

We have no typical birds to compare with this series, so I can give no opinion as to whether they differ or not. These specimens have wings of 100–105 mm.

Elgon and Elgeyu.

745. *Poeoptera kenricki* Shell. **Slender Bronze-green Starling.**

Should, I think, be kept as a distinct species from *P. stuhlmanni*.

Lake Jipe, East Kilimanjaro. ♂♀, December.

746. *Textor albirostris albirostris* Vieill. **White-billed Buffalo Weaver.**

These birds undoubtedly belong to the *albirostris* group, as evidenced by the two June males which are in full breeding condition and have the base of the bills much swollen and enlarged, pinkish yellow. They agree perfectly with specimens from North Abyssinia, Eritrea, and White Nile district, and although the bills are not as long as in these birds, yet the bases are just as swollen. As *T. scioanus* was described from Shoa and South Abyssinia, it appeared to me rather curious that one should get a typical *T. albirostris* in the South Rudolf and Suk district. I therefore laid out in geographical order all the material in Tring together with my excellent series of these Black Weavers. It was then evident that there were two groups or species, with so many races, judging by the distribution, the character of the bills, and of the young and adult females.

Moroto, Kerio River, and Suk Marich.

747. *Textor niger scioanus* Salvad. **Northern Red-billed Buffalo Weaver.**

Three birds belong to this race of *T. niger*. They have *smooth, coral-red bills*, and the inner webs of the primaries greyish or whitish. They agree well with the series in Tring from South Ethiopia.

Kobua River, Lake Rudolf.

748. *Textor niger nyansae* Neum. **Black-winged Coral-billed Weaver.**

Neumann has boldly described this race from *one single male* specimen from Kavirondo. Whether he is justified or not, I am unable to say; but it is true that my single bird from Kavirondo agrees perfectly with his description, and has *black inner webs* to the primaries. As my specimen supports his bird, I am forced to admit this race.

Kibigori, Kavirondo.

749. *Textor niger intermedius* Cab. **East African Coral-billed Buffalo Weaver.**

My series includes breeding birds; they have *smooth, coral-red bills*, the males *greyish or whitish inner webs* to the primaries.

Taveta, Tsavo, Kitui, Simba.

## NOTES ON THE ALBIROSTRIS AND NIGER GROUPS.

The characters of the two groups of *Textors* are as follows:—

(1) ♂, white or pinkish yellow bills, with *bases greatly swollen* in the breeding season. ♀, black like the males but duller, bills sometimes slightly swollen. Young like the females but more brownish. **INNER WEBS OF PRIMARIES BLACK.** *Textor albirostris albirostris* and *T. a. senegalensis*. (The type of *T. senegalensis* is a young ♂ or ♀. The race must be admitted because the Senegal birds have a much larger bill than typical *T. albirostris*.)

(2) Bills coral-red and *smooth, not swollen at base* in breeding season. Females not like males, showing some white on breast. ♂, *distinct white wing-patch or inner webs white or greyish*, except *T. n. nyansae*. Young quite different from adults: brownish above, white below, with black-brown streaks and mottlings. *Textor niger niger*, *T. niger intermedius*, *T. niger scioanus*, and *T. niger nyansae*.

*T. n. niger*: South Africa north to Limpopo and Zambesi, and north-west to Angola.

*T. n. intermedius*: Tanganyika Territory north to Kenya Colony, as far as Baringo.

*T. n. scioanus*: South Abyssinia, Rudolf to West Somaliland.

*T. n. nyansae*: Kavirondo and shore of Lake Victoria.

750. *Dinemellia dinemelli* Rüpp. **White-headed Giant Weaver.**

*D. ruspolii* Salvad.

I cannot recognise *D. ruspolii* of Salvadori. Specimens from Somaliland are *just as large* as birds from Abyssinia, East Africa, and Uganda. In my series the wings vary from 112 to 123 mm.

Nile Province, Moroto, Kacheliba, Kerio, in Uganda; Nyarondo, Simba, Tsavo, Voi, Taveta, Campi-ya-bibi, Maungu, Masongoleni, in East Africa.

751. *Plocepasser donaldsoni* Sharpe. **Somali Grey Sparrow Weaver.**

I have compared these with a cotype in Tring. My birds are rather greyer, more mottled on the breast, and the cheeks are distinctly buff, not white. They are also larger. Apparently a rare bird.

Northern Guasso N'yiyo, near Archer's Post.

**752. *Plocepasser superciliosus* Cretzschm. Red-crowned Sparrow Weaver.**

Four birds agree with the specimens in Tring from Abyssinia and Lake Albert (Seth-Smith coll.). My birds in fresh plumage are slightly darker.

Mt. Moroto in Uganda ; Kerio River in East Africa.

**753. *Plocepasser mahali melanorhynchus* Rüpp. Black-crowned Sparrow Weaver.**

My Uganda and Suk birds agree well with typical specimens, but I find that three specimens from Naivasha and Thika are rather darker on the back and blacker on the crown. A larger series may show this to be constant.

Masindi, Meuressi, Turkwell, Kacheliba, and Kobua River in Uganda ; Kerio, Naivasha, Fort Hall, Kitui, and Simba in East Africa.

**754. *Sporopipes frontalis loitanus* van Som. Loita Scaly-headed Finch.**

*Bull. B.O. Club*, xl. p. 55, 1919.

These birds differ from the Senegal and Abyssinian races by being much darker on the back, and in having the breast and flanks washed with grey. Wings, 65–70 mm. Uganda birds are slightly smaller than East African ones (wings 62–66 mm.), but they agree in colour. My Uganda birds are mostly females.

East Kilimanjaro, north through Loita and Ukambani to Turkana and the Nile (Gondokoro), Taveta, Tsavo, Simba, Loita (type), Kitui, Suk, Moroto, and Gondokoro.

**755. *Malimbus malimbicus crassirostris* Hart. Uganda Crested Black Weaver.**

*Nov. Zool.* 1919, p. 140, Unyoro.

The character of the heavier bill, mentioned by Hartert, does not hold good, but the race is distinctly recognisable because the red of the head is more crimson with a magenta tinge, the crest much more developed, and the posterior half black in adult breeding males. My birds are from the type locality.

Bugoma and Budongo Forest.

**756. *Malimbus rubicollis centralis* Rehw. Uganda Red-hooded Black Weaver.**

It is of interest to note that young birds have the throat distinctly reddish, yet this part in adults is black. I am of the opinion that the birds from Angola will have to be separated. The red of the neck does not extend to the upper mantle, as it does in *M. r. centralis*.

Bugoma, Budongo, Masindi, Sezibwa, Lugalambo, West Elgon, in Uganda ; South Elgon and Nyarondo in East Africa.

**757. *Anaplectes rubiceps* Sund. Red-headed Weaver.**

A ♂ collected by Loveridge is interesting as it is much paler red than normal. Morogoro.

**758. *Anaplectes jubaensis* van Som. Crimson Weaver.**

*Bull. B.O. Club*, xl. p. 94, 1920.

These Crimson Weaver birds appear to be limited to the region of the Juba River. They were collected by A. Blayney Percival in 1912.

759. **Anaplectes melanotis** Lafr. **Black-cheeked Red-headed Weaver.**

*A. blundeli* and *erythrogenys* are synonyms.

Much variation exists in the amount of black on the chin, the intensity of the red, and the amount of this colour on the mantle and breast. One male has the wings edged with yellow, not red. From the localities given below, it will be seen that my series covers a fairly large area, and the birds from various places do not differ in any important manner.

Lake Jipe, Sagala, Teita, Voi, Tsavo, Simba, Ruiru, Kibigori, Kisumu, Elgon, in East Africa; Kerio River, Mt. Moroto, Singo, and Gulu in Uganda. 16 ♂, 7 ♀.

760. **Symplectes kersteni** Finsch. **Coast Black and Yellow Weaver.**

This is not a common species and does not appear to go very far inland. Mombasa. 1 ♂, 7.iv.1917.

761. **Symplectes mentalis** Hartl. **Grey-backed Weaver.**

*S. nandensis* is synonym.

I cannot see the supposed difference between the birds from Buguera and Nandi. Although I have collected in Uganda for a considerable time, I have not taken this species between Elgon and Toro, yet the birds are not separable. The young birds are much like the adult, but duller above, and the yellow of the underside is not so pure, duller.

Nandi, West Elgon, North Kavirondo.

762. **Phormoplectes insignis** Sharpe. **Chestnut-headed Yellow-backed Weaver.**

I have examined the type of *P. frater* Neum. from Kivu, and it appears to me that the only character separating this female from females of *P. insignis*, namely the yellow chin, is variable. In my series I possess a female with just two black feathers on the chin, otherwise it is exactly like *P. frater*. The sequence of plumages of *P. insignis* ♂ is as follows:—

I. Head and neck olive-green, bill horny brown; mantle yellowish in centre; wings dull blackish, feathers edged with tawny ochraceous; rump olive-yellow. Underside, including throat, dull yellow, more ochraceous on belly and flanks.

II. Head black like adult female or some brown present; throat yellow or with one or two black feathers; mantle bright yellow; wings blacker. Underside brighter yellow; rump yellow; bill blackish brown.

III. Head mottled black and chestnut; remainder of plumage like adult, but longest upper tail-coverts olive green.

IV. Crown entirely chestnut and longest upper tail-coverts black.

I have one male in Stage III which has the forehead chestnut while the rest of the crown is brownish yellow, as in *P. preussi*. It is most extraordinary that so many birds exhibiting such close relationship and such slight differences should occupy the same areas and not interbreed. I refer to *P. insignis*, *P. frater*, *P. dorsomaculatus*, and *P. preussi*, all found in the area between the central lakes and Camaroons! Some of my female birds have the mantle spotted with black and closely resemble the females of *P. dorsomaculatus*.

Kyambu Forests, Nairobi, Kenia, Molo, Burnt Forest, Elgeyu, Maraquet, Elgon! Nestlings in October.



763. *Otyphantes reichenowi* Fisch. **Reichenow's Black and Yellow Weaver.**

These birds agree absolutely with typical specimens. The females have the head and mantle jet black. Young birds in the second plumage have the mantle mottled black and olive-green, but the bills are blackish brown, and they do not breed in this condition. Very young birds have the entire crown and mantle olive-green, the latter streaked black. Bills horny brown.

Kilimanjaro, Kitui, Simba, Kyambu, Nairobi, Naivasha, Nakuru, Molo, Elgeyu, Maraquet. Nestlings in July and September.

764. *Otyphantes reichenowi* ? subsp. **North Elgon Weaver.**

In 1915 and in 1917 I collected female breeding birds from North and West Elgon which did not have jet-black backs, but striped black and olive-green mantles and jet-black bills, and I put them into a drawer of *O. stuhlmanni* with a note to the effect that these birds had larger black stripes on the mantle than typical *O. stuhlmanni*. Later I received a male and two females from Kerio River. The male is just like *O. reichenowi*, but the females are like the birds referred to above. In comparing these birds at Tring I was surprised to find a male and two females collected by Turner for Meinertzhagen, south of Elgon, which exactly agree with my birds. The females have mottled black and green backs and jet-black bills. On looking up the literature I found Mearns's description of *O. reichenowi fricki* from South Abyssinia as follows :—

Adult males not to be distinguished from *O. r. reichenowi*, but the adult breeding females differing from females of *O. r. reichenowi* by having the mantle olive-green with large distinct blackish streaks, more heavily than in *O. stuhlmanni*, and Mearns referred to this race two specimens collected by Neumann in South Abyssinia. These birds are in Tring and bear out Mearns's statements. My breeding females do not, however, agree with Neumann's two birds; they are more heavily mottled with blackish and one is considerably darker. Are my birds *reichenowi*, and would they develop jet-black backs, or are they connecting links between *reichenowi* and *O. r. fricki*? I am inclined to the latter view, because my birds were breeding.

West Elgon, South Elgon, Kerio River.

765. *Otyphantes stuhlmanni* Rehw. **Stuhlmann's Black-crowned Olive Weaver.**

Two males show indications of a distinct yellow forehead. The whole of the undersides are yellow (cf. *O. emini* subsp.). Does *O. stuhlmanni*, at any time of its life, develop a yellow forehead—for instance, when very old? There is a good series in Tring, and not one shows this character; further, this series shows, as does mine, that *O. stuhlmanni* and *O. emini*, or rather the southern race of *emini*, occupy the same territory.

Budu, Kigezi in South Ankole; Masindi, Busiro, Entebbe, Sezibwa, Mabira, Lugalambo, and West Elgon Plains, in Uganda.

766. *Otyphantes emini budongoensis* van Som. **White-bellied Green-mantled Weaver.**

*Bull. B.O. Club*, xli. p. 123, 1921.

I was surprised to find that when I compared my birds with the series of *O. emini* in Tring, all the Tring specimens had black backs, including the *type*

and topo-types, as also the birds from South Ethiopia which Ogilvie-Grant named *O. zaphiroi* (thus *O. zaphiroi* becomes a synonym, in spite of what Grant wrote in *P.Z.S.* 1910). Now, not one of my adult breeding birds has a black back, but in reality is only slightly more boldly striped than *O. stuhlmanni* and only differs from this bird by having a wide golden crown and a white or buff belly. It is unfortunate that the type of *O. emini* came from so far south as Agar, thus practically on the borders of the southern race which I have described. I am convinced, however, that the two birds are distinct.

The sequence of plumages from young to adult in the male is as follows:—

I. Head greenish olive-grey; ear-coverts blackish; neck-mantle and rump greyish, with dark centres to the feathers; tail greenish; wings blackish-olive with pale greenish yellow edges; throat yellow; rest of underside buff; bill horn brown.

II. Head blackish; forehead with some yellow; mantle greyish, strongly washed with olive, centre markings pronounced; rump greyish. Underside yellow to lower breast, belly and under tail-coverts buff to whitish.

III. Forehead broadly yellow, rest of head black; mantle olive-green with dark blackish centres to the feathers; rump and tail-coverts olive-green with yellowish wash. Underside from throat to breast bright yellow; belly to under tail-coverts pale creamy buff. Females are like the males, but they have the crown and sides of the head black.

A specimen collected by Dr. Ansorge at Masindi agrees with my birds in Stage II.

Masindi, Bugoma, Budongo. Type: ♂ ad., Busindi (Budongo), 7.vi.1919. Tring Museum.

**767. *Hyphanturgus stephanophorus* Sharpe. Yellow-faced Black Weaver.**

The sequence of plumage in the male is as follows:—

I. Crown olive-black; wings and mantle dull sooty black; upper tail-coverts and lower rump olive; sides of head and throat brownish ochre; lower breast olive-ochre.

II. Crown yellow; cheeks ochre-yellow, so also the throat; rest of plumage blackish, darker on mantle, wings, and tail.

III. Crown and cheeks yellow; throat black—as rest of the plumage.

The change takes considerable time; many birds commence breeding before having attained full mature plumage.

Elgon, North Kavirondo, Nandi, Burnt Forest, Marakwet, Molo, and Aberdares in East Africa; South Ankole in Uganda.

**768. *Hyphanturgus nigricollis melanoxanthus* Cab. Coast Black-mantled Yellow Weaver.**

I consider this bird to be merely a black-backed race of *H. nigricollis*, the Uganda and central lake form not overlapping the coastal and East African race. The Uganda birds I refer to a new race intermediate between the true *nigricollis* of West Africa and *melanoxanthus* of East Africa. The records of *H. melanoxanthus* from West Uganda are erroneous and refer to this new sub-species.

Lamu, Manda, Changamwe, Mombasa, Maungu, Masongoleni, Tcita, Tsavo, N'zi, Kitui, Magadi.

769. *Hyphanturgus nigricollis vacillans* van Som.

*Heterophantes nigricollis vacillans*, *Bull. B.O. Club*, xli, p. 123, 1921 (Budongo).

Whereas all the typical birds are decidedly East African, my birds, with the exception of not fully adults, have the mantle olive-black to black—darker, more blackish than in *H. n. nigricollis*, but not jet-black as in *H. n. melanoxanthus*. This form stands thus between *nigricollis* and *melanoxanthus*.

Kigezi, South Ankole, Bugoma, Budongo, Mubendi, Mabira, Elgon, Entebbe, in Uganda; North Kavirondo, Taveta, Bukoba.

22 ♂, 16 ♀, 4 juv., January, February, July, August, December.

770. *Hyphanturgus ocularius crocatus* Hartl. **Uganda Spectacled Weaver.**

*H. o. abayensis* Neum.

This is a good race and very constant in its characters.

The range is from Uganda to Kivu and east to Elgon and Kavirondo: Masindi, Unyoro, Budongo, Busiro, Mubendi, Entebbe, Sezibwa, Jinja, Elgon, in Uganda; Soronko, Kisumu, Kavirondo, in East Africa.

771. *Hyphanturgus ocularius suahelicus* Neum. **East African Spectacled Weaver.**

This race is very much richer-coloured than the Uganda form and always constant. Coastal birds are slightly smaller than up-country specimens.

Changamwe, Voi, Teita, Taveta, Simba, Nairobi, Nakuru, Naivasha, Fort Hall, Kenia.

772. *Hyphanturgus aurantius rex* Neum. **Uganda Golden Swamp Weaver.**

Not very widely distributed. A good race.

My two birds, ♂ and ♀, are from the type locality, Entebbe.

773. *Xanthopilus castanops* Shell. **Brown-faced Golden Weaver.**

Masindi and Bira in Uganda.

774. *Sitagra pelzelni* Hartl. **Little Slender-billed Black-faced Weaver.**

I have again gone over the material reported on in 1916, and with my additional material I must emphasise that the Kisumu birds have longer wings and longer bills than those from Entebbe. I hope to get more material from Kisumu to prove that Kisumu birds belong to a bigger race.

Entebbe, Kigezi, South Ankole, in Uganda (smaller); Kisumu, East Africa (larger).

775. *Sitagra luteola luteola* Licht. **Little Thick-billed Black-faced Weaver.**

The three males from the dry scrub of the Turkana country cannot be separated from birds from South Ethiopia or the Nile, and these latter agree with typical Senegal specimens. They have the mantle rather yellowish green and very indistinctly streaked, the hind part of the crown yellow. Birds from Suk are darker.

Moroto, Meuressi, Kobua River, Rudolf, and Masindi in Uganda.

776. *Sitagra luteola kavirondensis* van Som. **Southern Thick-billed Little Black-faced Weaver.**

*Bull. B.O. Club*, xli. p. 123, 1921. Type Soronko River.

Birds from south of Elgon and thence along the Nandi Escarpment and to south of Lake Victoria are slightly darker above, more greenish, with more decided striping to the mantle, and the nape is less bright yellow, with indications of stripes. They nest in the scrub, well away from water, thus contrasting with *S. pelzelni*, which nests in the papyrus swamps. Is this bird a true *Sitagra*?

Soronko River, South Kerio, Kacheliba, Kisumu, Kibigori, also Entebbe.

777. *Xanthophilus bojeri bojeri* Fischer. **Coast Golden Weaver.**

These birds show great variation in the intensity of the yellow, and the orange on the crown. Lamu and north coastal birds have rather deeper chestnut breast-collars than Mombasa specimens, but my series is insufficient to create a separate race. I would invite particular attention to the localities where I have collected these birds and those of the next two forms. The eggs are olive-green, uniform or freckled with brownish.

Lamu, Manda, Changamwe, Mombasa, Tsavo, Voi, Taveta, Lake Jipe. Forty-seven specimens, mostly males.

778. *Xanthophilus bojeri alleni* Mearns. **Inland Golden Weaver.**

This race is barely recognisable, but is rather larger than coast birds, and has the upper surface and underside tinged with olive-green, not so bright yellow. Wings, ♂ 78-80, ♀ 70-72 mm.

Yatta Plains, N'ziu River, North Ukamba, Embu, and Archer's Post.

779. *Xanthophilus castaneiceps* Sharpe. **Brown-naped Golden Weaver.**

*X. schillingsi* Rehw.

*X. schillingsi* is certainly not separable. It is extraordinary that this species, which differs from *X. bojeri* in a very slight manner, should occupy part of the same territory.

Tsavo, Taveta, and Lake Jipe. 13 ♂, 4 ♀.

780. *Xanthophilus aureoflavus* Smith. **Brown-faced Olive-golden Weaver.**

These birds live alongside *X. bojeri* and *X. castaneiceps* in the Taveta and Teita districts. The females are quite distinct, ♀ *X. aureoflavus* having a whitish abdomen. 12 ♂, 2 ♀.

Bura, Taveta, Lake Jipe.

781. *Xanthophilus xanthops camburni* Sharpe. **Large Yellow Weaver.**

This race was separated from *X. xanthops* because of its smaller size and richer colour. The type is a small bird, a female, but the males are really as large as *X. xanthops*; however, as the colour-character holds good, the race can be maintained for the birds inhabiting British East Africa, north to Kisumu. Wings, 93-100 mm.

Kenia, Fort Hall, Nairobi, Kitui, Fort Ternan, and Kisumu.

782. *Xanthophilus xanthops* (? subsp.). **Uganda Large Yellow Weaver.**

8 ♂ and 5 ♀ from Uganda seem to be slightly smaller, having wings of 90–96 mm. Kivu birds have longer wings again, and perhaps stumper bills.

Masindi, Budongo, Bugoma, Lugalambo, Ankole, and Budu, in Uganda.

783. *Hyphantornis cucullatus abyssinicus* Gm. and *Hyphantornis cucullatus femininus* Og.-Grant. **Large Black-headed Weaver.**

I am not quite certain if *femininus* will be separable, because I find that the birds from East Uganda and Elgon district are hardly separable from Abyssinian specimens, and they merge into the West Uganda race which has been called *H. c. femininus*. On examination of the series in Tring and my own specimens, I find that authentic breeding females of all the *cucullatus* races have *yellow breasts*, and that young females and males have the belly buffy. With regard to the coloration of the head, I find amongst my birds specimens agreeing perfectly with *H. c. bohndorffi*, *H. c. femininus*, and *H. c. abyssinicus*, the prevailing forms being the latter two. I do not know where to draw the line between these races, but suggest that the East Uganda and Elgon birds should provisionally be placed under *H. c. abyssinicus* and the central and western Uganda birds under *H. c. feminina*.

*H. c. abyssinicus*: Elgon, Mumias, Kisumu, and Kendu Bay. 4 ♂, 6 ♀.

*H. c. femininus*: Masindi, Bugoma, Budongo, Entebbe, West Busoga, and South Ankole in Uganda. 10 ♂, 7 ♀.

784. *Hyphantornis nigriceps nigriceps* Lay. **Black-headed Weaver.**

The birds from the coast are paler yellow than up-country specimens, but my series is not sufficient to show that this is constant. One Nairobi male has the black mottling of the mantle very large and distinct, thus giving the bird a very dark appearance, very like a bird from Angola which possibly belongs to a darker race.

Changamwe, Simba, Nairobi, Kikuyu.

785. *Hyphantornis nigriceps graueri* Hart.

This is an excellent race. It probably extends into the Kigezi district of Uganda.

786. *Hyphantornis intermedius intermedius* Rüpp. **Abyssinian Lesser Black-faced Weaver.**

2 ♂ 1 ♀ agree well with typical birds; they have the abdomen clear pale yellow, and wings 65–70 mm. This type of bird is found in the north-eastern part of Uganda and Turkana, west of Lake Rudolf, and probably just south of that lake.

Moroto and North Turkana.

787. *Hyphantornis intermedius kismui* van Som. **Kavirondo Lesser Masked Weaver.**

*Bull. B.O. Club*, xli, p. 122, 1921.

Distinguishable from the typical form by being larger, having wings of 70–77 mm., and by having the underside darker more washed with orange, and having

the abdomen washed with this colour, not pure bright yellow. The amount of chestnut on the back of the head varies, and some birds have this area deeply coloured, others rather paler.

South Kavirondo to North Ukambani and Simba: Kendu Bay, Kisumu (type), Simba, Kitui.

788. *Hyphantornis intermedius littoralis* van Som. **Coastal Lesser Masked Weaver.**

*Bull. B.O. Club*, xli. p. 123, 1921.

This race is limited to the coast belt and Taru district. It is smaller than *kisumui*, underside lighter, bright yellow, even brighter than in *H. i. intermedius*, from which the ♂ differs chiefly in its lighter, much more yellow nape. Wings, 62–70 mm. The single female is brighter yellow on the underside than typical Abyssinian birds. The birds are not *H. cabanisi*, as has been supposed.

Changamwe and Malindi. Type: Changamwe.

789. *Hyphantornis heuglini sukensis* subsp. nov. **Plain-backed Masked Weaver.**

This bird is coloured like *H. heuglini heuglini*, but smaller, with a smaller bill. It is apparently the British East African representative. Wings, 78 mm.; culmen, 18 mm. long, 7 mm. deep.

Elgon, Kimiriri River, and Kerio River (type). 2 ♂, 15.iv.1917; 1 ♀ and 1 juv., 28.v.1916.

790. *Hyphantornis spekei* Heugl. **Speke's Masked Weaver.**

This common species apparently does not alter throughout its distribution, but one occasionally comes across a specimen which shows an almost blackish back, due to super-pigmentation.

Simba, Kitui, Nairobi, Naivasha, Nakuru, Kisumu.

791. *Hyphantornis vitellinus uluensis* Neum. **Little-masked Weaver.**

I agree with Neumann that these birds are not typical *H. v. vitellinus* from Senegal, but not in the manner indicated by him. The principal difference is the much darker and more striped mantle, which is decidedly more greenish, and the underside is deeper yellow. Birds from the Nile Province of Uganda appear also different.—I have not sufficient Somali material, but *H. v. uluensis* appears very close to *H. lineolatus* Shell., judging by a couple of Somaliland skins.

River N'ziu, Simba, and Lodomeru (A. B. Percival).

792. *Hyphantornis jacksoni* Shell. **Jackson's Yellow-backed Black-headed Weaver.**

At first glance it might appear extraordinary that two birds superficially so alike as *H. jacksoni* and *H. dimidiatus fischeri* should be found side by side, but an examination of the respective females at once distinguishes them. The females of *H. jacksoni* are decidedly yellowish underneath and have bright yellow inner webs to the primaries and secondaries (this latter character helping to distinguish them from females of *H. intermedius distinctus*). It will also be seen that *H.*

*jacksoni* have red eyes and *H. dimidiatus fischeri* brown or ochre-brown. Birds from the type locality, Lake Jipe, are rather darker than northern birds.

Bura, Lake Jipe, Baringo, Kisumu, Kerion River, in East Africa; Jinja, Entebbe, and Masindi in Uganda.

793. *Hyphantornis dimidiatus fischeri* Rehw. **Olive-mantled Black-headed Weaver.**

? = *H. dimidiatus dimidiatus* Salvad.

It appears to me very doubtful whether the birds from Lake Victoria are the same as the North Abyssinian species, so I prefer to recognise Reichenow's name for the southern bird. No Abyssinian birds are, however, available for comparison. I have always found *H. d. fischeri* very partial to water, and it nests in the papyrus and on trees growing in the water, not in the scrub away from water. The type of *H. fischeri*, which came from south of Lake Victoria at Kagehi, was collected along with typical *H. jacksoni*. There are in Tring Museum specimens of *H. jacksoni* collected by Fischer at this place, which had been first named *H. dimidiatus* by Reichenow. Apparently Reichenow afterwards recognised that there were two distinct birds and named the dark mantled bird *H. fischeri*. Until the type of *H. dimidiatus* is examined, it will be impossible to say which of the two Kagehi birds is nearest to it. My series of males in breeding plumage is very uniform. There are two birds which are not typical, and they agree absolutely with *H. capitalis*. The females of *H. d. fischeri* have the underside whitish buff, more deeply buff about the breast and flanks. Young birds of both sexes are deep buff on the underside, the abdomen being whiter.

Nile Province, Gondokoro, Bugoma, Budongo, Masindi, Kigezi, South Ankole, Entebbe, Jinja, Kagera, in Uganda; Kisumu, Kendu Bay, and Kibos River in East Africa. 32 ♂, 13 ♀, 5 juv.

794. *Hyphantornis rubiginosus* Rüpp. **Black-headed Chestnut Weaver.**

I have not enough material to judge whether these birds are true to type or not. The capture in *Nairobi* is of interest.

Samburu, Tsavo, Simba, N'ziu, Kitui, Nairobi, and Moroto.

795. *Hyphantornis weynsi* Dubois. **Weyns's Yellow-bellied Black Weaver.**

As no birds from the type locality are available for comparison, I cannot say whether these birds are typical. It is not a very common species.

Bugoma, Lugalambo, Mubendi, Bumasifa, in Uganda. 6 ♂ 2 ♀.

796. *Hyphantornis golandi* Clarke. **Coast Black-flanked Weaver.**

The type was procured north of Mombasa.

797. *Melanopteryx nigerrimus* Vieill. **Black Weaver.**

I have no specimens from the type locality for comparison; the wings of my birds measure 80-90 mm.

Budongo, Bugoma, South Ankole, Masindi, Kawala, Entebbe, Mubange, Sezibwa, Elgon, in Uganda; and North Kavirondo in East Africa. Common.

798. *Cinnamopteryx interscapularis* Rehw. **Yellow-backed Brown-breasted Weaver.**

*C. mpangae* Grant.

*C. rufoniger* Rehw.

I wish to emphasise the unfortunate muddle which has occurred over this bird in its various plumages, and because the sexes differ. In *Ibis*, 1915, I drew attention to the fact that Reichenow had described the female as "*interscapularis*," and shortly after Og.-Grant described the male as "*mpangae*"; and I now find that at the same time Reichenow named the young *rufoniger*. My specimens show this conclusively. The three types came from the same locality. The young female has the head chestnut, the lower neck tinged yellowish, the lower surface brownish tinged blackish, thus agreeing well with the plate of *C. rufoniger* in Reichenow's Atlas.

Bugoma, Budongo, Kyetume, Mubango.

799. *Pachyphantes superciliosus* Shell. **Thick-billed Masked Weaver.**

*P. pachyrhynchus* Rehw.

*P. omoensis* Neum.

Much variation exists in the adult males. I doubt if these birds can be separated from the typical Senegal ones. I have examined the type (a single female) of Neumann's *P. omoensis*. In spite of what Dr. Hartert has written (Nov. Zool. 1919) I am unable to recognise this race; I can match this bird absolutely, both in size and coloration, with birds from Moroto and Elgon, and therefore place this name as a synonym.

Masindi, Bugoma, Budongo, Entebbe, Jinja, Moroto, Elgon, and Kisumu.

800. *Amblyospiza albifrons melanotus* Heugl. **Heavy-billed Swamp Weaver.**

*A. aethiopica* Neum.

I cannot accept *A. aethiopica* of Neumann, and am satisfied that it is a synonym of *A. melanotus*. I have to endorse the remarks I made on this bird in *Ibis*, 1916, as additional material strengthens my view.

*A. melanotus* extends into East Africa as far as South Kavirondo and *A. a. unicolor* north into Kisumu, so that we find in this district birds of both types. They no doubt interbreed.

Masindi, Budongo, Bugoma, Entebbe, Mubango, Kyetume, Lugalambo, in Uganda; Elgon, Kisumu, Fort Ternan, in East Africa.

801. *Amblyospiza albifrons unicolor* Fisch. and Rehw. **Coast Heavy-billed Black Swamp Weaver.**

The series is fairly constant, though two males show some brown on the head. Like so many coastal forms, this race is small; wings, ♂ 88-91 mm. The race extends inland through the dry thorn-bush to the region of Lake Jipe and base of Kilimanjaro. In the highlands we find a larger, heavier bird, showing a strong tendency to becoming almost uniform black in the old males.



802. *Amblyospiza albifrons montana* van Som.

*Bull. B.O. Club*, xli. p. 122, 1921.

Highlands of British East Africa north to Kavirondo, where it meets with *A. a. melanotus*. Type: Fort Hall, Kikuyu Mountains.

Kenia, Fort Hall (Kikuyu), Nairobi, Kisumu; while *unicolor* inhabits the coast regions, *i.e.* Mombasa, Changamwe, Tsavo, Lake Jipe.

803. *Spermospiza ruficapilla* Shell. **Red-headed Forest Weaver.**

A very constant species which ranges from West Uganda east to the Elgeyu Escarpment.

Budongo, Bugoma, Mubango, Lugalambo, Kyetume, West Elgon, in Uganda; East Elgon, Kakamega, Maraquet, in East Africa.

804. *Spermospiza poliogenys* Og.-Grant. **Lesser Red-headed Forest Weaver.**

I know of no records of this bird from Uganda Proper, but have no doubt that it extends to within its boundaries.

805. *Pyrenestes ostrinus centralis* Neum. **Uganda Thick-billed Forest Weaver.**

I find that with additional material I am not able to decide whether this is a good race. I have two males with enormous bills equalling *P. o. ostrinus* in size, the other two being smaller.

Bugoma, Mabira, Lugalambo.

806. *Pyrenestes coccineus* ? subsp. **Thick-billed Brown Forest Weaver.**

A ♂ shot 20. vi. at Mubendi agrees with specimens reported on in *Ibis*, 1916. They differ from typical *P. coccineus* by having the wings much darker olive-brown; more material may show that the Uganda birds are distinct from Sierra Leone ones.

807. *Pseudonigrita cabanisi* Fisch and Rchw. **Black-headed Sociable Weaver.**

? *P. enchora* Oberh.

Birds in fresh, not worn, plumage agree absolutely with the co-type of *P. c. enchora* Oberh., and I doubt if this race is recognisable. I find the undersides of my birds white, without any fleshy-pink tinge which is stated by Oberholser to be a character of *cabanisi*.

M'buyuni and Teita.

808. *Pseudonigrita arnaudi arnaudi* Bp. **Grey-capped Sociable Weaver.**

Pale, like birds from Nimuli.

Kacheliba and Kerio in South Turkana. Plentiful in the desert and dry country.

809. *Pseudonigrita arnaudi kapitensis* Mearns. **Kapiti Grey-capped Sociable Weaver.**

*P. a. emini* Rehw.

This race is recognisable on account of its larger size (wings, 65-70 mm.) and darker mantle. Four young birds without the grey cap agree well with the description of *P. a. emini*, which must be a synonym. I find two specimens from the Magadi district, collected 20.xi.1917 and 21.xi.1917, indistinguishable from Nimule ones. They are not worn and not bleached by the action of the strong alkali in the lake.

M'buyuni, Simba, Taveta, Magadi, Machakos.

810. *Amadina fasciata alexanderi* Neum. **Cut-throat Finch.**

Comparison with Abyssinian and South Ethiopian birds shows that the East African birds have rather coarser bars on the mantle and underside, and that the mantle is rather browner. The difference is most pronounced in the females. Seven males show an inclination to assume uniform brownish buff backs; this is particularly the case in specimens taken at Lake Magadi. Owing to insufficient Abyssinian material, I refrain from naming these southern birds.

Kisumu, Magadi, Simba, Tsavo, Taveta.

811. *Quelea erythroptis* Hartl. **Red-faced Weaver Finch.**

With more material it may be shown that the coastal birds differ from Angolan specimens.

Masindi, Entebbe; also Mumias, Changamwe, and Mombasa. 5 ♂ 4 ♀.

812. *Quelea cardinalis* Hartl. **Red-headed Weaver Finch.**

Birds from Nairobi have very bright red heads and crimson throats, rather more richly coloured than birds from Uganda.

Masindi, Kawala, Jinja; Kimiriri River, Kisumu, and Nairobi.

813. *Quelea sanguirostris intermedia* Rehw. **Southern Masked Weaver Finch.**

As more than half of a series of sixteen adult breeding males have small black foreheads as distinct from the Abyssinian *Q. s. aethiopica*, and as three have wide black foreheads as in typical *Q. s. sanguirostris* of Senegal, I prefer to adopt Reichenow's name for the East African birds, and I recognise a dark race inhabiting the central lake district and West Uganda. As is well known, this bird varies in the amount of pink on the breast, crown, and abdomen. These birds on the whole have blacker cheeks and throats than Ethiopian specimens. The pale-headed variety "*russi*," without black on the head, is not common, but I obtained four. I do not consider them to be very old birds, as stated by Butler. I have had a young bird which moulted straight from its nest plumage into the "*russi*" plumage.

Kisumu, Mumias, Nakuru, Naivasha, Nairobi, Simba, Tsavo, Taveta.

814. *Quelea sanguinirostris centralis* van Som. Ankole Masked Weaver Finch.

*Bull. B.O. Club*, xli. p. 122, 1921.

When compared with eastern *aethiopica* and western *sanguinirostris*, it is at once evident that the central lake birds (♀) are darker, more brownish on the head and mantle, and darker below. The males are for the most part coloured as in the Angolan race.

Toro, Albert Edward (type), Bukoba, South Ankole, in Uganda; also Kivu and North Tanganyika.

815. *Anomalospiza imberbis* Cab. Yellow Swamp Finch.

*A. rendalli*.

*A. macmillani*.

*A. butleri*.

I collected a series of sixty-two of this hitherto rare bird. I have placed three so-called races of this bird as synonyms. This may at first appear rash, but I have compared the types of all three with my birds, and these names apply to the same birds in different plumages. There is the most extraordinary variation in both males and females between fresh moulted birds, birds that are breeding, and those that have come through the breeding season, the plumages being in males: Fresh moulted—olive-green with greyish tips to the feathers of the upper and underside; breeding—greenish yellow, orange-yellow crown, mantle more distinctly streaked, flank feathers with dark shafts; after breeding—crown yellow, mantle still more distinctly streaked, underside bright yellow.

In females, head greyish brown, mantle greyish brown, both with slight olive tinge, throat buffy white; breast uniform buffy brown, flanks faintly streaked and brownish washed.—Head more distinctly streaked, mantle more streaked, breast distinctly streaked, flanks streaked, abdomen and throat paler.—Altogether paler in colour on the upper and undersurfaces, a totally different-looking bird to fresh moulted ones! The young in nestling plumage are pale golden buff or brown to sandy; heavily streaked on the head, neck, and mantle; golden sandy below, slightly paler on the belly; bill yellowish; culmen darker brownish. Later we find the general tone becoming paler, less golden sandy, and the underside almost white; when the bird starts moulting in its first full dress we find the buff or yellowish feathers coming in on the breast and the head becoming olive-greenish-brown, with greyish-tipped feathers. The time of moulting of the young and adults takes place in June. Full-plumaged fresh birds were captured in June also. Whether or not there is a double moult in the year I am unable to say with certainty, but I am almost certain that this is the case.

As far back as 1912 I found and photographed a young Finch which I took out of a nest of a *Cisticola*. Not knowing the bird, I failed to recognise it until I collected specimens of young birds, as described above, along with adult birds, in 1916. In my notes I find the entry: "July 7th, 1912—photographed a young Finch in nest of *Cisticola ruficapilla fischeri*? Parasitic?" Later, Roberts, of South Africa, proved by a series of photographs that *Anomalospiza* is parasitic in just such a way as *Vidua serena*, but that it victimises the *Cisticolas* and apparently not Finches. The eggs which I take to belong to this bird are uniform pale bluish with a dull surface—not glossed as in *Pyromelana*.

The distribution of this bird is of the greatest interest, for we find it in South Africa (Natal) and Zanzibar, at Lamu in East Africa, inland to Nairobi and thence to Kisumu and into Uganda, going north to the Sudan and Abyssinia, and we meet with it again in Sierra Leone. Much as I dislike the lumping of races under one name, yet in this instance, because I find that birds taken in one locality at the same time show to perfection the characters on which the several races were founded, I have no option in the matter. I have examined over 100 skins.

*A. imberbis* Cab. was described from Zanzibar, *rendalli* Shell, from Natal, *macmillani* Bannerm. from Abyssinia, *butleri* Sel. and Praed from the Sudan.

All the characters supposed to be peculiar to these forms are found in birds from Nairobi and other districts.

Lamu, Mombasa, Thika, Nairobi, Kisumu, in East Africa; Elgon, Meuressi, Turkwell, and Moroto in Uganda.

**816. *Pyromelana flammiceps changamwensis* Mearns. Coast Red-crowned Bishop.**

This race is distinct from all other East African or Uganda forms and recognisable from the typical *flammiceps* by its larger size and stronger, larger bill. The females are more ochraceous on the breast. Apparently limited to the coastal belt and not penetrating into the highlands.

Changamwe, Mombasa, Malindi, and Samburu.

**817. *Pyromelana flammiceps rothschildi* Neum. Uganda Red-crowned Bishop.**

5 ♂ 1 ♀ agree best with *P. f. rothschildi*, the type and cotypes of which I have examined. The mantles of these birds and mine are dark brown, washed with red, the under tail-coverts are white in four out of the five birds in Tring and three out of the six in my series, so that this character cannot be regarded as of value. It should be remarked that, whereas the buff feathers are fresh, the white ones are old. In the character of the mantle this race is recognisable from *P. f. petiti*, of Sudan. This is a smaller bird than that found at the coast.

The birds recorded by me under *P. flammiceps* (*Ibis*, 1916) should refer to this race.

Nyarondo, Kisumu, in East Africa; Busoga in Uganda.

**818. *Pyromelana nigrifrons leuconota* Rehw. Western Uganda Black-fronted Bishop.**

I find now that the Uganda birds mentioned *Ibis*, 1916, p. 416, are not true *nigrifrons*. They belong to the race which is found along the central lake region, to which Reichenow gave the name *leuconata*, unfortunately using as typical birds specimens with very pale straw-coloured backs. It has been proved beyond doubt that these pale-backed birds are old males that have come through the nesting season and are consequently faded, while fresh-plumaged males have the back reddish brown. The crown and breast-band in this race is a deep red, not orange-red, thus contrasting markedly with the east shore birds.

South Ankole, Kasinga, Lusasa, Kilima, Toro, in Uganda.

819. *Pyromelana marwitzi* Rehw. **Kavirondo Black-faced Bishop.**

I am not certain that this bird is a subspecies of *nigriifrons*. These birds differ from the Western Uganda race in having the red of the head, breast, and rump orange-red, not scarlet-red, and in having the black forehead extensive. Nesting habits are as with all this group. The eggs, two to three, are blue.

The type came from Wembere, Tanganyika Territory; Kendu Bay, Kisumu, Kano, in East Africa.

820. *Pyromelana nigriiventris rufigula* van Som. **Little Red-throated Black-breasted Bishop.**

*Bull. B.O. Club*, xli. p. 122, 1921.

These birds are from the Teita and Ukamba district. In four males from Bura and Voi and one from Kitui the throat and breast are red, as in *P. franciscana pusilla*, but they have, of course, not got the long upper tail-coverts, and most of the other males show red feathers on the throat and upper breast, while two are almost indistinguishable from typical *nigriiventris*.

Type locality, N'ziu River.

Bura, Teita, Voi, and Kitui in Ukamba. 6 ♂ 3 ♀, February and March.

821. *Pyromelana nigriiventris nigriiventris* Cass.

Coast region from Lamu south to Mombasa. No trace of red on the throat or breast.

Lamu, Manda, Mombasa. 7 ♂ 8 ♀, from April and July, examined.

822. *Pyromelana diademata* Fisch. and Rehw. **Little Orange-crowned Bishop.**

My single male is in off plumage, but full-plumaged birds were obtained by Percival at Voi. My three March females were shot from a flock which passed overhead, and in which were no full-plumaged males.

Tsavo and Bura.

823. *Pyromelana ansorgei* Hart. **Yellow-mantled Black Bishop.**

Six fine adult males and a ♀ of a somewhat rare species, the distribution of which appears to be limited to Uganda.

Masindi, Bugoma, Sio, in Uganda.

824. *Pyromelana friedrichseni* Fisch. and Rehw. **Large Yellow-backed Black Bishop.**

Probably occurs in the Magadi and South Loita district.

825. *Pyromelana intercedens* Erl.

Has been recorded from Lake Baringo.

826. *Pyromelana xanthomelas* Rüpp.

I cannot find any difference in size or colour between Abyssinian, Uganda, Toro, and East African specimens.

South Ankole, Budu, Toro, Masindi, Jinja, in Uganda ; Kimiriri, Elgon, Kisumu, Burnt Forest, Kyambu, Fort Hall, Naivasha, Nairobi, Maungu, Mason-goleni, in East Africa.

827. *Pyromelana crassirostris* Og.-Grant. **Thick-billed Yellow-rumped Bishop.**  
Ruwenzori.

828. *Urobrachya axillaris media* Sharpe. **Uganda Red-shouldered Whydah.**

This bird has usually been called *phoenicea*, but must now be called *media*, the name *phoenicea* referring to the Nile birds. It is noticeable that females of this bird from Uganda and the central lakes are more rufous than East African specimens.

Masindi, Bugoma, Entebbe, in Uganda ; Kisumu, Mumias, and Fort Ternan in East Africa.

829. *Urobrachya axillaris zanzibarica* Shell. **Coast Red-shouldered Whydah.**

*U. hildebrandti* Sharpe.

*U. nigronotata* Sharpe.

Easily distinguished from the up-country birds by larger size and heavier build.

Mombasa and Chagamwe.

830. *Coliuspasser hartlaubi humeralis* Sharpe. **Elgon Buff-shouldered Giant Whydah.**

This is an excellent race, never getting such a long tail as the Angolan species and always with rather heavier bills and having wings from 100 to 105 mm.

Mumias, Nandi, in East Africa ; West Elgon in Uganda.

831. *Coliuspasser hartlaubi hartlaubi* Bocage. **Angolan Buff-shouldered Whydah.**

Has been recorded from Western Uganda, but I have seen no specimens from this district.

832. *Coliuspasser macrurus conradsi* Berger. **Yellow-backed Black Whydah.**

These specimens ought to be, according to locality, referable to this race from Victoria Nyanza (Ukerewe Island), but my birds do not possess long tails—not more than 125 mm.

Mumias in North Kavirondo.

833. *Coliuspasser macrocerus soror* Rehw. **Yellow-shouldered Black Whydah.**

There is as much as 20 mm. difference in the length of the tails of full-plumaged birds. The longest are not limited to any particular locality.

Masindi, Kawala, Bukedi ; East Elgon, Mumias, North Kavirondo.

834. *Coliuspasser eques* Hartl. **Brown-shouldered Black Whydah.**

One male is entirely jet black.

Jinja in Uganda; Mumias, Kisumu, Nairobi, and Fort Hall in East Africa.

835. *Penthetria concolor* Cass. **Black Long-tailed Whydah.**

It is of interest to note that all the birds obtained in the Masindi district were jet black. I accept this bird as being distinct from *C. ardens tropicus*, though they may occasionally interbreed.

Masindi and Entebbe.

836. *Penthetria ardens tropicus* Rehw. **Uganda Cut-throat Black Whydah.**

When compared with typical *C. ardens* of South Africa it is quite noticeable that the red throats are darker, more crimson, in the northern birds. I therefore consider it a good race. Birds with yellow or orange bands are varieties.

Jinja and Kampala, Uganda.

837. *Penthetria ardens teitensis* van Som.

*Bull. B.O. Club*, xli. p. 121, 1921.

Smaller than *P. a. ardens* and *tropicus*, apparently narrower crimson throat-band, much narrower tail-feathers, than Uganda specimens. This character is borne out by specimens in Tring Museum.

East of Kilimanjaro, Bura Hills, Teita (type loc.).

838. *Penthetria laticauda suahelica* van Som. **Red-hooded Long-tailed Whydah.**

*Bull. B.O. Club*, xli. p. 122, 1921.

When a series of East African specimens is compared with typical birds it is noticeable that the former develop longer tails, but the wing-measurements are considerably less, the East African bird having wings of 70–80 and the Abyssinian one of 81–87 mm., mostly 84–85. As these differences are constant, I propose to recognise this southern race. Type locality, Nairobi.

Kerio, Kimeriri, Elgon, Kisumu, Maraquet, Elgeyu, Burnt Forest, Kikuyu, Nairobi, Ukamba.

839. *Drepanoplectes jacksoni* Sharpe. **Jackson's Dancing Whydah.**

Melanism is frequently exhibited in this species when in captivity, the alteration taking place in two moults.

Nairobi, Kyambu, Naivasha, Nakuru, Elgeyu.

840. *Dioptrornis progne delamerei* Shell. **Delamere's Long-tailed Whydah.**

The sequence of plumages from the first juvenile to the adult is as follows:—

(a) Very like the females, but richer sandy buff, with black streaks to the feathers of the upper side and on the breast and flanks; a faint yellowish tinge to the "shoulders"; tail short; bill brown. This plumage is moulted in two to three months.

(b) A paler plumage takes its place, more like the female dress, while the tail-feathers become elongated and the central pair pointed; the shoulder-patch is now orange; bill dark brown.

(c) The next plumage is a black dress with the tail-feathers black and about 30 mm. long; the shoulder-patch still orange, but outlined on the lower edge with buff-tipped feathers; bill blackish grey.

(d) The black plumage is shed and the bird reverts to a dress similar to plumage (b), but the shoulder-patch remains deep orange.

(e) As the bird becomes mature it again assumes the full black plumage, with a long black tail and the shoulder-patch bright red and sandy buff, the latter quickly fading to a pale buff or creamy colour; the bill is now greyish and the bird ready to breed. Many birds commence breeding before having completed the total moult. The change is brought about by moult, not colour change.

Kenia, Aberdare Mountains, Naivasha, Nakuru.

#### 841. *Steganura paradisea verreauxi* (?). Northern Shaft-tailed Whydah.

I am of the opinion that the East African form of *S. paradisea* will have to be recognised under a special name when sufficient typical material is available. The female birds are darker, more brownish on the mantle and below, than Abyssinian specimens. The young in first nestling plumage are considerably darker. Adult males are indistinguishable; the difference is in the adult females and young.

Taveta, Samburu, Kitui, R. N'ziu, Ukamba.

#### 842. *Linura fischeri* Rehw. Straw-tailed Whydah.

Birds in Tring from South Ethiopia are hardly as deep glossy black on the mantle, and the straw colour of the crown is paler; but fresh material may show these differences to be due to wear.

*Plumages.*—(a) The young bird in nestling plumage is a dull rusty brown, rather paler on the abdomen; the legs and bill flesh-brown. (b) From this plumage the bird moults into a dress similar to that of the adult female, occasionally with short straw-like central tail-feathers, and the bill becomes salmon-red, (c) and from this into the full breeding dress.

Taveta, Tsavo, Loita, Simba, Kikuyu, Kitui, and Kendu Bay.

#### 843. *Vidua hypocherina* Verr. Blue-black Whydah.

The adult females of this species can always be distinguished from females of *Vidua serena* by the decidedly white inner webs to the primaries, the white area being sharply differentiated from the darker tips. From the female of the genus *Hypochera* they differ in the same way, although females of the "steel" Finches have the inner webs whitish, but not sharply defined. Another good character is the colour of the bill in fresh specimens: in *Vidua hypocherina* the bill is white, in *Vid. serena* brownish red, and in *Hypochera* greyish. The underside of *V. hypocherina* is white with just a tinge of buff on the sides of the breast and a few streaks in this region; in *Vidua serena* buffy brown, abdomen whitish; and in *Hypochera* greyish brown with whiter abdomen.



The young in first plumage is very like young of *Linura fischeri*, but the abdomen is whiter and the bill whitish, not red-brown.

I shot examples of *V. hypocherina*, *V. serena*, *Linura fischeri*, *Steganura p. verreauxi*, and *Hypochera orientalis* all together, at a drinking-hole in the Taru desert. The birds come there in hundreds to drink, about one or two o'clock.

Samburu, Kisumu, Kacheliba.

#### 844. *Vidua serena* Linn. Common Pied Whydah.

My series indicates quite clearly the sequences of plumages through which this bird passes before and after attaining maturity. Shortly, the plumages are :

(a) Nestling and when with foster-parents: dull grey-brown or hair-brown, paler on the underside and buffish on the abdomen; bill dark brownish, legs brownish. The first change towards plumage (b) is in the colour of the bill, which turns from dark brown to red. The head and mantle then become striped with the sprouting of dark centred feathers with reddish brown or sandy edges, and the underside becomes paler. This change is gradual, and when completed, plumage (c) is reached, and this is like the adult female in off plumage. This point should be noted. If the young bird is a male, it moults into a plumage (d) which is very like that of an adult female, only the underside is whiter, head and mantle rather more boldly striped, and the central two pairs of tail-feathers black with sometimes pale edges of similar character to those assumed by the adult male, but they do not project more than about an inch beyond the outer tail-feathers. This plumage exactly resembles the dress of adult males in off plumages! If the young bird be a female, it retains the plumage described as (c), but when it matures or is ready for breeding, a marked change takes place, the plumage assumed being darker, and the bill turns from coral red to dark brown. After the nesting season, the bill changes back to red. My experience goes to show that this bird is not polygamous. Although parasitic on other Finches, especially *Estrilda*, I have never seen more than one female with a male, when the former are laying. I have seen the female accompanied by the male enter the nest of an *Estrilda*, deposit its egg, and then fly off with the male. Most of the so-called females accompanying the males when these birds "flock" are young males and a few young females.

Mombasa, Changamwe, Samburu, Lake Jipe, Tsavo, Simba, Athi, Nairobi, Fort Hall, Naivasha, Nakuru, Kisumu, Elgeyu, in East Africa; Jinja, Entebbe, Elgon, Moroto, Kimiriri, Bugoma, and Masindi in Uganda.

#### 845. *Odontospiza caniceps* Rehw. White-rumped Silver-billed Finch.

Some birds are pale-breasted, and some dark-coloured, but the differences are not limited to definite ranges. Uganda and East African specimens are equal in size.

Meuressi, Turkwell, Kerio, Kacheliba, in Uganda; Kisumu, Simba, and Tsavo in East Africa.

#### 846. *Aidemosyne cantans meridionalis* Mearns. Abyssinian Scaly-headed Silver-billed Finch.

I have checked over Mearns's division of this group, and while agreeing that the South Abyssinian, Rudolf, and Somali birds are different from the South Arabian,

and typical birds from Senegal, I cannot unite with any of them the birds from the South Ukamba and East Kilimanjaro<sup>o</sup> district. The South Abyssinian bird, which extends to south Lake Rudolf, is pale, but distinctly barred, and has the spotting of the throat indistinct.

Meuressi, Turkwell, Kobua, Lake Rudolf.

847. *Aidemosyne cantans tavetensis* van Som. **Southern Scaly-headed Silver-billed Finch.**

*Bull. B.O. Club*, xli. p. 121, 1921.

These birds are more distinct from the Senegal bird than *A. meridionalis*. Upper surface considerably darker with a greyish tinge, the scales on the head more pronounced, and the spotting on the chin larger and more distinct, underside white.

South Ukambani to Kilimanjaro: Simba (type), Tsavo, M'buyuni, Taveta. Fourteen specimens.

848. *Amauresthes fringilloides* Lafr. **Pied Manakin.**

Has been taken at the coast of Vanga district and Zanzibar.

849. *Pseudospermestes microrhynchus* Rehw. **Large Black-headed Manakin.**

The type locality is Buddu in Uganda. I have no specimens.

850. *Spermestes cucullatus* Swains. **Green-headed Manakin.**

Very plentiful. Some have greenish heads, others purplish.

Masindi, Bugoma, Sezibwa, Kawala, Meuressi, Uganda; Elgon, Maraquet, Kisumu, Kendu Bay, Nairobi, Taveta, East Africa.

851. *Spermestes scutatus* Heugl. **Abyssinian Green-headed Manakin.**

These birds have no trace of greenish or purplish on the flank feathers and must therefore belong to this form, if it is a species!?

Nairobi and Elgon.

852. *Spermestes nigriceps* Cass. **Brown-backed Manakin.**

I think that this form and the next should be considered races of one species, most *S. stigmatophorus* showing a strong brownish tinge on the mantle.

Nairobi and Taveta.

853. *Spermestes stigmatophorus* Rehw. **Black-backed Manakin.**

I consider this to be a subspecies of the West African *S. poensis*. The forms do not overlap and are geographical representatives.

Masindi, Bugoma, Sezibwa, Mabira, and Elgon in Uganda; North Kavirondo in East Africa.

In the North Kavirondo district, Elgon, Moroto, Turkana, we find a bird which is nearest to *B. atricollis ansorgei* Grant, from Portuguese Guinea.

854. *Ortyospiza atricollis ugandae* van Som. **Uganda Partridge Finch.**

*Bull. B.O. Club*, xli. p. 121, 1921.

These two birds and one from Entebbe, collected by Grauer (Tring Museum), have uniform grey-brown mantles, black foreheads, extensive black throats, and small white chin-spots, with a white ring round eyes; breasts pale brownish. The female, however, has a white chin-spot. They thus differ from birds from Sierra Leone, which agree with *O. a. ansorgei* (*vide* Nov. Zool. xxii. p. 264, 1915). The Butiti specimen mentioned by Dr. Hartert is referred to under the next race. Type in my own collection, but will be incorporated in the Tring Museum. Mumias, North Kavirondo.

855. *Ortyospiza atricollis dorsostriata* van Som. **Ankole Partridge Finch.**

*Bull. B.O. Club*, xli. p. 115, 1921.

The nearest to this form is *gabonensis* of Lynes, but the Uganda birds are richer rufous below and the flanks are darker. The female has no white chin-spot. The male has a small indication of white on the chin, but no white round the eye. Western Uganda.

Butiti, Toro, and Kigezi, South Ankole, South-western Uganda.

856. *Ortyospiza atricollis mülleri* Zedl. **White-chinned Partridge Finch.**

Very near *polyzonus* of South Africa, but darker above and more distinctly barred below. With this race Zedlitz united the birds from South Abyssinia, Gallaland. I find that the series of birds from South-east Ethiopia in Tring Museum collected by Zaphiro are paler, more greyish above, and probably ought not to be united.

*O. a. mülleri* is the common form in East Africa, ranging from the southern scrub belt north to the South Kavirondo plain and Sotik-Mau Escarpment. They do not have a black chin and black throat, but have these white, and a large white ring round the eye. They have almost uniform backs, the mottlings being indistinct.

Nairobi, Machakos, Nakuru, and South Kavirondo.

857. *Cryptospiza salvadorii* Rehw. **Salvadori's Crimson-backed Forest Finch.**

I have no specimens from the typical locality for comparison, but as that is Shoa, it is quite possible that my birds are not typical.

Mt. Elgon, North Kavirondo, Elgeyu, Maraquet, Molo, Kikuyu, Nairobi, Kenia.

858. *Cryptospiza spec. ?*

1 ♂, 21.vii.1916, differs from the rest of the East African birds in having the lower surface pinkish buff, the flanks tinged with olive. Crown olive-brown. Cheeks greyish, not washed with olive-green.

Eastern slopes of Mt. Elgon.

859. *Cryptospiza borealis* Percival. **Percival's Red-backed Forest Finch.**

*Bull. B.O. Club*, 1912.

I have compared four males from October and also the types and topo-types with *C. salvadorii*, and they must certainly be kept separate, *borealis* being much less bright crimson on the mantle and rump. The colour of the back is more brownish olive-green.

The range of this bird appears to be limited to Mt. Urageess on the Northern Guasso N'yiyo.

860. *Cryptospiza jacksoni* Sharpe. **Jackson's Forest Finch.**

This species is not common in South Ankole, but more plentiful in the forests of the Kivu district.

Lukiga Kagezi, South Ankole. 2 ♂ 1 ♀.

861. *Cryptospiza shelleyi* Sharpe. **Shelley's Forest Finch.**

Forests of Ruwenzori and Kivu.

862. *Cryptospiza reichenowi* Hartl. **Reichenow's Forest Finch.**

Ruwenzori. It is not represented in my collection.

863. *Cryptospiza ocularis* Sharpe. **Red-eyed Forest Finch.**

No specimens are available for comparison.

864. *Nesocharis capistrata*? **Golden-flanked Forest Finch.**

4 ♂ 1 ♀ do not agree with the description of typical *capistrata* from "Gambia" and may belong to a recognisable race, but material for comparison is not available.

Masindi.

865. *Nesocharis ansorgei* Hart. **Ansorge's Black-headed Forest Finch.**

The type came from Toro, and the species has since been obtained on Ruwenzori and in the Albert Edward district.

866. *Linurgus elgonensis* van Som. **Black-headed Oriole Finch.**

*Nov. Zool.* April 1918.

Besides my 4 ♂ and 2 ♀ there are now in Tring four others collected near Elgon by Mr. Turner for Colonel Meinertzhagen. This bird is somewhat like *L. olivaceus*, but is altogether brighter, and has no rufous band separating the black neck from the golden yellow of the breast. The type is in the Tring Museum. Females of this species are brighter than female *olivaceus*. It is quite distinct from *L. kilimensis*, which is a dark olive-green bird with little or no yellow.

Elgon and Kakamegoes.

867. *Nigrita schistacea* Sharpe. **Black-breasted Forest Finch.**

*N. sparsimguttata* Rehw.

The type locality of this bird is the Sotik Forest, in East Africa, and of *sparsimguttata* Bukoba, west of Victoria Nyanza. I have compared typical specimens and find no difference. The name *schistacea* is the older name and must stand. I wish to draw particular attention to the distribution, and would request a comparison with the distribution of the next species.

Masindi, Bugoma, Budongo, Kagera, Entebbe, Sezibwa, Lugalambo, Elgon, Elgeyu.

868. *Nigrita diabolica* Rehw. **Kilimanjaro Black-breasted Forest Finch.**

*N. dohertyi* Hart.

I am not satisfied that the East African birds are really distinct from Uganda specimens. Some specimens from Nairobi, Kenia, and Naivasha are darker than Uganda birds, but others not. As no Kilimanjaro birds are available for comparison, I cannot say whether these specimens are actually the same as *N. diabolica*, the type of which came from Kilimanjaro. Birds from Escarpment in the Tring Museum are placed as *N. diabolica*, of which *dohertyi* Hart. is a synonym.

Molo, Naivasha, Nairobi, Kenia.

(It would appear that we have one race ranging through the great Mau Forest up to Elgon and through Uganda, and another from Kilimanjaro north through the Kikuyu and Aberdare Mountains to Kenia, with the Rift Valley in between.)

869. *Nigrita fusconota* Fras. **Little Black-capped Forest Finch.**

I can find no difference between Uganda and typical West African specimens.

Entebbe, Sezibwa, in Uganda; East Elgon and North Kavirondo in East Africa.

870. *Hypochera funerea* Tarrag. **Purple Black Finch.**

? *H. purpurascens* Rehw.

The identification of these birds must remain somewhat doubtful until the type or topo-types of *H. purpurascens* are compared. The specimens agree well with *H. funerea* in the Tring Museum. They are without sheen. This type of bird is found east of Kilimanjaro.

Morogoro, Tanganyika Territory. (Loveridge leg.)

871. *Hypochera* (near *chalybeata*). **Green Black Finch.**

1 ♂, Kisumu, 7. vi. 1912, belongs to the "*chalybeata*" group, having a distinct green sheen, not bluish. A similar type of bird is found near Milanje, in Nyassaland.

872. *Hypochera* sp. **Dull Blue-black Finch.**

2 ♂, 17. ii. 1917, 26. viii. 1918, are very dull blue-black, with the crown almost dead black. They are adults in good condition. They do not agree with any of the described races known to me.

Kisumu and Kendu Bay.

873. *Hypochoera ultramarina* Gm. **Glossy Dark Blue-black Finch.**

Four males agree perfectly with specimens from Abyssinia.  
Buvuma Island and Kacheliba.

874. *Hypochoera orientalis* Rehw. **East African Blue-black Finch.**

? *H. amaumopteryx* Sharpe.

These birds are a bright blue-black, and agree with typical *H. orientalis*. The change which the males undergo, from blue-black to a grey-brown plumage, is well known, but it is worthy of recording that when the females come into breeding condition, they become very much darker on the crown, mantle, and breast than in the off season, the breasts in some breeding birds being a deep ashy brown. The plumage is very like that of the non-breeding male, but even darker. The character of white under tail-coverts mentioned in connection with these birds is not reliable, and simply indicates remains of the off-plumage dress, these feathers being almost the last to be moulted. With regard to the brownish wings in certain birds of this group, it is quite noticeable that males which have gone through the nesting season, although showing very little abrasion of the tips of the primaries and secondaries, yet have these feathers much browner than in the freshly moulted, adult, breeding bird. The first young plumage is like that of the female in off-plumage, but altogether duller and paler on the breast.

Nairobi, Simba, Kikuyu, Voi. Not rare.

875. *Coccopygia dufresnayi kilimensis* Sharpe. **Little Grey-headed Grass Finch.**

Nairobi, Kyambu, Kenia, Elgeyu, Londiani, Elgon.

876. *Coccopygia dufresnayi nyansae* Neum. **Uganda Little Grey-headed Grass Finch.**

*C. d. minima* Og.-Grant.

Hardly separable from the preceding race.

Bugoma and Budongo Forests in Uganda.

877. *Granatina ianthogaster ianthogaster* Rehw. **Brown-backed Chestnut and Blue Waxbill.**

The characters of this race are :—Male : bright chestnut head, not strongly contrasting with the brownish earth-brown mantle ; in some cases mantle decidedly chestnut-brown, thus very like *G. i. hawkeri*. Chin and throat bright chestnut, upper breast with blue band followed by a more or less complete band of bright chestnut ; abdomen blue on a brown base. Blue ring round eye, not very large. Wings, 57 mm.

Female : Very like the male on the upper side, but slightly duller ; the ring round the eye, which is well marked, is pale lilac. Underside darker than in *G. i. hawkeri*.

Young : Head and breast brownish ; mantle slightly duller ; underside, abdomen, and flanks and under tail-coverts whitish.

South Tana through the plains to Kilimanjaro : Tana River, N'ziu River, Ukamba, Kitui, Simba, Tsavo, Voi, Maungu, Masongoleni, Bura, M'buyuni, Taveta.

**(*Granatina i. hawkeri* Phillips. N. Somali Chestnut and Blue Waxbill.**

This race does not occur within the limits of East Africa. It is brighter chestnut on the head and mantle, the back being the same colour as the crown. Eye-ring small. Wings, 54 mm., *i.e.* smaller than typical race. Female very like the female of *G. i. ianthogaster* but smaller and with a slight indication of a white or very pale lilac eye-ring. The young has a brownish head, back, and breast, with the centre of abdomen paler; mantle tinged grey.)

**877a. *Granatina ianthogaster ugandae* van Som. Turkana Chestnut and Blue Waxbill.**

*Bull. B.O. Club*, December 1919.

Very like *G. ianthogaster*, but head not so bright rufous; mantle more hair-brown; blue on the underside limited to a circumscribed patch on the breast and abdomen. The female differs from the typical bird in having the head paler, mantle and breast paler, eye-ring smaller, as in *G. i. hawkeri*, the abdomen whitish. Wings in males, 57 mm.

The young bird differs from the young of *G. i. ianthogaster* in being much paler and in having the whole of the abdomen whitish.

South Ethiopia to Lake Rudolf and Turkana: Mt. Moroto, Kerio, Kobua, in Turkana.

**878. *Granatina ianthogaster roosevelti* Mearns. Loita Chestnut and Blue Waxbill.**

Very much like typical *G. i. ianthogaster* but larger. Wings, 60 mm.; mantle darker, more earth-brown; head light chestnut, blue on the breast not in any regular pattern but unevenly distributed on a brown ground; chin blue. The female is distinguished from *G. i. ianthogaster* much as the males differ, and has the eye-ring lilac-blue or bluish; abdomen greyish, not whitish buff.

Loita Plains from Sotik to N'guruman and southern Guasso N'yirol: Loita, Narok, Sotik.

**879. *Granatina ianthogaster montana* van Som. Naivasha Chestnut and Blue Waxbill.**

*Bull. B.O. Club*, xl. p. 53, 1919.

Males very much like *G. i. roosevelti*, but darker on the mantle and more blue on the underside; wings longer, 60-64 mm. The females differ from those of *roosevelti* by having the eye-ring lilac as in *G. i. ianthogaster*, and in being more earth-brown on the mantle, besides being larger and the flanks shot with bluish. The young is paler than all the other races, being sandy grey, and larger.

Highlands of Kenia Colony 6,500-9,000 feet to Mt. Kenia: Naivasha, Nakuru, Mau, Kenia; also Escarpment. Doherty coll.

**880. *Granatina ianthogaster rothschildi* van Someren. Kavirondo Chestnut and Blue Waxbill.**

*Bull. B.O. Club*, xl. p. 53, 1919.

These are the most intensely coloured of the group. The adult male differs from that of *G. i. roosevelti* in being larger, in having the whole of the underside

deeper blue, even to having the throat flecked with deep blue and the mantle darker earth-brown. The eye-ring is deeper blue and larger. The female differs from that of *roosevelti* in much the same way, being darker on the mantle, richer, deeper chestnut below, abdomen and flanks shot with purple blue, the eye-ring large and deep blue as in the male. Wings, 58–63 mm. The young are larger and richer brown than those of any other form.

North Kavirondo from Yala to South Kavirondo: Kisumu, Kendu Bay, Kaimosi, Yala, Kibigori, Kano.

881. *Granatina ianthogaster* ? subsp. nov.

1 ♂, 7. xi. 1918, is very much like the typical *G. i. ianthogaster*, especially the females, the eye-ring being pale lilac, but they have duller rufous heads and earth-brown, more greyish, not so rufous backs. They thus agree fairly well with the highland race, but the males are much less blue on the underside. Wing, 63 mm.

Dodoma and Morogoro in Central Tanganyika Territory.

882. *Uraeginthus bengalus ugandae* Zedl. **Uganda Red-cheeked Blue Waxbill.**

This is a good race, the range of which appears to be Uganda generally, east to North and South Kavirondo. It is rather noticeable, however, that South Elgon birds are rather greyer on the back than Entebbe ones. The young of both sexes have blue throats, like the adult female. (Cf. next race.)

Nile Province, Entebbe, Jinja, in Uganda; Kisumu, Kendu Bay, Kaimosi, Kibos, and Kibigori in East Africa.

883. *Uraeginthus bengalus brunneigularis* Mearns. **East African Red-cheeked Blue Waxbill.**

Type locality, Wambugu's, near Kenia.

Dr. Hartert, Nov. Zool. 1 99, p. 141, rather suggests that this may not be a good race, but my material shows, in my opinion, that it is excellent. It must be noted, however, that these birds do not occur in Kavirondo, nor yet at the coast. The females have brown throats with just a tinge of blue on the chin; but the best character is the brown cheeks, which never get blue as in *U. b. ugandae* Zedl. It is noticeable that young males have blue throats, while in young females they are brownish.

Adult males of this race and *ugandae* appear indistinguishable!

Nairobi, Kenia, Fort Hall, Kikuyu, Simba.

884. *Uraeginthus bengalus schoanus* Neum. **Ethiopian Red-cheeked Waxbill.**

Three specimens differ from *U. b. ugandae* by being paler below and of a different shade of grey-brown, and agree well with the specimens of *U. schoanus* in Tring.

Meuressi, Turkwell and Kobua, near Lake Rudolf.

885. *Uraeginthus bengalus littoralis* subsp. nov. **Coast Red-cheeked Waxbill.**

Paler on the mantle than *brunneigularis* in both sexes. Males paler blue below, the red ear-patch more restricted in size. Females with cheeks and throats washed



with blue as in *U. b. ugandae*; slightly smaller. Besides these differences the call-note of these birds is not the same as that of the up-country race. They make use of deserted Weaver birds' nests for sleeping and nesting.

Coast of South Somaliland to Mombasa: Lamu, M'koi, Mombasa (type).

886. *Uraeginthus cyanocephalus* Rehw. **Blue-headed Blue Waxbill.**

I have ten beautiful examples of this exquisite little Waxbill. It is apparently confined to the drier desert parts of East Africa, and birds of South Ethiopia appear not to differ.

Tsavo, M'buyuni, Maungu.

887. *Uraeginthus niassensis* Rehw. **Lake Nyassa Blue Waxbill.**

Appears to be fairly plentiful in the Tanganyika Territory and North Mozambique and comes within the Kenya Colony in the Kilimanjaro region, where I procured specimens at Lake Jipe.

Lake Jipe, Morogoro, Kisaki, and Lumbo in Portuguese East Africa.

888. *Pytelia melba mosambica* van Som. **Mozambique Fire-throated Finch.**

*Bull. B.O. Club.* xl. p. 55, 1919.

Differs from *P. m. melba* and *P. m. elegans* in lacking the yellow-green breast-band, or having it only very slightly indicated, and in having the spotting on the underside large and commencing high up on the breast, in immediate contact with the red throat, also in having the lower breast and sides of abdomen very heavily barred and spotted, so that the underside appears dark. The red on the forehead is very limited. The females are very dark breasted and have grey throats, thus differing from *P. kirki*, in which the female has a whitish throat. Wings, 57-58 mm. Type in Tring Museum.

North Mozambique (Lumbo) to South Tanganyika Territory.

889. *Pytelia percivali* van Som. **Loita Fire-throated Finch.**

*Bull. B.O. Club.* xl. p. 56, 1919.

The ♀ differs from all known females by having the head and breast dark grey, the spotting of the underside not commencing before the lower breast, and by being larger. Wings, 58 mm. The males are like *P. kirki*, but have the lores white. Wings, 58-60 mm.

Loita Plains (Percival coll.), Simba, Magadi.

890. *Pytelia kirki* Shell. **East African Fire-throated Finch.**

Seven skins from Lamu are very uniform, having the red of the throats limited, and wide golden-green breast-bands. The birds from the dry Taru country, however, are very variable, most having the red of the throat extending well on to the breast-band, and in some cases right on to the breast. The females all possess white throats, thus differing from the birds of the Tanganyika Territory and those from Lumbo, also from the birds from Loita. Wings, 55-58 mm.

Lamu, Changamwe, Samburu, Maungu, Masongoleni, Tsavo, Campi-ya-bini,

891. *Pytelia soudanensis* Sharpe. **Large Pale Fire-throated Finch.**

These large pale birds are easily recognised from *P. kirki* on account of their paler markings and larger size, the males having longer bills. The females differ from female *kirki* in having the throat pale greyish like the breast. Wings: ♂ 58-62, ♀ 58-61 mm.

Mt. Moroto, Meuressi, Kobua, in Uganda; Kacheliba, Kerio River, Lorian Swamp, in East Africa.

892. *Pytelia belli* Og.-Grant. **Bell's Fire-throated Finch.**

These birds have darker grey heads and darker undersides than *P. kirki*. Toro.

893. *Pytelia phoenicoptera emini* Hart. **Barred Fire-throated Finch.**

Nile Province of Uganda.

894. *Pytelia afra griseigularis* Neun. **Coast Grey-throated Phoenix Finch.**

This is a good race of *P. afra*. Wings, 55-60 mm. Mombasa, Samburu, Voi.

895. *Pytelia afra* ? subsp. nov. **Kikuyu Grey-throated Phoenix Finch.**

Two males and others in Tring do not agree with the coastal birds, being larger, more greenish yellow on the breast, and greener on the back. They probably belong to an up-country race, but more material is necessary.

Kikuyu, Kenia.

896. *Hypargus nitidula schlegeli* Sharpe. **Red-faced Green-speckled Finch.**

This western form ranges into Uganda and is frequently taken in the forests. Bugoma and Mubango.

897. *Hypargus nitidula nitidula* Hartl. **Coastal Red-faced Green-speckled Finch.**

? *H. n. chubbi* Og.-Grant.

Has been taken at Mombasa by A. Blayney Percival. Apparently rare. (*Vide* Bannerman, *Ibis*, 1911.)

898. *Hypargus monteiri ugandensis* van Som. **Chestnut-breasted Speckled Finch.**

*Bull. B.O. Club*, xli. p. 115, 1921.

Differs from the typical Angolan form by having the back darker, so that the nape is not so sharply differentiated from the mantle. Bill slightly larger.

Masindi, Mubango, Kyetume, Buzileranjovu, in Uganda; Entebbe (Grauer), Lado, and Langomeri (Emin Pasha). 6 ♂ 2 ♀.

899. *Hypargus niveoguttatus* Peters. **Crimson-fronted Speckled Finch.**

? *H. macrospilotus* Mearns.

These birds possess all the characters given by Mearns for the Kenia race.

It is possible, however, that my specimens are not typical, as the type came from Inhambane. If different, they would have to bear Mearns's name *macrospilotus*.  
Changamwe, Taveta, Sagala, Teita, Kibwezi.

900. *Lagonosticta oenochroa* Hartl. **Black-bellied Crimson Finch.**

? *L. melanogaster*.

This is a very rare bird and is known from very few specimens. Seth-Smith collected a female at Masindi.

901. *Lagonosticta rhodopareia rhodopareia* Heugl. **Red-faced Black-vented  
Crimson Finch.**

♂♀, 7. xii. 1917. This pair undoubtedly belong to the northern typical race. The male is brighter crimson than *L. r. congica*, and the female has a red face which the female of *congica* lacks; besides, the undersurface is more washed with crimson.

Mt. Moroto, Turkana, east Lake Rudolf.

902. *Lagonosticta rhodopareia congica* Sharpe. **Uganda Black-vented  
Crimson Finch.**

This race is very like typical *L. rhodopareia*, but the crown is not washed with red, though bright crimson bird. The females lack the red loreal spot and chin, and are paler below, more pinkish.

Masindi, Bugoma, Mubendi, Sezibwa, Kyetume, and South Ankole in Uganda.

903. *Lagonosticta rhodopareia hildebrandti* Neum. **Greyish-crowned Black-  
vented Crimson Finch.**

These birds, although described as a subspecies of *L. rubricata*, should no doubt be placed as I have put them. This race and *congica* do not overlap in their distribution. The bluish-grey wash to the crown distinguishes this race from *L. congica*. The females are alike, except that female *hildebrandti* has a greyish bloom on the head and mantle, which is absent in the northern representative. Young birds are altogether dark brown, except for a slight crimson wash on the upper tail-coverts.

Kyambu, Nairobi, N'gong, Naivasha, Kitui.

904. *Lagonosticta rhodopareia umbriventer* van Som. **Kenia Brown-bellied  
Crimson Finch.**

*Bull. B.O. Club*, xl. p. 54, 1919.

Somewhat like *L. r. hildebrandti*, but abdomen and vent cinnamon-brown, under tail-coverts black. The females resemble those of *L. rhodopareia*, but have brownish abdomen. The bill is bluish, as in *L. rhodopareia*,

Embu, East Kenia, and Mount Urageess.

905. *Lagonosticta jamesoni taruensis* van Som. **Little Black-vented Crimson Finch.**

*Bull. B.O. Club*, xl. p. 54, 1919.

Altogether brighter reddish than *L. j. jamesoni*, having the mantle distinctly washed with reddish, as in *senegalla*. Vent and under tail-coverts black; the bill bluish black.

Coast from Lamu to Mombasa, inland to the Taru and South Ukamba: Tsavo, Kitui, Mombasa, Teita.

906. *Lagonosticta senegalla ruberrima* Rehw. **Uganda Crimson Finch.**

This is quite a good race and distinct from the East African bird, because the females do not agree. I can find no difference in the males. I have compared a very large series and find the differences constant in the females, and therefore named the Eastern African form. In the Uganda bird the females are darker, more brownish, while the East African birds are paler, more greyish.

Chagwe, Entebbe, Jinja.

907. *Lagonosticta senegalla somaliensis* Salvad. **Lorian Crimson Finch.**

Specimens collected by Blayney Percival agree fairly well with typical *L. s. somaliensis*, but the males are brighter and the female washed with pink on the breast and has a distinct red loreal spot.

Juba River.

908. *Lagonosticta senegalla kikuyuensis* van Som. **East African Crimson Finch.**

*Bull. B.O. Club*, xl. p. 55, 1919.

I have no hesitation in separating the East African race. The females are distinct, as indicated under *L. s. ruberrima*.

Kisumu, Nakuru, Naivasha, Kikuyu, Tsavo.

909. *Estrilda nonnula* Hartl. **Black-capped Grass Finch.**

My series is very uniform and agrees well with typical birds. A series from South Elgon are rather whiter below, not tinged with creamy, and have the breast and flanks more washed with greyish. More material is required from this locality. Kigezi, South Ankole, Masindi, Sezibwa, and West Elgon.

910. *Estrilda atricapilla keniensis* Mearns. **Kenia Black-capped Grass Finch.**

This race is barely separable from *E. a. grauceri* from Kivu, of which I have compared the type and cotypes. The Kenia birds do not differ in the way Mearns states, the only character, and this not mentioned by Mearns, being the deeper black of the abdomen and vent; otherwise the birds agree absolutely.

Aberdare Mountains and Kenia.

911. *Estrilda erythronota delamerei* Sharpe. **Delamere's Black-faced Grass Finch.**

These birds are very much darker than southern ones, and possess the characters claimed in the original description.

Loita, Kisumu, and Kendu Bay.

912. *Estrilda charmosyna* Rehw. **Pink-bellied Black-faced Grass Finch.**

? *E. nigrimentum* Salvad.

It is doubtful whether these birds should be united, as has been done by Shelley. Owing to lack of material I am unable to form any definite opinion on the matter. The bird from Turkwell agrees very well with specimens from Somaliland, while the Kacheliba one is not so pink and agrees best with birds from South Ethiopia.

Meuressi, Turkwell, Kacheliba, Uganda.

913. *Estrilda charmosyna pallidior* Jacks. **Pale-bellied Black-faced Grass Finch.**

North Guasso N'yiroy. (A. B. Percival leg.)

914. *Estrilda charmosyna kiwanukae* van Som. **Kilimanjaro Black-faced Grass Finch.**

*Bull. B.O. Club*, xl. p. 55, 1919.

My series is constant in displaying the characters which separate this form from the other races. They are: the clearer bars on the wings and the deep greyish tinge to the underside, giving the lower surface a dull grey-pink colour.

Taveta, Tsavo, M'buyuni, Simba, and Magadi.

915. *Estrilda paludicola* Heugl. **Grey-capped Pale Grass Finch.**

Some males have a deep ochre stripe down the belly, ending in a deep pink vent.

Sezibwa, Bugoma, Mambigirwa, Jinja.

916. *Estrilda roseicrissa* Rehw. **Brown-capped Pale Grass Finch.**

This is a good form.

M'barara.

917. *Estrilda rhodopyga centralis* Kothe. **Uganda Buff Grass Finch.**

*E. r. hypochroa* Mearns.

*E. r. polia* Mearns.

I have had a series of over sixty skins for comparison. I regret that I cannot recognise more than one race for Uganda, South Ethiopia, Somaliland, and East Africa. I can pick out birds which agree with the characters of the various races claimed, but such are not limited to specimens from the distribution of these supposed forms, and similar birds are to be found from all the localities mentioned. I agree that Uganda and East African birds are not typical *rhodopyga* and thus, as there is only one race recognisable, the first name applied must stand, and this is *centralis* of Konrad Kothe—*founded on one specimen!*

I would call attention of ornithologists to the variation which one must expect in these birds. Young birds in the first plumage after the nestling dress are very much less or not at all barred. Strong, full-plumaged adults are most distinctly barred and rather dark below.

Ankole, Meuessi, Turkwell, South Rudolf, in Uganda; Kisumu, Nairobi, Simba, Tsavo, Northern Guasso N'yiyo, Changamwe, in East Africa.

918. *Estrilda subflava subflava* Vieill. **Little Orange-breasted Grass Finch.**

Uganda specimens are rich red-orange below, and agree well with birds from the type locality. They differ from the East African ones, which again differ from *E. s. clarkei* of South Africa and Angola.

Kigezi, South Ankole, Masindi, Mubendi, in Uganda.

919. *Estrilda subflava* Vieill. (? subsp.). **Yellow-breasted Grass Finch.**

2 ♂, 1 ♀, 1 juv., are near *Est. s. clarkei*, but do not agree with typical specimens; they are more richly coloured, but not so rich as the typical *E. subflava*. I have examined a dozen specimens from East Africa, but require more material before coming to a final decision.

Nairobi and N'gong.

920. *Estrilda astrild nyansae* Neum. **Uganda Red-eyebrowed Grass Finch.**

This race is recognisable, being on the whole less heavily or distinctly striped on the breast than East African birds, and having the pink blush carried right up to the throat in full plumage.

Kigezi, Ankole, Entebbe, and Masindi in Uganda.

921. *Estrilda astrild massaica* Neum. **East African Red-eyebrowed Grass Finch.**

In this race the adults are heavily barred right up to the sides of the head and the pink wash is not so extensive as in the Uganda form.

Kisumu, Naivasha, Nakuru, Nairobi, Bura, Samburu.

922. *Sorella emini* Hartl. **Chestnut Sparrow.**

Young birds are like the females, but lack all tinge of brown on the back and underside. Bill yellowish horn. No throat-patch.

Kendu Bay, Kisumu, Maragoli.

923. *Sorella emini* subsp. ?

Two males and one female from North-west Kenia are paler chestnut, lacking the deep tinge on the crown. The female differs in having a paler brown throat and having the mantle and flanks washed with pale rufous. As the locality is rather remote, these differences rather suggest the possibility of a separable form.

924. *Passer rufocinctus* Rchw. **East African Red-rumped Sparrow.**

Nairobi, Naivasha, and Nakuru. Quite typical.

925. *Passer shelleyi* Sharpe. Uganda Red-rumped Sparrow.

(*P. cordofanicus* of Selater & Praed, *Ibis*, 1918.)

This is an excellent species, and has nothing to do with *P. cordofanicus*, which is very much like *motitensis* of South Africa. *P. shelleyi* is very much like *jagoensis* of the Cape Verde Islands. The birds referred to *cordofanicus* by Selater & Praed come from the type locality of *shelleyi* and must be of this species, therefore their remarks regarding relationship to *jagoensis*. It is a rare species, and the localities from which I have received it extend its range southward.

North Kerio River and Mt. Kamalinga, Karamoja, in Uganda.

926. *Passer griseus suahelicus* Neum. Coastal Pale-bellied Sparrow.

This race and *ugandae* no doubt meet in the Kisumu or Kavirondo district, undoubted hybrids occurring there.

This race has a paler shoulder-patch and mantle than the Uganda form. Taveta, Simba, and Karungu.

927. *Passer griseus mosambicus* Som.

Darker than *P. griseus suahelicus* and *ugandae*, greyer on the breast and flanks, and the light throat-patch more greyish. The mantle, rump, and shoulder-patch darker. Wings, 75–83 mm.

North Mozambique and East Nyassaland. Type, Lumbo. Six specimens examined.

928. *Passer griseus ugandae* Rehw. Uganda Grey Sparrow.

Nestlings have the head, neck, and mantle brownish and are buffy grey below, rather paler on the abdomen; bill and legs brownish. These birds are very little different from *P. griseus swainsoni*. This brings me to the question, which bird is *swainsoni*—the dark- or the light-breasted one? Both occur in North Abyssinia. Opinions differ, but we must go by the type and cotypes, and these Prof. Neumann has examined and has compared with the birds collected by Witherby, Rothschild, and Wollaston in the Sudan. All are pale-breasted birds. We have no right to over-rule this, unless we also examine the types and come to a different conclusion. Having fixed the name *swainsoni*, Neumann found the dark grey-breasted bird without a name and called it *abyssinicus*. The plate of *P. swainsoni* might stand for either the dark or light bird. Zedlitz's view as expressed when he re-named the pale bird *erithrea* cannot be accepted, nor have Selater and Praed (*Ibis*, 1919) sufficient grounds for rejecting Neumann's decision. This takes us a step further, because we get a connecting link between *P. g. abyssinicus* and *P. g. gongonensis* of Oustalet. Both birds are alike in colour but differ in size, and an intermediate form exists, and *P. gongonensis* being the older name we must make *P. abyssinicus* a subspecies of the latter.

Kigezi, South Ankole, Budu, Mawakata, Masindi, Bugoma, Entebbe, Jinja, in Uganda; and Kisumu in East Africa.

929. *Passer griseus gongonensis* Oust. **Mombasa Thick-billed Sparrow.**

The typical heavy-billed birds appear to range inland to about 3,500—4,000 feet, when they begin to get rather smaller (*vide* table of measurements), and this smaller race ranges into Uganda and Rudolf, probably meeting with *P. abyssinicus* in South Ethiopia.

Mombasa, Lamu, Samburu, Campi-ya-bibi, Voi, Kitui, N'ziu.

Wings: ♂ 95, 95, 96, 97, 98, 98, 99, 100, 102; ♀ 91, 92, 95, 96 mm.

930. **Intermediate race between *P. g. gongonensis* and *abyssinicus*.**

Inhabiting the country between Ukamba and Lake Rudolf, characterised by their smaller size and smaller bills—as a rule.

The series in Tring from Escarpment corroborates this.

Moroto, Kerio, in Uganda; North Guasso N'yiyo, Kisumu, Nairobi, Kikuyu, Simba, in East Africa.

Wings: ♂ 90, 92, 93, 93, 93, 95, 95, 95; ♀ 85, 85, 85, 85, 90 mm.

931. *Petronia pyrgita massaica* Neum. **Massai Yellow-throated Sparrow.**

This is a good race, not because they have larger bills as mentioned by Neumann, but on account of its much darker upper surface. I find that birds from Uganda south to the coast do not differ. Young birds are browner above and lack the yellow on the white throat.

Kamalinga, Moroto, Meuressi, Turkwell, and Kerio in Uganda; Marich, Kibingei, Kisumu, Kendu Bay, Kibigori, Nairobi, Thika, Simba, Tsavo, M'buyuni, Maktau, Samburu, and Changamwe, Juba River.

932. *Polioispiza elgonensis* Grant. **Elgon Grey Serin.**

This is apparently a good form, having the breast almost uniform grey, not streaked as in *striatipectus*. I have only one female from south Mt. Elgon.

933. *Polioispiza striatipectus* Sharpe. **Pale Striped-breast Grey Serin.**

I saw this species at the Ravine, and Doherty has collected it at Escarpment.

934. *Polioispiza striolata striolata* Rüpp. **Northern Streaky Serin.**

My pale-breasted birds cannot be separated from typical *striolatus*, and have the underside whitish cream, streaked with blackish brown and pale yellow. This race meets with *P. s. affinis* from Kilimanjaro, just about the Nairobi district. Nairobi birds are decidedly tinged with buff.

Lake Naivasha, Nakuru, and Aberdare Mountains.

935. *Polioispiza striolata ugandae* van Som. **Elgon Streaky Serin.**

*Bull. B.O. Club*, xli. p. 114, 1921.

This race is nearest to *P. graueri* from Ruwenzori, but differs in being only slightly paler, less deep buff on the breast, while the upperside is as dark. Similar birds are found in Lake Kivu district. Besides my skins I have examined twelve others.

Mt. Elgon to the heath zone and forests of Kivu districts and Ankole.



936. *Poliospiza striolata affinis* Richm. **Southern Streaky Serin.**

The birds from the forests of Nairobi south to Ukambani and Kilimanjaro are very like typical *striolata*, but have the underside buff, not creamy white, and agree with Kilimanjaro birds, which are *affinis* of Richmond.

Kitui and Nairobi.

937. *Poliospiza albifrons albifrons* Sharpe. **Kikuyu White-fronted Great Serin.**

These birds all possess the white frontal band and are paler below than the birds found up-country. Grant united the Ruwenzori birds with *kilimensis* of Reichenow, the character of this race being the absence of the frontal band and other slight differences. I have examined birds from Ruwenzori and Kivu and find that they differ from the Mt. Elgon ones considerably, and I have been compelled to recognise a highland East African race as distinct, as mentioned later. My typical birds come from Nairobi, Kikuyu, N'gong.

938. ? *Poliospiza albifrons kilimensis* Rehw. ? **Kilimanjaro Great Serin.**

This type of bird is found in Western Uganda and I have compared a series in Tring Museum; but until I can examine Kilimanjaro specimens, I shall feel a doubt about them being identical.

Kagezi, South Ankole.

939. *Poliospiza albifrons* ? subsp.

9 ♂ 3 ♀ from Mt. Elgon and Molo seem to differ from *P. a. kilimensis* in being darker above and below, and in having the breast deep olive-brown. These differences seem to exist also in young birds. The bills, especially in the Molo birds, are larger and stronger.

Mt. Elgon south to Molo Forests: Elgon, Elgeyu, Maraquet, Molo.

940. *Poliospiza angolensis somereni* Hart. **Uganda Black-throated Serin.**

This is a good form, and birds obtained subsequent to the original description bear out the characters claimed for this race.

Kigezi in South Ankole; Entebbe and Jinja.

941. *Poliospiza reichenowi* Salvad. **Reichenow's Yellow-rumped Grey Serin.**

Type locality Shoa.

7 ♂ and 6 ♀ are rather less streaked on the underside than the single typical specimen in Tring, but otherwise agree. I am certain that when a series of typical birds is available, the East African birds will have to be separated under a new name.

Kisumu, Kibigori, Nairobi, Kyambu, Fort Hall, Embu, Simba, Bura.

942. *Poliospiza reichenowi* subsp. nov.

4 ♂ 1 ♀ are rather paler, less brownish, above than Kikuyu and southern birds, and have the breast whiter and not so streaked as in the typical race from

Shoa. They approach closely the coastal race *hilgerti*, but are not so greyish on the back.

South-west Lake Rudolf, Kobua, Kerio, and Marich in Suk.

**943. *Poliospiza reichenowi hilgerti* Zedl. Coastal Yellow-rumped Grey Serin.**

This pale race is found on the coast from north of Mombasa to South Somaliland. It is characterised by being pale greyish above with dark streaks to the feathers, and in having a wide white frontal band which is continued back as superciliary stripes, and by having the lower surface white.

Lamu and Manda.

**944. *Poliospiza leucopygius* Sund. White-rumped Grey Serin.**

A form of white-rumped Serin occurs in North-west Uganda, Nile Province, which is nearest to *leucopygius*, but may prove separable when sufficient material is got together.

(*Serinus donaldsoni* Sharpe. Somali Thick-billed Serin.

Probably occurs in the northern frontier of East Africa.)

**945. *Serinus donaldsoni buchmanii* Hart. East African Thick-billed Serin.**

*Bull. B.O. Club*, January 1918.

This bird has been collected as long ago as 1913 and was represented in the collection of A. Blayney Percival, but its distinctness had not been recognised. I consider that it should be placed as a subspecies of the Somali bird as above. Besides in its enormous bill, it differs from *donaldsoni* by lacking a definite yellow eye-stripe. The known range is South-east Kilimanjaro to the Loita Plains.

Lake Jipe, Maktau (type locality), Campi-ya-bibi, Maungu, Voi.

**946. *Serinus dorsostriatus* Rehw. ? Nyanza Serin Finch.**

I am not satisfied that my birds are really true *dorsostriatus*. I have compared cotypes in the Tring Museum. While two are young birds, the other two are adults, and all have greener backs than my birds and white lower abdomens and under tail-coverts. This was mentioned in the original description, and led Shelley (*Birds of Africa*, vol. iii.) to place Sharpe's *maculicollis* as a synonym. I find that adult birds from south of the type locality in Tanganyika Territory have this character, while Kisumu and Uganda birds have the belly and under tail-coverts deep yellow like the breast, and greenish yellow backs.

Kisumu and Yala in East Africa; Jinja in Uganda.

**947. *Serinus dorsostriatus dorsostriatus* Rehw.**

Three full-plumaged adult birds have the belly and under tail-coverts whitish, and agree with the adult cotypes of *dorsostriatus* in Tring.

Loita in Kenya Colony; Dodoma in Tanganyika Territory.

948. *Serinus maculicollis maculicollis* Sharpe. **Somali White-bellied Serin.**

1 ♂, 11.vi.1917, agrees with Somali and South-east Ethiopian specimens and has a wing of 75 mm. It is brighter on the back and lighter yellow on the underside than birds from Kilimanjaro. I take it to belong to the typical race.

Kerio River, south Lake Rudolf.

949. *Serinus maculicollis taruensis* van Som. **Taru White-bellied Serin.**

*Bull. B.O. Club*, xli. p. 114, 1921.

I have come to the conclusion that possibly *S. m. harterti* Zedlitz (*Journ. f. Orn.* 1916) from South Somaliland can stand. I have also found that the bird inhabiting the East Kilimanjaro and Taru Desert cannot be united with the Somali or South Somali races, as it is darker on the back, with the shaft-spotting larger and the underside a richer yellow. Wings: ♂ 73, 71, 71, 70, 70; ♀ 70, 69, 69 mm.

East Kilimanjaro to South Ukambani and the Taru Desert: M'buyuni (type locality), Maungu, Maktau, Tsavo.

950. *Serinus* (? *flaviventris*) *loveridgei* van Som. **Mozambique Yellow Serin.**

*Bull. B.O. Club*, xli. p. 114, 1921.

Similar to *S. f. flaviventris*, but smaller and lighter yellowish green on the upperside and ear-coverts. Smaller than *marshalli*, upper tail-coverts greenish, ear-coverts darker. Wings, 70-72 mm.

Lumbo, North Mozambique. Type: ♂, 10.vii.1918, Loveridge leg., in Tring Museum.

951. *Serinus sulphuratus sharpei* Neum. **Sharpe's East African Large Yellow Serin.**

This is an excellent race, extending from Kilimanjaro (type locality) to Kisumu. I am not sure where it meets with *shelleyi*, but it might do so near the Yala River or in the Elgon district. It is larger than the Uganda race. Kisumu, Kibos, Kibigori, Nakuru, Nairobi, Naivasha, Eldoret, Fort Hall, Kenia, Olgerei.

952. *Serinus sulphuratus shelleyi* Neum. **Uganda Large Yellow Serin.**

This race extends from the Elgon district west to Ankoli in Uganda: Masindi, Budongo, Busiro, Lugalambo, Jinja, Elgon.

953. *Serinus icterus barbatus* Heugl. **Uganda Little Yellow Serin.**

This is a small, highly coloured race, with wings from 60 to 65 mm. The female as a rule has a white chin, but in some this area is yellow as in the adult males. Ranging through Uganda, it comes east to Elgon, where it meets with a large bird nearest to the Camaroon species (*punctigula*), which I have named below.

Masindi, Bugoma, Busiro, Entebbe, Sezibwa, Kampala, Jinja.

954. *Serinus icterus madaraszi* Rehw. **Coast Grey-naped Yellow Serin.**

These birds are *not S. icterus* of Mozambique or South Africa, as they are slightly smaller, and have the crown, nape, and cheeks decidedly grey, as in *S. hartlaubii* of Angola; but they are rather darker grey, and darker greenish yellow above on the mantle. It is possible that these East African birds are not true *madaraszi*, though the description agrees.

Changamwe, Mombasa, Lamu, South Juba.

955. *Serinus pseudobarbatus* van Som. **Kavirondo Yellow Serin.**

*Bull. B.O. Club*, xl. p. 56, 1919.

This bird agrees best with *punctigula* of Camaroon, but the back is greyer and the bill larger. Wings, 67, 70, 71, 72, 72, 72, 74 mm. Young birds are duller above and below and young females have small spots on the side chest. The range is from North Elgon to Kavirondo: Kisumu, Fort Ternan, Kibigori, Kibingei.

956. *Serinus flavivertex* Blanf. **Golden-crowned Serin.**

It is remarkable that eight males collected in the Molo Forest, Mau, and the Aberdare Mountains are not dark breasted, like those from Escarpment and Elgon, which agree with the typical form of Abyssinia.

Nairobi, Naivasha, Aberdare Mountains, Molo, and Elgon.

957. *Serinus ? capistratus* subsp. **Streaky Serin.**

I am unable to place three birds which have the *bills* just like a *Serinus*, but are coloured like a female *Spinus c. frontalis* or *kikuyuensis*. The male has the lores and chin greyish. They are adult breeding birds.

Kisumu and South Ankole in Uganda.

958. *Spinus citrinelloides frontalis* Rehw. **Uganda Black-faced Serin.**

One male is an entirely yellow variety.

Kigezi in South Ankole; Entebbe, Sezibwa, Mubango, Jinja.

959. *Spinus citrinelloides kikuyuensis* Neum. **East Africa Black-faced Serin.**

Neumann's type is not a fresh-plumaged bird, but rather worn and different-looking to clean moulted specimens. From the material available it would appear that the young male moults three times before assuming the full adult plumage! ?

Nairobi, Fort Hall, Kenia, Kikuyu, Nakuru. 8 ♂, 3 ♀, 1 juv., 20.ix.1915.

960. *Spinus citrinelloides hypostictus ?* **Streaky Green Serin.**

These birds are very like the female of *Sp. c. kikuyuensis*, but paler and brighter above, and have the lores and chin greyish black without a definite black face, the underside more streaked. I have no material for comparison, so cannot place these birds with certainty. The type of *hypostictus* came from Kilimanjaro. The bills are shorter and bigger at the base than in *S. c. kikuyuensis*.

Kisumu and South Elgon.

961. *Emberiza tahapisi* Sm. **Brown Rock Bunting.**

The coloration on the inner web varies much, some being very dark and reaching the shaft as in *septemstriata*, while others have scarcely any rufous-cinnamon wash.

Younger birds have the colour more extensive than older ones.

Simba, N'ziu, Nairobi, Nakuru, Kisumu, Jinja, and Kigezi in South Ankole.

962. *Emberiza saturatior* Sharpe.

Has been recorded from Lake Stephanie and may extend into the south Lake Rudolf country.

963. *Emberiza affinis* ? *forbesi* Salvad. **Lesser Yellow-breasted Bunting.**

I am uncertain whether *forbesi* of Salvadori can stand, but as I have no typical birds I cannot make certain. I have compared the types of *forbesi* and *omoensis* and find a bird from Nimule just as dark as Neumann's *omoensis*, but my specimens are not so dark. The localities from which I have taken this bird are of interest and should be compared with those of *E. flaviventris* and *poliopleura*.

Singo in West Uganda; North Kerio River and Simu River, Elgon.

964. *Emberiza flaviventris* Steph. **Yellow-breasted Bunting.**

I do not consider that *affinis* and *poliopleura* should be looked upon as races of this bird: first, because this is a very widespread species; secondly, because all three forms occur together in part of their distribution within East Africa and Uganda. Cf. *Journ. f. Orn.* 1905, p. 359. I have obtained all three in the Suk country.

Kigezi in South Ankole in Uganda; Kibengei, Marich, Kacheliba, Nairobi, Simba.

965. *Emberiza poliopleura* Salvad. **Mottled-back Yellow-breasted Bunting.**

This species is specially common in the Taru country and ranges through South and North Ukambani to North Kenia and Baringo and thence to Lake Rudolf.

Taveta, Maktau, Campi-ya-bibi, M'buyuni, Simba, Magadi, Loita, Baringo, Kerio.

966. *Emberiza cabanisi orientalis* Shell. **Large Grey and Yellow Bunting.**

Has been recorded from Tingasi and is said to occur west of Victoria Nyanza.

967. *Emberiza cabanisi* ? subsp. nov. **Black-headed Yellow Bunting.**

On two occasions when my collectors went to South Masindi district they obtained a male of this bird. When compared with typical *cabanisi* they are evidently much darker, purer grey on the mantle, and have the head black, contrasting with the grey back, and with only a very minute indication of a central line on the crown in one specimen. I am certain that this will prove to be a distinct race.

Masindi and Budongo.

968. *Eremopteryx signata* Oust. **Cinnamon-headed Finch Lark.**

4 ♂ 1 ♀ collected by A. B. Percival are paler more greyish on the mantle than typical birds, but they are fresh-moulted specimens. The localities are of interest.

Kobua River, Lake Rudolf (1,500 feet), and Lorian Swamp.

969. *Eremopteryx frontalis melanauchen* Cab. **Black-bellied Grey Finch Lark.**

The capture of this bird so far south as the Lower Juba River is of great interest. Two specimens shot by A. B. Percival are paler on the back than others in Tring, but I have insufficient material to decide if this is constant.

Lower Juba River.

970. *Eremopteryx leucotis madarasi* Rehw. **Black-bellied Brown Finch Lark.**

East African and Gallaland specimens are certainly different from *E. l. leucotis* by their heavier bills, which are nearly as powerful as in *E. l. smithi*, which has a lighter chestnut upperside.

Mt. Kamalinga, Moroto, in Uganda; Magadi and Loita in East Africa.

971. *Eremopteryx leucopareia* Fisch. **Red-capped Finch Lark.**

18 ♂, 8 ♀, 2 juv., and 10 birds from type locality collected by Loveridge. The latter are larger and paler than the series from Kisumu and North Elgon district, and more rufous on the crown and neck, and the females have a distinct rusty stripe over the eye, also a rusty collar which is wanting in the dark northern birds. Birds from Magadi are more typical.

Mt. Moroto and Kobua River in Uganda; Kacheliba, Kibengei, Kisumu, Kendu Bay, Kibos, Nairobi, Simba, Tsavo, in Kenya Colony; Tabora and Dodoma in Tanganyika Territory.

972. *Mirafra poecilosterna poecilosterna* Rehw. **Pink-breasted Singing Lark.**

3 ♂ collected by A. B. Percival are typical; and while two are very pale on the back and breast, the other is rather browner but it is a bit soiled.

Lorian Swamp and Juba River.

973. *Mirafra poecilosterna massaica* Rehw. **Taru Pink-breasted Singing Lark.**

*M. jacksoni* Og.-Grant.

I do not consider that this bird should be kept in the genus *Mirafra*! Besides the slender shape of its bill, the formation of its feet, the colour-scheme generally and especially of its wings, also its habits, are rather different. It is a great tree-percher, quite apart from perching when disturbed, and its song is of a different character. Grant must have overlooked the name *massaica* given to a bird from the Kilimanjaro district (which is undoubtedly the same as the Kikuyu bird), when he named the latter *jacksoni*. This race is darker above and below than the typical one from the Lower Tana River.

Lake Jipe, Taveta, Maktau, Campi-ya-bibi, Maungu, Tsavo, Simba, Nairobi River. 23 ♂ 10 ♀.

974. *Mirafra hypermetra hypermetra* Rehw. Great Black-breasted Lark.

This bird is rather uncommon. Its great size and the black breast-patches distinguish it at once from the "*africana*" group of Larks.

Campi-ya-bibi and Northern Gausso N'yiyo.

975. *Mirafra africana tropicalis* Hart. Uganda Rufous-crowned Red-winged Lark.

Nine specimens from Uganda and Kisuma are typical *tropicalis*; but in the Loita Plains, especially in the plains towards the east of Sotik, we find birds which are intermediate between *tropicalis* and *dohertyi*, having the rufous crown of the former and the body plumage of the latter, but more rufous on the mantle and underside. A series from the South Kavirondo and Loita may show this to be constant, in which case the form should be recognised; I have so far only four.

Semliki, Masindi, Bugoma, Mubendi, Entebbe, Jinja, in Uganda; South Elgon and Kisumu in East Africa; also Loita and South Sotik.

976. *Mirafra africana dohertyi* Hart. Kikuyu Red-winged Lark.

With twenty skins of my own and twenty others collected by A. B. Percival and J. P. Cook, I find that this is a fairly good race which can be described as a darker form of *M. a. athi*; but on the high ground of the Athi plains, just outside Nairobi, we get intermediate birds, and others, which are true to the types of the two races which meet in this district. Extremes are, however, very distinct. In my series of over forty skins, and with the birds in Tring, the gradual graduation from one form to the other is beautifully shown, and with the Loita birds we get the connecting link between *dohertyi* and *tropicalis*. I wish to emphasise this, because in my field work and in the large series examined, I have been unable to find links between *M. a. athi* and *M. a. harterti*. The latter was described as a race of *africana* and as such has been united by Hartert (Nov. Zool. May 1919) with *tropicalis*; but how does one overcome the fact that in between *harterti* and *tropicalis* there are two pale forms—*athi* and *dohertyi*?

Kikuyu, Naivasha, Nakuru, Lumbwa, Maraquet, and Eldoret.

977. *Mirafra africana athi* Hart. Athi Pale-backed Lark.

For remarks on this race, see under previous form. This is the palest of the "*africana*" larks in East Africa. This should be noted, in view of the coloration of the next form.

Athi Plains, Kapiti Plains, Magadi, N'gong, Nairobi, Kyambu, Kenia, Fort Hall.

978. *Mirafra* "*africana*" *harterti* Neum. Large Rufous Lark.

I have examined over a dozen skins besides my own nine specimens, and am satisfied that Neumann was right to describe it, although he had a poor material. Since seeing my birds, Dr. Hartert has altered his views regarding this very rufous Lark (Nov. Zool. May 1919).

If *harterti* is a form of *africana*, which I very much doubt, how is it that we get the very palest race next to the most rufous? It may be suggested that the

character of the soil, etc., is the determining factor; but this rufous bird is not found only on red soil, nor yet the pale *athi* on "black cotton" soil. So far I have no proof of the presence of the two forms in the same locality, except in South-west Ukamba.

Simba, Kiboko River (type locality), Tsavo, Serengeti Plains.

979. *Mirafrā fischeri fischeri* Rehw. **Fischer's Coastal Flappet Lark.**

I collected seven birds at the type locality and neighbouring districts. These are characterised by being small (compared with other races), fairly dark above, and pale below, with small spots on the chest, which is washed with brownish. I find in these two types of plumage a blackish or dark and a slightly rufous one. These plumages are not due to sex or season, as such are found in breeding and non-breeding birds. Wings: ♂, 75, 75, 76, 76, 76 mm.; sex ? prob. ♀, 70 mm.; ♀, 70, 72, 72, 73 mm.

There is no distinct greyish "bloom" to either of the plumages. In the red phase it has a more barred appearance. The outer tail-feathers are pale buff with black along the edges to the inner webs. Such birds are met with at Mombasa, Changamwe, Mazeras, Maji-ya-chumvi, and M'koi.

This species extends along the coast of the Tanganyika Territory, but in North Mozambique and Nyassaland has developed into the following form.

980. *Mirafrā fischeri zombae* Grant. **Mozambique Flappet Lark.**

Four blackish ♂, two brownish ♀, are very like *fischeri*, but larger, having wings of ♂ 80, 79, 78, 78, ♀ 76, 77 mm. The whole upperside with a distinct greyish bloom, in both the blackish and brownish phases. The brownish phase is more pronounced in this form than in true *fischeri*. The spotting on the breast is rather smaller. Birds of both sexes of the same coloration were collected in the same month.

Lumbo, North Mozambique.

Further inland we get a rufous bird, possibly a form of *fischeri*, called:—

981. *Mirafrā "fischeri" torrida* Shell. **Rufous Flappet Lark.**

? *M. rufocinnamomea*.

Six specimens in dark red, seven in bright rufous plumage. The plumage is very rufous above and below with a "brick-red" chest-band, which is spotted in the region of the lower throat. The barring on the back is present in both varieties. These birds are somewhat like *M. tigrina* of Angola, but more rufous, not greyish rufous. In comparison with *fischeri* and *zombae* they are larger, and differ in colour. They have rufous buff outer tail-feathers. Wings: ♂, 85, 83, 83, 82, 82; ♀, 80, 80, 80, 78, 78 mm.

These birds do not resemble the few really typical *rufocinnamomea* I have had for comparison, nor do they agree with the plate of *torrida* in Shelley's *Birds of Africa*, vol. iii, but the locality is the same. We do not get a blackish bird in the district where this red bird occurs. Both varieties were collected of both sexes and at the same months.

Simba, Teita, Kitui, Thika, Fort Hall.

In Western Uganda is found a bird very like the above, but much paler



below and paler and brighter on the upperside. Of this I possess only 2 ♂ and 1 ♀. They have wings of ♂ 78, 78, ♀ 77 mm., and come from Ankole.

In Usambiro Emin collected much darker greyish rufous birds, which agree with none of mine, though Shelley referred them to *M. fischeri*.

Now, alongside the Uganda reddish birds and between them and the East African reddish ones we get a very dark blackish bird, much like *fischeri* but blacker above when in the black phase, and darker when in the brown phase, also larger. They are also much darker than *M. f. zombae*, and the spotting on the breast is large. Similar birds to these, collected by the Ruwenzori Expedition, were referred by Og.-Grant to *M. zombae* and by Reichenow to *M. fischeri*. As a matter of fact they belong to neither, and I have named them :—

**982. *Mirafra fischeri kawirondensis* van Som. Nyanza Black Flappet Lark.**

*Bull. B.O. Club*, xli. p. 125, 1921.

11 ♂ ♀ in blackish, 5 in brownish plumage. These birds are also exhibiting the two phases, black and brownish, but it must be understood that the several forms I have enumerated, although alike in exhibiting this peculiarity, are perfectly distinct from one another. In my series I have breeding birds of both sexes, some black, some brownish, and of various seasons. Blackish birds show no bars, brown ones do.

Wings: ♂, 81, 80, 80, 80, 80, 80, 78, 78; ♀, 80, 78, 78, 76, 76, 76, 75, 75, 75, 74, 74 mm.

These birds *lack* absolutely the *greyish bloom* found in *M. f. zombae*. The outer tail-feathers are dark buff. A male bird from Soroti Uganda, with wings of 78 mm., has a very much more slender bill than the others and may be a different East Uganda form or an aberration. More material from there is required.

Kisumu, Karungu, Kendu Bay, Kibigori, in East Africa; and Soroti and Entebbe in Uganda.

**983. *Mirafra alopec* Sharpe. Rufous Scrub Lark.**

This is a very deep rufous-backed bird with dark stripes, found in the East Kilimanjaro plains to South Ukamba, and it must extend north to the Northern Uasso N'yiyo, skirting the higher levels and not rising to more than 3,000 feet.

Higher than this and up to 5,000 feet we get a paler, less rufous bird, called *intercedens*.

Makindu, Tsavo, Maktau, Bura, Campi-ya-bibi, Taveta.

**984. *Mirafra intercedens* Rehw. Paler Scrub Lark.**

My specimens in good plumage agree well with the fresh birds collected by Anson in the same locality (and identified by Reichenow as his *intercedens*) from which I obtained my specimens. These birds are very like *alopez*, but paler, less dark rufous, also narrower, but more thickly spotted on the chest. Shelley's figure in *Birds of Africa*, vol. iii, is incorrect, and therefore misleading. The type of plumage of this bird is not the same as *alopez*. I keep it as a species until its range is definitely known.

Simba, Kiboko River, Magadi.

985. *Mirafrā longonotensis* van Som. **Naivasha Grey-necked Lark.**

*Bull. B.O. Club*, xl. p. 57, December 1919.

9 ♂ ♀ and 7 collected by Doherty appear to be a very dark form nearest to *intercedens*, but differ from that bird in lacking the sandy tinge to the feathers of the mantle, also possessing, in fresh adult stage, a distinct greyish colour. When this plumage gets worn, the general tone of the mantle becomes much darker, almost blackish.

Loita Plains, South Naivasha, and Nakuru.

986. *Mirafrā* sp. near *intercedens*.

3 ♂ shot in May 1917 cannot be matched with any of the specimens in Tring, though they are nearest to my *M. intercedens*, but between these pale birds and *intercedens* we get the blackish form described above. More material may prove them to be a distinct race. They are much like *intercedens*, but very much paler—more sandy rufous above and much paler below, the breast-spots very faint. They probably represent a desert form of *intercedens*.

Kerio River, South Lake Rudolf, and Marich, Suk Hills.

987. *Mirafrā albicauda* Rehw.

Lake Magadi, Karungu Bay, Olgerei.

988. *Mirafrā schillingsi meruensis* ?

Lake Nakuru, Escarpment.

(Single males each from Taveta, Mt. Moroto in Uganda, and Lake Nakuru remain doubtful for the present.)

989. *Mirafrā cantilans marginata* Hawker. **Pale White-tailed Lark.**

1 ♂, shot on Mt. N'yiyo, Northern Guasso N'yiyo, agrees perfectly with specimens of *marginata* in Tring; as does also a specimen collected by Butler in the Sudan, which has been called *chadensis*. I wonder if the latter differs from *marginata* ! ?

990. *Mirafrā cantilans* ? subsp. nov. **Magadi White-tailed Lark.**

3 ♂ 2 ♀ from Lake Magadi differ from *marginata* in being generally darker especially on the crown, and having the markings on the back not so streaky.

991. *Pseudalaemon delamerei* Sharpe. **Athi Long-billed Lark.**

These extraordinary long-billed little larks are not common. Two specimens collected in July by A. B. Percival are not so dark as the two in Tring, but they are in fresh unabraded plumage.

Kapiti Plains.

992. *Calandrella cinerea saturator* Rehw. **East African Red-capped Lark.**

I think this race should be recognised; it is generally darker than typical *cinerea*, the rufous patches on the side of the chest and the crown darker.

In Uganda is found an even *darker bird*, which cannot be placed under any named race.

Nairobi, Naivasha, Nakuru, in East Africa (ten specimens); Entebbe and Buzileranjuvo in Uganda (2 ♂).

993. **Galerida cristata somaliensis** Bianchi.

These birds have wings of 102-105 mm. and the thick bills characteristic of *somaliensis*.

Kobua River, West Lake Rudolf. 5 ♂ 2 ♀. Also collected by J. Allen Turner for Meinertzhagen.

994. **Macronyx sharpei** Jackson. **Sharpe's Pale-breasted Long-clawed Pipit.**

A high country species. The young in first plumage is very like a female but paler above, and almost uniform sandy buff below, with just a tinge of yellowish on the abdomen. The breast has a few black spots.

Kenia, Uasingishu, Lake Narasha, Aberdare Mountains.

995. **Macronyx croceus** Vieill. **Yellow-throated Long-clawed Pipit.**

Eastern birds are larger than typical ones which I have examined. More material required!

Budu, South Ankole, Entebbe, Kibingei, Kimiriri, Kisumu, Kibigori, Nakuru, Naivasha, Burnt Forest, Fort Hall. Twenty-three specimens.

996. **Macronyx aurantiigula** Rehw. **Orange Long-clawed Pipit.**

The young bird is buffy below with a faint wash of yellow on the breast. It is an inhabitant of the scrub and thorn-bush country.

Taru, Samburu, Maji-ya-chumvi, Taveta, Maktau, M'buyuni, Sagala.

997. **Macronyx ameliae wintoni** Sharpe. **Red-throated Long-clawed Pipit.**

Birds from the type locality, Kavirondo, differ somewhat from those obtained in higher altitudes. It remains to be seen whether the differences are constant. The young in first plumage is paler above, more sandy; it lacks all pink on the throat, and has just a pink tinge on the middle of the abdomen. Rather partial to swampy ground and high grass country.

Kisumu, Kibigori, Elgeyu, Nakuru, Kenia.

998. **Anthus melindae** Shell. **Malindi Pale Striped-flank Pipit.**

Apparently a rare species. Two birds agree well with the description. It is quite a distinct species and should not be confused with any other.

M'koi and Samburu.

999. **Anthus nivescens** Rehw. **Grey Desert Pipit.**

This bird is nearest to *sokotrae* Hart. (Nov. Zool. 1917), but differs in the breast-markings and in being larger. Wings, 103 mm. It agrees well with specimens collected by Archer in North Somaliland.

Lower Juba River. ♂ obtained by A. Blayney Percival.

1000. *Anthus campestris* Vieill. **European Tawny Pipit.**

Two ♂, 26.iii.1918, undoubtedly belong to this form. They differ slightly from the typical birds by being more sandy above and below, but can be matched by a specimen from Algeria and by skins collected by Archer in Somaliland in June.

Tsavvo.

1001. *Anthus richardi* Vieill. **Richard's Pipit.**

The capture of these birds in East Africa is of the greatest interest because it extends the winter range considerably. One specimen has the hind claws 20, the other 18 mm. long. The latter specimen is rather rufous underneath and rather resembles the Indian species.

Kisumu, and Lake Rudolf, Kobua River, Kyambu near Nairobi.

1002. *Anthus blayneyi* van Som. **East African Pigmy Pipit.**

*Bull. B.O. Club*, December 1919.

This remarkable Pipit is nearest to the brown form of *brachyurus* called *calthropae* by Shelley, but differs from that bird by being paler and considerably smaller, besides having the inner secondaries as long as or almost as long as the primaries, and having the chest-streaks finer. Wings: ♂, 68-70; ♀, 65-67 mm.

The wing-measurements of the South African bird are 74-76 mm.

Simba, Loita, Kapiti, Olgerei.

1003. *Anthus rufulus cinnamomeus* Rüpp. **Cinnamon Pipit.**

A very common species, richer coloured in Uganda than in East Africa; but as the coloration is not constant in either country, they must be united, for the time being.

Entebbe, Jinja, Bukedi, in Uganda; Kisumu, Kibingei, Kendu Bay, Kibos, Nakuru, Kenia, and Nairobi.

1004. *Anthus rufulus* ? subsp.

Four adult and three young birds from South Ankole are very much darker on the mantle and richer below than northern specimens of *rufulus*. The bills are heavier and stronger.

South Ankole and Kivu district.

1005. *Anthus nicholsoni longirostris* Neum. **Long-billed Mottled Pipit.**

Neumann described this East African race as a form of *nicholsoni*, and I consider he was right. Dr. Hartert, on the other hand, states that this bird should be made a form of *sordidus*, because the type or *sordidus* must have been a bird with mottled back. Thus, as *sordidus* has priority over *nicholsoni*, the former name must be used for the group. I have spent much time over these birds, examining the material in Tring and paying attention to the feature which, according to Dr. Hartert, is characteristic of this group, *i.e.* the slender, straight bill, but I have failed to become reconciled to his views and would support Prof. Neumann. My reasons for this opinion are: (1) That freshly moulted birds of

the old "*sordidus*" group sometimes show a slight mottling to the mantle, caused by the edges of the feathers being a shade paler than the centres, but this is soon lost and the birds become uniform as the type of *sordidus* is, and as are Neumann's topo-types, except the one fresh bird. (2) Birds of the old *nicholsoni* group never lose the mottled appearance, no matter how worn they become, because the pale edges to the feathers extend almost to the base and are not limited to the tips. (3) The measurements of the types are small, such as are met with in the *sordidus* group. (4) I find the shape of the bill is not a constant feature.

Nakuru, Naivasha, Sagala, Kisumu.

1006. *Anthus leucophrys turneri* Meinertzh. **White-throated Black-backed Pipit.**

*Anthus gouldi turneri* Meinertzh., *Bull. B.O. Club*, xli. p. 24, 1920.

These birds are uniform dark blackish brown on the back like *omoensis* of Neumann, but paler brownish buff below, with the throat white, contrasting with the rest of the underside. The breast is spotted with large distinct arrow marks.

Wings: ♂, 91, 91, 92, 95, 95, 95, 97, 98; ♀, 87, 87, 88, 89, 90, 90 mm.

Bukoba, Lugalambo, Mubendi, Entebbe, Kyetume, in Uganda; Elgon Kibingei, Kituni, Kisumu, Nakuru.

1007. *Anthus leucophrys goodsoni* Meinertzhagen. **Goodson's Pipit.**

*Bull. B.O. Club*, xli. p. 24, 1920.

These birds represent a race of the large pale brownish Pipit of Transvaal. A similar bird occurs in Angola, which must be called *neumanni* Meinertzh., as Neumann's name *angolensis* is preoccupied. Upperside pale greyish drab-brown, paler brown on the rump. A pale eye-stripe. Underside pale buffy, the throat being of the same colour as the belly. The breast with large indistinct diffuse brownish black markings.

Wings: ♂, 99, 100, 100, 100, 101, 102; ♀, 97, 97 mm.

East African highlands: Nairobi, Nakuru, Naivasha, Kenia.

1008. *Anthus trivialis* Linn. **Tree Pipit.**

Fairly common in winter. Apparently adult birds have not completed their moult until October or later; others leave their winter quarters before assuming full summer dress—these are probably young birds. An albino, shot 17.x.1913, is pale buffy grey, but has all the normal markings in a subdued form.

Maraquet, Eldoret, Elgeyu, Elgon, Nairobi, in East Africa; Masindi and Lugalambo in Uganda.

1009. *Anthus cervinus* Pall. **Red-throated Pipit.**

Three spring females are like adult males, but others have the pink limited to the throat only. One apparently adult spring male has no red on the throat. Many late March birds have not completed their moult and leave East Africa before doing so.

Nairobi, Naivasha, Nakuru, Kisumu. Numerous; over fifty collected.

1010. *Tmetothylacus tenellus* Cab. **Golden-yellow Pipit.**

Much variation exists in the males. The young male in first plumage is like the adult female, but has practically no yellow on the abdomen, and the breast has a few brown spots; the general colour is duller. The first moult produces a marked change on the underside which becomes yellow, the black gorget is moulted, but the throat remains buffy with just a slight tinge of yellow, the crown and upperside are more greyish green than yellow-green. The following moult produces a yellow throat, a complete black gorget, and the upperside becomes yellowish green, though, until the feather-tips get worn off, it still retains a greyish appearance.—This species appears to range throughout the dry thorn-bush country from Mombasa and East Kilimanjaro north to East Kenia and Somaliland. I found it nesting in May and July.

1011. *Motacilla aguimp* Dumont. **African Pied Wagtail.**

*M. vidua* Sund.

Masindi, Bira, Budongo; Molo, Fort Ternan, and Nairobi.

1012. *Motacilla capensis wellsii* Og.-Grant. **Uganda Olive-backed Wagtail.**

Specimens from Nairobi and Molo agree with typical *wellsii* in colour.

1013. *Motacilla alba alba* Linn. **European White Wagtail.**

V regular migrant in small numbers.

Mporogoma, West Elgon; Kisumu and Nairobi.

1014. *Motacilla clara* Sharpe. **Long-tailed Wagtail.**

This bird has the same habits and build as the European Grey Wagtail.

West Elgon, Kyambu, and Nairobi.

1015. *Motacilla cinerea cinerea* Tunst. **European Grey Wagtail.**

Elgon, Marquet, Kibras, Yala, Londiani.

1016. *Motacilla flava feldegg* Michah. **Black-headed Wagtail.**

Very few Black-headed Wagtails migrate south of Lake Victoria. During the winter they are fairly plentiful in the Kisumu district.

Jinja in Uganda; Kisumu and Nairobi.

1017. *Motacilla flava thunbergi* Billberg. **Grey-headed Wagtail.**

Two birds have white throats and thus resemble very closely *M. f. cinereo-capilla*, and two have distinct superciliaries and blackish ear-coverts like *dombrowskii*.

Entebbe, Elgon, Kobua River, Lake Rudolf, Kisumu, and Nairobi in British East Africa.

1018. *Motacilla flava flava* Linn. **Blue-headed Wagtail.**

Fairly common, often associating with *M. f. rayi* and *campestris*.

Bumasifa, Mt. Elgon, Kobua River, Lake Rudolf, Kisumu, Nairobi.

1019. *Motacilla flava beema* Sykes. **Pale-headed Wagtail.**

Not very common, and recognisable in the field only when in full plumage.  
Kobua, Lake Rudolf, Kisumu, Nairobi.

1020. *Motacilla flava* subsp. ?

Two specimens with almost white heads were shot in November 1917 and April 1918. A totally white-headed bird was also procured. Are these albinistic birds or *M. f. leucocephala* ?

Nairobi, Soroto.

1021. *Motacilla flava rayi* Bp. **British Yellow Wagtail.**

Fourteen males are undoubted specimens of the British Wagtail, having dark green heads and distinct yellow eye-stripe. The presence of this bird in East Africa is remarkable.

Entebbe, Nairobi, and Kyambu.

1022. *Motacilla flava campestris* Pallas. **Yellow-headed Wagtail.**

Two specimens have greyish backs and one has a very pale head, almost cream-yellow. The April birds have bright canary-yellow heads. A very common migrant, by far the most numerous in Nairobi district.

Victoria Nyanza, Lauru, Nairobi, Naivasha, Nakuru, Kisumu, Kobua ; Bira and Entebbe.

1023. *Trichophorus calurus ndussumensis* Rchw. **White-throated Green Bulbul.**

This is a fairly common bird in Uganda and ranges from the Lake Albert and Toro districts to Elgon, but does not appear to extend to the Nandi Range. Young birds in first plumage are like females, but generally duller and have a brownish tinge to the wings, rump, and tail.

Budongo, Bugoma, Entebbe, Mubango, Masaba, Mabira, Lugalambo, Elgon.

1024. *Bleda eximia ugandae* van Som. **Large Green-tailed Olive Bulbul.**

Fifteen additional specimens show that the characters claimed for this race hold good. It is not so common as the next species, but covers the same distribution.

Lugalambo, Sezibwa, Mubango, Bugoma.

1025. *Bleda syndactyla woosnami* Og.-Grant. **Large Red-tailed Olive Bulbul.**

With a series of twenty-one skins I find that the character of the small bill mentioned by Grant in the original description does not hold good, several of my male birds having larger bills than the typical West African *syndactyla*, but the generally brighter plumage is a constant feature.

Lugalambo, Budongo, Bugoma.

1026. *Atimastillas flavicollis flavigula* Cab. **Uganda Yellow-throated Bulbul.**? *A. pallidigula*.? *A. shelleyi* Neum.

Thirteen specimens have yellow throats and range from Semliki to Elgon and south along the shore of Lake Victoria, where the type of *shelleyi* came from. I fail to recognise this form from specimens from Karungu, but possibly Neumann's race does not range up so far.

Karaungu, Fort Ternan, Kimiriri, Nyarondo, in British East Africa; Kyanja Budu and Kagezi in Uganda.

*Atimastillas* sp.? **White-throated Grey Bulbul?**

Nine specimens from North-west Uganda—Masindi and Budongo—all have white throats, not yellowish. They are not *pallidigula* of Sharpe from Entebbe, for Entebbe birds have yellow throats. A series may show this to be constant. Masindi and Budongo.

1027. *Prosporphocichla orientalis* Hartl.

Has been recorded from Uganda.

1028. *Ixonotus guttatus* Verr. **Speckled-wing Bulbul.**

This bird has been obtained in the Ruwenzori Range and Budongo Forest. There is a specimen in Tring taken by Seth-Smith in the latter place.

1029. *Phyllastrephus terrestris suahelicus* Rehw. **Olive Scrub Bulbul.**

Described from the Pangani. This bird probably ranges into Vanga district.

1030. *Phyllastrephus strepitans strepitans* Rehw. **Brown Scrub Bulbul.**? *P. s. fricki* Mearns.

These birds were obtained in various localities, but I fail to recognise any characters warranting separation. The wings vary from 65 to 82 mm.

Juba, Lamu, Sekoke, Changamwe, Samburu, Masongoleni, Sagala, Lake Jipe, and Simba.

*(Phyllastrephus strepitans sharpei* Shell.

I doubt if this race—if recognisable—extends into East Africa.)

1031. *Phyllastrephus strepitans pauper* Sharpe. **Somali Brown Scrub Bulbul.**

I very much doubt whether this race can stand close investigation. These birds are, on the whole, larger than typical specimens of *Strepitans*.

Kobua, Lake Rudolf, Mt. Moroto, in Uganda.

1032. *Phyllastrephus cerviniventris* Shell. **Yellow-legged Olive Scrub Bulbul.**

This is not a common species. East African birds may be found to differ from typical Nyassaland specimens, but I have no material for comparison.

Bura, Taveta, Lake Jipe.



1033. *Phyllastrephus cerviniventris lonbergi* Mearns. **Kenia Yellow-legged Olive Bulbul.**

I have not examined a specimen of this race, but from the locality it must certainly be different from the typical bird. The type came from Meru, Kenia.

1034. *Phyllastrephus placidus placidus* Shell. **Kikuyu White-throated Forest Bulbul.**

Wings of my seven birds and others in Tring measure : ♂ 85–90, ♀ 75–80 mm. Common in the Karura and Rueraka Forests.

Kikuyu and Kyambu Forests.

1035. *Phyllastrephus placidus keniensis* Mearns. **Kenia White-throated Forest Bulbul.**

With only one ♂, shot on Mt. Kenia, April 1919, I am unable to form an opinion on this race, so have to admit it without criticism.

1036. *Phyllastrephus flavostriatus* Sharpe. **Yellow-streaked Forest Bulbul.**

According to Oberholser, this species ranges into British East Africa.

1037. *Phyllastrephus fischeri* Rehw.

This species from the Pangani probably reaches into the Vanga district.

1038. *Phyllastrephus olivaceogriseus* Rehw. **Ankole Grey-backed Bulbul.**

This is a very distinct species which inhabits the central lake regions. My specimens are particularly grey on the head and mantle.

Kigezi, South Ankole. 2 ♂ 1 ♀, September 1919.

1039. *Phyllastrephus cabanisi hypochlorus* Jackson. **Uganda Olive Forest Bulbul.**

I have no doubt that this is a race of *cabanisi*, as the other races do not overlap. Wings, 65–87 mm.

Mubango, Lugalambo, Entebbe, Mabira, Kyetume.

1040. *Phyllastrephus cabanisi succosus* Rehw. **Uganda Yellowish Olive Forest Bulbul.**

Although described from Bukoba, on the west of Lake Victoria, this race does not occur in Uganda Proper. It, however, crops up again on Elgon and extends south along the Nandi Escarpment to Ravine and Molo. I find no difference between Elgon and Kivu birds, except that the latter are a shade darker, but this is not sufficiently definite to warrant separation.

Elgon, Kimiriri River, Kibingei River, Kakamegoes, Nyarondo, Kibigori, Elgeyu, Maraquet, Molo.

1041. *Phyllastrephus icterinus seth-smithi* Hart, and Neum. **Budongo Yellow Forest Bulbul.**

This is an excellent race, being much bigger than the typical western birds, but some of the small females are absolutely indistinguishable from males of

*P. i. icterinus*. Wings: ♀, 63-75; ♂, 85-93 mm. The difference in size between the sexes is remarkable.

Budongo, Bugoma, Masindi.

1042. *Phyllastrephus albigularis leucolaima* Sharpe. **Uganda Pale-throated Forest Bulbul.**

*P. ugandae* Rehw.

*P. graueri* Neum.

*P. a. albigularis* van Som. (nec Sharpe!), *Ibis*, 1916.

Although I kept large and small birds separate in my paper in the *Ibis*, 1916, I am now compelled to unite all these pale-throated Bulebuls under the name *leucolaima*. I find that the females have wings of 64-75, the males 75-90 mm. It is most amazing that some females should be almost half the size of the males.

Bugoma, Budongo, Mubendi, Mubango, Lugalambo, Sezibwa, Elgon.

1043. *Baeopogon indicator chlorosaturata* van Som. **White-tailed Green Bulbul.**

My series shows these birds to be constantly darker and more greenish below than the typical race. The young is greyish below, dull olive-green above, and the outer tail-feathers are pure white.

Budongo, Bugoma, Sezibwa, Yala, Elgon.

1044. *Chlorocichla flaviventris mombasae* Shell. **Coastal Large Yellow Bulbul.**

Ten typical specimens with the wings measuring: ♂ 103-110 (average 107), ♀ 97-102 (average 98) mm. The largest bird of this series is from Taveta.

Mombasa, Manda, Kitui, and Taveta.

1045. *Chlorocichla flaviventris* ? *meruensis* Mearns. **Kikuyu Large Yellow Bulbul.**

The only difference I can find between these up-country birds and the coastal form is the slightly larger size. The males have wings of 108-114, females 102-108 mm., and perhaps the coloration is brighter. As I have no birds from Meru or Kenia, I am unable to state definitely whether these birds are really the same as the race described by Mearns. The nestling is somewhat like the female, but duller, and the underside buffy with only a slight yellow tinge, the wing-coverts tinged rufous.

Kyambu and Nairobi Forests.

1046. *Chlorocichla laetissima* Sharpe. **Elgon Large Yellow Bulbul.**

*C. hypoxantha* Hart. (not Sharpe), *Nov. Zool.* 1900.

Eight typical specimens cannot be distinguished from others from the Kivu and Semliki district, except that there is a slight difference in size, but not sufficient to warrant separation.

Elgon, Nandi, Nyarondo, Yala.

1047. *Andropadus insularis subalaris* Rehw. **Mombasa Little Yellow Bulbul.**

The character given for this race, namely, the buffy yellow, not bright yellow under wing-coverts, and inner edges to the wing-feathers, holds good ; but Reichenow is wrong in stating that the Manda and Lamu birds are typical *insularis*, which is apparently limited to the Island of Zanzibar and the adjacent coast, north to the Pangani.

Lamu, Manda, Malindi, Changamwe, Mombasa, Samburu, Voi, M'buyuni, Sagala, Taveta, Tsavo, Kitui.

1048. *Andropadus insularis somaliensis* Rehw. **Somali Yellow Bulbul.**

I am unable to form an opinion on this race for want of material, but a single Juba River specimen, collected by A. B. Percival, is similar to the Lamu birds. The type is also from the Juba.

1049. *Andropadus fricki* Mearns. **White-eyed Yellow Bulbul.**

From the description this appears to be a good species, but whether *A. f. kitungensis* is separable remains to be proved.

1050. *Andropadus kagerensis* Rehw. (From Budden, Victoria Nyanza.)

Requires confirmation. Is probably the same as *Phyll. cabanisi hypochloris* Jackson.

1051. *Andropadus curvirostris ? alexanderi* Oust. **Large Green Forest Bulbul.**

*Andropadus curvirostris curvirostris* van Someren, *Ibis*, 1916.

In the original description it is stated that the under wing-coverts are of the same colour as the breast, but I find that in my large series only twenty specimens have the under wing-coverts olive-green, all the others yellowish. In size these birds agree, as they also do with the rest of the general description.

The type of *A. c. alexanderi* should be examined before one could form a definite opinion as to whether these birds are separable. The wings vary from 75 to 90 mm. Although I kept two birds separate in the *Ibis*, 1916, I am now compelled to unite them ; but it is possible that these Uganda birds will have to be recognised as a distinct race of *curvirostris*.

Bugoma, Budongo, Mubango, Sezibwa, Elgon.

1052. *Arizelocichla nigriceps* Shell. **Black-headed Green Bulbul.**

Is apparently limited to the Kilimanjaro district.

1053. *Arizelocichla striifacies* Rehw.

Appears also to be limited to the Kilimanjaro district.

1054. *Arizelocichla kakamegae* Sharpe. **Little Grey-headed Green Bulbul.**

It is extraordinary that this bird should occur in regions where *A. kikuyuensis* exists, as it differs only slightly in coloration and size.

Kakamegoes, North Kavirondo, and Mt. Elgon.

1055. *Arizelocichla tephrolaema kikuyuensis* Sharpe. **Kikuyu Grey-headed Green Bulbul.**

A common bird in the high forest country. Elgon specimens have wings 80–90 mm. and small bills; in fact, the females have bills equal in size to *A. kakamegae*, while of typical birds the wings vary from 87 to 98 mm. Ankole specimens have wings of 85–94 mm. Young birds are very like *A. kakamegae* in coloration, but have the crown of the head greenish, not greyish.

Kikuyu, Molo, Maraquet, Elgeyu, Londiani, Burnt Forest, in East Africa; also Elgon, Bumasisa, and South Ankole.

1056. *Stelgidillas gracilirostris chagwensis* van Som. **Uganda Grey-breasted Bulbul.**

In comparing my fine series with birds obtained from North Kavirondo, Kakamegoes, I find that the latter agree well with the exception of two which approach *S. g. percivali*. The rest are true to type. The two forms meet in Nandi.

Budongo, Bugoma, Mubango, Masindi, Kyetume, Bumasisa, Elgon, and Kakamegoes. Also Lerundo, Kibrass, Kaimosi, in Meinertzhagen's Collection.

1057. *Stelgidillas gracilirostris percivali* Neum. **East African Grey-headed Bulbul.**

The true home of this race is the forests of Kikuyu. The pale, creamy-grey breast at once distinguishes this race. It ranges north to Nandi.

Kyambu, Kikuyu, and Molo.

1058. *Charitillas gracilis ugandae* van Som. **Uganda Little Green Bulbul.**

My series endorses the validity of this race. The grey throat and breast are distinctive. Wings, 65–75 mm.

Bugoma, Budongo, Mubango, Lugalambo, in Uganda.

1059. *Charitillas minor* ?

Two specimens from Toro are very small-billed and have wings of 62, 64 mm.; they have the grey on the underside limited to the throat. More material required!

1060. *Charitillas kavirondensis* van Som. **Kavirondo Grey-bellied Green Bulbul.**  
*Bull. B.O. Club*, xl. p. 95, 1920.

This new species is nearest to *C. ansorgei* from Nigeria, but differs from that species in being larger (wings 70–80, compared to 65–73 mm.), in being darker olive above and darker on the crown, breast and belly paler greyish, flanks not so olive-brownish. The throat is the same colour as the breast, *i.e.* grey. Beside these birds there are others taken by Turner when collecting for Meinertzhagen, and now in the Tring Museum.

North Kavirondo to Elgon: Kakamegoes and Nyarondo, Kimiriri River, South Elgon.

1061. *Stelgidocichla latirostris eugenia* Rehw. **Uganda Yellow-moustached Bulbul.**

The wings of thirteen adults are : ♂, 75-88 ; ♀, 70-75 mm.  
Budongo, Bugoma, Mubango, Bumasifa, Mt. Elgon.

1062. *Stelgidocichla latirostris saturata* Mearns. **East African Yellow-moustached Bulbul.**

This race is recognisable, being greener above, with the crown like the mantle, not darker, and it is slightly larger. Wings : ♂, 85-94 ; ♀, 80-88 mm. The young are darker than young in corresponding age of the Uganda race. Kyambu, Kikuyu, Kenia.

1063. *Stelgidocichla latirostris pallida* Mearns. **Mt. Uaraguess Bulbul.**

I have no specimen from this locality ; but as the avifauna in this district is peculiar, it is probably sound.

1064. *Eurillas virens holochlorus* subsp. nov. **Uganda Green Forest Bulbul.**

Larger than typical *virens* and the whole of the underside, with the exception of the middle of the breast, uniform olive-green, the central streak yellow and restricted. Wings : ♀ 70-78, ♂ 80-85 mm., as compared to 55-65 in ♀ *virens* and ♂ 70-76 mm. The young is rusty-olive above, and has the breast and flanks tinged with brownish. This is the darkest race of the *virens* group. In Angola is found a form which is much like the above, but the throat is always paler than the breast. It probably requires naming. Type : ♂, Sezibwa River, Uganda, November 1914. Tring Museum.

Budongo, Bugoma, Lugalambo, Sezibwa (type), Kyetume, Elgon. 13 ♂, 14 ♀.

1065. *Pycnonotus tricolor minor* Heugl. **Uganda Yellow-vented Bulbul.**

*P. t. phaeocephalus* Mearns.

Typical *P. tricolor tricolor* does not occur in Uganda. I cannot understand Selater and Praed (*Ibis*, October 1918) stating that *tricolor* is the Uganda form. I have had a series of over forty typical *tricolor* and laid them out with fifty-five specimens of the Uganda race, including typical White Nile birds. The differences were obvious. Uganda birds are darker on the head, throat, and breast than *tricolor*. The wings measure : *P. tricolor* : ♂, 101, 100, 100, 99, 98, 98, 97, 97, 96 ; ♀, 98, 96, 96, 96, 95, 94, 95, 91, 90 mm. *P. tricolor minor* : ♂, 99, 99, 97, 97, 97, 96, 96, 96, 95, 94, 93 ; ♀, 94, 93, 92, 92, 92, 92, 91, 90, 90, 90, 88 mm.

West Uganda to White Nile, east to Elgon and Kisumu districts : Masindi, Nimule, Budongo, Bugoma, Sezibwa, Elgon, Kisumu, Kendu Bay.

1066. *Pycnonotus tricolor fayi* Mearns. **East African Yellow-vented Bulbul.**

*Pycnonotus tricolor micrus* (not Oberholser) van Someren in *Ibis*, 1916.

My series shows that the characters claimed for this race are good. Compared with the Uganda *P. tricolor minor* these birds are larger and darker on the

head and general plumage. Wing: ♂, 102, 102, 101, 100, 99, 98, 98, 98, 97, 95; ♀, 92, 91, 90, 90, 90, 90, 85 mm. The call-note and song are also different.

Nairobi district to Kenia and north to Muhuroni, where it probably grades into *P. t. minor*: Nairobi, Kyambu, Fort Hall, Naivasha, Nakuru, Molo, Burnt Forest, Lumbwa.

1067. *Pycnonotus tricolor micrus* Oberh. **Kilimanjaro Yellow-vented Bulbul.**

This race, which is represented in my collection from Dar-es-Salaam, Tabora, and Dodoma, and in Tring from Zanzibar and Kisaki, has nothing to do with the yellow-vented Bulbul of the Teita Plains, nor with the birds inhabiting the coast at Mombasa inland to Samburu, both of which are forms of *dodsoni*. Wings: ♂, 96, 95; ♀, 90, 90, 92, 92, 93 mm.

1068. *Pycnonotus tricolor pallidus* Roberts.

This form from Portuguese East Africa is represented in my collection by six specimens from Lumbo, North Mozambique. They are like *layardi*, but slightly paler, and have the yellow of the crissum extending on to the abdomen. Wings: ♂, 97, 97, 96, 95; ♀, 87, 90 mm.

1069. *Pycnonotus dodsoni dodsoni* Sharpe. **Little Somali Yellow-vented Bulbul.**

Small typical birds with wings from 80–84 mm. do not range to Kilimanjaro as stated by Sclater and Praed in the *Ibis*, October 1918. In the Ukambani and Teita district is found a larger race with heavier, longer bills and longer wings.

North Marsabit and Juba River.

1070. *Pycnonotus dodsoni teitensis* subsp. nov. **Desert Yellow-vented Bulbul.**

This is a larger race of *dodsoni*, having a more robust appearance and having wings of in ♂ 88, 88, 87, 85, 85, 85, "♀" 81, 91 mm.

These birds have been compared by Oberholser with *peasei*, and he reports them distinct. This corroborates my views. I have therefore named the birds as above. South Ukamba to Kilimanjaro.

Teita, Tsavo (type), M'buyuni, N'ziu River. 6 ♂ 2 ♀. Type: ♂, Tsavo 26.iii.1918. Tring Museum.

1071. *Pycnonotus dodsoni* ? subsp. nov. **Mombasa Yellow-vented Bulbul.**

These birds are certainly also a form of "*dodsoni*," having the mottled breast, white patch on the side of the neck, broad white tips to tail-feathers, and the same note. The wing-measurements are as follows: ♂, 90, 90, 90, 89, 89; ♀, 82, 82, 82, 79 mm. They are thus even larger than *teitensis* and probably another distinct subspecies.

Mombasa along the coast to Malindi and inland to the South Taru country: Mombasa, Changamwe, Mazeras. 5 ♂ 3 ♀ only examined.

I have gone over the African groups of Brown Buleuls, and I think the following division into four groups the best: (1) The white-vented group: *P. barbatus*

with its subspecies. (2) The yellow-vented group: *P. tricolor* with its races. (3) The wattle-eyed yellow-vented: *P. capensis* and its races; and (4) the mottle-breasted yellow-vented: *P. dodsoni* with its races.

1072. *Zosterops kikuyuensis* Sharpe. **Yellow-fronted Kikuyu Zosterops.**

This is the most beautiful of the East African *Zosterops*, being more intensely coloured and having a wide, deep yellow band on the forehead, and a very big eye-ring. Kenia birds differ slightly and when sufficient material is examined will probably be found distinct. The range of this species is the high forests south-east of the Rift Valley, including the Aberdare Range south to Kikuyu and Nairobi, and possibly Kenia. Wings of twenty skins: 55–63 mm. A forest species.

Kyambu, Kikuyu, Aberdare Mountains, Nairobi.

1073. *Zosterops jacksoni* Neum. **Jackson's White Eye.**

*Z. bayeri* Lönnberg.

There is no doubt that Lönnberg has re-described typical *Z. jacksoni* under the name *bayeri*. His specimen came from Londiani, practically the type locality of *jacksoni*. He compared it with Elgon birds, but Elgon birds are not true *jacksoni* but a distinct race, which is named afterwards.

Neumann included Elgon in the distribution of *jacksoni*, but the type locality was fixed as *Mau*. *Zosterops jacksoni* is very much like *kikuyuensis*, but not so intensely coloured, and has a paler and narrower frontal band, besides being larger. Eighteen typical specimens have wings of 62–65 mm., mostly males 65 mm. The range of this species is the high forest north-west of the Rift Valley, *i.e.* Sotik, Mau, Ravine, Elgeyu, Nandi, Molo, Londiani, Nyiro, Burnt Forest, Maraquet, Shandi.

1074. *Zosterops yalensis* spec. nov. **Yala White Eye.**

This species is very like *jacksoni*, but smaller, and lacks the green wash on the breast; it has a smaller bill, and the eye-ring is not so extensive, the mantle slightly yellower. Besides my series of 5 ♂ 2 ♀ there are several specimens collected by Allen Turner for Major Meinertzhagen, and now in the Tring Museum. Wings of thirty skins: ♂, 59–62; ♀, 58–60 mm. This species is found in the park country on the Kisumu-Kakamega Road, and in the Kakamega Forest. It does not extend to Elgon.

Yala, Mumias, Nyarondo, Kaimosi. Type: ♂ ad., Kaimosi, Allen Turner leg. Tring Museum.

1075. *Zosterops elgonensis* spec. nov. **Elgon Pale White Eye.**

These birds differ from both *Z. yalensis* and *jacksoni* by being generally paler above and below and having the yellow of the underside decidedly tinged with greenish, except on the throat. This pale form has wings of 60–61 in males, 56–60 mm. in females. The eye-ring is large. Fifteen specimens were taken. It is a forest species. The range of this species is limited to Mt. Elgon, particularly on the Bukedi (Uganda) side, and in the Bumasisa Forest, up to 10,000 feet.

Type: ♂, Bukedi, 13.i.1916. Tring Museum.

1076. *Zosterops stuhlmanni* Rehw. **Uganda White Eye.**

Birds from Central and North-west Uganda do not differ from Sesse Island specimens.

Budongo, Busiro, Lugalambo.

1077. *Zosterops flavilateralis* Rehw. **Coast Pale White Eye.**

These birds differ from Teita specimens and those from Ukambani. Typical birds do not range over the localities mentioned by Reichenow, but are confined to the coast belt.

Witu, Lamu, and Manda.

1078. *Zosterops massaica* spec. nov. **Teita White Eye.**

Somewhat like *flavilateralis*, but richer yellow below and greener above, less yellow, with a darker forehead. Wings from 53–56 in males, 53–55 mm. in females. This form ranges from Teita north to the South Guasso Nyiro Plains, to Loita, but not to the Ukamba and Fort Hall districts. Here we find a paler form, which has been named, by Mearns, *Z. fricki*.

Sagala, Teita, Tsavo, Loita. Type: ♂, Sagala, 8. viii. 1918. Tring Museum.

1079. *Zosterops flavilateralis fricki* Mearns. **Pale Scrub White Eye.**

These are pale small birds which are very close to *Z. f. smithi*—Somaliland—but slightly greener above and darker yellow below. They differ from the Teita birds in being generally paler. As the material of *smithi* is too limited I refrain from criticising this form until more material is available. Neumann in his description of *smithi* mentioned a bird collected by Jackson in Ukamba as being intermediate between *smithi* and *flavilateralis*; this specimen belongs to *fricki*. Twenty skins; wings: ♂, 55–56; ♀, 52–55 mm.

Fort Hall, Thika, Nairobi, Simba, Meru.

1080. *Zosterops omoensis* Neum.

This form probably ranges down the west shore of Lake Rudolf, but there are no specimens available for comparison.

1081. *Nectarinia kilimensis* Shell. **Long-tailed Green Sunbird.**

A large series of specimens, though showing considerable variation, cannot be divided into races, but on the whole a greener, less bronzy bird is found in the Kisumu district and North Kavirondo. It would appear that full-plumaged males are to be found in every month of the year. Ankole specimens are purple bronze. I have no typical Kilimanjaro specimens for comparison.

Bugoma, Budongo, Busiro, Ankole, Sezibwa, Kyanja, Kyanuna, Kibingei, Kimiriri, Kisumu, Burnt Forest, Maraquet, Naivasha, Fort Hall, and Nairobi.

1082. *Nectarinia tacazze jacksoni* Neum. **Jackson's Purple Long-tailed Sunbird.**

This race must be recognised, as the southern mountain birds are much more highly coloured than the typical Abyssinian form. It is a common bird at altitudes over 6,500 feet.

Bumasifa, Elgon; Elgeyu, Maraquet, Londiani, Mau, Aberdares.



1083. *Nectarinia tacaze unisplendens* Neum. **Kilimanjaro Purple Long-tailed Sunbird.**

Apparently a mountain form confined to Kilimanjaro.

1084. *Nectarinia famosa famosa* Linn. **Southern Emerald Long-tailed Sunbird.**

Has been recorded from the highlands of the coast, but its occurrence requires verification.

1085. *Nectarinia famosa aeneigularis* Sharpe. **Blue-bellied Emerald Long-tailed Sunbird.**

*Nectarinia famosa centralis* (Neum. in MSS.) van Someren in *Ibis*, 1916 (!).

It is noticeable that my four Nairobi specimens are larger and have heavier, longer bills than specimens taken at higher ranges from Escarpment, north to Londiani. A larger series may show this to be constant. I cannot find a published description of Neumann's name *centralis*.\*

Nairobi, Escarpment, Naivasha, Nakuru, Londiani, Aberdare Mountains.

1086. *Nectarinia pulchella lucidipectus* Hart. **Red-and-yellow-breasted Green Sunbird.**

*Nov. Zool.* 1921, p. 123.

Ankole, Meoussi, Kobua, Lake Rudolf; also Baringo.

1087. *Nectarinia melanogaster* Fisch. & Rehw. **Black-bellied Sunbird.**

I find that when a series of Kisumu birds are compared with typical birds from Nguruman, the Kavirondo birds are larger, having longer bills and wings of 64–66 mm., compared with 58–60 in typical birds, but, as birds from Loita intergrade, no definite distribution can be assigned to these large birds at present.

Magadi, Loita, Naivasha, Kitui, Kisumu, and Kendu Bay.

1088. *Nectarinia johnstoni* Shell. **Johnston's Crimson-tufted Emerald Sunbird.**

Limited to Mt. Kilimanjaro.

1089. *Nectarinia johnstoni idius* Mearns. **Kenia Crimson-tufted Emerald Sunbird.**

Confined to Mt. Kenia.

1090. *Nectarinia johnstoni dartmouthi* Og.-Grant. **Ruwenzori Crimson-tufted Emerald Sunbird.**

Found only on the heights of Ruwenzori.

1091. *Nectarinia purpureiventris* Rehw. **Rainbow Bird.**

Found in the Kivu district.

\* It is always undesirable to write unpublished names on labels, but still more objectionable to quote them in print.—E. H.

1092. *Nectarinia chloronota* Jackson. **Ruwenzori Sunbird.**

Limited to Ruwenzori.

1093. *Drepanorhynchus reichenowi* Fischer. **Golden Sunbird.**

Found on the higher elevations from 4,500 to 9,000 feet.

Nairobi, Naivasha, Nakuru, Burnt Forest, Kisumu, Kibigori, in East Africa ; Jinja in Uganda.

1094. *Hedydipna platura karamojoensis* van Som. **Pigmy Long-tailed Green Sunbird.**

*Bull. B.O. Club*, xl. p. 93, 1920.

This race is very much like *platura*, but is purer, darker green on the head and breast, the type of feathering being like that found in *N. famosa*, i.e. with a frosted appearance. From *H. adiabonensis* Zedlitz it differs in being considerably larger, having wings of 60–61 and bills of 11–12 mm. The females differ from those of *H. platura platura* by being darker above, without the yellowish rump ; in being more yellowish below ; in lacking a distinct eye-stripe ; and in having the whitish tip to the outer rectrices much more restricted. The range of this form appears to be from Soroti, north to Kobua on Lake Rudolf, including the Karamoja country in Turkana. Besides my specimens there are others in the Nairobi Museum.

Mt. Kamalinga, Mt. Moroto, and Soroti in Uganda.

1095. *Hedydipna platura platura* Vieill. **Western Pigmy Long-tailed Green Sunbird.**

Has been obtained in the north-west province of Uganda at Nimule and Gondokoro.

1096. *Hedydipna metallica* Licht. **Somali Pigmy Long-tailed Green Sunbird.**

This form extends from Somaliland to the Northern Frontier districts of East Africa.

1097. *Nectarinia erythrocerca* Hartl. **Red-breasted Wedge-tailed Sunbird.**

I have no typical White Nile birds for comparison, but as I find that Kisumu birds are not quite the same as Western Uganda ones, it is quite likely that they differ also from typical specimens. A series of each should be compared.

Karungu, Kendu Bay, Kisumu, Kano, Kimiriri River, in East Africa ; Sezibwa River, Jinja, Entebbe, and Ankole in Uganda.

1098. *Nectarinia nectarinoides* Richm. **Lesser Red-breasted Wedge-tailed Sunbird.**

This very rare species appears to be limited to the dry scrub country, stretching from Ukamba, west to the Nguruman Hills. It is possible that we will eventually have to recognise an intermediate race between this Kilimanjaro species and the small South Somaliland form.

N'ziu River, Simba, Magadi, Tsavo, Taveta, Sagala, in East Africa.

? *Nectarinia raineyi* Mearns. **Sotik Wedge-tailed Sunbird.**

"*Helionympha raineyi*" was described from Sotik. It is said to be near *erythrocerca*, but very much like *Cinnyris m. suahelica* in coloration. It is probably a long-tailed specimen of *suahelica*. This now brings me to a discussion of the validity of the genus *Helionympha*. I find certain characters which distinguish the birds placed in this genus from the genus *Cinnyris* and *Chalcomitra*; but on examination of large series of so-called *Cinnyris*, I find birds which present features intermediate between the so-called true *Helionympha* and *Cinnyris*. I refer to the *mariquensis* group. I find that the representatives of this species in Kisumu district have markedly graduated central rectrices which in certain specimens project as much as 10 mm. beyond the next pair, and the tail is thus wedge-shaped! (cf. *H. raineyi*). But I also find in the series, examples with very much less graduated central rectrices. In typical *mariquensis* I find the same variation. The birds referred to the genus "*Helionympha*" are undoubtedly connecting links between *Cinnyris* and *Nectarinia*, and as the characters of this genus do not remain true to type but merge into the genus *Cinnyris*, I submit that the *Nectarinia* and *Cinnyris* groups should not be kept separate! It is also doubtful whether *Chalcomitra* should be recognised for the same reasons!

1099. *Cinnyris mariquensis suahelicus* Rehw. **Large Brown-black-bellied Green Sunbird.**

My large series covers an area from East Uganda south to Kilimanjaro and South Ukambani: I find that ten specimens from Simba and River N'ziu have distinct purplish blue bands separating the green of the throat from the red of the breast. This band, when present, in Kisumu specimens is not purple but green-blue. As I am unable to define the ranges of these forms, I keep them united for the time being.

N'ziu, Kitui, Machakos, Magadi, Loita, South Guasso N'yiyo, Naivasha, Kisumu, Kibingei, Kendu Bay, Kibigori; M'Bale and Elgon.

1100. *Cinnyris mariquensis osiris* Finsch. **Abyssinian Black-bellied Sunbird.**

*Cinnyris mariquensis hawkeri* Neum.

I am certain that when more specimens are available from the Baringo and Northern Frontier district, they will prove to be distinct. I fail to separate the South Abyssinian birds from the typical North Abyssinian race, with which my Moroto specimens agree very well. This form does not overlap *suahelicus*.

Mt. Moroto, Kerio River, in Uganda; Ravine, Baringo, North Kenia, Orr Valley, N'guasso N'yiyo, in East Africa.

1101. *Cinnyris chalcomelas* Rehw. **Purple-banded Black Sunbird.**

*C. shephardi* Jackson.

The name *chalcomelas* has priority over *shephardi*, and as both apparently refer to the same bird, this species must be known by Reichenow's name. The wings of my series measure 59-63 mm.

Tana River (A. B. Percival), N'ziu River, Tsavo, Campi-ya-bibi.

1102. *Cinnyris bifasciatus microrhynchus* Shell. **Little Red-banded Black Sunbird.**

The characters of this race are its small size, and the wide maroon-red band which succeeds the purple band of the upper breast. The range appears to be the moist coastal belt, from Lamu south to Dar-es-Salaam and the coast of North Mozambique, and it does not range into the dry thorn-bush country beyond the Taru Desert. The wings of my series are 50-56 mm.

Lamu, Manda, Mombasa, Dar-es-Salaam, and Lumbo.

1103. *Cinnyris bifasciatus tsavoensis* subsp. nov. **Little Purple-banded Dark Sunbird.**

This inland form differs from *microrhynchus* by having a pronounced purple breast-band and a very narrow or faintly indicated maroon line below this band. This form ranges throughout the dry inner thorn-belt as far inland as the Simba Plains, occupying practically the same territory as *C. chalconelas*, but not extending to the coast. There is not a single adult male in the series which has the maroon breast-band as in typical *microrhynchus*. The wings measure 53-58 mm. Besides my 18 ♂ birds and many females, there are others in Nairobi Museum and private collections in East Africa. The birds occurring in West Uganda and said to be *microrhynchus* should be compared in series.

Teita, Sagala, Maungu, Tsavo, Upper Tana, and Simba. Type: ♂ ad., Tsavo, 3.iv.1918. Tring Museum.

1104. *Cinnyris angolensis* Less. **Green-throated Black Sunbird.**

These birds from West and Central Uganda are very like typical Angolan birds, being dark bronzy brown, but they are slightly larger, though not sufficiently so to warrant separation.

Masindi, Bugoma, Mubendi, and Entebbe.

1105. *Cinnyris angolensis kakamegae* van Som. **Kavirondo Green-throated Black Sunbird.**

*Bull. B.O. Club*, xli. p. 113, 1921.

A dark race of the Angolan species; bills slightly longer, 21-22; wings 70-72 mm. Females darker above, and more darkly and heavily striped below.

North Kavirondo and Nandi: Yala River, Kaimosi, Kakamegoes, Mandi Escarpment.

1106. *Cinnyris bradshawi* Sharpe. **Violet-rumped Black Sunbird.**

One ♂ from Kyambu (17.v.1918) has purple upper tail-coverts, and possibly belongs to this species. The type locality is Witu near Lamu. Are these birds not reversions to the oldest type, *amethystinus*? So far as I know, only two or three specimens exist.

1107. *Cinnyris kirki* Shelley. **Purple-throated Black Sunbird.**

I find that my highland birds are larger and have longer, stouter bills. Should a series show this to be constant, a highland race should be recognised, as, besides

size, the birds are darker. More material is, however, necessary. Most of my specimens are from the coastal area.

Manda, Witu, Changamwe, Samburu, Sagala, Teita, Bura, Kitui, Simba, Orr Valley (A. B. Percival), Nairobi, Kyambu, Kenya.

1108. *Cinnyris cupreus* Shaw. **Copper Sunbird.**

Budongo, Bugoma, Mubendi, Sezibwa, Elgon, in Uganda; Yala and Kisumu in East Africa.

1109. *Cinnyris superbus* Shaw. **Superb Sunbird.**

Compared with typical birds the Uganda specimens are larger and more purplish about the throat and breast; the females are darker, more greenish, below. Wings: ♂, 80-81; ♀, 73-76 mm.

The races of this Sunbird require working out; there are certainly three distinct forms. Sierra Leone and South Nigerian birds are the smallest and most distinct, having blue throats in the males and yellowish females.

Owing to lack of time I am unable to study these races closer.

Masindi, Budongo, Bugoma, Kyanja, Sezibwa.

1110. *Cinnyris habessinicus turkanae* van Som. **Purple Crowned Black-bellied Sunbird.**

*Bull. B.O. Club*, xl. p. 94, 1920.

This race differs from the typical bird and from *alter* of Neumann, by being larger, and in having the red breast wider and of a brighter shade; the throat is greener, not inclining to bluish; the mantle and rump and upper tail-coverts golden green, the latter not bluish. The pectoral tufts are richer yellow.

Wings: 66-70 mm., as compared to 60-61.

South Lake Rudolf and Turkana: Turkwell, Kobua.

1111. ? *Cinnyris bouvieri tanganyicae* Og.-Grant. **Orange-tufted Brown-bellied Sunbird.**

5 ♂ 3 ♀ are not typical *bouvieri*, but may possibly be the same as *tanganyicae*, which is known only from the type.

Bugoma, Busiro, Entebbe, Mawakota.

1112. *Cinnyris leucogaster lumbo* van Som. **Large White-bellied Sunbird.**

*Bull. B.O. Club*, xli. p. 113, 1921.

Differs from the typical South African form by having the rump and upper tail-coverts like the mantle, not so bluish. The throat is less purplish, and it is smaller. Wings: ♂, 53-55; ♀, 51 mm.

North Mozambique and coast of southern Tanganyika Territory. 3 ♂ 1 ♀, July, August, September, and four skins in Nairobi Museum. Type from Lumbo.

1113. *Cinnyris albiventris* Strickl. **Small White-bellied Sunbird.**

I have insufficient material of typical birds for comparison, but specimens available suggest that North Somali birds may not be quite the same as South Kenya Colony ones.

Lamu, Manda, Tana, Taru, Taveta, M'buyuni, and Tsavo.

1114. *Cinnyris venustus blicki* Mearns. **Little Buff-bellied Sunbird.**

3 ♂ 1 ♀ show that this race is perfectly good. It is, however, rather doubtful whether they should be looked upon as intermediate between *venustus* and *albiventris*.

Kerio, Turkwell R., Lake Rudolf.

1115. *Cinnyris venustus igneiventris* Rehw. **Orange-bellied Sunbird.**

Although strictly a West Uganda race, yet typical birds are occasionally found in East Uganda, in territory occupied by *C. v. falkensteini*. The two forms probably interbreed.

Kigezi in South Ankole, Masindi, Bugoma, Budongo, Mubendi, Sezibwa, Entebbe, Elgon.

1116. *Cinnyris venustus falkensteini* Rehw. **Yellow-bellied Sunbird.**

Two specimens from Lumbo and Dar-es-Salaam agree well with specimens from Nyassaland in size and colour, but I am unable to verify this with a series. Much variation exists, some specimens being quite deep orange-yellow on the belly, others chrome-yellow, while two birds from the country of the northern frontier are very pale yellow (not as in *blicki*), and their females are also pale. More material should be collected from this district.

Dar-es-Salaam, Lumbo, Taru, Bura, Kitui, Nairobi, Escarpment, Naivasha, Nakuru, Kyambu, Kisumu, South Elgon, West Elgon, Jinja, and Kyanja.

1117. *Cinnyris chloropygius orphogaster* Rehw. **Little Olive-bellied Sunbird.**

This form is apparently confined to the west and central districts of Uganda, and does not extend into East Africa.

Masindi, Budongo, Bugoma, Mawakota, Mubendi, Kyanja, Mbale.

1118. *Cinnyris mediocris keniensis* Mearns. **Kenia Olive-bellied Sunbird.**

This form occurs in the same territory as *C. reichenowi*. I have no typical *mediocris* for comparison.

Kenia, Nyeri, Enbu (typical *keniensis*), Molo, Elgeyu, Maraquet, Elgon (perhaps slightly different).

1119. *Cinnyris mediocris garguess* Mearns. **Mt. Urageuss Olive-bellied Sunbird.**

This race can be admitted, as the specimens from the type locality show these birds to be paler on the belly and lacking a deep blue breast-band.

Mt. N'yiroyi and Mt. Urageuss. 2 ♂ 1 ♀. A. B. Percival coll.

1120. *Cinnyris reichenowi reichenowi* Sharpe. **Purple-rumped Olive-bellied Sunbird.**

Occupies the same area as the blue-rumped *C. mediocris*, i.e. Elgon south to Mau.

Ankole and Kivu birds are smaller and have shorter bills, and belong to a recognisable race.

Kagezi, South Ankole, Elgon, in Uganda; Yala River, North Kavirondo, Elgeyu, Maraquet, Molo, in East Africa.

1121. *Cinnyris reichenowi kikuyuensis* Mearns. **Kikuyu Purple-rumped Olive-bellied Sunbird.**

This race can be recognised. The females show more difference and are also smaller.

Kenia to Escarpment : Kenia, Fort Hall, Meru, Uraguess (A. B. Percival).

1122. *Cinnyris regius* Rehw. **Little Yellow-flanked Sunbird.**

This species is fairly common in the South Ankole district and extends up to the Semliki, *i.e.* the West Uganda lake districts.

Kigezi in South Ankole. 5 ♂ 2 ♀.

1123. *Cinnyris hunteri* Shell. **Hunter's Red-breasted Black Sunbird.**

The presence of this species in East Uganda is rather remarkable and extends its range. With sufficient material from this locality, however, it may be shown that Uganda birds are not typical. I find no difference in the males; females may differ.

Meuressi, Turkwell; Samburu, Voi, Bura, M'buyuni, Campi-ya-bibi, Maungu, Tsavo, Tana, and Juba River.

1124. *Cinnyris gutturalis inaestimata* Hart. **East African Purple-shouldered Red-breasted Black Sunbird.**

We must admit this race, as the small size is constant. I cannot find any constant difference in coloration, either in the males or females, between this race and the southern birds. The type locality is Dar-es-Salaam.

Malindi, Mombasa, Changanwe, Masongoleni, and Dar-es-Salaam.

1125. *Cinnyris senegalensis aequatorialis* Rehw. **Uganda Red-breasted Black Sunbird.**

This race is coloured exactly like *acik* of the Sudan, but larger. I find that birds from the Masindi-Nimule district are intermediate and hardly to be distinguished from the northern form. This form does not occur in Uganda Proper—there the race is always larger. The female *aequatorialis* is a dark bird with dark olive underside, quite different from the East African race which has been separated by Mearns.

Masindi, Bugoma, Budongo, Mubendi, Busiro, Mubango, Lugalambo, Kye-tume, Jinja, Elgon, in Uganda; Kisumu, Kendu Bay, Kibigori, in East Africa.

1126. *Cinnyris senegalensis atra* Mearns. **East African Scarlet-breasted Sunbird.**

I find on comparing East African examples with Uganda birds that the males are larger, *not smaller* as stated by Mearns, and not any blacker. They have wings of 75–80 mm. I recognise this race not only because of its larger size, but because the females are quite different from Uganda ones; being much less dark on the back and paler greyish, not olive-greenish-yellow below, also more mottled. The range is from the coast to Kilimanjaro and Kenia north to Lumbwa.

Reichenow has described birds from Moschi (Kilimanjaro) as *lamperti*, giving as their characters the brownish back and wings. I have examined the bird collected by Ansorge and which Reichenow has referred to this new race, and find it to be indistinguishable from worn specimens of *C. s. atra*. I have not sufficient specimens of so-called *lamperti* for comparison, but would suggest that German East African birds in fresh full plumage are not brown backed or have brown wings, but blackish, and thus not distinguishable from the Ukamba birds—in which case the form must, of course, be called *lamperti* and not *atra*. I found this bird at Lamu, along with *G. g. inaestimata*.

Lamu, N'ziu, Kitui, Thika, Fort Hall, Tsavo, Lake Jipe, Nairobi, Nakuru, Kenia (7,000 feet).

**1127. *Cinnyris cyanolaema* subsp. Blue-throated Grey Sunbird.**

A comparison of birds belonging to this species from various localities shows that there are certainly three distinct forms. That of (1) Fernando Po; (2) that from Sierra Leone and South Nigeria; and (3) the Uganda race. As I have insufficient typical material I refrain from placing my birds with certainty.

Bugoma, Entebbe, Mubango, Kyetume, in Uganda.

**1128. *Cinnyris verticalis viridisplendens* Rehw. Green-backed Grey Sunbird.**

I was surprised to find this bird represented in a collection from Mt. Kenia, especially as it does not occur in the Forests of Kikuyu. A comparison of the females may possibly show the Kenia bird to differ.

Bugoma, Budongo, Masindi, Busiro, Mubendi, Entebbe, Kyanja, Lugalambo, Mubango, Sezibwa; Elgon, Elgeyu, Maraquet, Molo, and Kenia.

**1129. *Cinnyris alinae* Jackson. Ruwenzori Sunbird.**

This bird was described from Ruwenzori and is apparently limited to that range and the central lake region. I have obtained it in the Kigezi country in South Ankole.

**1130. *Cinnyris obscura ragazzi*. Uganda Olive Sunbird.**

Of the three forms of Olive Sunbird inhabiting East Africa and Uganda, this is the largest, having wings of 57–71 mm. The form extends from West Uganda to Elgon and south along the Nandi Escarpment to Mau and the Sotik and Elgeyu Forests.

Budongo, Bugoma, Mawakota, Buremeze, Sizebwa, Kyetume, Entebbe; South Elgon, Kavirondo, Nandi, Lumbwa, Elgeyu, Maraquet.

**1131. *Cinnyris obscura neglecta* Neum. Kikuyu Olive Sunbird.**

This race is perfectly good, being smaller and more olive-yellow below than the Uganda race. The range, so far as I can find out, is from South Ukamba and East Kilimanjaro north to Kenia and the Kikuyu Forests. Wings: 54–63 mm.

Kitui River, N'ziu, Taveta, Kyamba, and Nyeri on Mt. Kenia.



1132. *Cinnyris obscura changamwensis* Mearns. Coastal Olive Sunbird.

This is the smallest race of *obscura* and quite distinct. It is greyer below than the Uganda form and much smaller. The wings of my series measure 50–56 mm. It is apparently limited to the coast belt from the Pangani River north to Lamu. North of this, in the Juba district, is found a smaller race with yellow undersurface and wings of 46–53 mm., but as my material is inadequate I have not named the form.

Mombasa, Changamwe, and Juba River. 7 ♂ 3 ♀.

1133. *Cinnyris verreauxi fischeri* Rehw. East African Grey Sunbird.

This quite distinct Sunbird does not extend very far inland, but is limited more or less to the coast belt.

Changamwe, Mombasa, Manda, and Lamu Islands.

1134. *Anthreptes longmari* ? *haussarum* Neum. Large Purple White-bellied Sunbird.

I am not satisfied with the identification of these birds, owing to want of material for comparison. As stated in my paper in the *Ibis*, 1916, the birds I reported on then agree with Neumann's *haussarum* from Togoland, of which there is a topo-type in the Rothschild Museum. I find that whereas the majority of specimens have no green whatsoever on the rump, one or two show just a small patch on the sides of the rump; the shoulder-patch is purple, narrowly outlined with greenish. These characters are present in the co-type of *haussarum*. In any case, these birds do not seem to be typical *longmari*. The wings measure: ♂ 76–82, ♀ 65–78 mm.

The females are *yellow-bellied*, while the young have the whole underside washed yellowish. Seth-Smith collected this type of bird on the White Nile at Fatiko, along with typical *orientalis*. I have collected these birds at Masindi, Soroti, Bugoma, Budongo, Busiro, Kyetume, Jinja; North Kavirondo.

1135. *Anthreptes orientalis* Hartl. Green-rumped Purple White-bellied Sunbird.

My large series agrees well with typical birds collected near Lado. They are much smaller than the birds mentioned above, and besides having a *large* green band on the rump and a large green shoulder-patch, the females are quite distinct, being paler, greyer above, and pure white below. In view of the fact that these birds and the large form *longmari* occur together throughout Uganda and northern East Africa, we must keep them as distinct species and not as subspecies of the same species. I thus recognise a large species characterised by having yellow-bellied females—the *longmari* or western group, with so many races; and the small species—the *orientalis* or eastern group, with one subspecies, *A. o. neumanni* of South Somaliland, with white-bellied females. Wings: 63–71 mm.

Nimule, Masindi, Soroti, Moroto, Usoga, Meuressi, Turkwell, Kogua, in Uganda; Kerio, Elgon, Suk, Baringo, Marsabit (A. B. Percival coll.), Kitui, Magadi, Tsavo, Simba, Teita, Kibwezi, Maungu, Masongoleni, Campi-ya-bibi, M'buyuni, in East Africa.

1136. *Anthreptes orientalis neumanni* Zedlitz. **South Somali Purple Sunbird.**

2 ♂ collected by A. B. Percival on the Juba River probably belong to this race, but I have no typical birds for comparison.

1137. *Anthreptes tephrolaema elgonensis* van Som. **Elgon Grey-throated Sunbird.**

*Bull. B.O. Club*, xli. p. 112, 1921.

With a series in my own and Meinertzhagen's collection we must recognise the Elgon Grey-throated Sunbird as belonging to a new race, distinguished by its larger size, darker grey chin-patch, and the female having a darker, more greyish underside. Wings: ♂, 59-64; ♀, 57-62 mm.

Nandi Escarpment, north to Mt. Elgon and Uganda: Kaimosi (type), Elgon, Yala River, Kakamegoes, Sio River, in East Africa; Mubango and Mabira.

***Anthreptes collaris* and subspecies.**

I find that there are undoubtedly several recognisable races, composed of, (a) typical *A. collaris collaris*, South Africa; (b) *A. collaris* subsp., Angola, Gaboon, and Camaroon; (c) *A. collaris hypodila*, Fernando Po (a large long-billed form); (d) *A. collaris* subsp., Liberia, Sierra Leone (small and rich yellow below); (e) *A. collaris* subsp., South Nigeria (slightly paler); (f) *A. collaris zambesiana* (size as in Angolan birds, but yellower with an olive wash); (g) *A. collaris ugandae* van Som. (richer yellow with dark olive wash on flanks and rich yellow pectoral tufts), extending into highlands of East Africa; (h) *A. collaris teitensis* van Som. (size slightly small but with clearer paler yellow underside, paler pectoral tufts), ranging from South Ukambani to Teita; and (j) *A. collaris elachior*, limited to the coastal belt of the Tanganyika Territory and Kenia Colony north to South Somaliland; (k) *A. c. uraguess*, limited to Mt. Uraguess and Marsabit district. Of these races the ones occurring in Uganda and East Africa are the following:—

1138. *Anthreptes collaris elachior* Mearns. **Pale Yellow-bellied Little Sunbird.**

This race is at once distinguished from all others by its small size and very pale yellow underside—especially in the females, which have the throat pale yellow without any olive wash. Wings: ♂, 48-52; ♀, 45-48 mm.

Lamu, Manda, Changamwe, Mombasa, Vanga.

1139. *Anthreptes collaris teitensis* van Som. **Teita Little Yellow-bellied Sunbird.**

This race is much like the above but larger and slightly richer yellow below, females having the throats slightly tinged with olive; from *A. c. zambesiana* it is distinguished by its clearer yellow undersurface. Wings: 52-57 mm.

South Ukambani to Teita and East Kilimanjaro: N'ziu River, Tsavo, Sagala, Teita, Simba.

1140. *Anthreptes collaris uraguess* Mearns. **Northern Little Yellow-bellied Sunbird.**

Only one ♂ topo-type (A. B. Percival's coll.), so I am unable to discuss its value.

Mt. Uraguess, North Frontier.

1141. *Anthreptes collaris ugandae* van Som. **Elgon Little Yellow-bellied Sunbird.**  
*Bull. B.O. Club*, xli. p. 113, 1921.

This race can be recognised by its rich yellow underside, which in the males is washed with dark olive-green on the flanks, and by the more bluish green upper-side and throat; and by the females having a dark olive wash on the throat and flanks. The pectoral tufts in the males are rich yellow. This is the darkest race of this group.

Uganda to Kivu, east to Elgon, and south to highlands of East Africa.

(1) Bugoma, Budongo, Entebbe, Lugalambo, Kyetume; (2) Mt. Elgon, south-east and west; (3) Yala, Kakamegoes, Fort Ternan, Elgeyu, Maraquet, Naivasha, Nakuru, Kyambu, Nairobi, Ngong.

1142. *Anthreptes axillaris* Rehw. **Orange-tufted Green Sunbird.**

Wings: 68-72 mm. A common species in the Uganda Forests.  
Bugoma, Budongo, Mubango, Lugalambo, Sezibwa, in Uganda.

1143. *Salpornis emini*? **African Tree Creeper.**

This is rather a rare bird; very few specimens have been taken in East Africa. My records show, one Kibingei River, south of Elgon, one in Suk, one in the Elgeyu Escarpment.

1144. *Anthoscopus sharpei* Hart. **Northern Buff Penduline Tit.**

This bird is characterised by having a dark rufous buff underside and a pale buff forehead. Wings: ♂, vary from 57 to 59; ♀, 53-54 mm. I suggest that this should be considered a race of *A. sylviella* Rehw., from North Lake Nyassa, and not united with it, as Neumann suggested. A rare bird.

Kisumu, Kendu Bay, South Guasso N'yiroy. 5 ♂ 2 ♀.

1145. *Anthoscopus rothschildi* Neum. **Eastern Buff Penduline Tit.**

This race is distinguished from the preceding by being paler rufous below, but with a darker rufous forehead and eye-stripe. Wings: ♂, 55; ♀, 52 mm.

Simba and Kitui. 3 ♂ 1 ♀.

1146. *Anthoscopus roccatii roccatii* Salvad. **Uganda Green-backed Penduline Tit.**

Not by any means common. Usually seen in pairs.

Entebbe, Sezibwa, Kyetume. 2 ♂ 2 ♀.

1147. *Anthoscopus roccatii taruensis* van Som. **Coast Penduline Tit.**

*Bull. E.O. Club*, xli. p. 112, 1921.

This bird is smaller and paler below than *roccatii*, and greyer above. The belly is buffy and the forehead whitish buff with a few dusky tips to the feathers. Besides my specimens there is another in Nairobi Museum. Wings: 45-48 mm.

Coast of British East Africa inland to the Taru desert: Changanwe, Samburu.  
3 ♂ 1 ♀.

1148. *Anthoscopus musculus* ? subsp. **East African White-breasted Penduline Tit.**

I have examined the type and cotype of *musculus*, and find that they are rather paler below than my birds, less creamy white on the throat and chin, and much less deep buff on the abdomen.

Wings: ♂, 51; ♀, 47 mm.

Turkwell River, Baringo, Magadi, South Guasso N'yiroy, Tsavo, Taveta, Campi-ya-bibi, Maungu.

1149. *Parus fringillinus* Rehw. **Large Buff-breasted Tit.**

This rare species was described from the Meru Kilimanjaro Hills. My specimens extend its range considerably.

South Guasso N'yiroy, Loita Plains. 5 ♂, also series collected by A. Blayney Percival.

1150. *Parus thruppi barakae* Jacks. **White-cheeked Tit.**

This race can be admitted, as I find on comparing this series with North Somaliland specimens that the latter are not so clear whitish below, but more greyish. The white collar is found in both races. The wing-measurements are alike—that is, the extremes are the same, though averages are slightly different.

Simba, N'ziu, Olgerei, Lodermoru, Baringo, Campi-ya-bibi, Tsavo, M'buyuni, Masongoleni, Maungu.

1151. *Parus thruppi fricki* Mearns (?). **Kenia White-cheeked Tit.**

Two birds collected by A. B. Percival ought to belong to this race, but I doubt its validity.

North Guasso N'yiroy.

1152. *Parus niger insignis* Cab. **Greenish-black Tit.**

This race enters Uganda in the south-western district. Kagera, Kazinja Channel, in South Ankole.

[*Parus niger leucomelas* does not occur—the birds found in Uganda are larger and more purple-black, and I have separated them as *purpurascens*.]

1153. *Parus niger purpurascens* van Som. **Uganda Black Tit.**

*Bull. B.O. Club*, xli, p. 112, 1921.

A comparison between Uganda and Abyssinian birds shows that they differ as indicated above. Wings: ♂, 83–85; ♀, 78–82 mm.; bills also larger.

Entebbe (type), Bukedi, Mubendi, Soronko on Mt. Elgon.

1154. *Parus niger lacuum* Neum. **South Abyssinian Black Tit.**

Neumann gives his measurements as 83–95 mm. My birds range from 83–91 mm. This large race apparently extends down the line of Lake Rudolf into the North Kavirondo country, where it has been taken by Mr. Turner for Meinertzhagen and myself on three separate occasions. Although not agreeing in wing-measurement exactly with the Omo River birds, it seems to me unnecessary to recognise another race, though they are distinct from the Uganda birds.

Kakamegoes, Kcrio, Kibingei, and Kimiriri Rivers, Komolo in Turkwell.

1155. *Parus funereus nigricinereus* Jackson. **Grey-black Tit.**

I have no typical *funereus* to compare, so I am unable to discuss the value of this race.

Sezibwa, Elgon, and Mubango in Uganda.

1156. *Parus albiventris* Shell. **White-bellied Tit.**

I am of opinion that when a series of coast birds is available they will prove to be a smaller race. I find that my two coast males have wings of 75–77, while the up-country males run from 83 to 86, average 85 mm., while the females are 72 mm., compared to 80–82 in up-country birds.

*Large birds*: Elgon, Nadi, Maraquet, Naivasha, Nakuru, Nairobi, Kyambu, in East Africa; Moroto and West Elgon in Uganda.

*Small birds*: Sagala, Samburu.

1157. *Parus fasciiventris* Rehw.

Type locality, Ruwenzori.

1158. *Parus griseiventris* Rehw.

Type locality, Kakoma.

1159. *Parus pallidiventris* Rehw.

Type locality, Kakoma.

Of these three species I have no specimens.

1160. *Parisoma böhmi* Rehw. **Black-collared Tit Warbler.**

I am certain that the Somali birds will have to be recognised as a race of this species. If birds in fresh condition are compared, it will be noticed that Somali birds are not so pure grey above and the breast-band is less distinct and not so black, due to the fact that the feathers forming the band are greyer black and have pale tips.

Samburu, Masongoleni, Campi-ya-bibi, Sultan Hamud, Simba, Olgerei.

1161. *Parisoma jacksoni* Sharpe. **Brown Tit Warbler.**

This species is common on the edges of the forests in the highlands. Specimens from Mt. Kenia should be compared with typical birds.

Elgon, Nandi, Burnt Forest, Elgeyu, Maraquet, Lumbwa, Molo, Mt. Kenia.

1162. *Parisoma plumbeum* ? subsp. nov. **Uganda Grey Tit Warbler.**

My five specimens of the Uganda Tit Warbler are much greyer on the breast than typical birds, and it is probable that when a sufficient series from these localities are compared the Uganda birds will prove to be distinct.

Kyanja, Budongo, Sezibwa, in Uganda.

1163. *Parisoma plumbeum orientale* Rehw. & Neum. **East African Grey Tit Warbler.**

This race is quite good, being considerably darker above and below and possessing white under tail-coverts, but its range is not definitely known.

Sagala, Teita, Tsavo, and N'ziu River in Ukamba.

1164. *Melocichla mentalis orientalis* Sharpe. **East African Moustached Warbler.**

This race is perfectly recognisable, being very much richer below and darker above than the one found in Uganda west of the Elgon district. Wings: ♂, 78-81; ♀, 74-79 mm.

These dark birds range from the coast throughout East Africa up to the Elgon district, where they meet and breed with *amauroura*, producing at the line of junction birds which agree with both races, though birds from Kisumu are all pale.

Sagala, Teita, Fort Hall, Nyarondo, North Kavirondo, Elgon, and Mbale in Uganda.

1165. *Melocichla mentalis amauroura* Pelz. **Uganda Great Moustached Warbler.**

*M. m. atricauda* Rehw.

This form ranges throughout Uganda and extends along the lake shore in the Kisumu district. Wings: ♂, 75-82; ♀, 75-78 mm.

Masindi, Bugoma, Nambigirwa, Entebbe, Kyanja, Jinja, in Uganda; and Kisumu and Kibigori in East Africa.

## GENUS CISTICOLA.

In endeavouring to identify the Grass Warblers, I have made use of the series in Tring Museum, which had been named some time ago by W. Sclater. In some cases I have had to disagree with his views, because my large material does not support his opinions. During my collecting I have endeavoured to make an ornithological survey from the coast through to West Uganda, and the results, so far as the *Cisticola* are concerned, have been most interesting, because I have been enabled to work out the ranges of the various forms inhabiting the country (East Africa particularly).

The first group I shall deal with is the *terrestris* group.

It will be noticed that my division of the group is not based on insufficient material—in fact the forms are obviously recognisable.

First of all, I should like to emphasise the fact that over a considerable area of the country under review we get both *C. terrestris* forms and *C. cisticola* forms, birds which at first glance somewhat resemble one another, but are distinguished by the formation and markings on the tail. The *terrestris* forms always have a shorter tail (even in off season plumage), without a well-marked, clear black subterminal band.

1166. *Cisticola terrestris hindei* Sharpe. **Athi Little Grass Warbler.**

The birds which I have referred to this race are characterised by their pale brownish tone of plumage, which in the non-breeding season becomes lighter, but never greyish! The males in breeding dress have the top of the head uniform pale brownish, the uniformly coloured feathers not extending beyond the crown, in many cases being limited to the frontal patch. In this race, as in the two other East African forms, the mouths of the males become jet-black in the breeding season!

This type of bird ranges in the plains south of Nairobi to as far south as Simba and Sultan Hamud on the railway, to Magadi on the west, and North Ukamba plains on the east.

North Athi River, Kitui, Machakos, Nairobi plains.

North of this area is found a form which is certainly not *C. t. hindei*; this I name:

1167. *Cisticola terrestris nakuruensis* subsp. nov. **Nakuru Little Grass Warbler.**

These birds are more richly coloured than the preceding, more brownish above and sandy below, with the feathers of the rump more brownish. In the series the differences are readily seen. In breeding condition the males have the top of the head uniform brownish rather darker than in *hindei*, and the uniform feathers extend to the nape. This form is found in the higher plain country from Limuro through Escarpment to Naivasha and Nakuru and in the Solai district and Sotik. Type: ♂, Nakuru plains, 16.v.1918, crown uniform. In Tring Museum.

Escarpment, Naivasha, Nakuru, and South Kavirondo specimens.

When we come to the high plateau of the regions from 7,800 to 10,000 feet, we find a very well marked form, which, being without a name, I have called:

1168. *Cisticola terrestris mauensis* subsp. nov. **Alpine Little Grass Warbler.**

This is a very dark race, having the mantle very deep brownish and the rump decidedly rufescent, while the whole undersurface is deep sandy ochraceous. The rich colouring is noticeable in the field—in fact, when the birds are flushed they appear very like *C. troglodytes ferruginea*.

So far as is known, this form is confined to the high altitudes; thus we find

it on the high belt of the Mau and Elgeya, and again on Kenia and Aberdare Mountains.

Mau, Molo, Elgeya, and Mt. Kenia, 8,000 feet. Nine specimens. Type: ♂, Mau, 18.i.1917. Tring Museum.

1169. *Cisticola terrestris ugandae* Rehw. **Uganda Little Grass Warbler.**

? *C. brunnescens* Heugl.

This is a rufous form very much like the Nakuru one, but having a more rufous rump, while the underside is pale, not sandy as in the alpine race. It comes close to *C. t. eximia*, if it is not identical with it. It ranges from West Uganda to Kisumu and North Kavirondo, but does not occur in the Karamoja and Turkana country. In the last-mentioned districts is found a pale bird of which I have only two specimens. They are somewhat like *C. aridula*.

Mawakota, Entebbe, Buziteranjovu, in Uganda. Four skins.

The next bird to be considered is a very pale somewhat greyish bird which is found in the northern districts of the Yatta plains, South-east Ukambani, and in the dry thorn-bush to the Taru desert. These birds appear to be referable to the Somaliland bird:

1170. *Cisticola lavandulae* Grant. **Grey-backed Small Grass Warbler.**

It appears to me somewhat doubtful whether these birds should be considered as a subspecies of *terrestris*, because in the field their form and habits are rather dissimilar. This being so, I prefer to keep them apart. None of my birds have uniform heads.

Kitui, Simba, Tsavo, M'buyuni, Taru, and Lower Tana River. Nine specimens.

Of the *Cisticola cisticola* group there is probably more than one race inhabiting Uganda and East Africa. In my small series I find brownish birds, and others grey on the back, but all with clear, well-defined subterminal black bars on the tail. The tails in all are long.

I provisionally place these birds under:

1171. *Cisticola cisticola uropygialis*. **Little Barred-tail Grass Warbler.**

The localities from which these birds were taken cover a large area. There is a somewhat marked difference between breeding and non-breeding plumages.

Simba, Naivasha, Karungu, in East Africa; Bumbero Island in Lake Victoria Nyanza; Bugoma and Kobua River, West Lake Rudolf, in Uganda. Seven skins.

1172. *Cisticola nana* Fisch. & Rehw. **Little Brown-headed Grass Warbler.**

This well-marked species is found in the plains from Ukamba, south to the Taru and Teita. It is somewhat like a *Prinia* in habits. I find no evidence of plumage change indicating the breeding conditions. Young birds are browner on the back than adults, and have yellower breasts. Judging from the limited material of the Somali form which has been named *dodsoni*, I am of the opinion that this race is good, being much purer grey on the mantle. There are no such birds in my series of twenty typical *C. nana*.

Maungu, Campi-ya-bibi, Tsavo, Makindo, M'buyuni, Machakos, and Magadi.



1173. *Cisticola angusticauda* Rehw. **Little Long-tailed Brown-headed Grass Warbler.**

*C. simplicissima* Neum.

*C. mülleri* Alex.

This bird, which might at first glance be taken for *C. nana*, is readily distinguished by its much longer, more graduated tail, and the almost uniform back. They do not occupy the same territory, *angusticauda* coming into the East African area, only in the Kisii and South Kavirondo districts.

Kendu Bay, Victoria Nyanza. 2 ♂ 1 ♀.

1174. *Cisticola troglodytes ferruginea* Heugl. **Little Brown Grass Warbler.**

This race is quite good, being darker above and more rufous below, than typical form. It is not common, and apparently does not extend farther south than the northern territory of Uganda, Turkana, and South Lake Rudolf to Suk.

Mt. Kamalinga in Turkana, Uganda; and Suk in East Africa. 2 ♂.

1175. *Cisticola calamoherpe* Rehw. **East African Little Mottled-back Grass Warbler.**

Described from west of Kilimanjaro, this species ranges through Ukamba, going north as far as Elgon. I do not think that the Abyssinian birds are the same, but my material from this district is very small. It is also possible that with more material from the highlands of 7,000 feet and over, we shall have to admit a paler, larger race. My few birds taken on the Mau appear to suggest this. Young birds are like adults, but more rufescent above and yellower below. My material comes from South Loita, Kitui, N'ziu River, Nairobi, Ruiru River, Machakos, Fort Hall, Naivasha, Nakuru, Mau, Kibigori, and Kisumu. Thirty-seven specimens.

1176. *Cisticola rufa* subsp. **Ankole Little Brown-backed Grass Warbler.**

Two males shot at Ankole in April and November seem to belong to a recognisable race of *rufa*, the distribution of which is from Ankole south to Lake Kivu and the chain of lakes to North Tanganyika. From typical birds they differ in being more rufous on the back and crown. The series in Tring corroborates this. The form of *rufa* occurring in Angola is even more distinct!

1177. *Cisticola rufa hypoxantha* Hartl. **Uganda Little Brown-headed Warbler.**

This race, which is quite distinct, ranges from Lake Albert east to Elgon and North Kavirondo. I do not think it comes farther east or south. There appears to be a plain-backed plumage and a mottled plumage, the former being the breeding dress. In the latter plumage the mottlings, though not numerous, are large and clear. The rufous coloration to the edges of the primaries and outer secondaries is present in both plumages.

Masindi, Entebbe, Lugalambo, Kyetume, in Uganda; Soronko River, Elgon, Yala River, and Kisumu in East Africa. Eleven specimens.

1178. *Cisticola reichenowi* Mearns. Coastal Little Grass Warbler.

Ten topo-typical specimens. First described as a form of *hypoxantha*. My series and the distribution suggest that these birds should be kept as a distinct species. They are somewhat like *C. rufa*, but are larger and have less rufous on the wing. The range is limited to the coast belt and the dry thorn-bush of the Taru and Teita. In habits they resemble the rest of the small Grass Warblers.

Mombasa, Changamwe, Samburu, Sagala, Teita, Taru.

(I have carefully gone into this group, usually looked upon as several subspecies of *subruficapilla* = *cheniana* (cf. Sclater & Praed, *Ibis*, 1918), but the species *subruficapilla* is apparently quite distinct and does not occur in East Africa. In East Africa we find three forms of this group inhabiting distinct areas and not overlapping, i.e. *C. fischeri*, *aequatorialis*, and *semifasciata*. I am not absolutely certain that they are all subspecies of *cheniana* (*subruficapilla* auct.), but they all have the following features: Top of head brownish, mantle ashy brown, distinctly mottled with dark shaft streaks; undersurfaces whitish to buff, greyish on flanks. Fairly long tails, 60-70 mm., and slender bills. Tarsus 30 mm. or under. Tail with black band and greyish tips.)

1179. *Cisticola fischeri* Rehw. Kavirondo Scrub Warbler.

This form, apparently described from a bird in immature plumage, ranges in the region of the south shore of Lake Victoria as far south as the line of the Mau-Elgeyu Hills and North Sotik and in northern Tanganyika Territory. This bird in its full breeding dress is brown umber on the head; greyish brown on the mantle with distinct dark centres to the feathers. Underside buffy white, paler on the throat and abdomen and greyer on the flanks. The non-breeding plumage is slightly lighter in colour, but not so well marked as in the *natalensis* (*strangei*) group. It is noticeable that females are more sandy below than males. Young birds are paler brown above and much more distinctly streaked.

The wing-measurements of my series give the following: Wings: ♀, 55; ♂, 68-70 mm.

Sio River in North Kavirondo; Kisumu, Kano, Karungu, Kisii, Bumbere Island in Victoria Nyanza; Amala River. 23 ♂ 8 ♀.

1180. *Cisticola aequatorialis* Mearns. Naivasha Scrub Warbler.

This bird is very much like the above and differs in the darker brownish tinge to the mantle, which is distinctly mottled. It is also slightly larger and has a longer tail when in full plumage. Wings: ♀, 55-60; ♂, 68-72 mm.

The range appears to be from South Sotik through the North Loita Plains to Nakuru and Naivasha Lakes to the north end of the Aberdare Range (not on high mountains) through the Kikuyu country to Fort Hall district: South Mau, North Loita, Sotik, Nakuru, Naivasha, Escarpment, Nairobi, Kikuyu. 12 ♂, 3 ♀, 1 juv.

1181. *Cisticola semifasciata* Rehw. Southern Brown-headed Scrub Warbler.

Somewhat like the race inhabiting the Kisumu district, but altogether paler and with a paler, more brightly rufescent crown, especially on the nape. The

crown is more distinctly streaked. It is perfectly distinct from *aequatorialis*. This form ranges throughout the dry belt of East Africa, including the South Ukamba district through the district of Simba, across to Magadi and South Loita to the plains east of Kilimanjaro, and thence to the Teita and Taru districts to the middle Tana. No seasonal plumages are apparent.

South Loita, Narossera (A. B. Percival), Olgerci, Magadi, Simba, N'ziu, Tsavo, Campi-ya-bibi, M'buyuni, Lake Jipe, Bura, Maungu, Masongoleni, Kibwezi, Makindu. 25 ♂ 11 ♀.

1182. *Cisticola cinereola schillingsi* Rehw. **Streaky Grey Scrub Warbler.**

This is a larger, rather paler race of *cinereola* (? = *somalica*) which inhabits the same area as *C. semifasciata*, except that it apparently extends farther north-east and reaches the Lower Juba River and Kismayu. Two birds from this district anyhow agree better with *schillingsi* than with *cinereola*. The general characters are: Head coloured like mantle, pale whitish grey, with pronounced brownish streaks. Undersurface whitish, tinged sandy on the flanks.

Magadi, Simba, Tsavo, M'buyuni, Campi-ya-bibi, Taru; Kismayu on Lower Juba (A. B. Percival coll.). 11 ♂ 3 ♀.

1183. *Cisticola cantans* Heugl.

Two males shot 19.ii.1911 appear to belong to this species.  
Marsabit North.

1184. *Cisticola* spec. ?

2 ♂, shot 22.xi.1917, are somewhat like ♀ "*subruficapilla fischeri*," but differ from that bird by having the pale tips to the tail-feathers pure white, not ashy or brownish buff. When the birds fly, this character is most conspicuous. They do not agree with any birds in Tring Museum.

Mt. Kamalinga, Karamoja, Uganda.

(The next group is that of the birds known hitherto as "*strangei*" and "*natalensis*." Both belong to the one species, i.e. *natalensis*. These birds are readily recognised by their comparatively short, stout, strong, curved bills and their generally compact build. Seasonal plumages differ.)

1185. *Cisticola natalensis pachyrhynchus* Heugl. **Uganda Heavy-billed Scrub Warbler.**

*Cisticola strangei* van Someren (nec Fraser!), *Ibis*, 1916, and auct.

These are the birds which have been called *strangei*, but as *strangei* is distinct and, as Selater has pointed out, a race of "*natalensis*," the next name available for the Uganda birds is *pachyrhynchus*. I thus do not agree with Selater, who (on the Tring labels) united all the East African and Uganda birds under the name *kapitensis* of Mearns. The Uganda birds are quite different from the East African ones, and there is a big break separating their respective ranges. In full breeding plumage this bird is greyish above—with dark centres to the feathers of the crown and mantle—but appears also to have a brown non-breeding dress, as occasionally such specimens are found. But an examination of the material above and in Tring Museum (over sixty skins) reveals only four such birds. Are we

to presume that seasonal (that is breeding and non-breeding—not “summer and winter”—as the birds breed twice a year!) plumages are the exception in the Uganda race of *natalensis*? I find no intermediate birds, and, what is of great importance, grey-backed birds are found throughout the year! In this connection I would draw attention to a paper on the nesting of Uganda birds in the *Journal of the East African and Uganda Natural History Society*, No. 15, 1920, January, p. 477. It will be seen that for *C. strangei* or *pachyrhynchus* the nesting seasons are April, May, and June, and again in December. If there were any regular and consistent periods during which the birds moulted from grey to brown, surely my present series and that reported on in *Ibis*, July 1916, p. 451, would contain more brown birds during the months of, say, February and August! Again, I would draw attention to the fact that *brown (not grey) birds* were captured on March 3rd, December 3rd, and May 1st! They are not young birds! One is led to suggest that on the whole there is no definite seasonal plumage change! The range is from the shores of Lake Albert throughout western Uganda to South Ankole and passing east to the shores of Lake Rudolf, extending into East Africa in the Kavirondo country, but not farther south than the line of the northern foothills of the Elgeyu—Mau Escarpment. South of this there is a large tract where I have not taken or seen any of these heavy-billed birds.

South Ankole, Masindi, Mubendi, Entebbe, Chagwe, Kyetume, Lugalambo, Jinja, Soronko River, West Elgon, in Uganda; Kimiriri, North Kavirondo, Kisumu, Kibigori, Fort Ternan, and N'zoia River. 15 ♂ 14 ♀.

1186. *Cisticola natalensis kapitensis* Mearns. **Kapiti Heavy-bill Scrub Warbler.**

I am not sure that these birds should not be kept as a species! In general tone they are rather different from the *natalensis* group in both types of plumage. They are much more streaky in the non-breeding plumage, and always have the nape and neck rather brownish—in fact, some birds in the non-breeding dress superficially resemble worn *C. robusta ambigua*. However, as the general build and the type of bill are that of the *natalensis* group, we must for the time being keep the bird as a subspecies. The type of call and song and other habits are, however, different. A seasonal change is fairly well marked, which is another difference. The range, so far as I have observed, is from the plains of South Kenia through Fort Hall and Ukamba to Kapiti and south of South Guasso N'yiyo, south to the thorn-bush belt north of Makindu.

Fort Hall, Kitui, Machakos, and N'ziu River and Simba. 9 ♂, 5 ♀, 2 juv.

1187. *Cisticola alleni* Mearns.

Described from Mt. Kenia. I have no specimen.

1188. *Cisticola heterophrys* Oberh. **Coast Brown-capped Scrub Warbler.**

? *C. soror* Rehw. 1916.

This bird was described from Mombasa and most of my specimens are topotypical. I have placed *soror* as a synonym provisionally, but it is doubtful. These birds are somewhat like *rufopileata*, but have the mantle slightly mottled.

The range appears to be the coast belt of East Africa to almost the Ruvuma and inland to the South Kilimanjaro Plains.

Mombasa, Pangani, Changamwe, Lamu, Manda Islands. 14 ♂, 7 ♀, 1 juv. compared.

(Typical *lugubris* (*erythrogenys* is a synonym) has two plumages—a grey-backed and a sandy pale one (*vide Rüpp. Vög. N. O. Afr. T.* 11 and 12). Both birds came from the same locality !)

1189. *Cisticola lugubris marginata* Heugl. Nile Brown-winged Swamp Warbler.

2 ♂, shot 20.xi.1917, undoubtedly belong to this northern race and not to *nyanzae* Neum. They are much like the coastal form *haematocephala*. They are pale on the back and have olive-grey-brown heads. This race ranges through the Nile Province east to the Turkana and Lake Rudolf country.

Mt. Kamalinga in Karamoja, Moroto, Turkwell, in Uganda.

1190. *Cisticola lugubris haematocephala* Cab. Coastal Brown-winged Swamp Warbler.

? *C. l. suahelica* Neum.

I have taken this race next as it is most like the preceding, but can be easily distinguished. It is quite a different-looking bird from *C. l. nyanzae*, being paler on the back and always having a pale olive head, not brown. The eggs of *haematocephala* are much more boldly marked. This race inhabits the coast belt of British East Africa from Kismayu to Pangani and extends inland to about the line of Samburu; interior to this we find birds indistinguishable from the lake race, i.e. *nyanzae*. Seasonal plumages not marked.

Juba River, Kismayu, Witu, Lamu, Manda, Changamwe, Mombasa, Samburu. 10 ♂ 6 ♀ compared.

1191. *Cisticola lugubris nyanzae* Neum. East African Brown-winged Swamp Warbler.

The majority of brown-backed birds occur in August, September, October, and November, yet grey-backed birds also occur in these months. Glancing at my records of nesting-times I find that this bird is breeding freely in April, May, and June and at the end of November and December—that is, these birds ought then to be in the grey-backed plumage, but both grey and brown are found in the months of November and December. How is one to account for this seeming irregularity, and how many times in the year does one single individual bird moult? I think it must moult four times! A suggestion has been made that the birds which breed in the long rains (March, April, May, and June) do not breed again in the short rains (November), and vice versa. This may be correct.

The range of *nyanzae* appears to be from the shores of Lake Victoria south to the Ukamba district and Loita. Whether this race and *haematocephala* actually meet, I have been unable to prove.

Budu, Kampala, Entebbe, Jinja, in Uganda; Kisumu, Kibigori, Nakuru, Naivasha, Kikuyu, Nairobi, Machakos, Kitui, Simba, and Makindu in British East Africa. 15 grey-backed ♂, 9 brown-backed ♂, 6 moulting from grey to brown or from brown to grey, 32 ♀, 5 juv.

1192. *Cisticola carruthersi* Og.-Grant. **Slender-billed Chestnut-capped Warbler.**

A pair of birds, shot 14.iii.1919, resembles somewhat *C. l. nyanzae*, but can be readily distinguished by their much darker grey backs and deep chestnut crowns and long slender bills. Further, there is no bright red-brown edges to the primaries and secondaries, but instead these parts are dull brownish.

The type of this species came from Mokia, near Ruwenzori, while my specimens come from the Sezibwa River, in Chagwe, Uganda. It is a swamp-loving species and very shy. I have compared the type of *Carruthersi*, which agrees absolutely.

1193. *Cisticola carruthersi kavirondensis* subsp. nov. **Kisumu Slender-billed Chestnut-capped Warbler.**

These are the birds which I doubtfully referred to *C. lugubris* in the *Ibis*, 1916. I have since been able to observe, though not to capture, two other pairs of this bird in the dense papyrus swamps at Kisumu. They resembled the specimens procured in 1912 absolutely. These birds are very much like *carruthersi*, but differ from the latter by being slightly paler on the mantle, with a paler brown crown, the brown colour merging into the grey of the mantle. The wings are also paler. The tail is blackish, with the feathers tipped greyish except the central pair, and the black subterminal band is only just indicated. The bill is long and slender, but not so long as in *C. carruthersi*. It is larger than *carruthersi*.

East shore of Victoria Nyanzae at the Kavirondo Gulf: Kisumu Bay. 2 ♂ 1 ♀. Type: ♂, Kisumu Swamp, 2.vii.1912, in the Tring Museum.

1194. *Cisticola tinniens oreophila* subsp. nov. **Red-headed Mountain Warbler.**

This race of the South African bird is recognisable by its blacker upperside with narrower buff lines to the mantle, its paler, uniform yellow-brown head and the white or cream, not greyish, white edges and tips to the tail-feathers. In the brownish non-breeding plumage this bird assumes a striped head. It is a mountain bird and does not occur in the low country.

The range is Mt. Kenia, along the Aberdare Mountains to the Mau and Elgeyu Escarpments, and Elgon.

Kenia, Aberdare Mountains, Mau, Molo, Elgeyu, Elgon. Type: ♂, Kenia, 12.ii.1919, 7,000 feet. Tring Museum. 6 ♂, 4 ♀, 2 juv.

1195. *Cisticola* spec. ? **Slender-billed Mountain Warbler.**

1 ♂, shot 20.viii.1917, resembles somewhat *C. robusta* in general appearance and size, having the head and nape striped to the mantle, but is at once distinguished by its very slender bill and its more grey-tinged underside. The tips to the tail-feathers are greyish, not white.

Aberdare Mountains.

1196. *Cisticola robusta nuchalis* Rehw. **Uganda Rufous-capped Grass Warbler.**

I find on measuring up a series of thirty skins the wings of the males range from 64 to 66, in females from 55 to 60 mm. In the field I have always recognised

the Uganda bird as being smaller in build than the East African race, and the note is slightly different. The East African bird, *C. r. ambigua* Sharpe (Mau), has been united with *nuchalis*, but I do not agree with this, as a comparison of the wing-measurements and field-notes show the difference.

I believe the range of this bird to be (within the territory dealt with in this paper) West Uganda from Ankole through to the east of Elgon. I am not able to say whether this race and *ambigua* meet, but they may do so in the Elgon-Nandi district. My Elgon birds appear intermediate in size.

South Ankole, Toro, Mubendi, Mubombo. 10 ♂, 3 ♀, 3 juv.

1197. *Cisticola robusta ambigua* Sharpe. **East African Rufous-capped Grass Warbler.**

With my big series of 38 ♂ 30 ♀ before me I can easily appreciate the distinctness of this race, though it is merely one of size and the largest birds are found on the high plateau round Mau, Nakuru, Naivasha. Wings measure: ♂, 68-72 (average 70); ♀, 58-65 mm. This I consider ample to warrant the upholding of this race. There is practically no seasonal variation.

The range of this form is from the grass lands of South Ukamba and the Loita Plains to North Kavirondo and Elgon.

Simba, Magadi, Kitui, Thika, Fort Hall, Nyeri, Kenia, Kikuyu, Nairobi, Naivasha, Nakuru, Mau, Londiani, Eldoret, Elgeyu, Baringo, Kisumu, Kimiriri River, Elgon.

1198. *Cisticola robusta tana* Mearns. **Pale Rufous-headed Grass Warbler.**

This race, described from one specimen, appears doubtful, as I have specimens from the Upper Tana which do not differ from Mau birds!

1199. *Cisticola hunteri* Shell. **Long-tailed Warbler.**

*C. kilimensis* Mearns.

I have examined typical specimens, and am unable to recognise two races of *hunteri* on Mt. Kilimanjaro, therefore *kilimensis* Mearns is probably the same, as it comes from the same locality. *C. prinioides* Stone, 1905 (nec Neumann!), is also the same as *hunteri*.

1200. *Cisticola hunteri prinioides* Neum. **Mau Long-tailed Warbler.**

*C. h. harrisoni* Stone.

A darker race than *hunteri* from Kilimanjaro, but not so dark as *neumanni* Hart., and possesses distinct dark centres to the feathers of the mantle. The underside is greyish with the throat whitish, which colour extends to the breast and belly. The white of the throat is not sharply defined from the grey of the breast. I find, however, two darker birds—more like the type of *neumanni*, but they are not adult! The young are brownish above, with distinct streaks to the mantle, while the underside is creamy with a grey tinge on breast and flanks (cf. young of Elgon birds); the brown edgings to the wing-feathers are paler than in adults. In my series I find the wings: ♂, 60-63; ♀, 56-58 mm. To this race I refer specimens collected by Doherty at the Escarpment and others shot at Nairobi, Kikuyu, Molo, Londiani, Mau (type locality), Maraquet Escarpment (lower slopes), Nakuru, Olboloset, Naivasha, Elgeyu, and Eldoret.

I have twenty-one specimens and there are in Tring fifteen from Escarpment. I also find that the series represents birds taken in every month of the year. They are all uniform, except the two birds referred to before.

This bird ranges in altitudes of 5,000 to 8,000 feet along the Rift Valley : Loita, Kikuyu, Kabete, Nakuru, Molo, Mau, Londiani, Burnt Forest, Maraquet. Twenty-two specimens.

1201. *Cisticola hunteri neumanni* Hart. **Kenia Long-tailed Warbler.**

*C. wambuguensis* Mearns.

I have examined the type of *neumanni* and consider it to be a young bird ; it has a brown bill, not black as is found in adults. It is slightly more rufous on the back than my topo-types—but this, too, is in keeping with its immature state. When the series is laid out with *prinioides*, the darker appearance of *neumanni* can, however, be appreciated. I have in my series birds from the type locality of *wambuguensis* Mearns, and cannot separate them from the Kenia specimens ; further, my birds from the Aberdare Highlands do not differ from Kenia ones, and there cannot be a pale form between two dark ones of the same race. My series shows wings of 57–67 mm. Worn birds are hardly to be distinguished from fresh typical *prinioides*.

Mearns's description of *wambuguensis* fits exactly immature *neumanni* in second plumage ! Seasonal plumages do not appear to differ.

Mt. Kenia, Nyeri Road, Aberdare Highlands. 9 ♂ 3 ♀ collected.

1202. *Cisticola hunteri immaculata* subsp. nov. **Elgon Long-tailed Warbler.**

Elgon birds do not agree with any of the described races, and on referring to Jackson's specimens taken on Elgon I find that Sharpe (*Ibis*, 1892) already remarked on the dark grey undersurface. This is most pronounced in my specimens, but they are also much darker on the mantle than any other specimens and show no mottling or streaks. Further, the young of corresponding age to young *prinioides* have the underside grey, not creamy, with only a greyish tinge. Further specimens will no doubt show this to be a good form.

Mt. Elgon, 9,000 feet. 2 ♂, 2 ♀, 1 juv. Type : ♂ ad., Bumasisa, Mt. Elgon, 24.iii.1916, in the Tring Museum.

1203. *Cisticola lateralis ugandensis* subsp. nov. **Uganda White-bellied Brown Warbler.**

These birds are usually referred to as *lateralis*, but differ markedly from the latter by being much browner on the mantle, at all seasons. The wings measure 62–68 mm.

Type in my collection.

Uganda-Congo border east to Mt. Elgon and South Ankole : South Ankole, Mubendi, Bugoma, Masindi, Entebbe, Chagwe, Jinja, Busoga. 10 ♂ 4 ♀.

1204. *Cisticola chubbi* Sharpe. **Large Pale Brown-headed Warbler.**

This species does not alter much throughout its range in Uganda, though Ankole and Kivu birds are somewhat darker on the mantle and darker brown on the crown.

North Kavirondo to West Uganda and Kivu : Yala, Kavirondo, Elgon, Lukiga, Kigezi, Ankole. 6 ♂, 6 ♀, 1 juv.



1205. *Cisticola rufopileata emini* Rehw. **Emin's Brown-backed Warbler.**

It would appear that this bird does not get a jet-black bill like *C. l. ugandensis*. The paler brown back and more rufous head, together with the colour of the bill, help to distinguish these birds. The range appears to be the whole of the Uganda territory, including Elgon: Budongo, Bugoma, Masindi, Entebbe. Jinja, Mubendi, Elgon.

1206. *Cisticola pictipennis* Madarasz. **East African Chestnut-capped Warbler.**

I have before me an excellent series of birds, including, besides my own enumerated above, the material in Tring. I am compelled to suggest that all the birds from East Africa hitherto called *cinerascens* are *pictipennis* of Madarasz.

I do this for the following reasons: *C. cinerascens* of Heuglin is synonymous with *semitorques*, according to all recent workers. Now, typical *semitorques* is a bird with a distinct supercilium, as given in the original description, while all the birds called *cinerascens* from East Africa have no superciliary stripe. This being so, the next name available is *pictipennis*. Madarasz compared them with *rufipileata*, and states that they are greyer on the back, and have the bands on the tail much more clearly defined and darker, which is a fact in East African birds! Comparison with typical *rufipileata* confirms this. If it is shown later that *cinerascens* is not the same as *semitorques*, still *pictipennis* will probably have to be used for the East African birds, as *cinerascens* came from Keren, Bogosland, and is most certain to be different from southern birds. With regard to the birds named *pictipennis* by Bannerman (*Ibis*, 1911), and those so named by Og.-Grant (*Ibis*, 1908, p. 295), I have examined these birds, and they are really immature *pictipennis* (*cinerascens* of Authors). The grey forehead and very wide black tail-bar is found in immature *pictipennis*.

The birds referred to by Grant would belong to the Uganda form of *pictipennis*, which appears to be *C. belli* Grant, described from Ruwenzori.

1206A. *Cisticola pictipennis* ? *belli* Og.-Grant.

A ♂ from Jinja in Usoga is unlike E. African specimens, the back being darker grey, the head deeper chestnut, the edges to the primaries darker, and the underside has sandy buff. This bird is matched by two specimens collected by Ansorge at Masindi in Uganda and referred to as *cinerascens* by Hartert. They somewhat resemble *rufopileata* from Angola, Gaboon, Nigeria, etc.

1206B. *Cisticola teitensis* spec. nov. **Teita Red-headed Warbler.**

A ♂ from Sagala, Teita, at first glance resembles *C. ruficapilla* of S. Africa, being similarly coloured underneath and above, and having a distinct wide superciliary stripe. Head chestnut-brown, the brown extending to the mantle, which is generally tinged with brownish. It differs markedly in the tail not being long and graduated, but short and rounded, and has distinct wide black bars and pale grey tips (not whitish as in *pictipennis*!). It is also a larger bird.

1207. *Cisticola erythrops* subsp. **East African Rufous-bellied Swamp Warbler.**

Sclater and Praed have studied this group and have recognised three races of typical *erythrops*. Unfortunately their researches did not go far enough.

The two new forms they create are obviously distinct, but I think they have overlooked Reichenow's prior name for the Abyssinian form. No mention is made of the East African and Uganda race, but I find this to be quite distinct from the West African species (Nigeria). It is always more olive-washed on the mantle, never being grey in this area. It resembles *zwaiensis* = *pyrrhomitra* Rchw., but has the forepart of the head paler, more yellowish brown, less rufous, this colour not extending on to the fore part of the crown. The crown is coloured like the mantle. My series is very uniform, with the exception of three youngish birds, which are rather more olive than normal. Young in first plumage are quite brownish olive on the head and mantle, have a distinct white loreal spot, and a grey ring round the eye.

Uganda birds cannot be separated from East African ones.

Masindi, Toro, South Ankole, Bugoma, Budongo, Busiro, Kasala, Mawakota, Lugalambo, in Uganda; Kavirondo, Kimeri, South Elgon, Kakamegoes, Kisumu, Burnt Forest, Kenia, Embu, Nairobi, Kyambu, in East Africa.

1208. *Heliolais erythroptera kavirondensis* subsp. nov. **Red-winged Pintail Warbler.**

Apparently near *major* of Blundell and Lovat, and as rich on the underside. The type of *major* is a pale worn specimen. It is quite different from typical *erythroptera*. The East African birds differ from *major* in being less rufous on the mantle, more greyish, and the rump more olive. The tail is much darker brown, without rufous tinge. Bill brown, not black. A rare bird.

♂, 27. viii. 1918. Fort Ternan in Kavirondo. Other specimens in Nairobi Museum.

1209. *Prinia mistacea immutabilis* van Som. **East African Wren Warbler.**

*Bull. B.O. Club*, xl. p. 93, 1920.

In the provisional revision of this group by Selater and Praed (*Ibis*, 1918, pp. 676-7), omission has been made of certain well-marked forms. Under the heading *P. m. tenella* Cab. (Mombasa) we find the distribution given as East Africa and Uganda to Belgian Congo. My series of birds from the coast, north to West Uganda, shows that there are two birds within this distribution; the coastal bird is *tenella* Cab., the inland one differs. I therefore named it *immutabilis*. In addition, the bird from the Mufumbiro, Kivu, and North Tanganyika districts is *Prinia mistacea graueri* Hart. (Nov. Zool. 1920, p. 457). *P. m. immutabilis* differs from *P. m. mistacea* in having the mantle and lower back olive-brownish, with the head slightly darker and greyer tinged, the rump more brownish, the outer webs of the primaries and secondaries only slightly edged with brownish. It differs from the coastal form (*tenella* Cab.) in being darker above, and lacking the large white preorbital spot and mottled appearance which *tenella* has in fresh full plumage. It is also a larger bird, having wings of ♂ 51-55, ♀ 49-51 mm.

The call-notes are different. There is no seasonal change. This type of bird ranges from Ukambani and Loita through the highlands of East Africa to Elgon and Uganda. Besides my specimens, there is a series in Tring.

Simba, Kitui, N'ziu River, Embu, Fort Hall, Kyambu, Nairobi, Nakuru, Naivasha, Samburu, Kibos, Kisumu, in East Africa; Jinja, Lugalambo, Kyetume, Entebbe, Mubendi, Bugoma, Toro, Chambura, Masindi, in Uganda.

**1210. *Prinia mistacea tenella* Cab. Coastal Wren Warbler.**

This coastal race is paler below and above than up-country birds.

There is no seasonal change in plumage. Wings: 45-58 mm. The range appears to be limited to the coast belt and the birds do not penetrate inland to any distance. I have found it from Vanga, north to the Juba River, including the Islands of Lamu and Manda.

Mombasa, Changamwe, Lamu, Manda, Witu, Juba River.

**1211. *Prinia somalica intermedia* Jacks. Pale Wren Warbler.**

I was surprised to find this bird in the Serengeti Plains east of Kilimanjaro, and then again in the region of the Turkwell River, west of Lake Rudolf. I can see no difference between these birds, nor can I find any character for separating them from *P. s. erlangeri* from South Somaliland (N'gare-lewin), of which, however, I have only seen one specimen. If the two are not separable, then the name *erlangeri* must be used, as it has priority. The range would be from East Kilimanjaro Plains to South Ukambani, north to the Guasso N'yiyo and Baringo district, also to Lake Rudolf and Turkana.

Tsavo, Campi-ya-bibi, Meuressi, Turkwell River.

**1212. *Prinia leucopogon reichenowi* Hartl. Uganda White-throated Wren Warbler.**

*P. ugandae*.

Very distinct and ranges through Uganda from west to east, extending into East Africa in the North Kavirondo country.

South Ankole, Toro, Bugoma, Budongo, Masindi, Buzivanjovo, Entebbe, Lugalambo, Sezibwa, Kyetume, Elgon, in Uganda; Kaimosi in East Africa. 16 ♂ 8 ♀.

**1213. *Prinia bairdi melanops* Rehw. East African Barred Wren Warbler.**

Young birds are brownish above, grey-brown below, with whitish abdomen, barred slightly at the flanks; secondaries tipped with rusty brown. Bill horn-brown. This bird does not appear to range into Uganda, but is limited to Elgon, south to the Nandi and Elgeyu Escarpments to Mau and Sotik. Here, again, we have a race of a western bird which appears cut off from its nearest neighbour, *P. b. obscura*, by the whole width of Uganda and northern Tanganyika Territory. (See introductory remarks.)

Elgon, Kaimosi, Mau, Elgeyu Ravine, Molo.

**1214. *Prinia bairdi obscura* Neum. Kivu Barred Wren Warbler.**

Darker than the Elgon bird.

South Ankole to Kivu and North Tanganyika.

**1215. *Dryodromas rufifrons rufidorsalis* Sharpe. Rufous-backed Wren Warbler.**

*D. r. reichenowi* Mad.

Full-plumaged males are much more rufous on the back than the nearest form, *smithi*, of which *erlangeri* is a synonym. Females and young birds are not so rufous, and very much like males of *smithi*. Full-plumaged males have a

series of black spots on the upper breast, forming a broken collar. In females this is almost absent. The range is apparently the dry thorn-bush country from Teita to Sotik and Ukamba.

Maungu, Voi, Campi-ya-bibi, M'buyuni ; Tsavo, Magadi, Simba.

1216. *Dryodromas rufifrons smithi* Sharpe.

Has been recorded from the Lorian and Juba River districts.

1217. *Dryodromas rufifrons turkana* van Som. **Uganda Rufous-faced Wren Warbler.**

*Bull. B.O. Club*, xl, p. 93, 1920.

Very much paler above than *smithi* and *rufidorsalis*, with the rufous of the forehead not extending beyond the middle of the crown. From *rufifrons* it differs in the greater amount of rufous on the head and more white on the outer webs of the primaries and secondaries. This white edging is not so conspicuous as in *rufidorsalis*.

Country west of Lake Rudolf : Kobua River, Meuressi, Turkwell River.

1218. *Apalis pulchra* Sharpe. **East African Black-collared Forest Warbler.**

This really beautiful species is fairly plentiful near Elgon, and has a fairly wide range. It occurs along the line of forest-clad highlands from Elgon to Kikuyu and Kenia. Young birds differ in being duller and having the throat tinged with yellowish ; the bill is horny brown, not black. The eggs of this bird have been taken for me by J. Pemberton Cook at Kyambu ; they are rather elongated, of a pale greenish blue, with liver-coloured spots.

Elgon, Kibingei River, Kakamegoes, Nyarondo, Elgeyu, Maraquet, Molo, Nairobi, Kikuyu, Kyambu, Kenia.

1219. *Apalis ruwenzorii* Jacks. **Ruwenzori Collared Forest Warbler.**

These birds from a country between that of typical *ruwenzorii* and *catiodes*, are also intermediate in plumage. They are darker than *ruwenzorii* on the chin, breast, and flanks, but not quite so dark as *catiodes*. A larger series is required to see if any definite distribution can be defined for so-coloured birds. I have only 1 ♂ 1 ♀ from Kigezi in South Ankole.

1220. *Apalis nigriceps collaris* van Som. **Uganda Black-capped Forest Warbler.**

*Bull. B.O. Club*, 1915.

2 ♂ 2 ♀ agree absolutely with the birds mentioned in *Ibis*, 1916, and endorse the characters claimed for this race.

Mubendi, Entebbe, Mabira.

1221. *Apalis jacksoni* Sharpe. **Jackson's Yellow-breasted Forest Warbler.**

Kikuyu specimens do not differ from Elgon ones ; on the other hand, Kivu birds have blacker heads. A series from North Tanganyika will probably show this to be constant.

I have also two birds from Toro which are very much richer yellow below

than typical Elgon birds, and more like two females from Angola (*Ibis*, July 1916, p. 458 pl.). A series should be collected and compared. They probably agree with the Congo race, but I have no specimens for comparison.

Elgon (1), Kikuyu (4), Maraquet (3), Nyarondo (2).

1222. *Apalis binotata* Rchw. **White-bellied Green Forest Warbler.**

The appearance of this bird on Mt. Elgon is surprising. From Camaroon I have insufficient material. A slight difference is, however, noticeable in the specimens available, but I cannot say if this is constant.

2 ♂, 17.iii.1915. Mt. Elgon.

1223. *Apalis personata* Sharpe. **Black-headed White-bellied Green Warbler.**

Ruwenzori, south to Kivu.

1224. *Apalis porphyrolaema* Rchw. **Chestnut-throated Grey Warbler.**

The range appears to be the forests from Elgon south to Elgeyu and Sotik, and south to the Aberdares and Kenia.

Elgon, Bumasifa, in Uganda; Burnt Forest, Maraquet, Aberdare Mts., Kenia.

1225. *Apalis porphyrolaema affinis* Og.-Grant. **Ruwenzori Chestnut-throated Grey Warbler.**

Described from Ruwenzori. Requires confirmation.

1226. *Apalis rufularis denti* Og.-Grant. **Brown-throated Forest Warbler.**

Some of my specimens come very near to the typical bird. The range of this subspecies would be from Ruwenzori east to Mt. Elgon.

Bugoma, Budongo, Mubango, Sezibwa, Mabira, and Lugalambo in Uganda.

1227. *Apalis flavocincta* Sharpe. **Long-tailed Yellow-banded Warbler.**

I collected a series of 21 ♂, 16 ♀, 3 juv. at all times of the year, because I was certain that there were two groups of these birds in East Africa. My suspicions have been justified, and I have accordingly arranged my specimens under two headings. I keep *flavocincta* Sharpe specifically distinct from the short-tailed group, *flavida*. The characters of *flavocincta* are: Size large (in comparison); mantle and wings dark yellowish olive-green, the grey of the head seldom reaching to the nape, head always dark grey, not pale grey. Tail long and graduated, with the outer pair entirely pale matt yellow, or just dark at the base, the next pair yellow for the terminal third, rest tipped with yellow. Breast-band pale yellow, and in the males washed with greenish olive on the sides (cf. next group). Young birds are paler on the underside and have a distinct greyish white loreal spot and whitish eyelids. Perhaps Sharpe had a youngish bird when he described this species. The range is from the south of Elgon throughout East Africa, not including the southern coast belt.

Maraquet, Nakuru, Naivasha, Kyambu, Nairobi, Fort Hall, Athi, Kitui, N'ziu River, Tsavo (M'buyuni, Campi-ya-bibi, Maungu, the last rather smaller).

1228. *Apalis "flavida" neumanni* Zedl.

Three skins collected on the Juba River by A. Blayney Percival. This appears a doubtful form!

1229. *Apalis flavida golzi* Fisch. & Rehw. **Short-tailed Yellow-banded Warbler.**

Although this bird has been united with *flavocincta*, I am of opinion that it is different. I find that we get a bird which ranges through Central and Southern German East and extends along the southern coast belt of East Africa, presenting the following characters, as compared with *flavocincta*: Crown of head entirely pale grey, not merging into the brighter yellow-green of the mantle. A deeper, brighter yellow breast-band; paler underside; short green tail which is tipped yellow. Two birds collected by Buchanan at Kissaki and Kirengwe agree with my Tanganyika Territory specimens and with my South Mombasa bird.

I have no birds from Arusha for comparison, but have no hesitation in keeping this form distinct from *flavocincta*.

Mombasa, Dar-es-Salaam, Dodoma, Morogoro.

1230. *Apalis flavida aequatorialis* Neum.

This race resembles *golzi* in having the entire crown light grey, but the breast-band is of a deeper yellow. The tail is greenish, short, and with small yellow tips.

This bird ranges along the north-west and southern shores of Victoria Nyanza and to the Kivu district.

South Ankole, Entebbe.

Two specimens in my collection from Lumbo, Portuguese East Africa, are *A. f. neglecta*.

1231. *Euprinodes nigrescens* Jacks. **Black-backed Forest Warbler.**

West Uganda to Elgon; Bugoma, Budongo, and Mubango in Uganda.

1232. *Euprinodes cinerea* Sharpe. **Brown-headed Grey Forest Warbler.**

Four specimens have the crown greyish brown, the forehead pale grey, and the rest have the crown brownish. These differences are not limited to birds from particular localities. The range is from Bukedi in Uganda, south to the forests of North Ukambani: Bukedi, Elgon, in Uganda; Kaimosi, Burnt Forest, Maraquet, Elgeyu, Molo, Nairobi, in East Africa.

1233. *Euprinodes karamojae* van Som. **White-winged Grey Warbler.**

*Journ. E. Afr. and Uganda Nat. Hist. Soc.* No. 16, 1921.

1 ♂, shot 12.xi.1919, agrees with no described species. Head, mantle, rump, and upper tail-coverts ashy grey. Ear-coverts darker, pre-orbital spot blackish; white streak from the nostrils to above anterior angle of eye. Under-surface entirely buffy white, thighs mottled blackish, wings dark blackish brown, with the four inner secondaries widely edged with pure white on the outer web. Central pair of tail-feathers entirely black, next pair tipped with white, third

pair white for the terminal half, except along the inner web and shaft ; fourth pair, terminal half white ; outer pair entirely white, except at the base.

Mt. Kamalinga, Karamoja, in Uganda.

1234. *Phyllolais pulchella* Cretzschm. **Little Buff-bellied Warbler.**

Southern birds are rather darker on the back than northern, but the material for comparison is not in good condition for safe judgment.

Mt. Moroto in Uganda ; Kerio River, South Lake Rudolf, Kisumu, Kibigori, Kendu Bay, Burnt Forest, Simba.

1235. *Drymocichla incana* Hartl. **Nile Brown-winged Grey Warbler.**

Has been taken at Masindi and in the Nile Province in Uganda.

1236. *Eremomela elegans elgonensis* van Som. **Elgon Golden-breasted Scrub Warbler.**

*Bull. B.O. Club*, xl. p. 92, February 1920.

This distinct race is nearest to *E. e. canescens* Antin., but differs by being larger and very much richer yellow underneath, a darker and purer grey head, and blacker ear-coverts. It thus differs from both the other forms, *elegans elegans* and *elegans abyssinica*. Wings: 57-61, as compared to 50-56 in *canescens*. The young bird is paler below with the crown coloured as the mantle, *i.e.* greyish green.

The range of this new form is from the north of Elgon to North Kavirondo and south along the Nandi Escarpment to the Burnt Forest.

Kibingei and Kimiriri Rivers, Kibos, Soronko River, Elgon, Kibigori, Kaimosi, Nyarondo, Burnt Forest.

(*Eremomela elegans canescens* Antin. **Nile Yellow-bellied Scrub Warbler.**

Described from the Djur River, this form probably ranges to the north of the Nile Province in Uganda.)

1237. *Eremomela scotops occipitalis* Rehw. **Pale Yellow-breasted Scrub Warbler.**

This form is purer grey on the back, less tinged with yellowish green. The yellow green of the head is brighter. Young birds are much paler than adults, and have the head and mantle of the same colour ; the underside is not so yellowish buff.

The range appears to be from the scrub south of Kenia, through North Ukambani to the Kedong Valley.

Nairobi, Kyambu.

1238. *Eremomela citriniceps* Rehw. **Yellow-headed Scrub Warbler.**

Head yellowish green, sharply defined from the grey of the mantle, black loreal spot clear and well marked.

The range appears to be the Western Loita district to the Amala country, along the south coast of Victoria Nyanza. It ranges into the South Ankole district along the Kagera River.

Kendu Bay by Kisumu.

1239. *Eremomela badiceps turneri* van Som. **Elgon Brown-crowned Scrub Warbler.**

*Bull. B.O. Club*, xl. p. 92, February 1920.

This new form is quite distinct from *badiceps* of West Africa. It is smaller and darker, more sooty grey on the hind half of the crown, mantle, wings, and tail. The chestnut of the head is limited to the forehead and front of the crown, the brown colour being extended back as superciliary stripes. The black chest-band is not so wide or extensive. Wing 49, bill 4, tarsus 14 mm.

Only known from the North Kavirondo district: Yala River, south of Elgon.

(The next group of Scrub Warblers is rather difficult. I find two birds, *griseoflava* and *flavirissalis*, hitherto supposed to be forms of one species, *flaviventris*, inhabiting the same country. This being the case, I must keep them specifically distinct, each with so many races. There are birds in which the yellow is very limited and pale, others in which it is deeper and extends on to the lower chest or so—with the material at my disposal I am unable to arrive at a definite classification.)

1240. *Eremomela flavirissalis* Sharpe. **Little Yellow-vented Scrub Warbler.**

These birds occur along with *griseoflava*. They do not agree in measurements with Selater and Praed's remarks in *Ibis*, October 1919, p. 674. They state that *flavirissalis* is easily distinguished by its small size, wings under 50 mm. My three birds have wings of 48, 50, 54 mm. The largest bird is from the North Guasso N'yiroy; the smallest from the Turkwell River. These birds are adult, and have the yellow on the underside very pale and limited to the area round the vent.

The range would be from Eastern Uganda, through the dry country north of Baringo, south to the Northern Guasso N'yiroy and Marsabit, probably to the east of Ukambani, east to Tana and Jubaland.

Northern Guassa N'yiroy, Meuessi, Turkwell.

1241. *Eremomela flaviventris griseoflava* Heugl. **Northern Little Yellow-bellied Scrub Warbler.**

These birds are undoubtedly distinct from *abdominalis* Rehw. The yellow of the abdomen is paler and the upperside not so clear grey.

East Uganda, Turkana country, and Lake Rudolf, ? Nile Province, Uganda. Mt. Moroto, Meuessi, Turkwell.

1242. *Eremomela flaviventris abdominalis* Rehw. **Kikuyu Little Yellow-bellied Scrub Warbler.**

These birds have rich yellow abdomen, and my series is very constant in this respect. Young birds have the abdomen slightly paler and the yellow extending to the breast. The range is through the Ukamba country west to Kilimanjaro and into Tanganyika Territory.

Fort Hall, Simba, Tsavo, Sagala, Campi-ya-bibi, Maungu.



1243. *Eremomela flaviventris crawfurdi* Steph. Clarke. **Little Pale-bellied Scrub Warbler.**

This race has a dark sooty-grey back with pale lemon-yellow abdomen, and the sides of the breast are tinged with greyish. The yellow of the abdomen is more restricted than in *abdominalis*. It is large, with wings 57-62 mm.

Range appears to be from Sotik south to the South Loita Plains, and possibly South Guasso N'yiyo.

Loita, Sotik (A. B. Percival coll.).

1244. *Sylvietta virens barakae* Sharpe. **Brown-throated Crombec.**

This is a good race which ranges from the Toro country to Ankole and east to Elgon.

Mubendi, Entebbe, Jinja, in Uganda.

1245. *Sylvietta leucophrys leucophrys* Sharpe. **Elgon Brown-headed Crombec.**

Mearns has separated the Kenia birds, but my single Aberdare bird does not differ from Elgon specimens. Forest-clad highlands from Elgon to Aberdares and Escarpment.

Elgon, Kaimosi, Elgeyu, Burnt Forest.

(*Sylvietta leucophrys keniensis* Mearns. **Kenia Brown-headed Crombec.**

I have not seen Kenia specimens.)

1246. *Sylvietta leucophrys chloronota* Hart. **Kivu Brown-headed Crombec.**

*Nov. Zool.* 1920, p. 460.

This is a good form, being greener on the mantle, rump, and flanks, darker, purer chestnut-brown on the head.

South Ankole to Kivu and North Tanganyika.

(*Sylvietta denti* Og.-Grant. **Brown-headed Crombec.**

Described from Ruwenzori and apparently limited to that range.)

1247. *Sylvietta brachyura dilutior* Rehw. **Uganda Grey and Brown Crombec.**

These birds vary somewhat in the intensity of the brown lower surface. I have two which do not differ in colour from typical *jacksoni*. The smaller size and the grey eye-stripe, of course, distinguish them. One bird from Masindi is very pale and cannot be distinguished from *S. b. nilotica*!

Soronko River, Mt. Elgon, Masindi, Mabira, Kaimosi.

1248. *Sylvietta brachyura leucopsis* Rehw. **Little White-bellied Crombec.**

*S. b. tavelensis* Mearns.

The material in the Tring Museum does not bear out the distribution of this form given by Selater and Praed, *Ibis*, October 1919. The South Ethiopian birds are not the same as those from East Africa, nor do the West Rudolf ones agree. *S. tavelensis* is the same as *leucopsis*.

The range is the scrub and thorn-bush country from East Kilimanjaro to Loita, east to Ukambani and Northern Frontier to South Juba.

Tsavo, Maungu, Voi, Taveta, Northern Guasso N'yiyo (A. B. Percival coll.).

1249. *Sylvietta brachyura* near *leucopsis*.

3 ♂ 1 ♀ resemble *leucopsis* in having a white chin and abdomen, but differ from that race by being less pure grey above, more tinged with sandy and slightly larger. They are intermediate between *leucopsis* and *nilotica*!

Meuressi, Turkwell, Kobua River, West Rudolf.

1250. *Sylvietta minima* Grant. **Manda Green-rumped Crombec.**

Uniform grey-backed birds occur along with the green-rumped type on Manda and Lamu!

1251. *Sylvietta isabellina macrorhyncha* van Som. **Long-billed Pale Crombec.**

*Bull. B.O. Club*, xl. p. 92, 1920.

A large pale bird with white undersurface with the flanks markedly sandy rufous, contrasting with the rest of the underside. The bill is very long, as in *S. rufescens*, but more slender. Wings: 58-63 mm.

Yatta and Serengiti Plains, Teita, and E. Kilimanjaro: M'buyuni, Tsavo.

1252. *Sylvietta whytii jacksoni* Sharpe. **Jackson's Brown-bellied Crombec.**

*S. distinguenda* Mad.

Specimens from north and south of the type locality have a rich rufous buff underside, slightly paler on the abdomen, but not always so.

Specimens from Southern Abyssinia and from west of Lake Rudolf are paler than typical birds. My material from these localities is, however, small (3 ♂ 1 ♀ only), but I prefer to recognise *abayensis* of Mearns for the time being.

The brighter coloured form I have from Kenia, Nairobi, Kikuyu, Olgerei (A. B. Percival), Loita, Naivasha, Nakuru, Burnt Forest, Fort Ternan, Kibos, Kibigori, Kisumu, Kendu Bay; also from Elgon, Entebbe, and Mubendi.

The paler birds from Meuressi, Turkwell, Kibos River, Mt. Moroto, and Kacheliba in Turkana.

1253. *Sylvietta whytii loringi* Mearns. **Pale Brown-bellied Crombec.**

I am prepared to support this race as a pale form of *S. w. jacksoni*, and give as its range the East Ukambani district from south of Fort Hall, extending to the east of Kilimanjaro—*i.e.* inhabiting the whole of the thorn-bush and scrub country and the Yatta Plains.

Fort Hall, Simba, N'zui River, Tsavo, Voi, Taveta, and Campi-ya-bibi.

1254. *Sylvietta whytii fischeri* Rehw. **Coastal Pale-bellied Crombec.**

I do not consider this to be the same as *S. whytii whytii* Shell. It is a paler bird which, within the coastal belt, remains true to type, but which, when it extends inland, merges into the form *loringi* Mearns. My series of fifty skins shows this beautifully. In the Teita and South Ukamba district we find the intermediates (cf. *Camaroptera pileata*, etc.).

Females are more buffy below than males.

*S. w. fischeri* differs more from *whytii* than *loringi* from *jacksoni*.

Typical birds : Mombasa, Changamwe, Malindi, Lamu, Manda, Samburu, Juba (South). Intermediates : Maungu, Taveta, Teita.

1255. *Camaroptera toroensis* Jacks. **Toro Green-winged Warbler.**

Ranges from West Uganda to Mt. Elgon and North Kavirondo : Bugoma, Budongo, Mubango, Lugalambo, Mabira, Elgon, in Uganda ; Kaimosi in East Africa.

1256. *Camaroptera superciliaris ugandae* Steph. Clarke. **Bare-throated Forest Warbler.**

? *C. pulchra* Zedlitz.

In 1916 (*Ibis*, July 1916) I drew attention to the whiter undersides of my specimens as compared to *pulchra*, but my new material shows that this is not constant, some birds being quite creamy below, just as in *pulchra* of Zedlitz. Colonel Clarke does not compare his birds with *pulchra* (1911). If not different, this form must be called *pulchra* !

Mabira, Bugoma, Budongo, South Ankole, Sezibwa River.

(The next group of this genus to be considered is that embracing the various forms of *brevicaudata* Cretzm. = *griseoviridis* of Zedlitz. I am of the opinion that *brevicaudata* is not founded on a specimen of the *superciliaris* group, but on a young of the brown-headed group !)

1257. *Camaroptera brevicaudata* near *abessinica* Zedl. **Turkana Green-winged Warbler.**

These birds are nearest to *abessinica* in coloration, but differ in size, having longer bills. They differ from the race of Uganda Proper in having the head browner, mantle and rump browner, not greyish. A series is necessary before these birds can be satisfactorily determined.

Mt. Moroto, Kobua, Meuressi, Turkana, West Rudolf.

1258. *Camaroptera brevicaudata* subsp. **Green-winged Warbler.**

My large series from Uganda and northern Kenya Colony are darker on the head than the Turkana birds and greyer on the back. The fully adult in the East African birds has the whole of the underside grey, while the young has the belly paler grey, more like the adult males from West Uganda. Both the Uganda and East African birds differ from *C. b. tineta* in having the head and mantle less dark. In seeking to name these birds I looked up the original description and type locality of *griseigula* Sharpe, the name which has been applied to all the East African birds. That bird came from Voi, and apparently so differed from the specimen taken up-country, which Sharpe called *griseoviridis*, that he considered it separable, and proposed for it the name *griseigula*. But is the Voi bird (and those from south of this locality) really different from Kikuyu and Mau specimens ? My series from these southern areas do not agree with up-country birds ; they are almost intermediate between the pale white-bellied coast bird and the dark grey-bellied highland race. These intermediate birds have the throat and breast greyish, with the abdomen white, very little greyer on the flanks ; the crown brownish, and the back greyish. They appear never to get the entirely grey underside of the highland form.

1259. *Camaroptera brevicaudata griseigula* Sharpe. **Teita Green-winged Warbler.**

South Ankole, Budongo, Gugo-ma, Mawakota, Busiro, Sezibwa, Entebbe, Kyetume, Elgon, Kenia, Fort Hall, Kyambu, Nairobi, Naivasha, Nakuru, Molo, Londiani.

*C. b. griseigula*: Voi, Bura, Teita, Maungu, Taveta, N'ziu River (Mt. Nyiru). N. Guasso N'yiuro, Marsabit (A. B. Percival).

1260. *Camaroptera brevicaudata pileata* Rehw. **Coastal Green-winged Warbler.**

These birds have the head and mantle pale ash-grey; the underside whitish in the Mombasa birds, and creamy in the more northern ones from Lamu and Manda. *C. pileata* is described as very similar to *brachyura*, which bird has a green tail, but the East African birds have it greyish brown.

Mombasa, Changamwe, Manda, and Lamu.

1261. *Calamonastes simplex* Rehw. **Sooty Scrub Warbler.**

My big series is made up of birds from a very large area, which I might refer to as the South Juba, West Rudolf, and East Kilimanjaro districts. I can find no difference in birds from these areas, except in the case of the birds from Turkwell and Suk, which are smaller.

I find in the series birds which are uniform greyish on the underside with practically no indications of darker barring. They are not young! Young birds are uniform brownish grey above and below, with no barring on the breast, but a little on the flanks.

Magadi, Simba, Tsavo, Voi, M'buyuni, Campi-ya-bibi, Maungu, Masongoleni, Samburu; Lower Juba River; Meouressi, Turkwell, and Suk.

1262. *Calamonastes undosus* Rehw. **Loita Grey Scrub Warbler.**

One specimen collected by A. B. Percival at Narok, Loita, has the grey of the breast more sharply demarked from the pale underside and the bars on the lower parts more clear-cut than in typical birds. The under tail-coverts are buffy banded with grey-brown, not pure white (*vide* Rehw. *Vög. Afr.*, vol. iii.).

1263. *Eminia lepida lepida* Hartl. **Grey-capped Swamp Warbler.**

Besides my material of twelve skins and seven in Nairobi Museum, I have compared the specimens in Tring, and come to the conclusion that, so far as East Africa and Uganda are concerned, the typical bird ranges from South Ankole to Masindi, east to Elgon and south along the Nandi Escarpment to Mau and Sotik. Specimens within this range are indistinguishable. Within the valley between the Aberdare Mts., and the Mau-Sotik Range we get intermediate birds—some showing the pale underside, others being greyish as in typical *hypochlorus*. Thus the ranges of the two are not clear-cut and defined. The two forms, however, are quite recognisable.

South Ankole, Toro, Budongo, Bugoma, Lugalambo, West Elgon; Kimiriri, Kaimosi, Kisumu, Kibos, Fort Ternan, Elgeyu, Maraquet.

1264. *Eminia lepida hypochlorus* Mearns. **Kenia Grey-capped Swamp Warbler.**

The only characters which really distinguish this race are the darker, more greyish underside, and paler under wing-coverts. The range is from the Kenia district south to Ukamba, west to the Loita and into the Rift Valley.

Kenia, Fort Hall (type loc.), Kyambu, Nairobi, Naivasha, Escarpment, Molo.

1265. *Macrosphenus flavicans ugandae* van Som. **Golden-flanked Long-billed Warbler.**

The young (September, October) is greenish yellow above without a grey head, and brighter yellowish below, quite different from *M. zenkeri*, which is a good species. The series endorses the distinctness.

Western Uganda east to Busoga Province. I have not taken it near Elgon : Budongo, Bugoma, Mabira, Lugalambo.

1266. *Macrosphenus zenkeri* Rehw. **Pale Olive Long-billed Warbler.**

The young are like adults, but rather more greenish.

West Uganda to Mabira : Lugalambo, Buremezi in Mabira.

1267. *Hylia prasina* Cass. **Green Forest Warbler.**

I can see no difference between typical birds and those from Uganda, but the Elgon birds are larger and greyer below, More material desirable.

The young is like the adult on the back, but less dark on the crown, the underside washed with greenish.

The range is throughout the wooded parts of Uganda east to Mt. Elgon, and the Nandi Escarpment.

Budongo, Bugoma, Kigezi, Entebbe, Mabira, Sezibwa, Lugalambo, Elgon. (Kaimosi and Kakamegoes ? different race.)

1268. *Schoenicola apicalis* Cab. **Fan-tailed Warbler.**

*C. brunneiceps* Rehw. 1907.

I have insufficient material, but what there is suggests that there are at least three races : (1) South Africa and Benguella ; (2) North Angola ; (3) East Africa and Uganda (= *brunneiceps* Rehw.). Reichenow admits that the type of *brunneiceps* is a youngish bird. I see no difference between Uganda and East African specimens.

Toro, Entebbe, Soronko, Elgon ; Kimiriri River, North Kavirondo, Burnt Forest, Maraquet, Nakuru, Nairobi, Kyambu, Fort Hall.

1269. *Bradypterus altumi* van Som. **Molo Narrow-tailed Swamp Warbler.**

*Bull. B.O. Club*, xl. p. 22, 1919.

The description of this bird reads much like that of *B. babacculus fraterculus* Mearns 1914, but as his bird is a race of *babacculus* it must have a broad tail, of twelve feathers, not narrow, decomposed, and numbering ten only ! The two must belong to different groups.

Highlands of Kenya Colony from Mau to Aberdares and Kenya.

1270. *Bradypterus cinnamomeus* subsp. **Ankole Cinnamon Swamp Warbler.**

A very dark race of *B. cinnamomeus*, being very dark brown above, with crown darker than mantle or same colour; the chestnut brown of the breast and flanks very dark, almost as dark as the mantle.

Kigezi, South Ankole, in Uganda.

1271. *Bradypterus cinnamomeus elgonensis* Mad. **Elgon Cinnamon Swamp Warbler.**

There seem to be two groups, the Elgon birds being of a darker rufous, with darker tails, than the Molo specimens, which are altogether paler. The breast-band is very broad and wide in the middle.

Darker: Bumasisa on Elgon, Bukedi, in Uganda.

Paler: Molo, Maraquet, Burnt Forest, in East Africa.

1272. *Bradypterus cinnamomeus ? salvadorii* Neum. **Kenya Cinnamon Swamp Warbler.**

These birds are as dark as the Elgon race, but not nearly so dark as the Ankole specimens, but like the latter they have the white of the throat well defined and clear cut. They differ from the Elgon race in having the breast-band narrower, not so wide in the middle of the breast. They are altogether darker than the Molo birds.

Ten skins collected by Wm. Doherty at Escarpment (probably in the Lari Swamp) have the throat not pure white, and the area of white on the abdomen is rather limited. The series is very uniform, but I think they must be soiled! I very much doubt if there is one race on the top of the Aberdare Mts. and another at the foot of the Escarpment.

Menengai Volcano, Nakuru, Aberdare Mts., and Mt. Kenya at 8,000 feet.

1273. *Bradypterus brachypterus ? centralis* Neum. **Nairobi Speckled-throated Swamp Warbler.**

The type of *centralis* came from Lake Kivu, South Ankole, and was described from a very worn, dilapidated specimen; with this Neumann united another very worn skin collected by Doherty at the Escarpment. My series of fresh full-plumaged birds are so very different that I am inclined to think that they must belong to another race, especially as Kivu birds are not usually like Nairobi ones, and these birds are very local! However, until a series is obtained from Kivu, one cannot decide the question. They are much like *B. abyssinicus*.

Nairobi Swamps to Elgon and Kivu!

Nairobi, Kikuyu, Kisumu, Kibingei, and Kirimiri Rivers, in North Kavirondo; Bukedi, Elgon, in Uganda.

1274. *Bradypterus yokanae* van Som. **Uganda White-winged Swamp Warbler.**

*Bull. B.O. Club*, xl. p. 21, 1919.

This bird apparently belongs to the group to which *B. graueri* Hartert and *B. carpalis* Chapin belong. It is distinguished by its very black brown upper surface and white spotted wings.

The range appears to be the swamps of the Sezibwa River basin.

Sezibwa River in Uganda.

**1275. Calamocichla ansorgei nilotica** Neum. Nile Long-clawed Reed Warbler.

These birds appear to be *C. a. nilotica* of Neumann, but there is some doubt that they are a race of *ansorgei* Hart. There are certainly three distinct plumages: (1) The nestling plumage, which is a bright brown on the upper surface, slightly darker wings and tail; lower surface whitish sandy buff, with paler throat and abdomen, gape yellow! Changes by moult into (2) dark hair brown mantle, lower surface sandy buff; by a further moult into full plumage (3), which is dark ash brown above, grey below with whitish or paler grey throat and centre of abdomen, gape orange.

The range of this bird appears to be the Nile province of Uganda along the chain of the Kioga Swamps to the Victoria Nyanza.

Kisumu Swamps and Sezibwa River.

**1276. Calamocichla jacksoni** Neum. Jackson's Long-clawed Reed Warbler.

The same sequence of plumages, but in the adult the upper surface is not so dark, and the lower surface, instead of being greyish, is buffy whitish with olive brownish on the sides of the chest and flanks.

The type of this bird is a specimen in the second plumage and probably a female.

The swamps on the north and east of Lake Victoria Nyanza: Kisumu Swamps and Entebbe Swamps.

**1277. Calamocichla leptorhyncha parva** Fisch. & Rehw. Naivasha Long-clawed Reed Warbler.

*Bradypterus macrorhynchus* Jacks.

A smaller edition of the greyish *C. a. nilotica*, inhabiting Victoria Nyanza. These birds are more olive-greyish above and greyer below than birds found in the swamps of the Nairobi district. These latter are like *C. jacksoni*, but larger! Of this Nairobi form I have 10 ad. ♂, 4 ad. ♀, 6 juv.

At one time I was led to think that possibly there were two distinct birds inhabiting the Nairobi Swamps, a brownish and a darker-backed species; but the paler birds are really the second plumage of the darker bird. The young and intermediate birds have yellow mouths, the adults orange ones. If the Naivasha and Nairobi birds are the same, then the range would be from Naivasha to Simba and Kilimanjaro. More Naivasha birds required.

Lake Naivasha (only two skins); Nairobi and Simba in Taveta.

**1278. Acrocephalus arundinaceus arundinaceus** Linn. Great Reed Warbler.

These birds belong to the western race. They are fairly common on migration.

Masindi in Uganda; Tsavo, Voi, and Bura in East Africa.

**1279. Acrocephalus griseldis** Hartl. Lesser Great Reed Warbler.

This bird, described from Nguru, has remained unique. (Cf. Nov. Zool. 1920, p. 464!)

1280. *Acrocephalus palustris* Bechst. **Marsh Warbler.**

Fairly common during the winter months.  
Masindi; Kisumu and Nairobi.

1281. *Acrocephalus scirpaceus scirpaceus* Herm. **European Reed Warbler.**

Masindi; Naivasha, Nairobi, and Taveta.

1282. *Acrocephalus baeticatus* Vieill. **African Reed Warbler.**

? *A. cinnamomeus* Rehw.

My two specimens are rather more rufescent than South African ones, and may be *cinnamomeus* of Reichenow from Lake Albert, if different. (They are not *A. agricola*!) This is a resident breeding bird.

Kisumu.

1283. *Acrocephalus schoenobaenus* Linn. **Sedge Warbler.**

The young bird shot 12. xii. has the breast still heavily speckled. The moults are most interesting. Adults are in heavy moult in December and February, and young birds (?beyond the nestling plumage) are still in heavy moult in April. (Cf. *Sylvia nisoria* and *Agrobates g. syriacus*.)

Masindi; Kisumu, Nakuru, Naivasha, Nairobi.

1284. *Hippolais olivetorum* Strickl. **Large Olive-Grey Warbler.**

Not common, but occasionally captured on migration.  
Simba and Sagala in Teita.

1285. *Hippolais languida* Hempr. **Large Pale Warbler.**

A series of forty skins includes birds in all stages of moult. Birds in full fresh plumage are found in January, March, and April, while some have not yet quite finished their moult in the same months; there are, however, quite a number which are very worn and show little or no fresh feathers in December, March, and April. These are probably birds of the previous year which would not breed in the year. These birds are found, during the winter, well away from water in the dry thorn-bush country of the Teita and Taru Desert, where they are particularly common.

Marsabit (A. B. Percival), Kisumu, Simba, Tsavo, Taveta.

1286. *Hippolais pallida elaeica* Lind. **Little Olive-grey Warbler.**

I find much variation in the colour of the mantles in these birds, some being quite greyish olive-green, while others are greyish, without the olive tinge. Dr. Hartert, who has examined these birds, assures me that they are all *elaieica*—apparently *pallida pallida* does not extend to East Africa even as a migrant. I have looked over a large material of *Hippolais* from East Africa and find no specimen of *opaca*. Their haunts are the dry thorn-bush country and scrub. Very common in the Tsavo area.

Kobua River, Lake Rudolf, in Uganda; Kisumu, Naivasha, Simba, Tsavo, Lake Jipe, Changamwe, Embu, Tana, Lodomoru (A. B. Percival leg.).



1287. *Locustella fluviatilis* Wolf. **River Warbler.**

Not a common migrant. Haunts the swamps.  
Taveta, Nairobi (A. B. Percival leg.).

1288. *Sylvia borin borin* Bodd. **Garden Warbler.**

A very early arrival in the autumn and a late bird to depart. The May bird is the latest noticed. Found in forests and gardens.

Entebbe in Uganda; Elgon, Kisumu, Nairobi, Tsavo in Taveta, in East Africa.

1289. *Sylvia atricapilla* Linn. **Black-cap.**

Bumasifa, Elgon, Nairobi, Kyambu.

1290. *Sylvia communis communis* Lath. **Common Whitethroat.**

Here also we find birds in April, which are still in very worn plumage, showing no attempt at moulting either body or flight feathers, while others at the same time are in full fresh plumage.

Kobua River in South Uganda; Kisumu, Nairobi, Simba, Tsavo.

1291. *Sylvia nisoria nisoria* Bechst. **Barred Warbler.**

This bird was first recorded from East Africa by A. B. Percival in 1917. Since then my collectors have taken a fair number. The moults are irregular. Young show no signs of change in March.

Kobua near Lake Rudolf, Meuessi, Turkwell; Simba, Tsavo, Teita, Taveta.

1292. *Phylloscopus trochilus trochilus* Linn. **Willow Wren.**

I have carefully gone over each one of these specimens and forty others from Africa, and find not one *collybita* amongst them. As regards *eversmanni* I am in doubt. If size is any really determining factor in the separating of this race, then there would be at least eight of my fifty birds *eversmanni*, having wings of 70 to 73 mm. Much variation exists in regard to the size of the first primary. There are quite a few specimens with this feather just over the length of the primary coverts, and there are a great many with very large long first primaries. I would draw attention to two specimens taken in June! The moult in these, as in *H. languida*, is very erratic.

Mubendi, Bira, Bumasifa, Elgon, Kobua near Rudolf; Kisumu, Nakuru, Naivasha, Nairobi, Simba, Tsavo, Changamwe, and Orr Valley (A. B. Percival).

1293. *Crateropus hindei* Sharpe. **Speckled Bubbling Thrush.**

These birds in fresh plumage show the most extraordinary variation. One specimen has the whole of the breast and abdomen pure white, thus resembling somewhat *C. hypoleucos*, but the upperside is that of typical *hindei*.

Ukamba and South Kenya Province.

Fort Hall, Kitui, River N'ziu, Ukamba.

1294. *Crateropus hypoleucos* Cab. **East African Pied Babbling Thrush.**

The range appears to be South Kenya, Ukamba, Kikuyu, and Teita Province, to the coast, though I have not taken it in Teita or Seyedi.

Nairobi, Fort Hall, Simba, Kitui.

1295. *Crateropus squamulatus* Shell. **Coastal Scaly Babbling Thrush.**

Apparently limited to the coastal area from South Tana, Lamu to Pangani. Young birds are paler than adults and have whitish throats.

Lamu, Manda, Mombasa.

1296. *Crateropus plebeus emini* Neum. **Ankole Spiny Babbling Thrush.**

This race is quite good. In Uganda it does not appear to penetrate farther than South Toro. The typical birds come from south-west shore of Lake Victoria.

Buddu, Kagera, Mohokya.

1297. *Crateropus plebeius cinereus* Heugl. **Nile Spiny Babbling Thrush.**

*C. buxtoni* Sharpe.

There is some variation in the plumage of this bird. I find two which have the underside from the breast to the vent creamy buff, thus being somewhat like typical *C. plebeius*. Others again are very greyish below. The bird from Lali Soroti is particularly pale. The range appears to be Unyoro and Nile Province of Uganda to West Rudolf, south to Mt. Elgon and the Kavirondo area.

Masindi, Budongo, Namasagoli Soroti, Lali Soronko, Elgon, in Uganda ; Kisumu, Kibos, Fort Ternan, in East Africa.

1298. *Crateropus plebeius kikuyuensis* Neum. **Kikuyu Spiny Babbling Thrush.**

This is a recognisable race, being rather darker than the birds of Uganda or Tanganyika Territory.

Kikuyu and Naivasha districts, South Loita.

1299. *Crateropus melanops sharpei* Rehw. **Sharpe's Scaly Babbling Thrush.**

*C. grisescens* Rehw.

This race ranges from the south shore of Victoria Nyanza through Western Uganda and along the north shore to Elgon and the Kavirondo country. *C. grisescens* of Reichenow, described from the type locality of *sharpei*, is a synonym, and probably founded on an immature specimen in second plumage.

Ankole, Budongo, Mubendi, Kalwanga, Jinja, and Elgon ; Kisumu, Kaimosi, Kibigori.

1300. *Crateropus melanops clamosus* van Som. **Kikuyu Scaly Babbling Thrush.**

*Bull. B.O. Club*, xl. p. 95, 1920.

This bird is nearest to *melanops sharpei*, but differs by being much darker above, and more decided by dark grey below, with the centres of the feathers dark. The throat is white with the shaft-spots blackish. Wings and tail darker black-brown. Wings : 110-115 mm.

Rift Valley from Nakuru south to Naivasha and the Kikuyu Hills.

1301. *Argya aylmeri mentalis* Rehw. **Scaly Brown Scrub Chatterer.**

*A. keniana* Jacks.

I have no topo-typical specimens for comparison, but my birds agree with specimens from Moschi. With regard to *keniana* of Jackson, my two birds from just about the type locality are rather less rufous on the mantle than more southern specimens, but I doubt if it is a good race. Jackson did not compare his bird with *mentalis*, but with typical *aylmeri*, which is recognisable at a glance. The young *mentalis* is paler above and below than the adult, and has no scaly feathers on the throat.

South Kenya to the plains and scrub of East Kilimanjaro: Mumosi, Kitui, Tsavo, M'buyuni, Campi-ya-bibi, Taveta.

1302. *Argya rubiginosa rubiginosa* Rüpp. **Northern Rufous Scrub Chatterer.**

These birds are paler, less dark rufescent on the back than more southern ones, and agree with South Ethiopian specimens which are said to be typical. I find, however, that two topo-typical birds of *rufula* Heugl. (*heuglini* Sharpe) are paler.

Nile Province of Uganda to Rudolf and the Frontier (Marsabit area): W. Rudolf, Kerio, Marsabit.

1303. *Argya rubiginosa emini* Rehw. **Dark-backed Rufous Scrub Chatterer.**

Birds ranging from the Kenia to the Ukamba country are noticeably darker on the back wings and tails than typical *rubiginosa*, and as the name *emini* has been applied to the Massailand birds it probably includes East African ones. If it is shown that the Tanganyika Territory bird is different, it would require a new name. Selater and Praed unite *emini* with *rubiginosa*, but I do not think this is correct.

South Kenya, Fort Hall, Kitui, Simba, Masongoleni.

1304. *Argya rubiginosa saturata* Sharpe. **Coastal Rufous Scrub Chatterer.**

The intense coloration, together with the rufous loreal spot and dark shafts to the feathers of the mantle, distinguish this bird from other races. The range is from the coast at Lamu, south to the Pangani, penetrating inland only as far as the South Teita country. It meets with *Argya emini*, but no intermediates are known.

Lamu, Changamwe, Mombasa, Samburu, Sagala, Teita, Bura, Taveta.

(It would appear that *rubiginosa* Rüpp. from Shoa is the oldest name. Heuglin procured a bird from Gondokoro which he considered to be distinct from *rubiginosa* and named it *rufescens*. Sharpe, when writing the *Catalogue of Birds*, vol. vii, discovered that the name *rufescens* could not be used for the Gondokoro bird, as it was preoccupied by an Indian species. He accordingly renamed the Gondokoro bird *A. heuglini*, which he had not seen (but accepted Heuglin's word that it was different, *vide Cat. B.*, vol. vii, pp. 391, 392.) He united with it two birds in the British Museum, one from Mombasa, the other from Zanzibar; not having a Gondokoro specimen he gives a description of the Mombasa or Zanzibar one, not for purposes of a diagnosis, but to conform with the plan of the catalogue. Subsequently in 1895, when reporting on a Somaliland

collection, he discovered that the Zanzibar bird was not the same as the Gondokoro one, and named the Zanzibar bird *saturata*. He did not rename the Gondokoro bird this time! He also found that Reichenow had drawn attention to the fact that Heuglin himself had found that *rufescens* was preoccupied and had already renamed the Gondokoro bird *rufula*! Sharpe's note in *P.Z.S.* 1895, p. 488, fully explains the confusion, and we must accept this. His own words are: "This bird, *heuglini*, was discovered at Gondokoro." Dr. Hartert and Lord Rothschild agree with my view, which differs from that of Zedlitz (*Journ. f. Orn.* 1916, p. 162) and Sclater and Præd (*Ibis*, 1918, p. 692).

1305. *Cichladusa arquata* Peters. **Collared Babbler.**

Coast of British East Africa and again in the Kagera River area in South Ankole. Mombasa specimens should be examined.

Changamwe, Mombasa. 2 ad., 1 juv.

1306. *Cichladusa guttata rufipennis* Sharpe. **Lamu Speckled Babbler.**

This is a small bird with a greyish tinge to the crown, and pale back. Wings : 80-82 mm.

Coast district only : Lamu Island.

1307. *Cichladusa guttata* Heugl. **Lake Rudolf Speckled Babbler.**

Larger than typical birds with a more yellowish brown mantle and long tails and wings. Wing, 85-92; tail, 86-94 mm.

Such birds are found in Moroto, Meuessi, Turkana, Turkwell, Kerio River, West Rudolf.

1308. *Cichladusa guttata*? **Ukamba Speckled Babbler.**

These birds are smaller than the Rudolf ones and darker on the mantle; the crown is more distinctly streaked and the spotting on the underside more numerous, larger, and blacker. They thus differ considerably from the Lamu race *rufipennis*. Wings : 76-83 mm. More material is necessary to understand the variation in this species.

Simba, Kitui, Sagala, Taveta.

1309. *Erythropygia quadrivirgata* Rehw. **Buff-breasted Scrub Chat.**

This species ranges along the coast and penetrates inland to the Teita and South Ukamba districts. The birds found in Manda and north of this in the Juba district are paler and probably *erlangeri* Rehw.

Sagala, Teita, Mombasa, Changamwe, Manda Island.

1310. *Erythropygia leucoptera vulpina* Rehw. **Grey-streaked Scrub Chat.**

Compared with typical *leucoptera*, this form is less clear grey on the crown, having this part washed with ochraceous brown, caused by the brown of the upper back extending to the nape and hind part of the crown. The brown of the back is of a deeper shade, and the grey streaks on the breast are more pronounced.

From the Baringo and Tana district, south and west through Ukambani, to the plains east of Kilimanjaro. In the North-west Ukamba area we get an inter-

mediate form between this and *brunneiceps* Rehw. from Nguruman, but a series is necessary to show whether these intermediates cover any definite area.

Baringo, Marsabit (Percival), Simba, Tsavo, Voi, Campi-ya-bibi, Lake Jipe, Maungu, Masongoleni, Sagala, Teita, Taru, and Samburu.

1311. *Erythropygia leucoptera* ? subsp.

Three birds resemble typical *leucoptera* in the colour of the underparts, but are paler on the mantle, less rufous. They have greyer crowns than *vulpina*.

Meuressi, Turkwell, Kerio, Rudolf.

1312. *Erythropygia leucoptera brunneiceps* Rehw. **N'guruman Scrub Chat.**

These birds (from near the type locality) agree perfectly with a cotype of *brunneiceps* in the Tring Museum. This race is recognised by its larger bill, darker, more brownish olive head, less rufous, more olive-rufous mantle and distinct black streaks on the breast. As remarked before, Simba birds are intermediate between this and *vulpina*.

N'guruman district through the South Guasso N'yiyo area to South Loita. It probably meets with the next race in the Loita Valley: Magadi Lake, South Guasso N'yiyo.

1313. *Erythropygia leucoptera ukambensis* Sharpe. **Ukamba Scrub Chat.**

Apparently a common bird in the Escarpment district where Doherty collected a good series.

Ukamba to the Kikuyu Hills, Naivasha.

1314. *Erythropygia ruficauda* ? subsp. **Kavirondo Red-tailed Scrub Chat.**

I have no typical birds from Malimbe to compare, and as the distance between South Kavirondo and Malimbe is very great, it is most probable that these birds differ, especially since the form of *ruficauda* from the Kivu area is much darker, more rufous on the back, than Kisumu birds. I have united my specimens pending examination of Malimbe specimens.

South and North Kavirondo (Kisumu, Kendu Bay, Kaimosi); South Ankole, Kigezi, Kivu.

1315. *Erythropygia hartlaubi* Rehw. **Uganda Black-backed Scrub Chat.**

I find that my birds from Kenya are very much darker on the mantle, and have the crown almost black. They have the breast-markings much more distinct and are slightly larger. It is quite possible that Kenia birds are separable, but more material is required.

South Ankole Buda, Masindi, Chagwe, Jinja, in Uganda; Kisumu, Kaimosi, Loita, Nairobi, Fort Hall, south of Kenya in East Africa.

1316. *Neocossyphus rufus* Fisch. & Rehw. **Rufous Chat Thrush.**

Not common.

Coastlands from Malindi to the Pagani (type locality), Mombasa.

(*Neocossyphus praepectoralis* Jacks. **Uganda Rufous Chat Thrush.**  
(Type locality: Toro, Uganda.)

1317. *Turdus gurneyi keniensis* Mearns. **Kenia Rufous-breasted Thrush.**

Though near *piaggiae*, this subspecies can be distinguished from the latter by having the upperside much darker green-olive, with a dark tail; less deep rufous on the crown; the rufous of the throat rather darker. No white tips to the tail-feathers.

Mt. Kenya and Aberdare Hills.

1318. *Turdus gurneyi piaggiae* Bouv. ? **Mt. Uruguess Rufous-breasted Thrush.**

A single specimen taken by Mr. Blayney Percival on Mt. Uruguess, South Marsabit district, agrees with typical *piaggiae* in the colour above and below, but has less rufous on the forehead and crown. It is paler than *keniensis*.

1319. *Turdus gurneyi rayneyi* Mearns.

? *kilimensis* Neum.

Mt. M'bololo, North-east Kilimanjaro.

1320. *Turdus fischeri* Hellm. **Coastal Spotted Thrush.**

Coast to Pangani.

1321. *Turdus olivaceus elgonensis* Sharpe. **Elgon Rufous-bellied Thrush.**

*T. johnstoni* Sharpe.

When compared with *abyssinicus* it is evident that the latter are more tinged with ochraceous on the breast and the throats are paler. The Elgon birds are more greyish on the breast-band.

Entebbe, east to Elgon and south along the Forest Highlands to Nairobi and Kenia: Elgon, Maraquet, Elgeyu, Burnt Forest, Molo, Kikuyu, Kabete, Nairobi; Entebbe and M'balé, Bukedi.

1322. *Turdus olivaceus polius* Mearns. **Mt. Uruguess Rufous-bellied Thrush.**

These birds are separable from *elgonensis*, but I fail to see how they differ from *abyssinicus*. The wings measure 112-117 mm.

Mt. Uruguess, South Marsabit.

1323. *Turdus olivaceus bambusicola* Neum. **Ankole Rufous-bellied Thrush.**

Very like *elgonensis*, but with a paler throat, with distinct lines.

Kagera-Kivu area.

1324. *Turdus baraka* Sharpe. **Ruwenzori Rufous-bellied Thrush.**

Ruwenzori area.

1325. *Turdus pelios centralis* Rehw. **Uganda Pale-bellied Thrush.**

I find the palest bird with the whitish throat from West Rudolf, the darkest from Entebbe.

The range is throughout Uganda, except in the northern area, and south to the Elgon-Nandi Range. Elgon birds are slightly paler on the mantle, more greyish, less olive.

Masindi, Bugoma, Budongo, Busiro, Entebbe; Lugalambo, Mubango, Meuressi, Elgon, Bukedi, Kavirondo.

1326. *Turdus libonyanus tephronotus* Cab. **Taru Pale Grey-backed Thrush.**

Birds from Lamu, Manda, and Juba River are paler below than typical *tephronotus*, with clear grey breast-bands, lacking the ochraceous tinge, and with the throat area not outlined with buff, but with white, and streaked with black. These characters are constant in my series, but I await further material.

The scrub area east of Kilimanjaro and Teita, east to South Ukamba and the Juba district: Kitui, Ndi, Tsavo, Masongoleni, Maungu, Lamu, Manda [Juba River (A. B. Percival)].

1327. *Luscinia luscinia* Linn. **Sprosser.**

Common on migration.

Nairobi, Simba, Tsavo, Taveta.

1328. *Luscinia megarhyncha* Brehm. **Nightingale.**

One specimen was shot along with a Sprosser in my garden.

Nairobi, Teita. 3 ♂.

1329. *Irania gutturalis* Guér. **White-throated Chat.**

These birds are somewhat dichromatic. Adult males are either uniform creamy buff or rufous orange on the underside. Intermediates between these types are found. Not common.

Simba, Tsavo, Taveta.

1330. *Cossypha natalensis* Smith. **Grey-winged Rufous Cossypha.**

*C. n. intensa* Mearns. ? *C. n. garguessa* Mearns.

These birds vary considerably in colour and in size. My smallest birds come from Taveta, but Taveta birds are not dark, rather pale in fact, but a Lake Jipe specimen is very big, having a wing of 100 mm. My largest bird comes from South Ankole and its wing measures 102 mm.

Though I have examined a big series, I cannot recognise any constant differences, warranting the separation into geographical forms. I have no Urugess birds, but birds from this locality may very likely be different, because of the peculiar nature of the country.

C. and W. Uganda, Kilimanjaro and Ukamba district: Taveta, Lake Jipe, Sagala, Changamwe; South Ankole, Mubango, Lugalambo.

1331. *Cossypha cyanocampter bartteloti* Shell. **Blue-shouldered Cossypha.**

I was surprised to find this bird on Mount Elgon and on the Nandi Range. There are slight differences in the birds from Elgon, but the specimens from this locality are soiled, so one cannot attach much value to their colour.

West Uganda to Elgon and Nandi: Bugoma, Budongo, Lugalambo; Kakamegoes and Kaimosi in North Kavirondo.

1332. *Cossypha caffra iolaema* Rehw. **Red-headed Cossypha.**

*C. c. mauensis* Neum.

I have no typical Kilimanjaro birds, but if the highland form really differs, it would have to be called *mauensis* Neum.

The birds from Kivu and Kagera are somewhat darker than East African

ones, and may possibly belong to a recognisable race, but more material is necessary. I find amongst my Naivasha specimens, one just as dark. The coloration is, however, on the whole, constant.

Highlands of Kenya Colony, Elgon and South Ankole district of Uganda : Elgon, Bukedi in Uganda, Burnt Forest, Elgeyi, Mau, Kikuyu, Nairobi, Kenya.

1333. *Cossypha somereni* Hart. **Small White-striped Cossypha.**

The wings vary from 74 to 85 mm.

The range, so far as is known, is from the forests of Central Uganda to Elgon and North Kavirondo : Mabira, Lugalambo ; South Elgon and Kaimosi.

1334. *Cossypha archeri* Sharpe. **Ruwenzori Little Rufous Cossypha.**

This bird appears to be limited to the Ruwenzori Range, south to the Kigezi country in South Ankole.

1335. *Cossypha verticalis melanonota* Cab. **White-crowned Cossypha.**

The Uganda and Elgon birds are very rufous, and those from south of the Nandi Range are very big, with longer wings, heavier, longer bills, and more intensely coloured, but more specimens are required.

West Uganda from Ankole and Masindi, east to Mt. Elgon : South Ankole, Budu, Bugoma, Budongo, Masindi, Kyetume, and Elgon ; Kaimosi, Kakamegoes, North Kavirondo, and South Nandi.

1336. *Cossypha heuglini occidentalis* Rehw. **Ankole Large White-eyebrowed Cossypha.**

Very dark rich rufous on the underside, and darker on the mantle than typical *heuglini*, or the birds from Elgon. Quite distinct from *subrufescens*, having olive-greyish instead of black central tail-feathers.

Ankole to Kivu : South Ankole, Kigezi, in Uganda.

1337. *Cossypha heuglini intermedia* Cab. **Coastal White-striped Cossypha.**

(Restricted type locality : coast of Kenya Colony.)

A dark race of *heuglini*. It is considerably smaller, the wings of fifteen specimens measuring ♂ 90 to 97, ♀ 82 to 88 mm.

This small race ranges from the coast of Pangani to the Juba, and goes inland to the Teita and South Ukambba district : Changamwe, Mombasa, Teita, Sagala, Bura, Taru.

1338. (?) *Cossypha heuglini* Hartl. **Uganda White-striped Cossypha.**

I am not satisfied with the identification of these birds, owing to the want of topo-typical specimens. It is probable that the North-west Unyoro birds are typical, the Elgon and Highland ones not. Wings : East Africa : ♂, 101-108 (most 104) ; ♀, 92-95 mm. Uganda : ♂, 100-103 ; ♀, 90-92 mm.

If not separable, the range would be West Uganda from the shores of Lake Albert and Ruwenzori east to Mt. Elgon and south to Nairobi district and Mt. Kenia : Moroto, Kawala, Kikoma, in Uganda ; Loita, Nairobi, Nakuru, Kenia, Elgon, Nyarondo, Kisumu, Fort Ternan, in Kenya colony.



**1339. *Cossypha semirufa intercedens* Cab. East African Black-tailed Cossypha.**

(Type locality: Kitui.)

These birds occur in the same territory as the *heuglini* form, but can be readily recognised by the black central tail-feathers.

Wings: ♂, 92-93; ♀, 84 mm.

Kitui, Nairobi, Escarpment.

**1340. *Cossypha semirufa* near *saturator* Neum. Marsabit Cossypha.**

I have a single specimen from Marsabit of a *Cossypha* belonging to the *semirufa* group which is nearest to *saturator* in colour of the upper parts, but the lower surface is richer rufous and the abdomen like the breast, not paler and inclining to buff. The rufous feathers in the tail are chestnut.

**1341. *Callene aequatorialis* Jacks. Little Orange-breasted Forest Cossypha.**

Elgon and Nandi, south to Sotik and Molo: Kaimosi on Elgon, Lumbwa, Maraquet.

**1342. *Monticola saxatalis* Linn. Rock Thrush.**

Common during migration.

**1343. *Monticola rufocinerea rufocinerea* (? *sclateri* Hart.).**

Two specimens taken at Naivasha agree well with the South Arabian bird described by Dr. Hartert as *sclateri*, while the Mt. Moroto to West Rudolf birds agree better with typical *rufocinerea*. *M. r. sclateri* was separated principally because South Arabian birds had a much wider black tip to the tail-feathers. This is certainly the case in the series in Tring. When describing this new race Hartert mentions a bird shot by Doherty at Escarpment which has this black tip to the tail almost 15 mm. wide and suggested that additional material might show it to be another recognisable race. Now, my two Naivasha birds, from nearly the same locality, are not like Doherty's birds, and as already stated do not differ appreciably from *M. r. sclateri*. Can it be that *sclateri* is migratory?

Mt. Moroto, West Lake Rudolf district, in Uganda; Naivasha.

**1344. *Oenanthe familiaris* near *omoensis* Neum. Red-tailed Grey Chat.**

1 ♂ shot at Kigezi (Ankole) is in full fresh plumage and has a distinctly greyish back; the under tail-coverts are buff. It is nearest to *omoensis*, but differs by having the throat whitish, not grey like the breast. The type and co-type of *omoensis* are very worn. An adult in moult collected by Grauer at Kivu has the new feathers on the mantle brownish grey, not pure grey, like my birds. Further material will probably show these birds to be distinct.

**1345. *Oenanthe heuglini* Hartl. Little Brown-breasted Chat.**

The capture of a ♂, 24.vii.1917, in Kisumu (Kavirondo) extends its range considerably.

1346. *Oenanthe pileata albinotata* Neum. **East African Banded Chat.**? *O. livingstonii*.

Although *livingstonii* and *albinotata* have been united with *pileata*, I believe that two or three races should be upheld, and certainly the Massailand one. Birds from Kenya Colony never get a complete black cap extending to the nape. Naivasha, Nakuru, Nairobi, Athi, M'buyuni, Campi-ya-bibi.

1347. *Oenanthe oenanthe oenanthe* Linn., ? *rostrata* and ? *leucorhoa*.  
**Wheatear.**

It is difficult to decide whether or not to recognise the race *rostrata* Hempr. and Ehr. I find in my series no less than nine birds which have very long bills, as in *rostrata*, while the others have short, thicker bills. Also we find very big specimens with wings of 100-106, thus being as large as the Greenland form, *leucorhoa*. A common migrant.

1348. *Oenanthe isabellina* Cretzschm. **Isabelline Wheatear.**

Kisumu, Kyambu, Nairobi, Simba, Tsavo, Bura, Magadi.

1349. *Oenanthe schalowi* Fisch. & Rehw. **Massai Buff-tailed Chat.**

Considerable variation exists in the females, some being dark, others pale on the lower surface.

The more rocky parts of the Highlands—Escarpment to Molo, Naivasha, Nakuru.

1350. *Oenanthe leucomela pleschanka* Lepech. **Pied Chat.**

Common during the winter months.

1351. *Cercomela fuscicaudata turkana* van Som. **Grey Desert Chat.***Bull. B.O. Club*, xl. p. 91, 1920.

Nearest to *fuscicaudata* Blanf., but differs by being paler, less deep greyish brown, more ashy grey with an ochraceous tinge to the crown and back, while the edges of the tail-feathers, which are similar in colour to the mantle, are buff, not rusty brown.

Known only from a ♂ and ♀ from Kobua and Meuressi in the Turkana district.

1352. *Myrmecocichla cryptoleuca* Sharpe. **Kikuyu White-winged Black Chat.**

A common species, ranging from the North Ukamba district north to the Uasingishu and Sotik, where it meets with *M. nigra*.

Kikuyu, Eldoret, Nakuru.

1353. *Myrmecocichla nigra* Vieill. **Uganda Black Chat.**

A common species ranging from the west and south-west of Uganda, east to Elgon and South Kavirondo.

Kawala, Singo, Bugoma, Entebbe, in Uganda; Kibigori and Fort Ternan in East Africa.

1354. *Pentholaea clericalis* Hartl. **White-capped Black Chat.**? *P. baucis* Hartl.

Occurs in the Nile Province of Uganda.

1355. *Thamnolaea subrufipennis* Rehw. **Rufous-bellied Mountain Chat.**

Not very common. I find very little difference between the Uganda and Kilimanjaro birds.

Lai Soroti in Uganda ; Naivasha and Sagala Teita in East Africa.

1356. *Pinarochroa sordida ernesti* Sharpe. **Kenia Mountain Chat.**

Aberdare Range and Mt. Kenia.

1357. *Pinarochroa sordida hypospodia* Shelley. **Kilimanjaro Mountain Chat.**

I have no specimen.

1358. *Pinarochroa sordida rudolfi* Mad. **Elgon Mountain Chat.**Appears to be very close to *ernesti*.1359. *Pogonocichla elgonensis* Sharpe. **Elgon Black-tailed Forest Chat.**

This distinct species is not by any means so common as *P. c. keniensis*. Besides the uniform black tail, this bird has all the secondaries edged with grey. The young bird is not so much washed with yellowish green below, as in *P. c. keniensis*.

Limited to Mt. Elgon.

1360. *Pogonocichla cucullata ruwenzori* Og.-Grant. **Uganda Yellow-breasted Forest Chat.***P. eurydesmus* Rehw.*P. intensus* Sharpe.

Smaller than *keniensis* and more richly coloured. The young birds are also much darker, being more heavily spotted on the underside.

South-west Uganda to Ruwenzori and ? to Entebbe : Kigezi in South Ankole.

1361. *Pogonocichla cucullata keniensis* Mearns. **East African Yellow-breasted Forest Chat.***P. orientalis* (nec. Fisch. and Rehw.) auct. !

Birds from the Mau and Elgeyu Hills are not separable from the Kenia race. This form is distributed throughout the highlands, as far north as the Nandi Ridge, but does not occur in the forests of North Kavirondo. The tail-markings vary with age. The young birds have the inner webs of the outer tail-feathers yellow without a terminal band.

Elgeyu, Maraquet, Londiani, Molo, Aberdare Mts., N'gong, Kyambu, Nairobi, and Mt. Kenia.

1362. *Pogonocichla cucullata orientalis* Fisch. & Rchw. **Coast Yellow-breasted Forest Chat.**

? *P. guttifer* Rchw. ?

*P. helleri* Mearns.

? *P. olivacea* Rchw.

This race was described from the Pangani district, and differs from the other East African forms by having all the secondaries and inner primaries edged with olive-green.

I doubt if a distinct form occurs on the Usambara Hills, and the Kilimanjaro birds are the same.

Morogoro and Kilimanjaro.

1363. *Alethe poliothorax* Rchw. **Rufous-backed Forest Ground Thrush.**

I have no typical *poliothorax*, but find the Elgon birds to be less rufescent on the head and back than Kivu and Ankole ones. A series will probably show this to be constant.

Ankole to Ruwenzori, appearing again on Elgon: Kigezi in Ankole, and Mt. Elgon.

1364. *Alethe castanea woosnami* Og.-Grant. **Golden-crowned Rufous-backed Ground Thrush.**

Very much like *castanea*, but are less rufous on the mantle.

Forests of Uganda from Ruwenzori to Mabira: Butambara, Lugalambo, Kyetume.

1365. *Alethe poliocephala kikuyuensis* Jacks. **Kikuyu Buff-breasted Ground Thrush.**

? *A. p. akeleyi* Mearns.

A good race, being very large and with a greyer crown and less rufescent mantle. It ranges from Kenia to the forests of Kikuyu and the Mau, and meets with *carruthersi* in the Nandi district. A specimen from Kakamegoes is indistinguishable from *kikuyuensis*, yet all the other birds from this district are *carruthersi*!

Nairobi, Kikuyu, Kyambu, Kenia, Mau, and Kakamegoes.

1366. *Alethe poliothorax carruthersi* Og.-Grant. **Uganda Buff-breasted Ground Thrush.**

Less rufous than *poliothorax*, ranging throughout Uganda, occupying the same area as *Alethe woosnami*, but extending further, being plentiful in the North Kavirondo Forests and Nandi.

Lugalambo, Mubango, Bugoma, in Uganda; Kakamegoes and Kaimosi.

1367. *Lioptilus atriceps* Sharpe. **Black-headed Lesser-froned Thrush.**

Not very common in Uganda, but more plentiful in the Kivu area. Kigezi in South Ankole.

1368. *Lioptilus rufocinctus* Rothsch.

May possibly occur in the Kigezi country of South-west Uganda.

1369. *Lioptilus abyssinicus* Rüpp. Grey-headed Lesser Ground Thrush.

My birds from East Africa are not quite so rufous on the back as specimens from Abyssinia, but the series from the latter locality is insufficient. This bird is found on all the forest-clad highlands from Elgon to North Kikuyu and Mt. Kenia, but does not occur in the South Kikuyu Forests.

Elgon, Maraquet, Elgeyu, Molo, Londiani, Kenia.

1370. *Lioptilus kilimensis* Shell. Kilimanjaro Lesser Ground Thrush.

Apparently confined to the Kilimanjaro Range.

1371. *Bathmocercus rufus jacksoni* Sharpe. Little Rufous Forest Chat.

Young birds are uniform dull olive-brown, rather darker on the abdomen. Elgon, south along the Nandi Range to Mau : Elgon, Bukedi ; Kakamegoes and Nyarondo.

1372. *Malacocincla fulvescens ugandae* van Som. Uganda White-throated Thrush.

A series of forty-eight specimens from all parts of Uganda confirms the characters claimed for this race. The range would be the forest region throughout Uganda, including Mt. Elgon, south into the Nandi Range.

Budongo, Bugoma, Butambara, Mubendi, Lugalambo, Kyetume, Entebbe, Bukedi ; Kibras and Kakamegoes.

1373. *Malacocincla minuta* van Som. Little Olive Ground Thrush.

This is probably a race of *rufipennis* Sharpe. It was erroneously described as a form of *albipectus*, which is, according to Og.-Grant, the same as *rufipennis*, but I am now convinced that "*albipectus* Rchw." is a distinct species. As in *rufipennis*, these birds have olive crowns, not greyish and distinct from the colour of the mantle, and they have a fulvous tinge to the breast, forming a more or less complete band. The underside is never uniform white from the throat to the vent. The feet are olive-grey-brown, in the dry skin they are olive. The type, which is sexed ♂, is probably a female.

In these birds the feathers of the throat and breast have not got a scaly appearance as in *barakae* ? = *albipectus*.

West to Central Uganda : Mabira, Bugoma, Budongo.

1374. *Malacocincla barakae* Jacks. White-breasted Ground Thrush.

? = *M. albipectus* Rchw.

As mentioned above, Og.-Grant asserts that this bird is the same as *albipectus* and that *albipectus* is the same as *rufipennis*, but I cannot agree. I have a good series of this bird and of *rufipennis*. What has probably given rise to the error is, that *rufipennis* and *albipectus* both occur in Camaroon. Reichenow gives a plate of his *albipectus* in his *Vög. Afrikas* which agrees very well with *barakae*, but not at all with *rufipennis*. The characters by which these birds can be

distinguished from *rufipennis* are : Head olive, of a different colour to the back ; sides of head greyer ; underside white with a tinge of olive on the sides of the breast ; the feathers are of a scaly character, *i.e.* the edges are rounded and sharply cut, not soft. These birds have grey-brown legs, which become pale when dry, not dark as in *minutus*. Besides, the young are quite different.

Uganda to Elgon and North Kavirondo : Budongo, Bugoma, Mabira, Lugalambo, Elgon ; Kakamegoes and Kaimosi.

1375. *Malacocincla pyrrhopterus* Rehw. **Grey-breasted Ground Thrush.**

*M. jacksoni* Sharpe.

*M. kivuensis* Neum.

Some of these birds have the crown tinged olive, others greyish, and as Neumann separated the Kivu birds because of the greyish crown, it is probable that his *kivuensis* is a synonym. My three Ankole birds are not separable from Mau specimens. It is strange, however, that if these birds are the same there should be a great break in their distribution—namely, the area between Ruwenzori and Mt. Elgon, practically the whole of Uganda ! They do not extend by way of the south shore of Victoria Nyanza.

Elgon and Mau to Aberdare Mts., reappearing in Western Uganda : Molo, Maraquet, Kaimosi, Kakamegoes, Elgon, and South Ankole.

1376. *Saxicola rubetra* Linn. **Whin Chat.**

Very common migrant.

Masindi, Lugalambo, Elgon ; Naivasha, Kisumu, Mumias, and Nairobi.

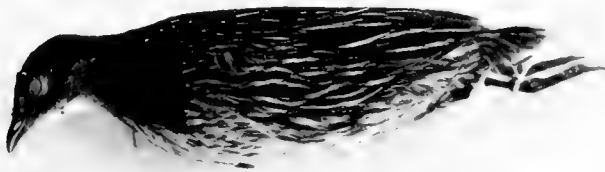
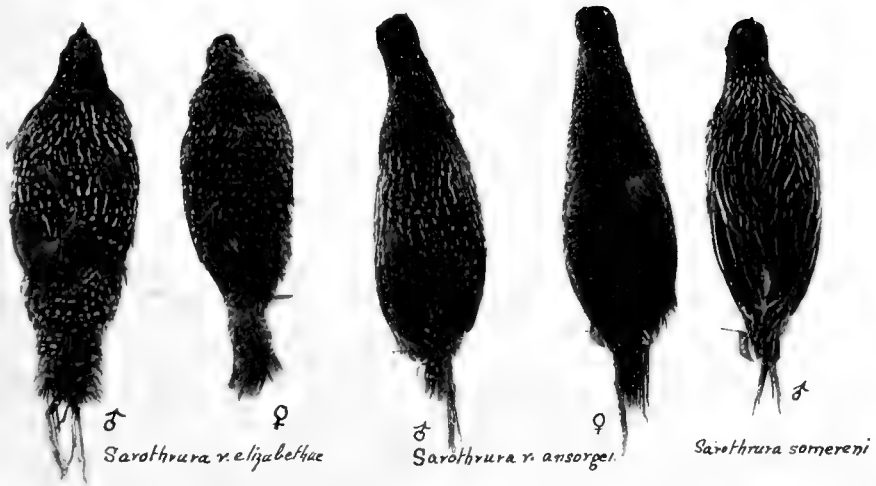
1377. *Saxicola torquatus axillaris* Shell. **East African Stone Chat.**

Much variation exists in the extent of brown on the breast, some birds being entirely without the breast-band. East African examples are larger than Uganda ones.

Throughout Uganda and East Africa, except in the coastal region and thorn-bush country.

South Ankole, Budu, Busiro, Masindi, Entebbe, Lugalambo, Elgon ; Kisumu, Nakuru, Naivasha, Molo, and Burnt Forest.

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♂. *Sarothrura somereni*

VARIOUS FORMS OF SAROTHRURA.







CORYTHORNIS CRISTATUS (Pall.)

1. — Capt. in the field.





CORYTHORNIS CRISTATUS (Ball)

Photograph by the author





CORYTHORNIS CRISTATUS (*Gull*)

Photograph in life





*APALIS FLAVOCINCTA* (Sharpe).

Female with a piece of vegetable down for the lining of its nest.

Photograph from Life







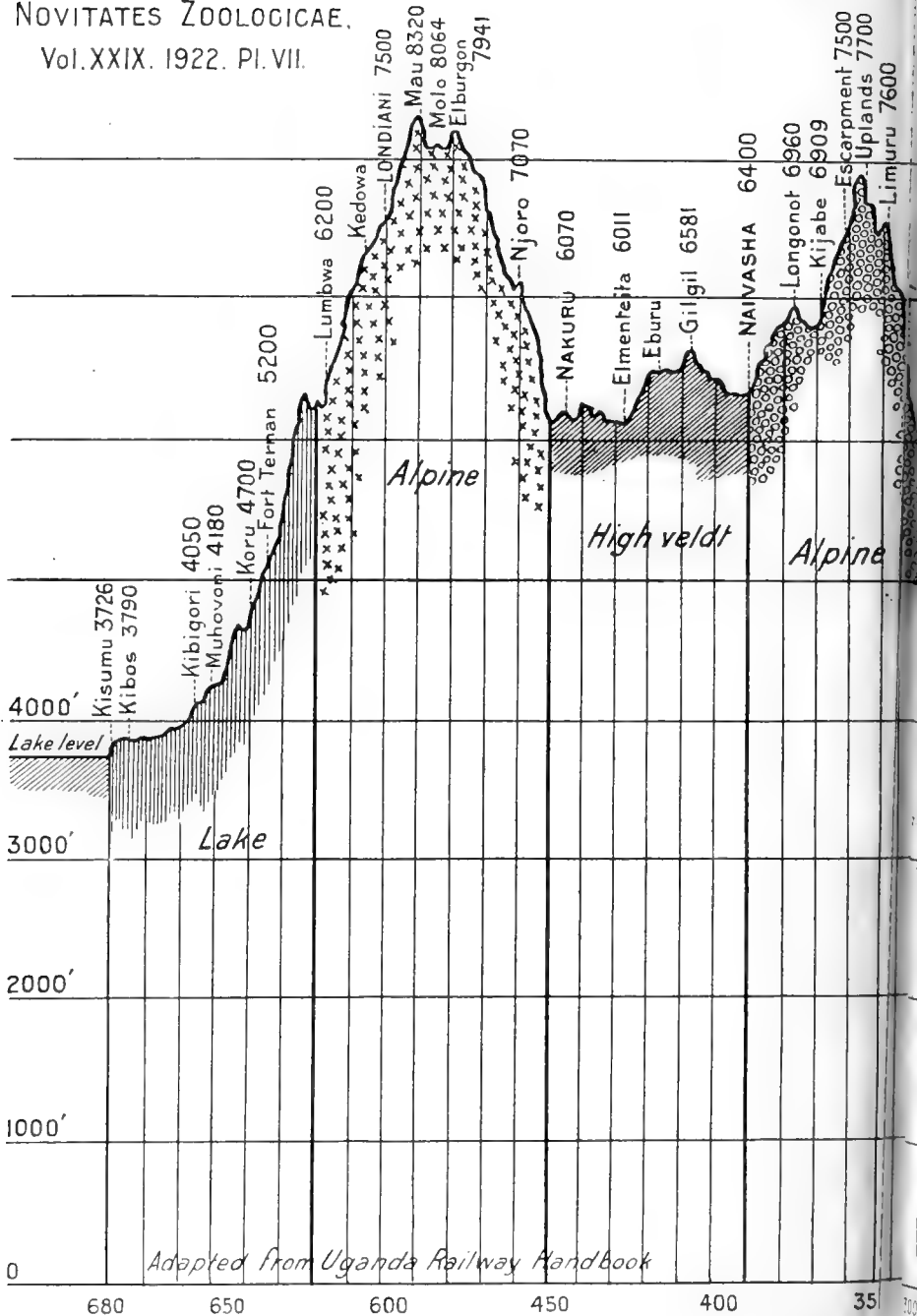
*CALAMOCICHLA NILOTICA*

Male at nest.

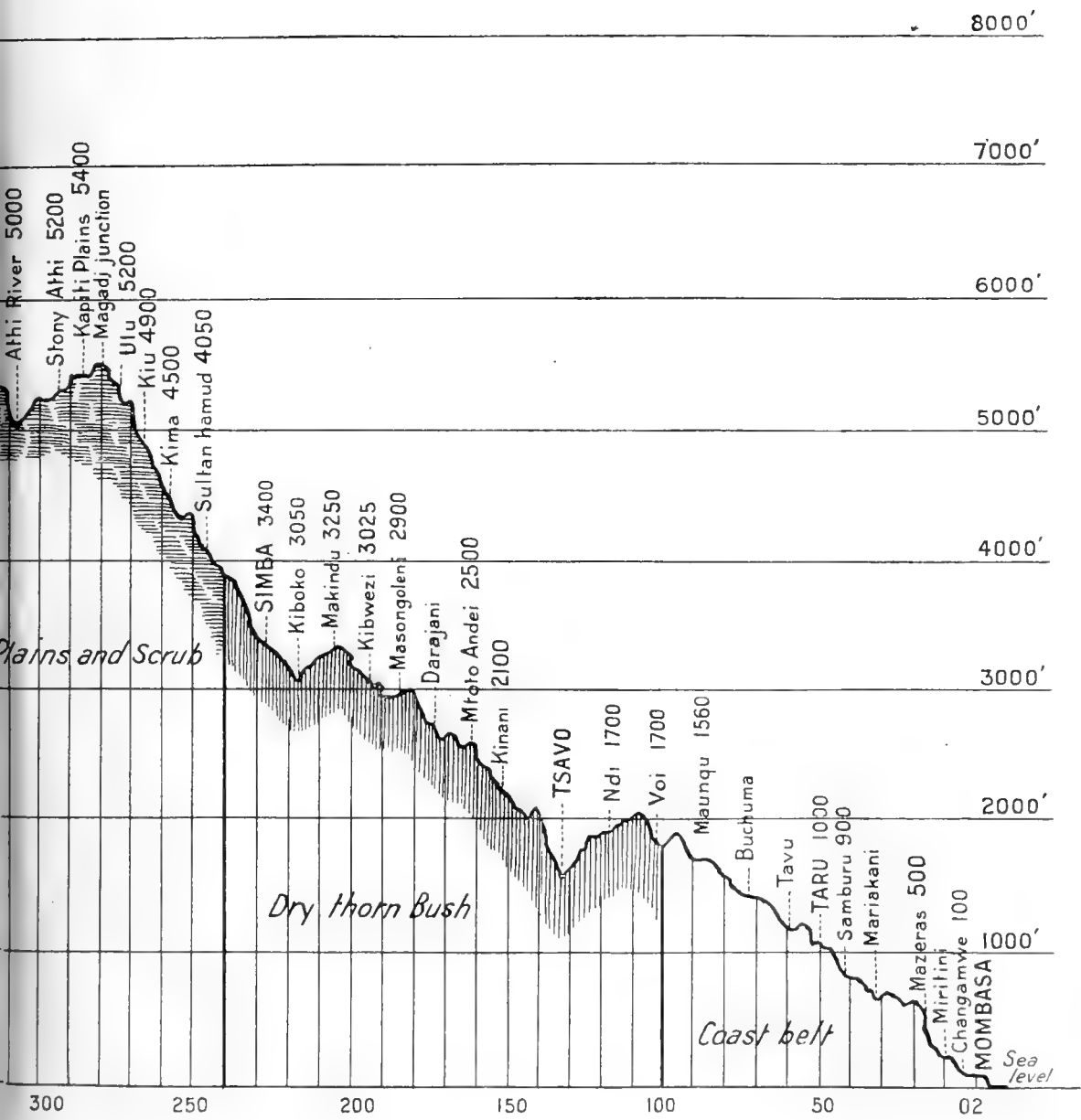
Photographed from life.







LONGITUDINAL SECTION along the UGANDA RAILWAY



showing avifaunal areas.

Horizontal 1" = 50 miles. Vertical 1" = 1200 feet

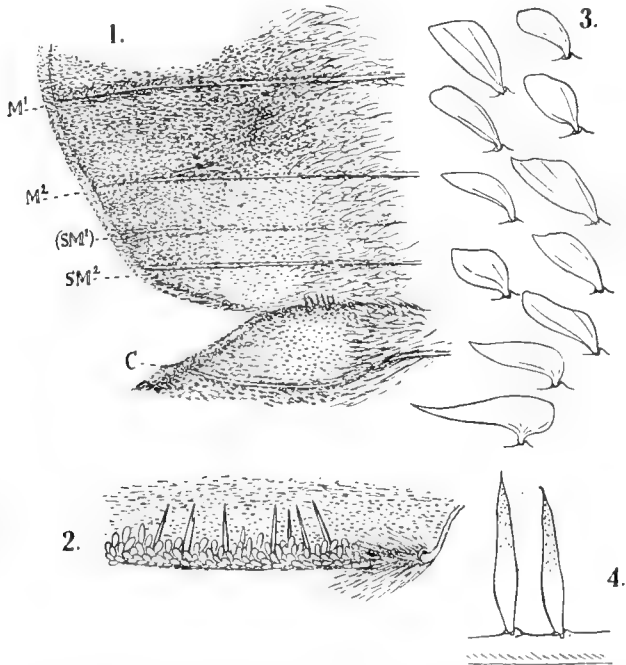


ON AN ORGAN PECULIAR TO THE FEMALES OF SOME GENERA OF *LUDIINAE*, A SUBFAMILY OF SATURNIIDAE.

By DR. KARL JORDAN.

(With four text-figs.)

AT the meeting of the Entomological Society of London held on February 2, 1921, we described and demonstrated an organ restricted to certain genera of the African subfamily *Ludiinae*, and as we shall often refer to this organ in the monograph of that subfamily following hereafter, we now give a figure illustrating its structure (text-figs. 1-4). In *Holocera*, *Pseudoludia*, and *Ludia*



the female bears a large patch of modified scales on the underside of the forewing before the tornus, varying somewhat individually and showing differences in some of the species. The scales composing the patch are more or less strongly chitinised, and so twisted that they are semi-erect and turn the edge towards the wing and not the flat side. Many of the scales are pointed, and most of them have lost the apical dentition altogether. The reduction in size and the modifications in shape are shown in fig. 3; all the scales here represented may be found on the same wing, and as a rule there are some small dentate scales among them lying flat on the wing. The patch is more or less continued on to

the undersurface of the hindwing, the costal vein C being incurved in consequence. Some of the scales at the costal margin of the hindwing, on the upperside, are long and spiniform, being strongly chitinised and standing erect or semi-erect, scraping on the forewing when the wings are being moved. The structure suggests that we have here a stridulating organ of a peculiar kind, and we shall refer to it as such in the monograph of the subfamily.

However, Professor Janse, Dr. Guy Marshall, Father J. O'Neil, and Mr. E. E. Platt, who have frequently handled live females of this group of Saturnians, inform me that they have never heard the female make any kind of sound, from which observation we must conclude either that the organ serves some other purpose than stridulation, or that the sound produced is imperceptible to the human ear.

Though confined to the female, the development of the organ has, nevertheless, influenced to a slight degree also the ♂-wing, inasmuch as the costal vein of the hindwing of the male is distinctly incurved, nearly as in the female, at least in those species in which the "organ of stridulation" is strongly developed.

In *Orthogonioptilum* we find, also in the female, a homologous organ. Here it is present only in most of the species, not in all, and consists of a small spot of enlarged scales placed at some distance from the tornus of the forewing, on the underside. There is no organ on the hindwing of the females corresponding to the row of spikes observed in *Holocera*, *Pseudoludia*, and *Ludia*.

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## A MONOGRAPH OF THE SATURNIAN SUBFAMILY LUDIINAE.

By DR. KARL JORDAN.

(With Plates 1 and 2, and text-figs. 1-169.)

AFTER the publication of the *Revision of the American Papilios* in 1906 we took up the study of the superfamily *Saturnioideae* with a view to issuing an account of the morphology and classification of the Lepidoptera united under that name. Various circumstances delayed progress, and when we heard from Dr. Packard that he was working intrinsically at the same group of moths and would publish a monograph of them, we were glad to postpone the continuance of our own investigations, as we did not wish to anticipate Dr. Packard in any way. Unfortunately for science, Dr. Packard died before he had completed his researches on the *Saturnioideae*. His manuscript was left incomplete and lacked the final revise by its author. However, it has been ably collated by Professor Cockerell and has appeared as a posthumous work in 1914, a volume splendidly got up and full of information. Since the termination of the war we have again devoted some attention to the Saturnians as time and circumstances permitted.

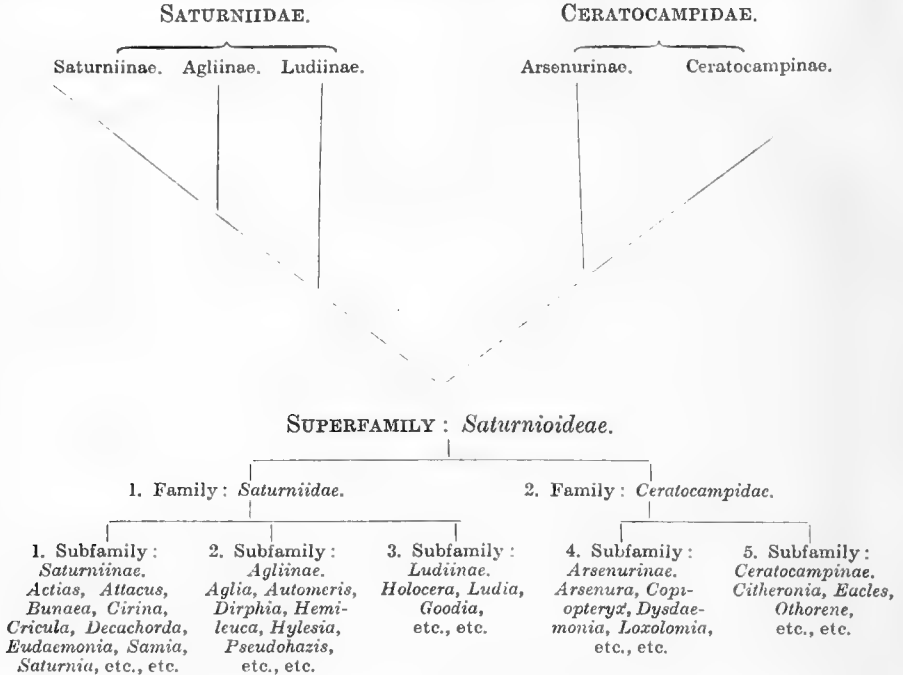
It seems desirable for several reasons that we publish our account in instalments. And in adopting this procedure, we venture to express the hope that Lepidopterists who are in possession of material we have not been able to consult, or who have knowledge of important facts with which we are not acquainted, will complement and correct our account, and thereby render the issue of a comprehensive revision of the whole superfamily, contemplated for the future, more complete and useful.

Although the Saturnians are large insects, they are by no means an easy group to study. The great size of the wings and the woolliness of the body are frequently serious obstructions, if the specimens are unique. But even if large numbers of specimens are available, one meets often with great difficulties in the discrimination of the species, and in diving below the superficial, elements of uncertainty are frequently encountered which are almost discouraging.

We have been greatly assisted in our task by the generous loan of specimens on the part of various museums and private collectors, and we wish to tender our thanks in particular to Professor E. B. Poulton, Mr. J. J. Joicey, Oberst-Lt. Richelmann, Mr. H. J. Watson, and our colleagues at the British Museum, Paris Museum, and the Berlin University Museum for the help they have given us.

It is not our intention to present a general account of the superfamily now. That is better postponed till we have dealt in detail with the various groups that belong here. But in order to make ourselves more easily understood, we

deem it necessary to say a few words about the classification within the superfamily. The following diagram represents our view:



The *Ceratocampidae* \* have a large parasternum † in the mesosternite, and comprise the large-winged *Arsenurinae* and the (broadly speaking) small-winged *Ceratocampinae*. The family is entirely confined to the American Continents. All the larvae have lost the faculty of spinning a cocoon.

In the *Saturniidae*, with the exception of most *Ludiinae*, the parasternum of the mesosternite is small as compared with the episternum.

In the *Saturniinae* the antennae have nearly always multiple sensory cones at least on the most distal segments (the cones vestigial in *Eudia spini*, e.g.), and if the antennae are quadripectinate, the apical and proximal branches of consecutive segments are separated by a gap at their bases, with the exception of a few aberrant forms. Cross-vein D<sup>1</sup> of forewing long, D<sup>2</sup> directed basad, rarely absent. This subfamily comprises all the Old-World Saturnians, with the exception of *Aglia* (Palearctic) and the *Ludiinae* (African), and also includes a number of American genera, which are more numerous in the Nearctic Region than in the Southern Continent. Cocoon spinners, with the exception of a large African section which has lost the faculty of spinning.

The *Agliinae* have a single apical sensory cone in all antennae, at least on the most distal segments, and in the case of quadripectinate antennae the apical

\* Sir George Hampson, Bart., in Nov. Zool. xxv, p. 389 (1918), distinguishes the *Saturniidae* (= *Attacidae*) from the *Ceratocampidae* (= *Syssphingidae*) by the absence of the proboscis and of the tibial spurs. A very significant error of observation.

† For the nomenclature of the sclerites of the mesosternite cf. Jordan, "Das Mesosternit der Tagfalter," in *Verhandl. Internat. Zool. Congress*, 1901, pp. 816 ff. (1902).

and proximal branches of consecutive segments are contiguous at their bases. Cross-vein  $D^1$  of forewing short or absent. An American subfamily which is represented in the Old World by one genus only, *Aglia*. Pupa in a cocoon.

The *Ludiinae* are an early offshoot with many specialisations, approaching the *Ceratocampidae* in the structure of the mesosternite (text-fig. 1, *Ludia*), and combining to some extent the Saturnian and Aglian types of antennae. The subfamily is distinguished by the small non-segmented palpi. The genera with antennae similar to the Aglian type (*Ludia* and allies, text-fig. 2) have no patch of shining, entire, modified scales at the bases of the wings (forewing below and hindwing above), and the genera with multiple sensory cones on the distal segments of the antennae (*Goodia* and allies, text-fig. 3) differ from the *Saturniinae*, which likewise have multiple cones, in neurulation, the cross-vein  $D^2$  (between veins 5 and 6) of the forewing having in all *Ludiinae* (as in many *Agliinae*, but not in *Saturniinae*) the same direction (or nearly) as cross-vein  $D^3$  (cf. text-figs. 4, 5, 72-79).

The division of the subfamilies into tribes of genera is a matter which will be discussed under each subfamily.

It is perhaps not unnecessary to state that we arrived at our view on the classification of the *Saturnioideae* by commencing to group together the species which, from their morphology, appeared to us more or less closely related. This led to the formation of large groups and the discovery of gaps, and when these natural associations had absorbed all but a small number of evidently aberrant forms, we tried to find out whether the species thus associated with one another exhibited any morphological distinctions common to all the species of a group. Such characteristics of large groups do not lie on the surface.

It is, of course, much simpler to seize upon any structure and divide up a family according to the presence or absence of this or that morphological detail regardless of true affinity.

#### SUBFAMILY: *Ludiinae* Auriv. (1904).

*Ludiinae* Aurivillius, *Arkiv Zool.* ii. 4. p. 21 (1904).

*Holocerinae* Packard, *Monogr. Bombyc. Moths*, iii. p. 144 (1914).

The *Ludiinae* \* have affinities to the other *Saturniidae* as well as to the *Ceratocampidae*, and evidently branched off far back in the history of the *Saturnioideae*.

Palpus short, non-segmented, third segment absent. Oral margin of frons not produced into a median lobe. Second cross-vein  $D^2$  of forewing (text-figs. 4, 5) transverse, not inclining basad. Hindtibia with one pair of short, serrate spurs.

The labial palpus usually shows a slight constriction when denuded, indicating the joint between the first and second segments, but there is no movable joint in any of the species, nor is there anywhere a distinct remnant of the third (apical) segment. The tongue is reduced to two small tubercles in some genera, while in others it remains quite distinct, though weak and without function. The oral margin of the frons (or clipeus) is convex, but does not project in the centre as a lobe; in two genera (*Orthogonioptilum* and *Carnegia*) the lateral angles are raised into a tubercle, in which the labrum participates. The antennae are most

\* *Falcatulula brunneata* Strand, *Archiv Naturg.* lxxviii, A. 6. p. 143 (1912), described from Spanish Guinea as a new genus and species of *Ludiinae*, is a Geometrid, subfamily *Boarmiinae*. I have seen the specimen in the Berlin Museum.

interesting, the genera with a single (sometimes rugged) sensory cone on the distal segments of the antennae (tribe *Ludiicae*, text-fig. 2) have the adjacent branches of consecutive segments of the ♂-antenna contiguous at their bases as in the *Agliinae*, but in the second tribe (*Goodiicae*, text-fig. 3), with the multiple sensory cones of the *Saturniinae* on the distal segments, the adjacent branches of the ♂-antenna are either contiguous at their bases as in the *Agliinae* or separate as in the *Saturniinae* (excepting some also otherwise aberrant forms of this subfamily). We have, therefore, here combined in one subfamily some characters which in other Saturnians distinguish whole subfamilies from one another. The recurrence of the same or similar morphological features in different tribes,

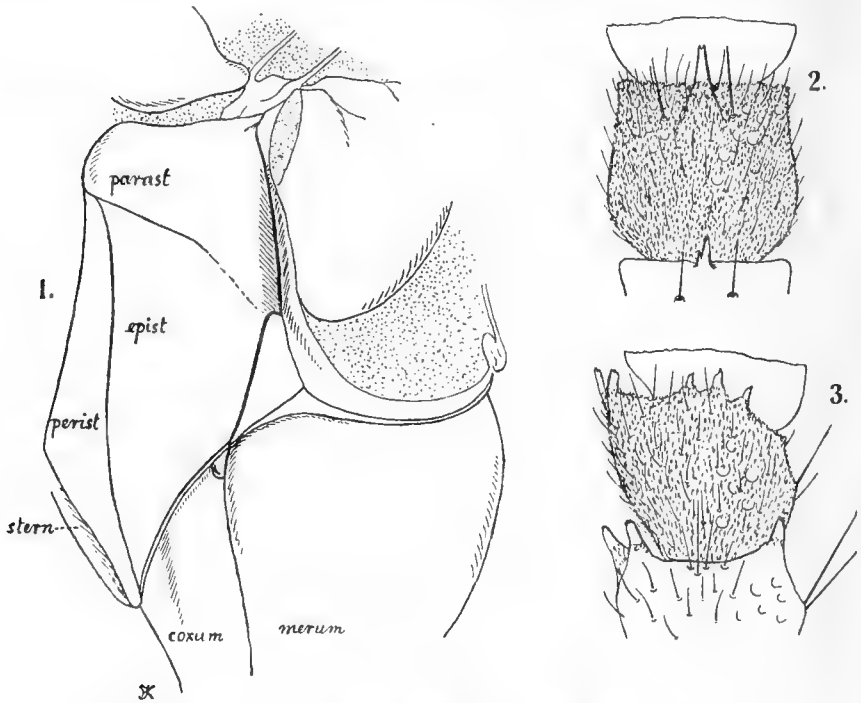


FIG. 1.—Mesosternite of *Ludia delegorguei* ♀; lateral aspect.

FIG. 2.—Segment of antenna of *L. delegorguei* ♀; ventral aspect.

FIG. 3.—Segment of antenna of *Orthogoniopitulum smithi* ♂; ventral aspect.

subfamilies, and families is a frequent and most interesting phenomenon, no less important in its bearings for the evolutionist than for the systematist. Community of certain features is not necessarily evidence of close relationship. The evidence requires to be corroborated and to be weighed. If the Saturnians were strictly divided according to the sensory cones of the antennae, *Goodia* and allies would go to the *Saturniinae*, and *Ludia* and allies to the *Agliinae*. If the position of the branches of the ♂-antennae were taken as a basis, *Goodia* would be placed with the *Saturniinae* and all the other *Ludiinae* with the *Agliinae*. These are examples of artificial classification. The multiple sensory cones are a later development than the simple ones. In *Orthogoniopitulum* the cones are concentrated on the median, apical, process of the segment.

The ♀-antennae vary in the subfamily from being simple to being quadripectinate nearly as in the ♂, but with the branches shorter. The distal segments are always simple in both sexes and the bristles (as distinguished from the covering of short, thin hairs) are short, there being never any long ones either on the branches or on the shaft. The upperside of the shaft is scaled to a more or less great extent, but the scales are easily worn off.

The foretibial epiphysis is larger in the ♂ than in the ♀; it is absent or much reduced in the ♀ of *Goodia* and missing in both sexes of *Vegetia*. The hindtibia bears one pair of spurs, which resemble those of the midtibia, being short and serrate. The spines of the tarsi are restricted to the undersurface. The pulvillus is present in all genera but *Vegetia*, in which genus the black apical pad is absent, the pale basal portion of the pulvillus remaining as a small triangular lobe (the pulvillus is also absent in a few *Saturniinae* and *Agliinae*).

The relatively large size of the parasternum of the mesosternite in which the *Ludiinae* (with the exception of *Goodia*) approach the *Ceratocampidae* is a further interesting feature (text-fig. 1).

The neuration is similar to that of certain *Agliinae*, f.i. *Hylesia*, the chief distinction from the other African Saturnians being found in the position of the cross-veins in the forewing. The second cross-vein,  $D^2$  (text-figs. 4 and 5), is a direct continuation of  $D^1$ , being always long and forming with  $R^1$  (= vein 6) an angle varying from being acute to being slightly over  $90^\circ$ . In the *Saturniinae* and many *Agliinae*  $D^2$  inclines basad, more or less. There are three well-developed subcostals, and in several genera  $SC^3$  is present as a short, weak, fourth branch thrown off  $SC^1$  near the apex of the wing; first subcostal from the cell, or from angle, or from beyond cell, the subfamily presenting all stages in the distad movement of this vein. In the hindwing  $R^1$  and  $R^2$  (text-figs. 114–117) are separate, and the upper cell-angle is obtuse; cross-vein  $D^3$  is longer than  $D^2$ , curved, with the upper end directed apicad; one submedian vein.

Larva urticating, woolly, first stage essentially similar in structure to last; head small; segment I. with two, II. to XII. with three low tubercles on each side, dorsal ones of XI. united to form a single medium tubercle of somewhat larger size; I. to III. with small additional tubercle above leg; dorsal one of I. small; dorsal, subdorsal, and spiracular tubercles with smooth, pointed spines and long hairs, which latter are either plumose or bear minute-pointed projections; similar microscopic teeth on most of the numerous hairs dispersed on head and body (text-figs. 6–11).

Cocoon tough but not compact, and usually covered with bits of leaves. Pupa not glossy, densely granulated; mesonotum without a pair of tubercles, metanotal tubercles, if present, transverse, approximated; no deep grooves on dorsal side of cremaster; the armature of the cremaster consists of teeth (*Ludiicae*, text-figs.) or involute spines (*Goodiicae*). Pupa and larva not known to us of *Orthogonioptilum*, *Carnegia*, and *Vegetia*. The caterpillars of some species are known to be exceedingly variable in colour and pattern.

Distribution: Africa, from the Cape of Good Hope to Senegambia and Abyssinia; no representative known from Madagascar.

#### A. Tribe: *Ludiicae*.

Distal segments of antennae with a single ventral apical sensory cone. Forewing beneath and hindwing above without basal patch of shining, entire, modified

scales. Claws of tarsi non-serrate or serration vestigial. Eighth addominal tergite not modified, not produced in middle, but sometimes with large teeth laterally and small ones medianly.

1. Forewing with four subcostals, the first from beyond cell (text-fig. 4). Antenna of ♀ simple. Hindwing without orange ocellus. Long hairs of larva not plumose, with very short pointed projections (text-fig. 10). Cremaster of pupa a transverse ridge, armed with some large teeth (as in text-figs. 15, 16)

*Holocera*

2. As before. ♂-antenna quadripectinate to near tip. Hindwing with orange ring . . . . . *Pseudoludia*

3. Forewing with three subcostals, first from beyond cell (text-fig. 5). Antenna in ♂ quadripectinate to one-half or three-fourths of length, in ♀ also quadripectinate. Hindwing with orange ring. Long hairs of larva plumose (text-figs. 7-9, 11). Cremaster of pupa subcylindrical, truncate, with apical belt of teeth which project laterad (text-figs. 17, 18) . . . . . *Ludia*

4. Epiphysis of foretibia and pulvillus absent (both present in the previous genera) . . . . . *Vegetia*

#### B. Tribe: Goodiicæ.

Distal segments of antenna with several ventral sensory cones (text-fig. 3), in *Orthogoniopitulum* and *Carnegia* more or less restricted to a ventral apical process or projection. Forewing beneath and hindwing above with patch of modified scales at base. Abdominal tergite VIII. of ♂ with prominent median lobe or process. Claws of tarsi distinctly serrate. Spines of tarsi reduced to hairs except apical pair of fourth foretarsal segment of ♀.

5. Forewing with first subcostal nearly always from cell. Lateral oral angles of frons not tuberculiform. Adjacent branches of ♂-antenna separate at their bases; ♀-antenna simple. Long hairs of larva plumose. Cremaster of pupa with involute spines . . . . . *Goodia*

6. Forewing with first subcostal from beyond cell. Lateral oral angles of frons tuberculiform. Adjacent branches of antenna contiguous at their bases; ♀-antenna quadri- or bipectinate . . . . . *Orthogoniopitulum*

7. As before, anal angle of hindwing produced in both sexes as a lobe curved towards abdomen. Termen of forewing bisinuate in ♀ . . . . . *Carnegia*

#### A. Tribe: Ludiicæ.

1. Genus: *Holocera* Feld. (1874).—Typus: *smilax*.

*Saturmia* (*Henucha*?). Westwood, *Proc. Zool. Soc. Lond.* p. 59 (description of antennae and neuration).

*Henucha* Walker (ex Westwood, laps. calami, pro *Heniocha* Hübn.), *List Lep. Ins. B.M.* vi. p. 1331 (1855) (partim); South., *Essai Classif. Lép.* iv. p. 40 (1904) (partim).

*Holocera* Felder, *Reise Novara, Tafelerklärung.* p. 5 (1874) (nom. nov. pro *Henucha smilax* Westw.); Auriv., *Ent. Tidskr.* p. 120, footnote (1895) (" *Bolocera* " of Kirby and others laps. calami); id., *Arkiv Zool.* ii. 4. p. 21 (1904); Karsch, *Ent. Nachr.* xxii. p. 252 (1896) (correction of " *Bolocera* "); Strand, *Iris*, xxv. pp. 111 and 119 (1911) (key; distinctions from *Ludia*); Pack., *Mon. Bombyc. Moths*, iii. p. 145 (1914).

*Bolocera* (!), Kirby, *Cat. Lep. Het.* p. 774 (1892); Roths., *Nov. Zool.* ii. p. 50 (1895).

Differs from *Ludia* chiefly in the forewing having four subcostals instead of three, and in the ♀-antenna being simple. No orange ocellus on hindwing.

Long hairs on tubercles of larva not plumose, with short dispersed projections. Apex of pupa slanting ventrally, cremaster a transverse ridge armed with teeth which are more or less curved dorsad. Frons strongly narrowed orad, considerably narrower above oral margin than the eye is high (transversely). Genal grooves vestigial. Mouth-parts as much reduced as in *Ludia*, individually variable in detail.

Antenna of ♂ quadripectinate not quite to middle segment, 11 to 15 segments being pectinate and 17 to 21 bearing short lateral ciliated projections. In ♀ simple, dorsally from base to about middle flattened and provided with a very thin stripe of narrow scales (in the worn antenna a non-pubescent stripe shows where the scales have been in the fresh specimen); all these segments except the apical one broader than long, those of proximal half of antenna more or less rounded on the sides, especially strongly in *H. rhodesiensis*. Distal segments in both sexes with one apical sensory cone, which is truncate or sinuate. Legs as in *Ludia*, but the sole of the fifth mid- and hindtarsal segment scaled, and the sensory plantar bristles of the fifth foretarsal less numerous. Epiphysis of foretibia large in both sexes, larger in ♂ than in ♀. Lobe of paronychium narrow; pulvillus large. Claw non-serrate. Wool of thorax not intermingled with long white oar-scales; but such scales present in fresh specimens of some species on the abdomen, especially at the bases of the tergites, where this pale scaling forms a sort of transverse bands; similar scales on the wings.

Neuration: Forewing with four sub-costals (text-fig. 4), all branching off beyond cell, SC<sup>3</sup> being present and originating from SC<sup>4</sup> near apex of wing, being sometimes reduced to a small spur; D<sup>1</sup> short. C of hindwing incurved before apex in both sexes. Stridulation-organ of ♀ strongly developed. Scales of stridulation area of forewing all or nearly all with the edge turned towards the surface of the wing; these scales nearly erect or curved distad; costal spikes of hindwing strongly chitinised, narrower than in *Ludia*.

Genitalia: ♂. Eighth tergite (VIII. t., text-fig. 13) strongly chitinised at apex, the apical margin armed with strong pointed teeth; a broad membranous flap projects from this margin over the base of the tenth tergite, concealing the ninth tergite. No dorsal humps on tenth tergite; apical process strongly chitinised, short, divided into two lobes (text-fig. 12). Tenth sternite (X. st) triangular. Clasper (Cl) broad from base to apex, apically sinuate; on inner surface of clasper a large, transversely convex, hairy, soft flap originates from dorsal margin near base and projects distad, the clasper, when viewed from the

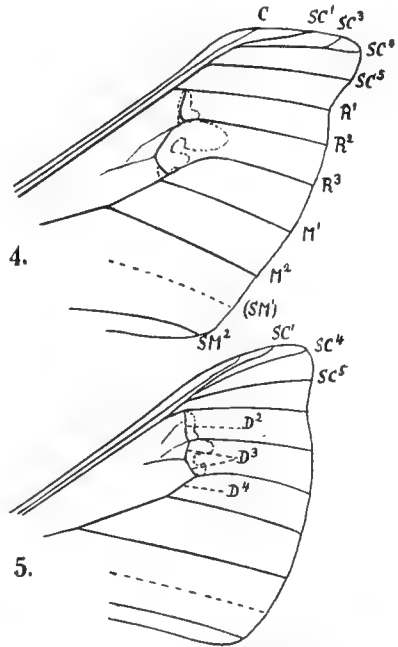


FIG. 4.—Forewing of *Holocera similar* ♀  
 FIG. 5.—Forewing of *Ludia dlegorguei* ♀.

inner side, resembling a gardening glove of which the flap is the thumb. Penis-sheath stouter than in *Ludia*.—♀. Vaginal sclerite (text-fig. 14) with a median lobe as in *Ludia*, but the lobe much smaller. The area between this sclerite and the anal valves (segments IX. + X.) not membranous as in *Ludia*, but strongly chitinised, blackish brown, forming the roof of a large depression or cavity; this roof not flexible to any large extent, the anal claspers and the vaginal sclerite remaining separate even in contracted specimens.

Forewing of ♂ much more falcate than in ♀; in hindwing the subcostal in

♂ farther away from apex of cell than in ♀, and the discocellular  $D^3$  (which is often transverse in ♀) more oblique. Vitreous spot of forewing larger in ♀ than in ♂, individually very variable.

Early stages: Larva (adult) woolly as in *Ludia*, segment I. with two tubercles on each side, the dorsal one small, with a few spines, the lateral one large, spiniferous; II. to XI. with three spiniferous tubercles each side, but the two dorsal ones on XI. united into a single median tubercle which is larger than the others; XII. with two each side; I. to III. with an additional, small, but distinct tubercle above the legs bearing some long, stiff setae corresponding to the spines of the other tubercles. In centre of infrastigmatal tubercle two or three long setae which are widened at the base; similar setae on

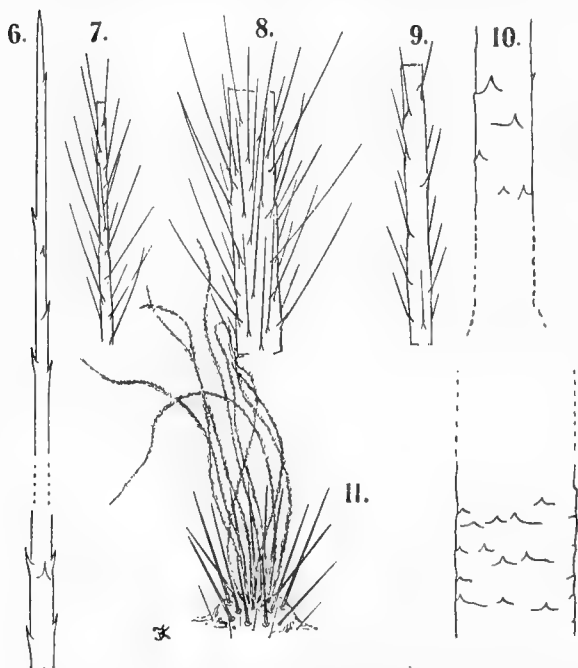


FIG. 6.—Short hair from body of larva of *Ludia delegorguei*.  
 FIG. 7.—Long hair from dorsal tubercle of young larva (first instar) of *L. o. limbobrunnea*.  
 FIG. 8.—Long hair from dorsal tubercle of adult larva of *L. delegorguei*.  
 FIG. 9.—Long thin hair from infrastigmatal tubercle of *L. delegorguei*, adult larva.  
 FIG. 10.—Long hair from dorsal tubercle of *Holocera similax*, adult larva.  
 FIG. 11.—Suprastigmatal abdominal tubercle of adult larva of *L. delegorguei*.

dorsal tubercles, usually two, no such setae or only one here and there on subdorsal tubercles. The small hairs on head and body spiniferous, the projections shorter than in *Ludia*. The long hairs and long setae also spiniferous (text-fig. 10), not pilose as in *Ludia*; the projections short and more numerous in proximal half of hair or seta than in distal half, and absent or vestigial on the swollen basal portion, which is practically smooth. Short hairs more numerous and stouter on thorax than on abdomen. Spines of tubercles smooth. Two individual colour-forms: a cingulate form and a reticulate or



almost unicolorous one.—Pupa with the cremaster dentate as in *Pseudoludia*, teeth more numerous. Cocoon essentially as in *Ludia*.

Food-plants: *Quercus*, *Jasminum*, *Psidium*, *Cussonia*, *Uapaca*, *Protea*.

Distribution: Africa south of the Sahara; not yet recorded from Abyssinia proper and Somaliland, the Blue Nile being the most north-easterly locality where the genus has as yet been found.

Key to the species:

1. Costal half of hindwing above pink . . . . . *H. agomensis* (Pl. 1, fig. 15 ♀, 22 ♂)  
    Costal half of hindwing above not pink . . . . . 2
2. Forewing above with ferruginous subcostal patch between vitreous spot and postdistal line contrasting strongly with rest of median band

*H. rhodesiensis* (Pl. 1, fig. 6 ♀)

Forewing without prominent ferruginous subcostal patch; antemedian line slaty grey below cell, thin and usually distinctly angulate . . . . . *H. angulata*

As before; antemedian line not or very feebly angulate below cell, broader and of the same colour as the triangular costal area . . . . . *H. smilax*

### 1. *Holocera smilax* Angas (1849).

*Saturnia smilax* Angas, *Kafir's Illustr.* explan. of tab. 30. fig. 12 (1849) (Zululand).

*Saturnia (Henucha?) smilax*, Westwood, *Proc. Zool. Soc. Lond.* p. 59. no. 31 (1849) (Pt. Natal; description of ant. and neurat.).

*Henucha (!) smilax*, Walker, *List Lep. Ins. B.M.* vi. p. 1333. no. 3 (1855) (Pt. Natal); Sonthon., *Essai Classific. Lép.* iv. p. 40. no. 1. tab. 6. fig. 1 (1904) (Cape).

*Holocera smilax*, Felder, *Reise Novara, Lep.* p. 5. tab. 88. figs. 4, 5 (1874) (Pt. Natal); Pack., *Mon. Bombyc. Moths*, iii. p. 146. tab. 33. fig. 9 larva, tab. iii. figs. a ♂, b ♀ (1914) (Natal).

*Bolocera (!) smilax*, Kirby, *Cat. Lep. Hel.* p. 774 (1892) (Natal); Roths., *Nov. Zool.* ii. p. 50. no. 1 (1895).

*Ludia smilax*, Fawcett, *Trans. Zool. Soc. Lond.* xv. p. 305. no. 7. tab. 49. fig. 6 larva, 7 cocoon (1901) (Natal; on oak, takes *Jasminum pubigerum*).

*Henucha (!) smilax*, Fawcett, *l.c.* xvii. p. 171. tab. 6. fig. 35 larva (1903) (Durban, on Guava [*Psidium*]).

As a rule vinaceous cinnamon, with chestnut median band; but variable in tint, the brightest specimens having the terminal area of both wings ochraceous. Antemedian line straight, without an angle below cell or the angle vestigial; the posterior portion of this line of the same tone of colour as the triangular costal area. Postdistal line forming with costa on distal side an angle varying from about 60° to 85°. On forewing a triangular costal area from base to near bent of costa pale, shaded with grey, especially in ♀, bounded by the median vein and the median band. In this area a blackish brown costal spot, which represents the costal end of the antemedian line, with which the spot is sometimes connected. The median band on outside deeply incurved below middle, the terminal area being broader in front of M<sup>2</sup> than the median band. Vitreous mark variable, but always large; sometimes the two arms of the second spot meet, separating a scaled dot.—Termen of hindwing incurved in ♂, convex in ♀, even in both sexes or faintly undulate, in forewing of ♀ sometimes very uneven.

Scales on stridulation-area of ♀ mostly curved distad, few lying flat on the wing, many pointed, and a large number with the upper edge excurved near base (cf. p. 247).

Genitalia: ♂. Eighth tergite (VIII. t., text-fig. 13) with the apical edge

dentate, and usually blackish, but the median teeth often quite short. Clasper, cf. text-figs. 12 and 13.—♀. Vaginal sclerite, cf. text-fig. 14.

Larva dichromatic: cingulate form yellow (creamy buff in blown specimens), with black rings bearing the black tubercles, spines black, hairs white; head entirely red, pronotum, anal segment, thoracic legs and inner surface of abdominal legs also red; above legs a black, more or less interrupted, stripe. Short hairs of thorax black.—Reticulate form: red, numerous bluish black spots and dots edged with yellow, smaller than the tubercles and arranged in five transverse, irregular bands on each segment; the spots smaller and more irregular

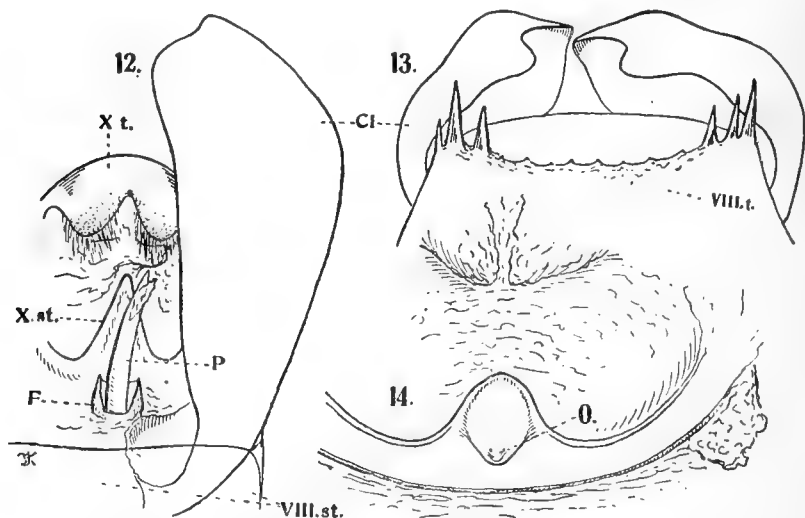


FIG. 12.—Genitalia of *Holocera smilax* ♂; ventral aspect.

FIG. 13.—Genitalia of *H. smilax* ♂; dorsal aspect.

FIG. 14.—Genitalia of *H. smilax* ♀; ventral aspect, O = aperture.

on segments I. and II. and on underside; spines pale, hairs white, long central setae of tubercles dark basally.

Cocoon on bark of trees.

Food-plants: Oak, jessamine (*Jasminum pubigerum*), guava (*Psidium*), according to Fawcett.

Fawcett's statement that the tubercles are longer in the larva from Durban than in those from Maritzburg is probably due to an error of observation. In the Durban larva figured by Fawcett and Packard (of the reticulate form) the blue spots are larger than in our specimens, and the tubercles are represented as having no long setae. Our examples from Durban have such setae.

*Hab.* Cape Province northwards to Mombasa, Kilimanjaro, N. Nyasaland, and N.W. Rhodesia.

In the Tring Museum a series from: Grahamstown and Transkei, Cape Province; Durban, Natal; Transvaal.

In Mus. Brit. a series from: Cape Province, Natal and Transvaal. Also from: Mombasa, 1 ♂; Kilimanjaro, 1 ♀; Ulange, Nyasaland, 1 ♀; Solwezi, N.W. Rhodesia, 2 ♀♀.

Also a series in Mus. Oxon., Mus. J. J. Joicey, and Mus. Berlin.

The specimens in the British Museum from tropical East and Central Africa are most interesting. They prove that *H. smilax* and the following species, *H. angulata*, are both found in these districts. This fact would render it comparatively easy for a resident naturalist to prove or disprove the specific distinctness of *H. smilax* and *H. angulata* by breeding from the egg.

## 2. *Holocera angulata* Auriv. (1893).

*Bolocera smilax*, Schaus & Clem., *Sierra Leone Lepid.* p. 29 (1893).

*Holocera angulata* Aurivillius, *Ent. Tidskr.* xiv. p. 201. no. 5 (1893) (Sierra Leone; Camerun).

The differences from *H. smilax* are not so trenchant as one would wish them to be. At first sight the two insects appear to be geographical forms of one species; but as they are sympatric in the eastern tropical districts of their ranges, the evidence seems to favour the opinion that they have already acquired the independence of species.

Individually variable from bright cinnamon-rufous to a dull drab-brown, in the latter case the median band blackish chestnut. Antemedian line of forewing, *upperside*, usually sharply exangulate on submedian fold, and between cell and hindmargin narrow and of a slate-grey colour; postdistal line costally more strongly curving basad than in *H. smilax*, forming a smaller angle with the costal margin. Vitreous mark very unstable: in ♂ sometimes reduced to a short and narrow line; in ♀ the second spot often enlarged and triangular, enclosing a scaled dot; but usually as in *H. smilax*.—On hindwing the median band and the grey lines bounding it less prominent than in *H. smilax*. Vitreous spot usually small and transverse in ♂, mostly not transparent; in ♀ varying from being a transparent bar to forming a complete ring enclosing a scaled dot, in most specimens the vitreous mark an externally open halfring, irregular, and of variable size.

Genitalia of ♂ as in *H. smilax*, but the margin of the eighth tergite always pale and usually armed with one to three lateral teeth only, occasionally with small teeth along the median portion in addition. Dorsal margin of clasper more excurved than in *H. smilax*.—♀. Median lobe of vaginal sclerite usually more rounded than in *H. smilax*.

Larva not known. Possibly the black larvae found by Sjöstedt belong here (*Ludia*? sp., Auriv., *Arkiv. Zool.* ii. 4. p. 15. no. 45 [1904]).

*Hab.* Senegal southward to Angola, Mashonaland, Mozambique, Nyasaland, British East Africa, and Blue Nile.

Two subspecies:

### (a) *H. angulata angulata* Auriv. (1893).

*Holocera angulata* Aurivillius, *l.c.* (1893) (Sierra Leone; Camerun); *id.*, *Arkiv Zool.* ii. 4. p. 14. no. 42 (1904) (Camerun).

*Bolocera* (?) *angulata*, Rothschild, *Nov. Zool.* ii. p. 50. no. 2 (1895).

*Holocera angulata* ab. *bistricta* Strand, *Iris*, xxv. p. 113 (1911) (Camerun).

*Holocera angulata* var. *guineensis* Strand, *Arch. Naturg.* lxxviii. A. 6. p. 145. no. 15 (1912) (Spanish Guinea).

♂. Vitreous mark of forewing not larger than in *H. smilax*, usually smaller, sometimes almost obliterated. Terminal area of both wings vinaceous (Ridgway, *Nomencl. Colours*, iv. 17), on hindwing scarcely at all contrasting with the median

band. In one of our Gambaga ♂♂ the antemedian line of the forewing shows only a trace of the angle on the submedian fold.

♀. Terminal area varying from bright cinnamon-rufous (contrasting strongly with median band) to dull drab-brown (not or little contrasting with median band); vitreous mark of forewing very variable, on an average larger than in *H. smilax*.

*Hab.* Senegambia to Angola, eastward to the coast of Portuguese East Africa.

In Mus. Tring from: Sédhiou, Casaman (H. Castell), 1 ♂; Sierra Leone, a small series; Gambaga, Gold Coast (Dr. Bury), a series; Prestea and Wassaw districts, inland from Sekondi, Gold Coast, 7 ♂♂; Ilesha, South Nigeria (Capt. Humfrey), 2 ♂♂, 1 ♀; Warri, Niger Coast (Dr. Roth), 1 ♂, 2 ♀♀, all three dark brown; Luluabourg, Kassai (Landbeck), 2 ♀♀; Canhoca, Angola (Dr. Ansorge), 1 ♂, 1 ♀; Solwezi and Mumbwa, N.W. Rhodesia (Dollman), 1 ♂, 1 ♀; Selukwa, Rhodesia, 1 ♂; Angoni, Nyasaland (Andrews), 1 ♂; Nairobi, Brit. E. Africa (Dr. van Someren), 1 ♂.

In Mus. Brit. from: Sierra Leone and Gold Coast, a small series; Jebba, Niger, 1 ♀; Mt. Mlanji, Nyasaland (Neave), 3 ♂♂ and pupa; Mashonaland (Dobbie), 1 ♂. Also in Mus. J. J. Joicey and Mus. Berlin.

(b) *H. angulata nilotica* subsp. nov. (Pl. 1, fig. 7 ♂).

♂. Macula vitrea alae anticae magna; area terminali utriusque alae ochracea.

*Hab.* Blue Nile; 1 ♂ in Mus. Tring.

Antemedian line of forewing not exangulate below cell, postdistal line as strongly curved basad costally as in *H. a. angulata*; terminal area ochraceous, this band tapering costad, terminating at SC<sup>2</sup>, the apical lobe of wing being of nearly the same colour as the median band and but slightly shaded with ochraceous at the margins; triangular basi-discal costal area shaded with ochraceous; fringe with minute blackish vein-dots; vitreous mark very large, about 4 × 4½ mm., upper spot R<sup>1</sup>-R<sup>2</sup> longer in basi-distal direction than broad, with a narrow and deep incision on distal side, above it in angle between subcostal stalk and R<sup>1</sup> a sparsely scaled dot, another dot below R<sup>1</sup> vitreous; lower partition R<sup>2</sup>-R<sup>3</sup> of vitreous mark much longer than upper, strongly curved, its upper arm elongate-ovate, separated from ochraceous limbal area only by a very thin chestnut line and its distance from fringe little more than 1 mm.—Hindwing narrow, anal angle produced as in most ♂♂ of *H. a. angulata*, terminal area ochraceous, diffuse at apex; vitreous mark an exteriorly open ring about 1 mm. wide, with a vitreous dot above it.

On underside the terminal area of both wings ochraceous as above, vitreous mark of forewing larger than above, the chestnut dot situated in second spot isolated, while on upperside it is connected by a thin line with the scaled wing area.

Genitalia: Eighth tergite slightly denticulate, with two long spiniform teeth at lateral angle.

It is almost certain that some of the differences exhibited by this single ♂ from the Blue Nile are individual; particularly the ochraceous colouring of the terminal area can hardly be expected to be a constant character. The large

size of the vitreous mark of the forewing is remarkable, the spot resembling more that of a ♀ of *H. a. angulata* and *H. smilax* than that of a ♂.

### 3. *Holocera rhodesiensis* Janse (1918) (Pl. 1, fig. 6 ♀).

♂♀. *Holocera rhodesiensis* Janse, *Ann. Durban Mus.* ii. p. 83 (1918) (Salisbury); O'Neil, *ibid.* ii. p. 167 (1919) (Salisbury; descr. of larva; on *Cussonia*).

♂♀. Both wings dentate, especially strongly in ♀. Deep chestnut shaded with purple-grey; a costal patch in median band of forewing, an abbreviated terminal band on hindwing, the centre of the metanotum and part of the underside of the abdomen varying from ferruginous to cinnamon-rufous, sometimes the ferruginous colour much extended. Mid- and hindtarsi, except segment V., white like the middle of foretarsus.

Wings: General shape and pattern as in *H. smilax*; antemedian and postdistal lines purple-grey, conspicuous, but diffuse, antemedian not angulate below cell, postmedian less incurved below middle than in *H. smilax*; vitreous mark differs in the second spot being slenderer, anteriorly less dilated and posteriorly not (♂) or little (♀) curved distad.

Genitalia essentially as in the two previous species: Eighth tergite less strongly dentate medianly than in *H. smilax* and more than in *H. angulata*, with one to three large lateral teeth. The two apical lobes of the clasper of nearly equal size; dorsal margin of clasper less incurved than in the previous forms.—♀. Vaginal sclerite as in *H. smilax*, the central cavity smaller (in our only ♀).

Stridulation-organ as in *H. smilax*.

Larva dimorphic: (1) "Body and tubercles black with long downy hairs and an inferior double row of salmon-red marks." (2) "Segments ringed with black and white" (J. O'Neil).

Food-plant: *Cussonia*.

*Hab.* Rhodesia and Nyasaland.

In Mus. Tring from: Salisbury (J. O'Neil), 2 ♂♂, 1 ♀; Agoniland, Nyasa (Andrews), 1 ♂.

In Mus. Brit. from: Blantyre (Ambruster), 1 ♀; Mlanje, Nyasa (Neave), 1 ♂; Salisbury, 1 ♀.

### 4. *Holocera agomensis* Karsch (1896) (Pl. 1, fig. 15 ♀, 22 ♂).

*Holocera agomensis* Karsch, *Ent. Nachr.* xxii. p. 253 (1893) (Bismarckburg, Togo, April); Strand, *Iris*, xxv. p. 112 (1911).

*Ludia* nov. ? , O'Neil, *Ann. Durban Mus.* ii. p. 165 (1919) (Salisbury; descr. of ♂♀ and variable larva).

♂♀. Costal half or more of hindwing above and posterior half of forewing below pink, recalling *Ludia*. Lines blackish brown; antemedian line of forewing exangulate below cell, as in *Ludia* continuous to costal margin; postdiscal one less incurved than in *H. smilax*, the median band therefore less constricted below middle. Discocellular mark of hindwing black, with vitreous centre, the spot resembling the figure 3 with the upper projection truncate. Anal angle of hindwing less acuminate than in the other species of the genus.

♂. Antenna with about 15 segments pectinate and 17 non-pectinate.

♀. Sealing of stridulation-area quite different from that of the other species. The scales arranged in fairly regular transverse rows, all broad, erect, more or

less fan-shaped, apical margins sinuate and more or less irregular; the broad sides of many scales turned towards the wing.

Genitalia: ♂. Eighth tergite strongly dentate, as in *H. smilax*.

Clasper broader than in the other species; its apical sinus more shallow, the dorsal apical lobe almost effaced; dorsal fold narrow.—♀. Lobe of vaginal sclerite rather longer than in *H. smilax* and slightly sinuate at apex.

Larva very variable. O'Neil has taken "no fewer than ten different varieties

of this caterpillar, each of which was quite unlike any of the others." Greyish olive with very broad dorsal band and bright yellow tubercles; or black mottled with small yellow and white spots, and large crimson tubercles; or pure white with the tubercles bright orange-red; or pale creamy-ochraceous with ochreous-brown tubercles; or "colours bright yellow and magenta," etc. Double brooded, adult larva in October and April. Cocoon very hard.

Food-plants: *Uapaca kirki-ana*, rarely on *Protea spec.*

*Hab.* (Togoland), Congo, Nyasa, Rhodesia.

In Mus. Tring from: Luebo and Luluabourg, Kassai, Congo, 2 ♀♀; Salisbury, Rhodesia (J. O'Neil), 1 ♂, 1 ♀; Kashitu, N.W. Rhodesia (Dollman), 1 ♂.

In Mus. Brit. 10 ♂♂, 13 ♀♀, and some pupae from: Mlanje, Nyasa (Neave); Kashitu, Chipemba, and Solwezi, N.W. Rhodesia (Dollman); Salisbury (Marshall, O'Neil).

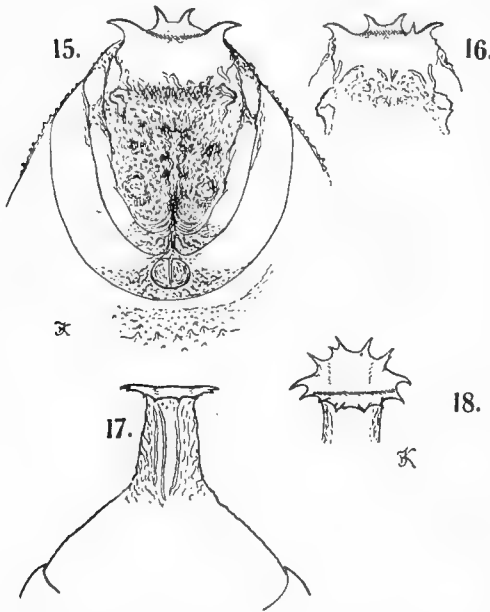


FIG. 15.—Cremaster of pupa ♂ of *Ps. suavis* ♂; ventral aspect.

FIG. 16.—Cremaster of pupa of *Ps. suavis* ♀; ventral aspect.

FIG. 17.—Cremaster of pupa of *Ludia delegorguei*; ventral aspect.

FIG. 18.—Cremaster of pupa of *Ludia delegorguei*; apical aspect.

The locality "Togo" given by Karsch is no doubt erroneous.

## 2. Genus: *Pseudoludia* Strand (1911).—Typus: *suavis*.

*Holocera* Rothschild (nec Felder, 1874), *Ann. Mag. N.H.* (7), xx, p. 9 (1907).

*Holocera (Pseudoludia)* Strand, *Iris*, xxv, p. 112 (1911) (subgen. nov.).

Connects *Holocera* with *Ludia*, but also has peculiarities of its own.

♂♀. Genal groove distinct, as in *Ludia*. Antenna in ♂ with 19 or 20 segments quadripectinate and only 7 to 10 non-pectinate; in ♀ (text-figs. 22 and 23) simple as in *Holocera*-♀, flattened to two-thirds, the segments, particularly those in middle of antenna, slightly constricted before apex, in dorsal or ventral view

lateral humps being indicated which correspond to the branches of the ♂. Fifth segment of all tarsi in ♂ with the sole scaled, in ♀ non-scaled and densely studded with S-shaped sensory bristles.

Stridulation-scales of ♀ small, narrow.

Neuration nearly as in *Holocera*; forewing with four subcostals, SC<sup>1</sup> being present as a short subapical spur; D<sup>1</sup> of forewing, and in ♀ also D<sup>1</sup> of hindwing, longer than in *Holocera*; C in hindwing of ♂ not recurved at apex.

Genitalia: ♂. Eighth tergite without teeth, but the margin sharp, slightly blackish, projecting. Clasper deeply sinuate at apex, on inner side with strongly chitinised black armature not present in *Holocera* and *Ludia*; ventral margin with lobe near base, recalling *Ludia*.—♀. Genital sclerite of the *Ludia* type, the aperture more proximal than in *Holocera* and the area behind the vaginal lobe membranous as in *Ludia*, not strongly chitinised as in *Holocera*.

Larva as in *Holocera*; dorsal tubercles with one or no seta.

Pupa as in *Holocera*; metanotum with two approximate transverse tubercles; granulation sharp, granules on sides of median segments more isolated than in *Holocera*, with fewer and less evident small folds radiating from each granule; cremaster a transverse ridge armed with some teeth (text-figs. 16 and 17).

*Hab.* East Africa.

One species, which has on hindwing an orange ring of the *Ludia* type.

### 1. *Pseudoludia suavis* Roths. (1907).

♂♀. *Holocera suavis* Rothschild, *Ann. Mag. N.H.* (7). xx. p. 9. no. 19 (1907) (Usambara, ♂♀, descr. of larva); *Jord., Nov. Zool.* xv. p. 256. no. 18. tab. 11. fig. 11 ♂ (1908) (= *lilacina*).

♂♀. *Holocera lilacina* Weymer, *Ent. Zeitschr.* xxi. p. 118 (1907) (Usambara).

♂♀. *Holocera (Pseudoludia) suavis*, Strand, *Iris*, xxv. p. 113 (1911) (Amani; Usambara).

♂♀. Forewing, above, chestnut-purple from base to whitish postdiscal line; a large triangular costal area from base to near bent of costa grey like pronotum; terminal area dull cinnamon; postdiscal line costally much less curved than in *Holocera*, forming an acute angle with the costa on the basal side, not on the distal side.—Costal half of hindwing pinkish vinaceous; median band terminating at upper cell angle, where it is rounded (as is usual in *Ludia*) and blackish; the band bounded by a whitish line; yellow ocellus somewhat incurved on outer side, as in *Ludia*, enclosing a vitreous crescent edged with black.

In ♂ the forewing falcate, but rather wider at narrowest point than in *Holocera*-♂; termen of hindwing slightly convex, anal angle less acute than in *Holocera*. In ♀ the wings shaped almost as in *Holocera smilax*-♀, but costal margin of forewing less arched before apex and anal angle of hindwing rather more obtuse.

Genitalia: ♂. Eighth sternite (VIII. st., text-fig. 19) without median lobe, its margin not strongly chitinised. Anal tergite (x.t.) dorsally slightly depressed along centre, strongly convex laterally, but not humped as in *Ludia*; apical process black, bilobate, the lobes rounded, the sinus deeper than in any *Ludia* and less deep than in *Holocera*. Tenth sternite (x.t.) broader than in *Ludia* and very much broader than in *Holocera*. Clasper broad from base to apex; its ventral margin produced near base into a lobe (L) corresponding to the ventral lobe found in all species of *Ludia*; apex of clasper (text-fig. 20) very broad, obliquely truncate-sinuate, the apical margin not continuous with the ventral

margin, but continued by a ridge which runs from the ventral angle obliquely on to the inner surface of the clasper; dorsal apical angle prolonged into an obtuse process which is slightly concave on inner side. Proximally to apical margin and about midway between the two apical angles originates a long sclerite (S, text-fig. 20) which lies flat on the surface of the clasper and curves dorsad and basad. This sclerite is somewhat prismatical at its base and more flattened elsewhere, and remains of nearly even width to near apex, which is rounded-acuminate; apical portion densely denticulate-granulate.—♀. Vaginal

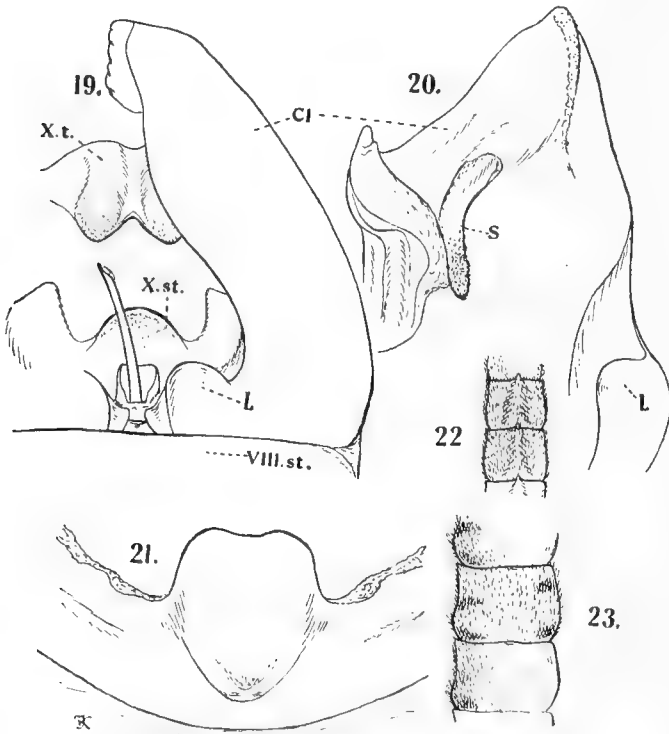


FIG. 19.—Genitalia of *Pseudoludia suavis* ♂; ventral aspect.  
 FIG. 20.—Clasper of *Ps. suavis* ♂; inner surface.  
 FIG. 21.—Genital sclerite of *Ps. suavis* ♀; ventral aspect.  
 FIG. 22.—Segments 22 and 23 of antenna of *Ps. suavis* ♀; ventral aspect.  
 FIG. 23.—Segments 11 and 12 of antenna of *Ps. suavis* ♀; ventral aspect.

sclerite broad in fronto-anal sense; median lobe larger than in *Holocera*, truncate-sinuate, cavity extending to near basal margin of sclerite; aperture placed as in *Ludia* in anterior portion of cavity.

Scales of stridulation-area in irregular rows; a large number of the scales bidentate, some sublinear, but most of them elongate-triangular, small, with the flat surface turned towards the wing; costal spiniform scales of hindwing numerous, sharply pointed, differing in size in the same individual, some being long, some short, with intermediate sizes.

Larva (adult) orange with black belts which bear the black tubercles; head,



pronotum, and anal segment also black, as are the thoracic legs, the outside of the abdominal legs, and a ventri-lateral stripe.

Pupa, see above. We have several cocoons in a half-cylinder of bark (perhaps obtained under artificial conditions in a breeding-cage?).

*Hab.* Usambara, ex-German East Africa.

In Tring Museum a small series of both sexes, two blown larvae, and some pupae; also in Mus. Brit. and the Berlin Museum.

### 3. Genus: *Ludia* Wallengr. (1865).—Typus: *delegorguei*.

*Saturnia*, Boisduval (nec Schrank 1802), in *Deleg., Voy. Afr. Austr.* ii. p. 601 (1847).

*Saturnia* (*Henucha* ?), Westwood, *Proc. Zool. Soc. Lond.* p. 59 (1847) (partim; *Henucha* laps. cal., instead of *Heniocha* Hübn.).

*Henucha*, Walker, *List. Lep. Ins. B.M.* vi. p. 1331 (1855) (partim); Sonthon., *Essai Classif. Lép.* iv. p. 40 (1904) (partim).

*Ludia* Wallengren, *K. Sv. Vet. Ak. Handl.* (2). v. 4. p. 25 (1865) (type: *delegorguei*); Kirby, *Cat. Lep. Het.* i. p. 774 (1892); Roths., *Nov. Zool.* ii. p. 50 (1895); Auriv., *Arkiv Zool.* ii. 4. p. 21 (1904) (distinction of genus); Pack., *Mon. Bombyc. Moths*, iii. p. 149 (1914); Strand, *Iris*, xx. pp. 110, 119 (1911) (key to species; distinctions from *Holocera*).

♂♀. Forewing with three subcostals, SC<sup>2</sup> and SC<sup>3</sup> being absent (text-fig. 5). Antenna of ♀ pectinate to beyond middle. ♀ with large patch of modified scales on underside of forewing near tornus and a row of erect spiniform scales at costal margin of hindwing near apex. Long hairs on tubercles of larva plumose (text-figs. 8 and 11). Cremaster of pupa subcylindrical, truncate, with apical circle of teeth which project laterad (text-figs. 17 and 18).

Frons moderately narrowed orad, varying in width at the genal grooves from being broader to being a little narrower than the eye is high (measured transversely). Labrum narrow, slightly convex, not prominent. Genal groove very distinct, rounded, deep. Vestige of tongue quite small, the tongue being represented by two short processes of irregular and variable shape firmly attached to the sides of the buccal cavity. Labial palpi united at the base, curved forward, scarcely distinguishable from the frons with the naked eye, being quite small, non-segmented.

The antennae consist of 32 to 37 segments, besides the scape. In ♂ 13 to 17 segments quadripectinate, the distal 16 to 19 segments with a short lateral projection on each side bearing long cilia; the apical branch of a segment touching the proximal branch of the next. In ♀ the proximal half or two-thirds bipectinate (17 to 25 segments), the apical branches of these pectinated segments indicated as short projections, which are often longer than the shaft is broad; shaft in fresh (bred) specimens dorsally scaled to apex, but as a rule the specimens have scaling only on the pectinated segments. Apical sensory cone of distal segments of both sexes single, truncate, or sinuate, sometimes rugged or subdivided, longer than in *Holocera*, especially in ♀ (text-fig. 2). Epiphysis of foretibia large, in ♂ reaching about to three-fourths of tibia, shorter and narrower in ♀, but even in this sex extending about to two-thirds. Spurs of mid- and hindtibiae somewhat shorter than the tibiae are broad when denuded; hindtibia with one pair only, as in all the *Ludiinae*. Tarsal segments I. to IV. with some apical spines at each side of ventral surface and one or several additional spines further basad, these additional spines more numerous on segment I. than on the others. Tarsal V. of ♀ with the sole non-scaled, except laterally at base; near apex of sole a fairly

dense tuft of stout, curved, sensory hairs on each side. Pulvillus large in both sexes; lobe of paronychium broad. Claw without serration or only a suspicion of it. Organ of stridulation present in all ♀♀ on fore- and hindwing (cf. p. 247). Vein C of hindwing less curved in ♀ than in ♂, distally straight or recurved.

Neuration: Forewing with three subcostals, all given off beyond cell, or the first from cell close to stalk of the two others, the short subapical spur SC<sup>3</sup> of allied genera absent; SC<sup>1</sup> variable in position, wandering from upper cell-angle distad until it branches off from SC<sup>4</sup> (cf. text-figs. 36, 37, 52-54).

Genitalia: ♂. Anal tergite (X.t., text-figs. 33, 40, 55) with two smooth, glossy, more or less globose dorsal swellings, one on each side, close together, feebly chitinised, more or less projecting anad, partly covering the median lobe of x.t.; this lobe black, short, simply triangular with the tip blunt, or rotundate-truncate with the apex sinuate. Anal sternite (X.st.) triangular, black, apex obtuse. Clasper long, broad in proximal half, abruptly narrowed in or before middle, the ventral margin being abruptly incurved, the lobe (L) proximal to this large sinus projecting distad, often being prolonged into one or two pointed processes (text-figs. 61-64). Penis-sheath (P) very slender, without armature; its funnel (F) open ventrally. Eighth sternite (VIII.st.) varying according to species, being acuminate, rounded, or sinuate.—♀. Sexual orifice medianly on a large, strongly chitinised, transverse sclerite, the apical margin of which is dilated behind the orifice into a large lobe. Area between this sclerite and anal valves (IX. and X.) membranous.

All species with orange ocellus on upperside of hindwing; black pupil of ocellus varying in shape and size from being a thin line or crescent to being a large rounded spot.

Larva: No essential structural difference between the first and last stages, but the first stage without definite markings. Appearance woolly in all stages. Prothorax on each side with three tubercles, upper one small, with hair only or bearing in addition one spine, third tubercle also without spines, second with spines. Segments II. to X. with three spiniferous tubercles, two above and one below the stigma, XI. like X., but the dorsal tubercle united with that of the other side to form a single, larger, median tubercle. Segments II. and III. with an additional, small, non-spiniferous tubercle above the legs. In the centre of the tubercles (text-fig. 11) a tuft of long white hairs, about ten on dorsal tubercles, fewer on the others. Some of these long hairs of the infrastigmatal tubercles have the base strongly widened, the incrassation being less conspicuous, or absent, in the hairs of the dorsal and subdorsal tubercles. Apart from the tubercles the skin studded with numerous short and long hairs. All the hairs with the exception of the short ones somewhat resemble the rays of a feather, being densely covered all round with thin, hair-like filaments (text-figs. 7-9). The short hairs on head and body are not pilose, but are studded with short dispersed spikes (text-fig. 6). The spines of the tubercles are smooth, without projections. Larva known of very few species.

Cocoon thin but tough, covered with remnants of leaves. Pupa granulose; ventral surface of last segment less rough than in *Holocera*, with a more sharply defined median groove; cremaster subcylindrical, truncate, the margin of the apical surface armed all round with a variable number of teeth which project laterad (text-figs. 17, 18); metanotum on each side close to middle line with a transverse tubercle as in *Holocera*.

Food-plants: *Microglossa mespilifolia* (*Compositae*), also on *Zingiberaceae* according to Sjöstedt, *Labiatae* according to Schultz, and probably other plants.

Distribution: Africa south of the Sahara, from Senegambia and Abyssinia to the Cape Province.

The material in collections is not extensive, and our knowledge of the distribution of the various species, therefore, is very incomplete. The great similarity in colour and pattern renders identification difficult in many cases, the more so as there is a considerable amount of individual variability. The genitalia of the male, however, are a great help; they are very distinctive, presenting differences between the species which it is easy to perceive. The genital armature of the female, on the other hand, is of a more uniform character in the different species, though not quite useless in diagnostic work. In some of the species the female-antennae are different and afford a means of recognising the species. The vitreous discocellular mark of the forewing, on which Strand's key to the species is chiefly based (*Iris*, xxv. p. 110), is not so constant as Strand believed it to be.

Key to the species:

1. Fore- and hindwing with a row of conspicuous, irregular, black patches in the pale terminal area; postdiscal line of forewing above dentate upon the veins, the teeth pointing distad. *L. corticea* spec. nov. (Pl. 1, figs. 11 ♂, 19 ♀)

2. No such patches. Antemedian line of forewing not exangulate below cell; ocellus exceptionally small; vitreous mark of forewing very large in ♂, eighth sternite of ♂ with long, pointed, very narrow, median process

*L. tessmanni* (Pl. 1, figs. 8 ♂, 16 ♀)

Orange ring without white scales on outer portion; anal angle of hindwing produced; forewing beneath with large white submarginal patch posteriorly; antenna of ♀ with long pectinations to near apex. *L. dentata* (Pl. 1, fig. 5 ♀)

Colouring different . . . . . 3

3. Prevailing colouring above and beneath brownish grey; postdiscal line of forewing above regularly crenate, the teeth pointing basad; termen of both wings scalloped, fringe pale between the teeth or almost entirely pale; pupil of ocellus a linear crescent. Eighth sternite of ♂ strongly acuminate, clasper broad at apex . . . . . *L. arguta* spec. nov. (Pl. 1, fig. 9 ♀)

Postdiscal line of forewing not regularly crenate, or termen not regularly scalloped . . . . . 4

4. Males (this sex not known of *L. pupillata* and *L. syngena*) . . . . . 5

Females . . . . . 8

5. Median lobe of eighth sternite rounded . . . . . 6

Median lobe of eighth sternite strongly acuminate

*L. orinoptena* (Pl. 1, fig. 1 ♂)

6. Clasper ending with a long, pointed hook; termen of hindwing not angulate . . . . . *L. delegorguei* (Pl. 1, figs. 12 ♂, 13 ♀)

Clasper with shorter apical hook; termen of hindwing angulate below middle . . . . . *L. goniata* (Pl. 1, fig. 14 ♂)

Clasper broad at apex . . . . . 7

7. Ventral lobe of clasper with one process . . . . . *L. hansali*

Ventral lobe of clasper with two processes *L. obscura* (Pl. 1, fig. 10 ♂)

8. Females. Postdiscal line of forewing straight from its bent to hind-

margin; on both wings a shadowy brown band between postdiscal line and termen. Antenna pectinate to one-half . . . . . *L. goniata* (Pl. 1, fig. 4 ♀)

Postdiscal line of forewing incurved below middle. Antenna pectinate to two-thirds or beyond . . . . . 9

9. Postdiscal line of forewing above bordered on outside by a broad whitish or brownish grey band which fades away distally; if the band is narrow, then the underside has a greyish white postdiscal line or diffuse band . . . . . 10

Postdiscal line bordered by a narrow pale line, which more or less widens posteriorly, but is fairly sharply defined; no greyish white postdiscal line or band on underside . . . . . 11

10. Border of postdiscal line of forewing greyish white

*L. delegorguei* (Pl. 1, fig. 21 ♀)

Border of postdiscal line of forewing brownish grey, duller; vitreous mark of forewing usually very thin . . . . . *L. hansali* (Pl. 1, fig. 20 ♀)

11. Antemedian line of forewing forming a right angle on submedian fold; postdiscal line hardly at all widened behind; short grey oblique apical line narrow. Orange ring thin, black centre very large; red area sometimes suppressed above . . . . . *L. obscura* (Pl. 1, fig. 17 ♀)

Submedian angle of antemedian line usually obtuse; postdiscal line widened behind; short grey apical line broad, diffuse; upper vitreous mark more or less distinctly separated from second spot; postdiscal line on underside of hindwing incurved before reaching abdominal margin . . . . . *L. orinoptena* (Pl. 1, fig. 2 ♀)

Submedian angle of antemedian line as in *L. obscura*; postmedian line slightly widened behind; upper arm of lower vitreous spot longer than its distance from postdiscal line. Black centre of ocellus a narrow crescent

*L. syngena* (Pl. 1, fig. 3 ♀)

Postdiscal line on both fore- and hindwing ending at a considerable distance from tornus. Pupil of ocellus a short and nearly straight line; discal band of hindwing scarcely half as wide at abdominal margin as above ocellus . . . . . *L. pupillata*

### 1. *Ludia corticea* spec. nov. (Pl. 1, figs. 11 ♂, 19 ♀).

Utraque ala maculis nigris sublimbalibus ornata; area media alae anticae nigra extus dentata; corpus supra nigrum.

Al. ant. long. ♂ 20 mm.; ♀ 32 mm.

Al. ant. lat. ♂ 9 mm.; ♀ 16 mm.

*Hab.* Eros Mts., 1,150 m., 7 km. from Windhoek, S.W. Africa, one pair, and Windhoek (two ♀♀) in the Tring Museum; also in the Berlin Museum.

♂. Body, antenna and legs deep brownish black; pronotum slightly paler, edged with dark cinnamon; basal area of patagium also dark cinnamon, dorsally shading into creamy buff and here sharply defined. Antenna with 14 segments quadripectinate, 17 non-pectinate, the longest branches equalling in length three and one-half pectinated segments.

Forewing, *upperside*: Cell from base to antemedian line dirty creamy buff shaded with grey; costal margin grey to apex of cell, speckled with dark olive-brown; below cell a dirty creamy-buff patch bounded by the antemedian line, base up to this patch brownish black. Antemedian line excurved in cell and more strongly so between cell and hindmargin, being strongly angulate upon base of M<sup>2</sup>. Median area nearly black, but with numerous creamy-buff scales,

which are not much in evidence except under a lens ; upper scales of this area bidentate, nearly all the pale ones broad, gradually widened. Postdiscal line incurved between the veins, rather conspicuously dentate, particularly on the posterior veins, below  $SM^2$  3 mm. distant from apex of this vein. Upper vitreous bar nearly straight, crescent thinner than bar, not projecting anteriorly. Terminal area dirty creamy buff shaded with cinnamon distally, especially in upper half ; between the veins numerous black specks condensed to form a row of patches, which are as deeply coloured as the median area and are quite prominent on the pale ground. Termen dentate, teeth  $R^3$  and  $M^1$  more projecting than the others. —Hindwing dentate, rather strongly incurved above anal angle, which projects. Red area deep pink, extending to apex of wing and invading abdominal area below cell. Orange ocellus small, its diameter (2.5 mm.) shorter than the distance from termen ; black crescent in ocellus thick ; a whitish spot in sinus ; orange scales and white ones sharply bidentate. Black area encircling ocellus widest in cell, narrowed costad, paler posteriorly, where it assumes a slight bluish tint. Postdiscal line almost even, somewhat curved in S-shape, being incurved below  $M^2$ , ending near anal angle, but with the extreme end curved basad. Outside this line, and separated from it by a thin pale buff line, a row of black spots, better defined and more compact than on forewing, the row extending forward to  $R^1$ . Fringe black on both wings, whitish midway between the veins.

*Underside*: On forewing the costal area greyish irrorated with black ; median area brown-black ; pink patch nearly extending to tornus. Postdiscal line dentate. Limbal area as above, but wider in lower half, spots conspicuous except spot  $SM^1$ - $SM^2$ , which is obsolete. —Hindwing grey irrorated with numerous blackish brown specks and transverse spots. Terminal area shaded with cinnamon, the blackish scaling more extended than above. Postdiscal line incurved anteriorly and posteriorly, in anterior half thick, diffuse, in posterior half thin and indistinct. Upper scales as on forewing bidentate, the teeth well projecting and in most scales far apart, especially in basal half of hindwing, rarely a small additional tooth in centre.

♀. Similar to ♂, but much larger. Apex of forewing less produced ; pronotum somewhat paler. Vitreous crescent anteriorly projecting distad a short distance. Brownish black median area with bluish tint in certain aspect. —Blackish shading of costal margin of hindwing extended backwards to near black median band, almost isolating a red subapical spot. Orange ring 4.5 mm., its distance from termen 6 mm. ; the black crescent heavy, more than half the thickness of the ring ; white spot distinct ; orange upper scales mostly tridentate, many bidentate, the lower orange scales on proximal side of black crescent quadri- or quinque-dentate. Black median band with bluish tint from ocellus backward.

*Underside* coloured as in ♂ ; terminal area of forewing more irrorated with grey along the postdiscal line ; red patch not extending beyond this line, but invading cell. As in ♂ the blackish submarginal spots  $R^1$ - $R^2$  enlarged and confluent. Upper scales in outer half of underside bidentate, broad, the teeth strongly divergent, at least in most of the pale scales ; many scales with a small central tooth, which rarely attains the length of the lateral teeth.

Stridulation-area of forewing reaching a little above  $M^2$  ; its scaling as in *L. delegorqueti*, but with few flat and dentate scales, and the curved ones on the whole more pointed.

Antenna of ♀ with 20 or 21 segments pectinate, 15 or 14 non-pectinate, the

proximal ones of these non-pectinate segments dentate, the distal ones nearly simple; the longest branches not quite as long as three segments; apical branches in basal half of antenna indicated as very short projections; underside of pectinated segments non-carinate, transversely convex, rounded, appearing somewhat swollen.

Genitalia: ♂. Eighth sternite (VIII. st., text-fig. 24) deeply sinuate, the sinus rounded, with the angle sharp. Tenth tergite (X.t.) acuminate, not excised at tip. Clasper (Cl, text-fig. 24) very broad; ventral median lobe short, denticulate, projecting distad, but not narrowed into a long pointed process; apex of clasper broad, truncate-dentate, when seen from above or below (text-figs. 24, 26) in aspect from inner side very broadly rounded and irregularly dentate

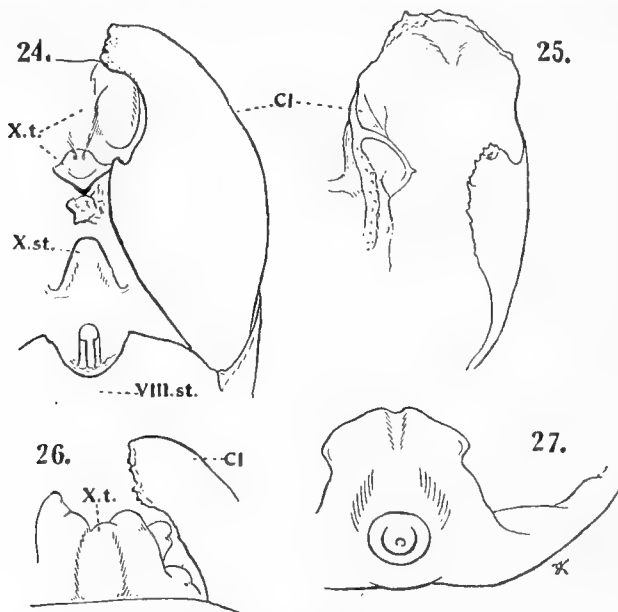


FIG. 24.—*Ludia corticea* ♂; genitalia, ventral aspect.

FIG. 25.—*L. corticea* ♂; clasper, inner side.

FIG. 26.—*L. corticea* ♂; tenth tergite and clasper, dorsal aspect.

FIG. 27.—*L. corticea* ♀; genital sclerite.

(text-fig. 25).—♀. Lobe of vaginal plate strongly projecting; apex rounded with small median sinus; sides sharply incurved before apex (text-fig. 27).

Neuration:  $SC^1$  from stalk  $SC^{4'5}$ .

Early stages not known.

The species, which stands as yet isolated among the others, is easily recognised by the black subterminal blotches on fore- and hindwing.

## 2. *Ludia tessmanni* Strand (1911) (Pl. 1, figs. 8 ♂, 16 ♀).

♂ ♀. *Ludia tessmanni* Strand, *Iris*, xxv. p. 110 (1911) (Uelleburg, Spanish Guinea); id., *Arch. Naturg.* lxxviii. A. 6. p. 145. no. 14 (1912) (Uelleburg and Alen, Spanish Guinea, five pairs).

Ocellus very small in both sexes. Vitreous mark on forewing large in ♂.

In *Iris*, xxv., Strand mentions only the vitreous marks of this very distinct

species, but promises to give a full description in some other place. I have failed to find this description. The authorities of the Berlin Museum have very kindly come to my rescue by giving us in exchange a pair of paratypes, for which we are very grateful.

♂. Antenna with 13 or 14 segments quadripectinate and 17 or 18 dentate. Forewing entire, more strongly falcate than in any other *Ludia* known to me; lower cell-angle only 3 mm, distant from termen. General colouring a dark

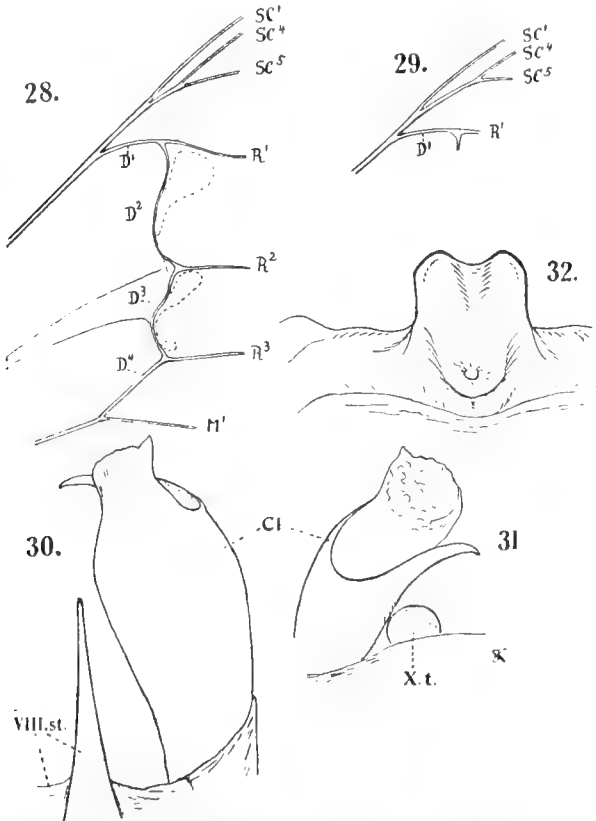


FIG. 28.—*Ludia tessmanni* ♀; neurulation of left forewing.  
 FIG. 29.—*L. tessmanni* ♀; neurulation of right forewing.  
 FIG. 30.—*L. tessmanni* ♂; eighth sternite and clasper.  
 FIG. 31.—*L. tessmanni* ♂; clasper, dorsal aspect.  
 FIG. 32.—*L. tessmanni* ♀; genital sclerite, ventral aspect.

mummy-brown, without the grey of *L. delegorqueti*; the antemedian and post-discal lines almost disappearing in the dark ground, their pale borders distinct and narrow, cinnamon; terminal margin and fringe likewise cinnamon except apical lobe. Vitreous spot very large.—Hindwing entire, termen very slightly elbowed at M¹ and incurved before anal angle; terminal margin and fringe narrowly cinnamon, tapering away at anal angle; black median band not separate from terminal area, the postdiscal line being practically absent, a trace of it indicated close to termen; proximal border of median band likewise indistinct. Ocellus very small, without white spot.

*Underside* drab mummy-brown. Forewing: red area extending about 2 mm. beyond base of  $M^2$  and slightly entering cell; costal margin shaded with cinnamon; postdiscal line and terminal edge also cinnamon, the former running distad on apical lobe.—Hindwing almost uniform in colour, except for a narrow cinnamon terminal border.

♀. Antenna with 18 or 19 segments pectinated and 14 to 17 non-pectinated. In colouring similar to ♂; forewing much pervaded with cinnamon; antemedian line very oblique, not angulate below cell, its costal end almost separated off as an isolated spot; termen slightly undulate, deeply incurved below apex, very oblique posteriorly; postdiscal line as in ♂ ending at tornus, incurved below middle; vitreous mark not enlarged as in ♂, upper spot comma-shaped, lower one not larger than upper, but a little more curved, its upper end projecting slightly but distinctly; postdiscal line close to lower cell-angle as in ♂, more proximal than in the other species.—Hindwing: ocellus  $2 \times 2.3$  mm. in the Guinea ♀ and not quite  $3 \times 4$  in our (larger) specimen from the Upper Congo, with narrow black crescent and no white spot; orange scales partly with 3 or 4 short, blunt teeth, and partly with the apex entire and more or less rotundate.

*Underside*: Red area large, extending across cell to C and distally reaching base of  $M^1$ ; terminal area broadly mummy-brown at margin and drab and cinnamon along postdiscal line. Scales of stridulation-area mostly strongly curved and sharply pointed, many angulate at highest point, also numerous small sinuate scales present.—Hindwing shaded with drab except at costal and terminal margins; transverse median line very oblique; postdiscal line indistinct, touching lower cell-angle or nearly.

Genitalia: ♂. Eighth sternite (VIII. st., text-fig. 30) with a very long, almost spiniform, median process. Clasper divided at apex into a broad and rounded, but at upper corner acuminate, ventral lobe and a curved, long, slender and pointed dorsal process (text-figs. 30, 31).—♀. Lobe of vaginal sclerite (text-fig. 32) strongly projecting, almost square, with the sides nearly straight, the apex strongly sinuate, and the angles rounded. The sclerite otherwise narrower than usual, strongly convex in a sagittal sense.

Neuration:  $SC^1$  of forewing from stalk  $SC^{4+5}$ ; discocellular  $D^2$  as long as or longer than  $D^3$ , more or less curved in S-shape;  $M^1$  rather more distal than usual (text-figs. 28, 29, taken from right and left forewing of Yakusu specimen).

Early stages not known.

*Hab.* Spanish Guinea; Upper Congo.

In the Tring Museum a pair of paratypes from Uelleburg, Spanish Guinea (Tessmann); a ♀ from Yakusu, Upper Congo (K. Smith).

In Mus. Berlin four pairs from Uelleburg.

### 3. *Ludia arguta* spec. nov. (Pl. 1, fig. 9 ♀).

♀♂. Grisescens, russata; linea postdiscali crenata, linea marginali russa vel nigra bene expressa tenui ornata, cilia pallida, ad venas russo vel nigro maculata.

*Hab.* Somaliland and British East Africa.

A small species, with the antennal pectinations long and numerous in both sexes, but particularly so in ♂.

♂. Antenna with 32 segments, of which 21 are quadripectinate; longest



branches as long as five segments; shaft tawny, branches ochraceous. Body russet, underside of abdomen paler, head and thorax above densely mixed with grey hair-scales, the non-dentate hair-scales lanceolate, narrow, none of them strongly dilated before apex.

Wings, *upperside*: Forewing shorter than in *L. delegorguei*, termen much more distinctly dentate; basal area grey irrorated with brown and shaded with cinnamon except costal margin and a line along the blackish antemedian line. This line with faint indications below cell of an excurved and an incurved angle. Median area olive-brown shaded with bistre, the median vein and the bases of the veins beyond upper cell-angle washed with cinnamon rufous. Postdiscal line crenulate, bordered by a prominent white line, and not ending quite so close to tornus as in *L. delegorguei*. Terminal area greyish cinnamon, with the usual grey costal cloud.—Hindwing costally longer than in *L. delegorguei*, costal margin less curved, termen indistinctly undulate, but rather distinctly elbowed at  $M^1$ , recalling *L. goniata*. Ocellus with white spot in sinus, diameter of orange ring shorter than distance from terminal margin, black border narrow except in cell. Postdiscal line bordered by a sharply defined white line.

*Underside*: Costal margin of forewing whitish grey spotted with brown; area around vitreous mark brown shaded with cinnamon; terminal area as above, but paler; postdiscal line white, continued to costal margin, outwardly shading off.—Hindwing densely shaded with creamy buff; costal margin whitish grey, spotted and irrorated with dark brown; postdiscal line not incurved below costa, its whitish border less conspicuous than on forewing. Cross-vein  $D^2$  transverse, not oblique.

♀. Antenna darker than in ♂; 22 to 26 segments pectinate, 9 to 11 non-pectinate, apical branches of proximal pectinated segments represented by short projections. Body russet-brown, pronotum the same colour as mesonotum, with indication of a grey apical border.

Wings, *upperside*: Forewing more strongly dentate than in ♂, between the veins with distinct pale fringe-spots of variable size, usually the fringe more extended pale than brown, as is also the case in the hindwing. Basal area russet-grey, paler grey along antemedian line and at costa, not divided into a triangular pale costal area and a darker posterior area. Antemedian line deep russet, usually somewhat curved in S-shape in cell and slightly undulate or zigzag between cell and hindmargin, sometimes straight. Median band russet-brown, distally with or without grey scaling. Costal margin spotted with grey and brown from base to apex of cell. Veins above upper cell-angle slightly rufescent. Postdiscal line thin, conspicuously and regularly crenulate, more or less slightly accentuated upon the veins, with a narrow whitish grey outer border. Terminal area a little paler than base, with russet irroration which is condensed into a shadowy band along the whitish postdiscal line.—Hindwing dentate, tooth  $M^1$  or likewise  $R^2$  slightly longer than the others. Fringe as on forewing. Red area pinkish, as in ♂. Ocellus nearly as in *L. delegorguei*; the white spot placed on its outer portion sometimes barely vestigial. Median band pale from ocellus backwards, sometimes also pale on outer side of ocellus. Postdiscal line crenulate, nearly parallel with termen, ending as on forewing at some distance from anal angle; this line or its pale border often continued to costal margin. Terminal area nearly as on forewing, sometimes slightly pervaded with pink. A thin, rather sharply defined, marginal line as on forewing blackish brown.

*Underside* similar in colour to terminal area of upperside, almost unicolorous apart from red area. Cell of forewing and subcostal region beyond cell deeper brown. Costal margin spotted with whitish grey in both wings. Subterminal line of forewing more or less obsolescent posteriorly, not incurved below costa on hindwing. Red area entering cell and usually extending to base of  $M^1$ , variable in extent. Shadowy band outside postdiscal line distinct on both wings. Longitudinal brown cloud below costa of hindwing inconspicuous, sometimes absent; dark transverse band across cell of hindwing narrow. Marginal line as above.

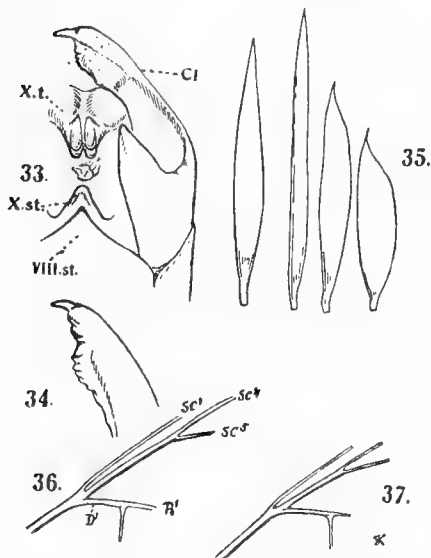


FIG. 33.—*Ludia arguta* ♂; genitalia, ventral aspect.

FIG. 34.—*L. arguta* ♂; apex of clasper, dorsal aspect.

FIG. 35.—*L. arguta* ♀; scales from stridulation-area.

FIG. 36.—*L. arguta* ♂; subcostals of forewing.

FIG. 37.—*L. arguta* ♀; subcostals of forewing.

Neuration:  $SC^1$  of forewing from stalk of  $SC^{2+3}$ , usually near cell, rarely from upper cell-angle (text-figs. 36, 37).

Early stages not known.

Evidently two geographical forms:

(a) *L. arguta arguta*.

Grey tone prevalent on wings above and below; median band of forewing much shaded with grey; postdiscal line not strongly crenate, and the brown shadowy band in terminal area vestigial. Discocellular  $D^2$  of hindwing much more transverse than longitudinal. Antenna of ♀ with 22 segments pectinate.

*Hab.* Manderla, Somaliland, S.W. of Berbera, April, September, and October (W. Feather), 1 ♂ (type) in Mus. Brit., 2 ♀♀ in Mus. Oxon.

Vitreous mark of forewing sometimes larger and sometimes thinner than in our figure (Pl. 1, fig. 9), the median projection usually shorter, sometimes distinctly dilated.

Scales of stridulation-area pale; nearly all narrow, pointed or bidentate, and hardly at all curved (text-fig. 35). Scales of fringe with three or more long, thin teeth.

Genitalia: ♂. Eighth sternite (VIII. st.) acuminate as in *L. orinoptena*, but shorter (text-fig. 33). Tenth tergite (X. t.) bilobate, each lobe divided transversely into an upper and a lower projection. Tenth sternite (X. st.) triangular, apex obtuse. Ventral lobe of clasper projecting anad, but without spiniform process; apical lobe irregularly dentate, ending with a claw-like process and being dilated proximally to this claw (text-figs. 33, 34).—♀. Vaginal sclerite less broad on the frontal side of the central cavity than in *L. delegorguei*; median lobe truncate-sinuate or rotundate.

(b) *L. arguta russa* subsp. nov. (Pl. I, fig. 9 ♀).

♀. *Henucha hansali* ?, Butler, *Proc. Zool. Soc. Lond.* p. 430. no. 187 (1898) (Voi River, April).

♀. Body and median band of forewing russet-brown, much darker than in the previous form; basal area and the undersurface of both wings (apart from red area) much shaded with russet-brown. Postdiscal line more conspicuously crenulate, and the shadowy brown band outside the grey border of the postdiscal line more pronounced, though rarely prominent. Antenna of ♀ with 24 to 26 segments pectinate. Second discocellular D<sup>2</sup> of hindwing less transverse.

*Hab.* British East Africa, only ♀♀ known.

In Mus. Tring 1 ♀ (type) from Kedai, April 1912 (W. Feather).

In Mus. Brit. 2 ♀♀ from Voi River and Juba River, and 11 ♀♀ (in coll. Adams) from Taveta.

In Mus. Oxon. 4 ♀♀ from Taveta, about 2,500 ft., May 1905 (Native coll.), presented by C. A. Wiggins.

4. *Ludia dentata* Hamps. (1891) (Pl. I, fig. 5 ♀).

♀. *Ludia dentata* Hampson, *Ann. Mag. N.H.* (6), vii, p. 184 (1891) (Sabaki River).

♀. *Henucha dentata*, Sonthonnax, *Essai Classif. Léop.* vi, p. 43. no. 5. tab. 6. fig. 2 (1904) (fig. mala).

♂. *Ludia nyassana* Strand, *Iris*, xxv, pp. 111 and 114 (1911) (Langenburg, L. Nyassa).

♀. *Ludia luciphila* Strand, *l.c.* pp. 111 and 117 (1911) (Dar-es-Salaam).

Similar in its dark colouring to *L. orinoptena*, but easily recognised by the large greyish white patch or band situated posteriorly in the terminal area of the forewing beneath. Antenna of ♀ more strongly pectinate. Anal angle of ♂ strongly produced. No white scaling on orange ring.

♂. The ♂ described by Strand as *L. nyassana* I consider to belong to *L. dentata*. It is the only specimen of the ♂ I have seen. It differs much from the ♀, but hardly more so than the ♂♂ of *L. tessmanni* and *L. delegorguei* do from their respective ♀♀. At first sight this ♂, of which we give an outline sketch (text-fig. 38), resembles the ♂ of *L. tessmanni*, apart from the smaller size of the vitreous mark of the forewing and the clearly marked submarginal line of the hindwing. The apex of the forewing is strongly produced, and the outer margin of the hindwing markedly incurved posteriorly, the anal lobe being curved outwards as a short, blunt tail. The orange ring has no white scaling and is small. The grey submarginal patch on the underside of the forewing is much less white than in the ♀.

♀. Antenna with 35 to 38 segments, of which 26 to 29 (usually 27) are pectinate, 6 to 12 (usually 8) non-pectinate, longest branches longer than four segments. Pronotum not contrasting with mesonotum. Body, basal half of forewing, and abdominal area of hindwing with numerous oar-shaped white scales. Termen of both wings dentate; apex of forewing and anal angle of hindwing prominent. Postdiscal line bordered by a conspicuous greyish white line, which is deeply incurved below centre of forewing. Basal area of forewing dark brown, more or less shaded with grey costally and along antemedian line. Orange ring thick, without white spot, or with only a faint trace of it. Abdominal margin of hindwing above with a red streak near base more or less distinct.

Red area of *underside* rather sharply defined, not entering cell, or only a small number of hairs in cell red; postdiscal line abruptly bent costad at SC<sup>4</sup>

(not at R<sup>1</sup>), posteriorly accompanied by a broad greyish white, conspicuous but not sharply defined, band or patch.

Stridulation-area with two principal kinds of scales: short, broad, irregularly dentate scales flat on the wing, and narrow, obliquely erect ones which are more or less curved and mostly bidentate. The great majority of these long scales present the broad side to the eye, with both lateral edges so curved up that the scale appears channelled.

Genitalia: ♂. Eighth sternite with a rounded median lobe (text-fig. 39). Clasper, in ventral view, a large half-ring, its broad ventral process obliquely truncate; apical process also truncate-acuminate (the sketch taken *in situ*, without dissection).—♀. Vaginal sclerite narrower than in *L. delegorguei*; central cavity transverse; lobe very broad.

Neuration: SC<sup>1</sup> of forewing from stalk SC<sup>4</sup>. SC<sup>5</sup> close to fork, rarely from SC<sup>4</sup>. In one of our specimens SC<sup>1</sup> absent from left forewing.

Early stages not known.

In the figure of the type published by Sonthonnax the vitreous mark of the right forewing is evidently taken from the left wing of the specimen. The outline of the hindwing is quite wrong.

*Hab.* British and ex-German East Africa.

In Mus. Tring from Kibwezi, April and May (W. Feather), 4 ♀♀; Pemba Island (E. Morland), 1 ♀; Bulwa, Usambara, 2 ♀♀; Dar-es-Salaam, 2 ♀♀; Itumba, 1 ♀; "German E. Africa," 2 ♀♀.

In Mus. Brit. 1 ♀ from Sabaki River (type).

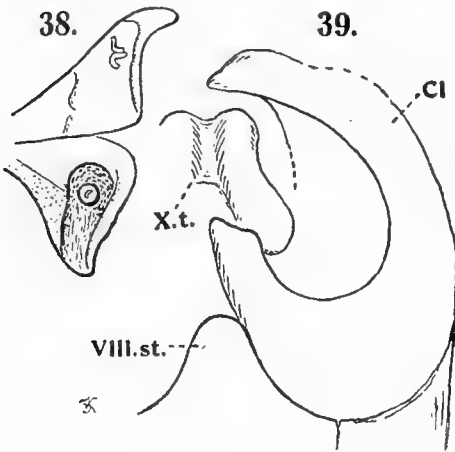


FIG. 38. *Ludia dentata* ♂.

FIG. 39. *L. dentata* ♀; genitalia, ventral aspect.

In Mus. Oxon., from 15 miles west of Fort Hall, Kikuyu, 6,000 ft., May 1907, 1 ♀; Sagalla Mt. and Dabida Mt., 3,500 ft. and 3,700 ft., about 100 miles W.N.W. of Mombasa, 2 ♀♀; presented by K. St. A. Rogers.

In Mus. Berlin 1 ♂ from Langenburg, Lake Nyassa (type of *nyassana*); 1 ♀ from Dar-es-Salaam (type of *luciphila*).

##### 5. *Ludia hansali* Felder (1874).

♀. *Ludia hansali* Felder, *Reise Novara, Lep., Atlas*, p. 6. tab. 89. fig. 1 ♀ (1874) (Bogos).

Sexes less different in wing-shape than in *L. delegorguei*, to which the ♀ comes nearest in general appearance. Pronotum less pale than in that species, the basal and terminal areas of forewing above much shaded with brown and therefore not strongly contrasting with median band. Termen of both wings slightly undulate or even. Red area of hindwing of ♀ extending a little below cell; base of abdominal margin often with pink hairs. Vitreous mark of forewing usually very thin, often partly obsolete.

As in *L. delegorguei* the body bears numerous long grey oar-shaped scales,

the broad apex of which is truncate or slightly sinuate; similar scales in basal area of forewing. Scaling of median area of forewing, above, interspersed with numerous long pale scales, especially towards postdiscal line, which gives the wing the appearance of being more woolly than in *L. delegorguei*. On underside of forewing the scales in cell and on disc more deeply slit than usual, which, in the ♀, is especially noticeable near the area of stridulation.

Median band of hindwing above with a bluish tone, which often extends forward into the black border of the ocellus, either on the outside only or also in the cell. Ocellus as in *L. delegorguei*, with white spot, orange scales with three to six teeth, very few with two. On both wings, above and beneath, the grey border of the postdiscal band duller than in *L. delegorguei* and narrower; the postdiscal line slightly crenulate.

♂. Antenna with 15 or 16 segments quadripectinate and 16 or 17 non-pectinate, longest branches a little longer than four segments. Forewing broader than in *L. delegorguei*, apex less produced. Hindwing longer in costal half, therefore less narrow; costal margin and costal vein less curved. Fringe of both wings beneath dark, without distinct spots.

♀. Antenna with 24 to 26 segments pectinate, and 12 to 9 non-pectinate, longest branches as long as three and one-half or four segments; apical branches of pectinated segments vestigial, variable in length individually.

Stridulation-area of forewing beneath extending to M<sup>2</sup>, rarely above it; the curved scales nearly all pointed (text-fig. 43); hardly any flat and dentate scales among them.

Genitalia: ♂. Median lobe of eighth sternite (text-fig. 40, VIII. st.) short, rounded, but distinctly narrowed apically, sometimes acuminate. Tenth tergite sinuate; dorsal pale projections long, reaching much beyond median process. Tenth sternite narrow. Clasper broad only in proximal fourth; this portion

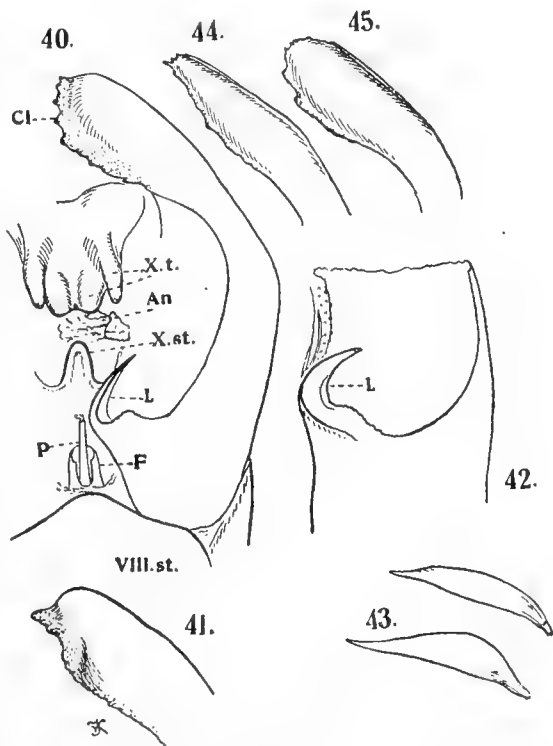


FIG. 40. *Ludia hansali tanganyikae* ♂; genitalia, ventral aspect.  
 FIG. 41. *L. h. tanganyikae* ♂; apex of clasper, dorsal aspect.  
 FIG. 42. *L. h. tanganyikae* ♂; ventral subbasal hook of clasper.  
 FIG. 43. *L. h. tanganyikae* ♀; scales from stridulation-area.  
 FIG. 44. *L. h. hansali* ♂; apex of clasper, ventral aspect.  
 FIG. 45. *L. h. eximia* ♂; apex of clasper, ventral aspect.

with a long, curved, ventral hook, which is more or less bent into the cavity of the clasper (text-fig. 40); fig. 42 gives an externo-lateral view of the hook. Apex of clasper more or less widened, irregularly dentate (text-figs. 41, 44, 45).—♀. Vaginal sclerite with the median lobe rather narrow and distinctly sinuate; the portion of the segment connecting the vaginal sclerite with the previous segment strongly chitinised for a considerable distance.

Early stages not known.

*Hab.* Abyssinia westward to Lake Tanganyika and Nigeria; probably more widely distributed in tropical Africa.

We recognise here four subspecies, with a reservation. Whereas the Abyssinian race appears to be fairly distinct, we have some doubt about the other three really being different from one another. We separate two of them on account of slight distinctions in the ♂-claspers. As we have seen but few specimens, there is naturally a good deal of uncertainty.

(a) *L. hansali hansali* Feld. (1874).

♀. *Ludia hansali* Felder, *l.c.* (Bogos); Roths., *Nov. Zool.* ii. p. 50. no. 2 (1895).

♀. *Henucha* (!) *hansali*. Kirby, *Cat. Lep. Het.* p. 774. no. 3 (1892); Holland, in Don. Smith, *Through Unkn. Afr. Countr.* p. 412 (1897) (Gumbisa = Gambisa, about 40° lat., 40° long.—This insect?); Sonth., *Essai Classif. Lép.* iv. p. 44. no. 6. tab. 6. fig. 8 ♀ (1904) (“♂” tab. 6. fig. 7, possibly taken from ♀ *L. arg. russa*; figure too bad for identification).

♂♀. Collar darker than in the following geographical forms, hardly at all contrasting with the mesothorax. Postdiscal line of forewing less excurved before hindmargin. Anal angle of hindwing more obtuse, the hindwing appearing more rounded. Antenna (broken off in our ♂) of ♀ with 27 segments pectinate and 7 non-pectinate, longest branches at least as long as four segments.

Genitalia of ♂ distinguished by the clasper being slenderer (text-fig. 44) and its proximal hook shorter and less curved than in the other races.

*Hab.* Abyssinia.

In Mus. Tring 1 ♀ from Bogos (Hansal; type), and 1 ♂ from Eli i. Marocko, Abyssinia (Alf. Kostlan), received from the Berlin Museum.

In Mus. Paris 1 ♀ from “Abyssinia” (Schimper).

In Mus. Berlin 1 ♂ from Eli i. Marocko (Alf. Kostlan).

(b) *L. hansali eximia* Roths. (1907).

*Ludia delegorqueti*, Butler (nec Boisduval 1847, err. identif.), *Proc. Zool. Soc. Lond.* p. 84, no. 143 (1888) (Monbuttu, a much-worn pair).

♂. *Ludia eximia* Rothschild, *Ann. Mag. N.H.* (7). xx. p. 10. no. 21 (1907) (Kampala).

♂♂. Collar brownish grey, contrasting with the mesonotum. Postdiscal line of forewing, above, excurved before tornus; terminal area of hindwing narrower than in *L. h. hansali*.

Clasper of ♂ broader in apical half than in the preceding race (text-fig. 45). Median lobe of eighth sternite short and very obtuse in type, more acuminate in Mabera specimen.

*Hab.* Uganda.

In Mus. Tring 1 ♂ from Kampala (type; Stanley Tomkins); 1 ♀ from Kampala (Capt. Ratray).

In Mus. Brit. 1 ♀ from Monbuttu (Emin Pasha; the ♂ mentioned by Butler, *l.c.*, is not preserved in the collection); another ♀ from Mpuma, Uganda.

In coll. Joicey 1 ♂ from Mabera Forest (Jackson).

(c) *L. hansali taganyikae* Strand (1911) (Pl. 1, fig. 20 ♀).

♂. *Ludia tanganyikae* Strand, *Iris*, xxv. pp. 110 and 115 (1911) (Ujiji, Tanganyika).

♂♀. In colour like *L. h. eximia*. Clasper of ♂ (text-figs. 40, 41, 42) strongly convex before apex, the apical margin forming a kind of flattened, irregularly indented brim. In the two Nairobi-♂♂ examined the median lobe of the eighth sternite is obtuse, in the cotype from Ujiji more distinctly acuminate.

Antenna of ♀ with 24 to 26 segments pectinate, longest branches as long as three and a half segments. Friction-scales, cf. text-fig. 43.

*Hab.* British and ex-German East Africa.

In Mus. Tring 2 ♂♂, 3 ♀♀ from Nairobi, March and April 1905 (Jackson); 1 ♀ from Nairobi (Dr. van Someren); 1 ♂ (cotype) from Ujiji.

In Mus. Berlin 1 ♂ from Ujiji, N.E. Tanganyika.

(d) *L. hansali festiva* subsp. nov.

♂. Body and wings, both above and below, much more blackish brown than in the three previous subspecies, a dark slate-colour, paler in parts. Antenna with 15 segments quadripectinate and 14 non-pectinate, longest branches equalling four segments.

Wings, *upper side*: Forewing somewhat narrower than in *L. h. eximia* and *tanganyikae*, costa distally more curved, apex slightly more produced (but not so much as in ♂ *L. delegorguei*). Median band deep slate-colour, darkest anteriorly near discocellulars, distally shaded with slate-grey; basal area not much contrasting with median band. Postdiscal line angulate at M<sup>2</sup> as in *eximia* (costally much worn, but evidently not more curved than in *eximia*), bordered on outside with pinkish grey, which forms a narrow line shading off on distal side.

*Underside* slate-black, shaded with slate-grey, particularly on hindwing, which is almost unicolorous. Red area not extending so far into cell and along it as in *eximia* and *tanganyikae*. Costal margin of hindwing less curved; postdiscal line of hindwing undulate, not appreciably incurved anteriorly, much nearer to termen than to cell-apex. No distinct fringe-spots.

Genitalia as in *L. h. eximia*, but eighth sternite more acuminate, but not pointed as in *L. orinoptena*; broad dentate portion of apical lobe of clasper longer than in *eximia* and without the strong convexity of the clasper of *tanganyikae*.

Length of forewing: ♂ 27 mm.

Breadth of forewing: ♂ 12 mm.

*Hab.* Bauchi Plateau, N. Nigeria; 1 ♂ in Mus. Tring.

6. *Ludia delegorguei* Boisd. (1847).

♀. *Saturnia delegorguei* Boisdual, in *Deleg., Voy. Afr. Austr.* ii. p. 601, no. 152 (1847) (♀, Amazooloo).

Termen of both wings slightly undulate or practically even.

♂. Forewing narrow, falcate, about twice as long as broad. Terminal area

creamy buff, more or less shaded with cinnamon, more strongly contrasting with median band than does the basal area, which is more strongly shaded with grey. Postdiscal line ending in both wings close to or at tornus.—Hindwing triangular, with the costa strongly rounded. Red area extending to or near apical angle. Orange ocellus usually wider than its distance from termen, sometimes the diameter shorter; black-bordered vitreous crescent small, variable in size and

shape, sometimes interrupted; black border of ocellus, varying in width from 0.3 to 1 mm., occasionally produced costad, but not reaching the brown costal border.

On *underside* the terminal border of forewing usually more strongly contrasting with disc than above, varying from being almost entirely creamy buff to being almost completely shaded with brown. Median area of forewing often with a distinct chestnut tint, sometimes nearly black. Fringe of both wings pale, with blackish or brown dots at the vein-ends.

♀. Antenna with 30 to 34 segments (apart from the two-scaled basal ones), 20 to 24 segments pectinate, 9 to 14 non-pectinate. On forewing, *above*, the triangular costal area from base to antemedian line, a stripe at costal margin beyond this line, and the terminal area along the postdiscal line bright grey. Postdiscal line incurved below middle, well separate from tornus (as is

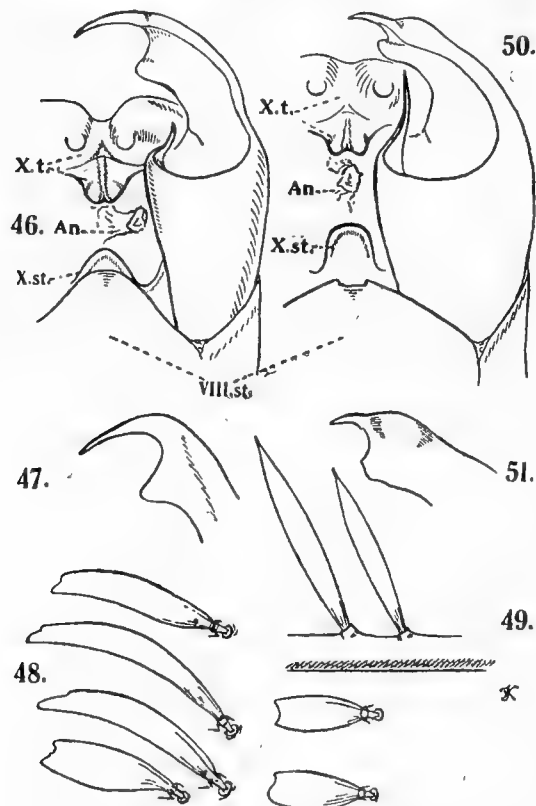


FIG. 46.—*Ludia delegorguei* ♂; genitalia, ventral aspect.

FIG. 47.—*L. delegorguei* ♂; apex of clasper, dorsal aspect.

FIG. 48.—*L. delegorguei* ♀; scales of stridulation-area.

FIG. 49.—*L. delegorguei* ♀; spiniform costal scales of hindwing.

FIG. 50.—*Ludia goniata* ♂; genitalia, ventral aspect.

FIG. 51.—*L. goniata* ♂; apex of clasper, dorsal aspect.

the case also in hindwing), but the distance from tornus individually variable. Antemedian line angulate on M and exangulate or excurved on SM<sup>1</sup>. As in ♂ the vitreous discocellular mark continuous, rarely the upper bar not reaching the lower crescent, both dilated at the ends or only at one end, the lower arm of the crescent variable in length, width, and curvature.—Red area of hindwing inconstant in size, extending to postdiscal line or more reduced, sometimes not quite reaching to upper cell-angle. Ocellus occasionally narrowed costad; white spot on its outer portion often very much reduced,



as happens frequently also in ♂; black border of ocellus varying in cell from 1 to 3 mm.

On *underside* the grey colour very variable in extent; usually there is a broad band along the postdiscal line, and the hindwing is often almost entirely shaded with grey, but in some specimens the grey colouring is nearly restricted to the mottling of the costal margins and to a thin, prominent, postdiscal band; in the latter case the blackish postdiscal band almost suppressed.

On *upperside* of forewing the teeth of the tri- and quadridentate upper scales along postdiscal line as long as or shorter than the scales are broad; teeth of lower scales short; long grey tridentate scales in posterior half of median band gradually widening apically, teeth about as long as the scale is broad. Stridulation-area on underside of forewing extending forward to M<sup>2</sup> or beyond, many of the scales, particularly between the submedian fold and submedian vein, short and flat, dentate or obliquely rounded, most of the narrow and curved scales truncate-sinuate, none or very few strongly curved (text-figs. 48, 49).

Genitalia: ♂. Eighth sternite (VIII. st., text-fig. 46) with a broad, rounded, but distinct, median lobe. Clasper broad from base to about centre, then narrow; the ventral median lobe produced distad into a long, spine-like process, which is slightly recurved ventrad; apical lobe of clasper abruptly narrowed to a spiniform black apical hook, which varies in length (text-figs. 46, 47).—♀. Vaginal sclerite broad, the median lobe large, rounded, with the apex truncate-sinuate, or rotundate; size of cavity variable, usually about as broad as long.

Neuration: SC<sup>1</sup> of forewing usually from stalk SC<sup>4,5</sup>, as a rule branching off near fork, sometimes at bifurcation, often off SC<sup>4</sup> (text-fig. 5).

Early stages: Larva greenish white (yellowish in blown specimens); first stage shaded with black above, without definite pattern. Head in all stages black. From second stage a dorsal black stripe of elongate spots, which are widened behind the dorsal tubercles and are more or less joined together on the anterior and posterior segments; a spiracular stripe of small black spots, the spot in which the spiracle is situated larger than the others, which are transverse; above the legs another, blackish, stripe, which is more strongly marked in the last stage than in the earlier ones. Long plumose hairs (text-figs. 8, 9) white. Spines and short hairs of the colour of the ground on which they are placed, the pale spines nearly all with dark tips.—Pupa, cf. text-figs. 17, 18.—On *Microglossa mespilifolia*.

*Hab.* Cape Province and S.W. Africa north-eastwards to ex-German East Africa, probably distributed farther north.

Two subspecies:

(a) *L. delegorguei delegorguei* Boisdu. (1847) (Pl. 1, fig. 12 ♂).

♀. *Saturnia delegorguei* Boisduval, l.c. (Amazooloo).

*Saturnia delegorguei* (!), Angas, *Kafrs Illustr.* tab. 30, fig. 13 ♀ (1849).

*Saturnia* (*Henucha* ? sic !) *delegorguei*, Westwood, *Proc. Zool. Soc. Lond.* p. 59. no. 30. tab. 10. fig. 4 ♂ (1849) (Amazooloo and Pt. Natal).

*Henucha* (!) *delegorguei*, Walker, *List Lep. Ins. B.M.* vi. p. 1332. no. 2 (1855) (Pt. Natal); Junod, *Bull. Soc. Neuchat. Sci. Nat.* xxvii. p. 241 (1899) (larva in winter on "Mpachla" tree; Delagoa Bay); Fawe., *Trans. Zool. Soc. Lond.* xvii. p. 172. tab. 6. fig. 36 larva (1903) (Durban, on *Microglossa mespilifolia*); Sonth., *Essai Classif. Lép.* iv. p. 42. no. 4. tab. 6. fig. 3 ♂ (1904) (Natal).

*Saturnia dalagorguei* (!), Monteiro, Delagoa Bay, p. 197 (1891) (larva).

*Ludia delegorguei*, Wallengren, *K. Sv. Vet. Akad. Handl.* (2). v. 4. p. 25 (1865); Kirby, *Cat. Lep. Het.* p. 774. no. 1 (1892) (Natal); Dist., *Ins. Transvaal.* i. p. 54. no. 3. tab. 5. fig. 8 ♂ (1903) (Johannesburg; "Monbuttu" error, = *eximia*); Strand, *Iris*, xxv. p. 111 (1911) (key to species); Packard, *Monogr. Bombyc. Moths*, iii. p. 150. tab. 31. fig. 7 larva (this spec. ? or *goniata* ?), tab. 81. figs. 8 ♂, 8a ♀, tab. 111. figs. c ♂, d ♀, e pupa, f larva, g cocoon (1914) (Natal; fig. d is possibly ♀ *goniata*); O'Neil, *Ann. Durban Mus.* ii. p. 168 (1919) (Salisbury).

The only *Ludia* of which we have seen a large number of specimens. It is very variable in size as well as in coloration, the red areas above and below especially being quite inconstant in extent and intensity. The fringe bears pale spots in the ♂♂ and in most ♀♀, being unicolorous brownish black in other ♀♀.

In southern specimens the ventral median process of the ♂-clasper is shorter than the clasper is broad proximally to this process, in the ♂♂ from Rhodesia and Nyasaland, which are of a deep colour, the underside being almost black, the ventral process and the dorsal apical rounded lobe of the clasper are longer; intergradations occur.

Larva, see above.

*Hab.* Cape Province north-eastward to Rhodesia, Nyasaland, and ex-German East Africa.

A series from the Cape Province and Natal in Mus. Brit., Mus. Oxon., Mus. Tring, and other collections; but from the tropical districts we have seen only a few specimens, which possibly represent a tropical subspecies (cf. Pl. 1, fig. 13 ♂).

(b) *L. delegorguei vetusta* Strand (1911) (Pl. 1, fig. 21 ♀).

♀. *Ludia delegorguei*, Grünberg, in Schultze, *Forschungsreise Südafrika*, iv. 1. p. 118 (1910) (Windhoek).

♀. *Ludia delegorguei* ab. *vetusta* Strand, *Iris*, xxv. p. 118 (1911) (Windhoek).

♂♀. A bright grey form. Sexes alike in colour. Body and median band of wings paler, terminal area of both wings less brown, and *underside* more shaded with grey than in *L. d. delegorguei*.

*Hab.* South-west Africa.

In Mus. Tring 2 ♂♂ and 5 ♀♀ from: Auos Mts., 7 km. south-west of Windhoek, 1,150 m.; Windhoek; Tsumeb, near Karibib.

In the Berlin Museum both sexes from Windhoek.

7. *Ludia goniata* Roths. (1907) (Pl. 1, figs. 4 ♀, 14 ♂).

*Ludia goniata* Rothschild, *Ann. Mag. N.H.* (7). xx. p. 9. no. 20 (1907) (Natal; Grahamstown).

This species has long remained mixed up in collection with *L. delegorguei*, under which name we have also received it from Natal. Both sexes are easily differentiated from that species, the ♂ especially by the angulated termen of the hindwing, and the ♀ by the shorter pectination of the antenna and some detail in pattern.

♂. On an average larger than the ♂ of *L. delegorguei*. Branches of antenna shorter, the longest equalling two segments in length (three in *L. delegorguei*). Both wings dentate. Forewing broader and deeper brown; postdiscal line more or less scalloped, rarely even, not approaching tornus so closely as in *L. delegorguei*, narrowly bordered with pale clay-colour except towards apex; fringe-spots between the veins of this same colour, as are some ill-defined markings

placed near the fringes.—Hindwing very distinctly elbowed below middle; postdistal line nearly parallel with termen, excurved below centre of wing. Ocellus smaller than in *L. delegorguei*, less regularly rounded, orange ring thinner, black lunate pupil larger, its sinus narrower.

On *underside* the terminal area with but little pale scaling; red area extending to tornus.

♀. Antenna pectinated only to middle, 16 or 17 segments being pectinate, 17 to 19 non-pectinate, the branches, moreover, shorter than in *L. delegorguei*. Postdiscal line of forewing hardly at all incurved below middle, being straighter than in the preceding species; the grey colouring in costal area and along postdiscal line less pure, being shaded with brown; between postdiscal line and termen on both wings an ill-defined brown band.

On *underside* the black postdiscal line distinct on both wings; general coloration deeper brown than in *L. delegorguei*, the grey scaling almost confined to the outside border of the postdiscal line.

Genitalia: ♂. Eighth sternite short, rounded, its apex sinuate (text-fig. 50). Apical lobe of tenth sternite (X.st.) very little narrowed apically. Clasper broad to middle; the median ventral lobe produced into a long, pointed, and recurved process; apical claw shorter than in *L. d. delegorguei*, and the subapical lobe of the dorsal margin (text-fig. 51) less projecting.—♀. Vaginal sclerite essentially as in *L. delegorguei*.

Early stages not known.

*Hab.* Cape Province and Natal, probably more widely distributed.

In Mus. Tring 7 ♂♂, 4 ♀♀ from Namaqualand, Durban (Leigh), and "Natal."

In Mus. Brit. 2 ♂♂, 2 ♀♀ from Grahamstown.

Also a small series in coll. J. J. Joicey and Mus. Berlin.

### 8. *Ludia pupillata* Strand (1911).

♀. *Ludia pupillata* Strand, *Iris*, xxv. p. 116 (1911) (Antottos, Abyssinia).

Only one specimen known, a ♀ in the Berlin Museum, without antennae and abdomen. Not unlike *L. deleg. delegorguei*, but the forewing more uniform in colour, the antemedian band broader and almost evenly curved, the postdiscal line non-dentate, termen undulate. Hindwing with marginal tooth at R<sup>1</sup> and M<sup>1</sup>; orange spot slightly longer (in basi-distal direction) than broad, not reniform, its distal margin nearly straight, pupil small, hardly at all curved; white scaling in outer portion of orange spot inconspicuous; black median band narrow behind, about half as wide at abdominal margin as in front of orange ocellus. Postdiscal line in both wings as widely separate from tornus as in *L. delegorguei*.

*Hab.* Abyssinia.

In Mus. Berlin 1 ♀ from below Antottos, Abyssinia, 10.vi.1907, at light (Kostlan).

### 9. *Ludia orinoptena* Karsch (1893).

♂♀. *Ludia orinoptena* Karsch, *Berl. Ent. Zeits.* xxxvii. p. 504. no. 21. tab. 20. fig. 2 ♀ (1893) (Buea, Camerun).

♂♀. A deep-coloured species. Pronotum and costal area of forewing (above) more or less isabella colour, not so much contrasting with median band as in ♀♀ *L. delegorguei* and *L. goniata*; terminal area nearly as dark as median band;

pale border of postdiscal line narrow. Upper vitreous bar of forewing nearly always pointed behind and usually not reaching the arcuate vitreous spot. Orange ocellus very variable, always with white spot.

♂. Antenna quadripectinate to middle (14 to 17 segments). Wings in shape recalling those of *L. goniata*, dentate.

♀. Antenna with 35 or 36 segments of which 17 to 19 are pectinate. Termen of wings undulate or entire.—On *underside* the red area extends far into cell, usually to subcosta; on both wings a well-marked terminal band mummy-brown like centre of forewing, in fresh specimens shaded with bright tawny olive; between this band and postdiscal line a fawn or drab band; outer portion of median band of forewing and nearly the whole hindwing (with the exception of costal and subcostal areas and a broad line across cell) shaded with drab or fawn.—

Most of the scales of the stridulation-patch long, narrow, pointed.

Genitalia: ♂. Eighth sternite (VIII. st., text-fig. 55) medianly produced into a long, triangular, pointed lobe. Tenth tergite sinuate; tenth sternite short. Clasper (Cl) broad from base to beyond middle; the median ventral lobe irregularly denticulate, without a spiniform process; apical lobe of clasper twisted, widened before end, variable individually (text-figs. 56–58).—♀. Vaginal sclerite broad (in a fronto-anal sense), at the side of the median lobe much more than half as wide as in the centre (measured from apical margin of lobe to base of sclerite), the median lobe not projecting so much beyond the lateral apical margin of the sclerite as in the allied species *L. goniata* and *L. obscura*, rounded at apex or sinuate.

Neuration: SC<sup>1</sup> of forewing branching off SC<sup>4</sup> (*i.e.* beyond fork) in all specimens examined (twenty-five), its distance from point of origin of SC<sup>5</sup> very variable (text-figs. 53, Adamaua, 54, Langenburg). ;

Early stages, see under subspecies.

*Hab.* Adamaua and Camerun to Angola, Rhodesia, Nyasaland, and Uganda.

The species varies very much individually in size, colour, and pattern. The division of the species into a western and an eastern subspecies must be considered as being preliminary, the distinctions adduced to be taken *cum grano salis*.

(a) *L. orinoptena limbobrunnea* Strand (1912).

♂♀. *Ludia limbobrunnea* Strand, *Mitt. Zool. Mus. Berlin*, v. p. 299, no. 123. text-fig. ♂ (1911) (N. Langenburg, Nyasa).

♂♀. Vitreous spots of forewing usually contiguous.

♂. Hindwing nearly as much elbowed as in *L. goniata*.

First stage of larva described on p. 226.

*Hab.* Rhodesia and Nyasaland northward to Uganda.

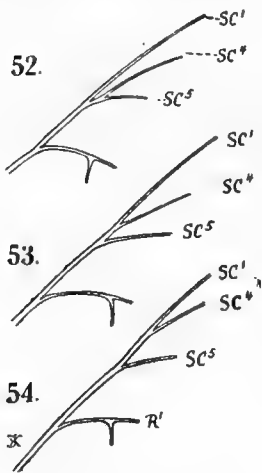


FIG. 52.—*Ludia syngena* ♀; subcostals of forewing.

FIG. 53.—*Ludia crin. orinoptena* ♀; subcostals of forewing.

FIG. 54.—*Ludia orin. limbobrunnea* ♀; subcostals of forewing.

In Mus. Tring from Langenburg, Nyasa, March 1906, 1 ♀; Entebbe, Uganda, 3 ♂♂ and 1 ♀.

In Mus. Brit. from Mlanje Plateau, Nyasaland (Neave), 3 ♀♀; Kampala, Uganda, 1 ♀. In Mus. Berlin from Langenburg, Nyasa.

In Mus. J. J. Joicey, from Shigudara, Imtali, Rhodesia, 1 ♂; Toro, 1 ♀.

(b) *L. orinoptena orinoptena* Karsch (1893) (Pl. 1, figs. 1 ♂, 2 ♀).

♂. *Ludia orinoptena* Karsch, l.c. (Camerun); Strand, *Iris*, xxv. p. 111 (1911).

*Ludia dentata*, Aurivillius (nec Hamps. 1891, err. identif.), *Arkiv Zool.* ii. 4. p. 14. no. 43 (1904)

(Camerun); Schultze, *Arch. Naturg.* lxxx. A. 1. p. 162. no. 24 (1914) (larva, Camerun).

*Ludia orinoptera* (!), Aurivillius, l.c. sub. no. 43 (1904).

♀. The upper vitreous spot of the forewing usually separated from the lower spot, often reduced to a short comma. Ocellus very variable; the orange ring often as narrow as in *L. obscura* and the black correspondingly large, which is particularly frequent in ♀♀ from the Congo.

♂. Hindwing more triangular than in the preceding form, dentate, but not so distinctly elbowed.

Larva described by Schultze (l.c.) as light parrot-green; stigmata black; tubercles grey; head, all legs, and a narrow border around each stigma dark brown. Tubercles with black spines and some long grey hairs. Body covered with soft hair, which is whitish except on first three segments, where it is golden yellow.

Food-plant: larva found on a climbing, aromatic *Labiata* with small flowers, fed up with another aromatic *Labiata* of the genus *Ocimum*.

*Hab.* Adamaua to Angola and Upper Congo.

In Mus. Tring from: Adamaua, 1 ♀; Lolodorf, Camerun, 1 ♂; Camerun, 1 ♀; Yakusu and Bopoto, Upper Congo (Forfeitt and K. Smith), 9 ♀♀.

In Mus. Brit. from: Bihé, Angola, 1 ♂ (coll. Adams).

In Mus. J. J. Joicey from: Bitje, Ja River, Camerun (Bates), 1 ♂ and 2 ♀♀; Mongoma Lobah, Camerun, 1 ♀.

10. *Ludia syngena* spec. nov. (Pl. 1, fig. 3 ♀).

♀. Similar to *L. orinoptena*. Antenna with 31 segments, of which 18 are pectinate, i.e. a larger number than in *L. orinoptena*. Subcostal SC<sup>1</sup> of forewing from stalk of SC<sup>2</sup>, not from SC<sup>1</sup> (text-fig. 52). Lobe of vaginal plate broad, rounded, less projecting than in *L. orinoptena*.

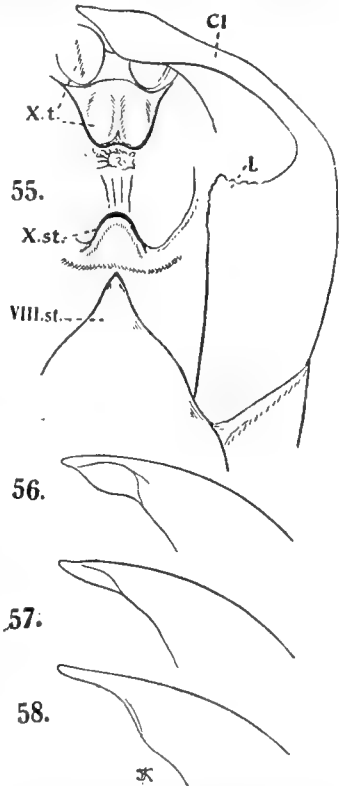
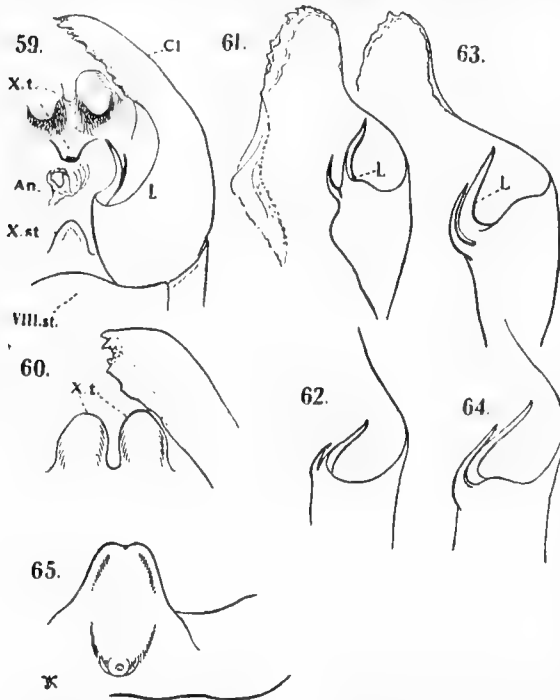


FIG. 55.—*Ludia orin. limbobrunnea* ♂; genitalia, ventral aspect.

FIG. 56-8.—*L. orin. limbobrunnea*, apex of clasper, dorsal aspect; three specimens from Entebbe.

Antemedian line of forewing rectangular upon M and again upon (SM<sup>1</sup>). Upper vitreous spot strongly tapering behind, barely touching second spot; the latter anteriorly projecting further distad than in any other *Ludia* known to us, the projecting lobe longer than its distance from the postdiscal line. Grey border of postdiscal line narrow, ending closer to tornus than in *L. orinoptena*. Termen of both wings non-dentate, anal angle of hindwing projecting.

*Hab.* Bathurst, Gambia; 1 ♀ in Mus. Tring.



- FIG. 59.—*Ludia obscura apora* ♂; genitalia, ventral aspect.  
 FIG. 60.—*L. o. apora* ♂; humps of X.t. and apex of clasper, dorsal aspect.  
 FIG. 61.—*L. o. apora* ♂; clasper from inside.  
 FIG. 62.—*L. o. apora* ♂; ventral processes of clasper, external-lateral aspect.  
 FIG. 63.—*L. o. laeta* ♂; clasper from inside.  
 FIG. 64.—*L. o. laeta* ♂; ventral processes of clasper, external-lateral aspect.  
 FIG. 65.—*L. o. obscura* ♀; genital sclerite.

vitreous spots contiguous, thinner than in *L. delegorguei*-♂, the lower one sometimes partly obliterated; postdiscal line ending close to tornus.—Hindwing triangular, apex less rounded than in *L. delegorguei*-♂, angulate, termen on the whole straighter; diameter of orange ring shorter than distance from termen; postdiscal line converging with termen, ending close to tornus.

On underside both wings with a fairly sharply defined brown terminal band, which is separated from the postdiscal line by a pale band varying from fawn-colour to vinaceous cinnamon.

♀. Antenna with 33 to 38 segments, of which 24 to 27 are bipectinate, 9 to

### 11. *Ludia obscura* Auriv. (1893).

♀. *Ludia obscura* Aurivillius, *Ent. Tidskr.* xiv. p. 201. no. 4 (1893) (Camerun).

♂♀. Orange ring thin, the black pupil therefore large, round, sinuate on outer side, with a thin, curved, vitreous line. Grey border of postdiscal line reduced to form a sharply defined narrow line. Red colour of hindwing often more or less completely suppressed. Clasper of ♂ differing from that of all other species in the ventral lobe bearing two pointed processes (text-figs. 59-64).

♂. Antenna of 30 to 33 segments, only 13 or 14 of which are quadripectinate, 17 to 20 being non-pectinate. Wings dentate-undulate. Antemedian line of forewing rectangular below cell;

11 non-pectinate. Colour and markings as in ♂. In both wings termen undulate, and postdiscal line ending close to tornus.

Genitalia: ♂. Eighth sternite (VIII. st., text-fig. 59) medianly very slightly produced and strongly rounded. Apical process of tenth tergite (X. t.) entire, not sinuate; dorsal humps large. Clasper broad to one-third (text-figs. 59-64), the ventral lobe with two curved, pointed processes, of which the lower one is the longer; apex of clasper broad, dentate.—♀. Median lobe of vaginal sclerite strongly projecting, slightly sinuate or rounded at apex (text-fig. 65).

Neuration: SC<sup>1</sup> of forewing most often branching off exactly opposite SC<sup>4</sup> or close before or close after SC<sup>5</sup>, in some of the large ♂♂ off SC<sup>4</sup> at some distance from point of origin of SC<sup>5</sup>.

Larva of *L. o. obscura*, according to Sjöstedt, greenish white, anteriorly with four dark tufts, a dorsal line, a lateral one, and the underside blackish, legs paler. In some specimens without dark lines the anterior tufts not black.

*Hab.* Camerun to Ivory Coast.

The specimens we have seen apparently represent four subspecies.

(a) *L. obscura obscura* Auriv. (1893).

♀. *Ludia obscura* Aurivillius, l.c. (Camerun); id., *Arkiv Zool.* ii. 4. p. 14. no. 44. text-fig. 20 ♀ (1904) (descr. of larva).

*Ludia orinoptena*, Strand. *Iris*, xxiv. p. 189 (1910) ("*obscura* = *orinoptena*" falso).

*Ludia sopponis* Strand, *Archiv Naturg.* lxxx. A. 1. p. 45 (1914) (Soppo, Camerun).

♂ not known.

♀. Red area of hindwing above almost completely obsolete. Termen of both wings almost entire, being very slightly undulate; grey postdiscal line of forewing (above) not prominent; tornus of forewing oblique, but distinctly angulate. Scales of stridulation-area truncate or sinuate, hardly any pointed.

*Hab.* Camerun and Niger Delta.

In Mus. Tring 1 ♀ from Warri, Niger Delta, April 1897 (Dr. Roth).

Also 1 ♀ in Entom. Mus. Dahlem (type of *sopponis*).

(b) *L. obscura apora* subsp. nov. (Pl. 1, figs. 10 ♂, 17 ♀).

♂♀. Red area of upperside of hindwing vestigial. Postdiscal pale line of forewing sharply defined and prominent.

♂. Postdiscal line of hindwing reaching margin at anal angle. Upper median ventral process of clasper (text-figs. 59, 61) short and well separated from second process.

♀. On underside of forewing the proximal portion of the brown terminal band deeper in tone than the marginal portion, forming a diffuse blackish abbreviated band between postdiscal line and termen. Scales of stridulation-area as in the previous form. Termen of both wings moderately dentate. Tornus of forewing much more oblique than in *L. o. obscura*.

*Hab.* Nigeria.

In Mus. Tring 1 ♂ and 4 ♀♀ labelled "Nigeria," evidently from up the river. Three specimens bear an additional label, stating that they emerged in July, October, and November respectively.

The distinction in the clasper of the ♂ may not be constant.

(c) *L. obscura intermedia* subsp. nov.

♂♀. Red area of hindwing varying from being obsolescent to being nearly as well developed (in some of the ♀♀) as in the next subspecies.

♂. Like *L. o. apora*. Clasper differs in the two median ventral processes being contiguous, as in the following race; red area of upperside much reduced, fairly distinct from base to median band.

♀. Tornus of forewing as oblique as in the previous form; terminal band of underside of forewing likewise as in *L. o. apora*. Scales of stridulation-area as before, but a portion of them pointed.

*Hab.* Lagos.

In Mus. Oxon 3 ♂♂ and 5 ♀♀ from Lagos district, bred by W. A. Lamborn, in June, August, October, and November.

(d) *L. obscura laeta* subsp. nov. (Pl. 1, fig. 18 ♂).

♂♀. Red area of hindwing clearly defined and about as large as in *L. delegorguei*, somewhat shaded with brown posteriorly in cell. Costal margin and veins of forewing on the whole more copiously irrorated with grey than in the previous races.

♂. Very variable in size, some specimens not being larger than the ♂ of *L. o. apora* here figured (Pl. 1, fig. 10). Clasper (text-figs. 63, 64) as in *L. o. intermedia*. Postdiscal line of hindwing posteriorly remaining separate from margin.

♀. Terminal band of forewing below practically of a uniform dark colour. A large proportion of the stridulation scales pointed.

*Hab.* Gold Coast and Ivory Coast.

In Mus. Tring from Wassaw district, 45 miles inland from Sekondi, Gold Coast, 2 ♂♂; Kumasi, Gold Coast, November 1909, 1 ♂, *type*; Dimbokra, Ivory Coast (J. Dyot), 1 ♂.

In Mus. Brit. from Bibianaha, Gold Coast (H. G. F. Spurrell), 5 ♂♂; Aburi, 1 ♀.

In Mus. J. J. Joicey, from Sekondi, Gold Coast, 1 large ♂.

In coll. J. H. Watson, from Ivory Coast, two pairs.

*Vegetia* gen. nov.

*Heniocha*, Geyer (nec Hübner, 1822?), in Hübn., *Exot. Schmett.* iii. tab. 44 (1831) (indescr.).

*Saturnia* (*Henucha*!), Westwood, *Proc. Zool. Soc.* p. 59 (1849) (laps. cal.; indescr.).

*Henucha*, Walker, *List Lep. Ins. B.M.* vi. p. 1331 (1855) (name ex Westwood, *l.c.*; description of genus taken from *Ludia delegorguei*); Kirby, *Cat. Lep. Het.* p. 774 (1892); Roths., *Nov. Zool.* ii. p. 50 (1895); South., *Essai Classif. Lép.* iv. p. 40 (1904); Auriv., *Arkiv Zool.* ii. 4. p. 21 (1904); Strand, *Iris*, xxiv. p. 188 (1910) ("does not belong to the *Ludiinae*" falso); Packard, *Monogr. Bombyc. Moths*, iii. p. 148 (1914).

Westwood quotes "*Phalaena* (*Henucha*) Hübner," but Hübner (as well as Geyer) wrote *Heniocha*. Westwood did not intend to propose a new generic name, but accidentally misspelt a name originally given by Hübner to the Saturnian figured by Cramer (*Pap. Exot.* iii. tab. 250. fig. A) as *Phalaena Attacus apollonia*, and he gives no description of "*Henucha*."

Walker (1855) quotes "*Henucha*, Hübn. *Exot. Schmett.*" and "*Saturnia* (*Henucha*) Westw.," and places in *Henucha* three species: *grimmia*, *delegorguei*,



and *smilax*, the description of the genus evidently being taken from *delegorqueti* (cf. antennae).

Neither Westwood nor Walker knew *grimmia* except from the figure in Hübner III.

"*Henucha*," clearly being an accidental distortion of *Heniocha*, is a synonym of it and cannot be employed as a separate generic term.

♂♀. A generibus *Ludia* et *Holocera* dictis epiphysi protibiali atque torsorum pulvillo oblitteratis distinguenda.

Genotypus : Species identified as *Ludia dewitzi* Maass. (1885).

♂♀. Frons broader than the eye is high transversely. Genal groove large and deep. Mouth-parts vestigial, as in *Ludia*. Antenna in ♂ quadripectinate to four-fifths, shaft of pectinated segments broad; in ♀ bipectinate or simple, two or three proximal segments cylindrical, distal ones slightly compressed (text-fig. 67), the others broad, flattened (text-fig. 68), and each produced on inner and outer sides, either into a broad, obtuse cone which bears cilia and a short seta (sometimes two), or into a short branch about as long as a segment (text-fig. 70). Foretibia without epiphysis in both sexes. Tarsi spined beneath, as in *Ludia*; in ♀ the sole of the fifth foretarsal segment non-scaled, but studded with dispersed S-shaped sensory hairs. Pulvillus without the usual dark apical pad, only the pale basal portion of the pulvillus being preserved as a more or less triangular flap. Paronychium short and broad.

Termen of forewing not incurved, apex not produced as a lobe. Both wings above and below with a vitreous discocellular ring, which is usually open distally.

Body with numerous, white, long-stalked scales, which are broad at the end and truncate or truncate-rotundate, with the dentition indistinct; similar scales on the wings.

Neuration : Forewing as in *Ludia* with 3 subcostals, all beyond cell on a long stalk, SC<sup>1</sup> off SC<sup>4</sup>; discocellular D<sup>2</sup> much shorter than D<sup>3</sup>, whereas in

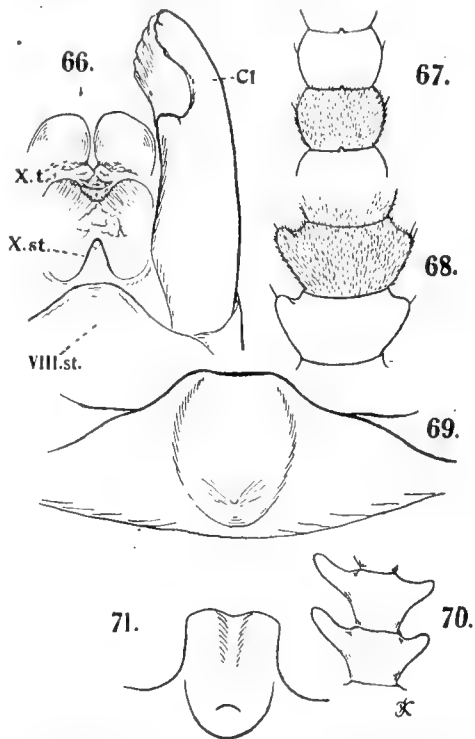


FIG. 66.—*Vcgetia dewitzi* ♂; genitalia, ventral aspect.

FIG. 67.—Segment 23 of antenna of *V. dewitzi* ♀; ventral aspect.

FIG. 68.—Segment 10 of antenna of *V. dewitzi* ♀; ventral aspect.

FIG. 69.—Genital sclerite of *V. dewitzi* ♀; ventral aspect.

FIG. 70.—Pectinate segments of antenna of *V. ducalis* ♀; ventral aspect.

FIG. 71.—Lobe of genital sclerite of *V. ducalis* ♀; ventral aspect.

*Ludia* and *Holocera* these two cross-veins are practically equal in length (*i.e.*  $R^2 =$  vein 5 from middle).

No organ of stridulation in ♀.

Genitalia similar to those of *Ludia*.

Early stages not known.

Geyer as well as Maassen erroneously figures the ♀ with long-pectinated antenna. Packard, who had 2 ♂♂ and a ♀, describes the antenna of the ♂ only. Sonthonnax figures the antenna of the ♀ as pectinated to the tip, but the figure is grotesque. The ♀♀ I have seen have the antennae as described above (text-figs. 67, 68, 70).

Three species from the Cape Province.

### 1. *Vegetia dewitzi* Maass. (1885).

♀. *Ludia dewitzi* Maassen, *Beitr. Schmettl.* figs. 90, 91 ♀ (1885) (Cape, Mus. Berol.).

*Henucha dewitzi*, Kirby, *Cat. Lep. Het.* p. 774. no. 2 (1892) (Cape); Roths., *Nov. Zool.* ii. p. 50 (1895); Sonth., *Essai Classif. Lép.* iv. p. 41. no. 2. tab. 6. fig. 4 ♂, 5 ♀ (1904) (Cape); Pack., *Monogr. Bombyc. Moths.* iii. p. 148 (1914) (Cape).

♂♀. Forewing with three creamy-buff bands, antemedian, postdiscal, and terminal. Hindwing red from base to ocellus (♀) or to terminal area (♂), with two creamy-buff bands, antemedian and terminal, the former almost entirely shaded over with red (♂) or only anteriorly (♀). Vitreous ring in both wings open or closed. Frons pale yellow or creamy, with the sides pink.

In ♂ the thorax streaked and the abdomen ringed with creamy buff. Termen of forewing less convex than in ♀.

Genitalia: ♂. Eighth abdominal sternite (text-fig. 66) with a rotundate-truncate median lobe (which is not quite symmetrical in our only ♂). Tenth tergite with two large pale dorsal swellings; apical process black, short, obtuse, on its upperside before tip a double hump. Tenth sternite triangular. Clasper sinuate ventrally beyond middle, the lobe proximal to the sinus triangular; apical lobe broad, somewhat spatulate when viewed from inner side, with the apex obliquely truncate and irregularly scalloped (text-fig. 66). Penis-funnel short, broad, sinuate ventrally. Penis-sheath slender.—♀. Genital sclerite (text-fig. 69) in centre less than twice as wide (in fronti-anal sense) as at the side of the median lobe. This lobe truncate-sinuate; the cavity extending to near anterior margin of sclerite.

*Hab.* Cape Province.

In Mus. Tring 1 ♂ and 3 ♀♀ from "South Africa."

In Mus. Brit. 1 ♂ from Grahamstown and 1 ♀ from Deelfontein.

In Mus. Berlin 1 ♀ (type of *dewitzi*, without antennae) from the Cape.

### 2. *Vegetia grimmia* Geyer (1831).

*Heniocha grimmia* Geyer, in Hübn., *Samml. Exot. Schmettl.* iii. tab. 44. figs. 3, 4 (1831) (Afr. mer.).

*Saturnia (Henucha) grimmia*, Westwood, *Proc. Zool. Soc. Lond.* p. 59 (1849) ("not seen").

*Henucha grimmia*, Walker, *List Lep. Ins. B.M.* vi. p. 1331. no. 1 (1855) ("not seen"); Kirby, *Cat. Lep. Het.* p. 774. no. 2 (1892); Roths., *Nov. Zool.* ii. p. 50 (1895); Sonth., *Essai Classif. Lép.* iv. p. 42. no. 3. tab. 6. fig. 6 (1904) ("not seen"); Strand, *Iris*, xxiv. p. 188 (1910) ("a bad specimen in Mus. Berol.").

A specimen in the Staudinger collection (Mus. Berlin) from Herrich-Schäffer's collection. It agrees so well with Geyer's figure that one might be inclined to regard it as the specimen from which the figure was drawn.

♀. Larger than *V. dewitzi*. Bands broader, antemedian one consisting of two large half-moons, the postdiscal band of well-separated lunules, and the terminal band, which is yellow in both wings, is much more strongly broken up into spots than in *V. dewitzi*. Vitreous halfring of forewing with a triangular costal enlargement; on hindwing, above, a slight tint of yellow at the basal side of the black ring, and on the underside a diffuse red smear in cell, as in Geyer's figure. Head dark, with a trace of red. Collar white. Antenna with 37 segments, 25 shortly bipectinate, the others non-pectinate. Process of vaginal plate as in the following species, but shorter and broader; much less rounded than in *V. dewitzi*.

*Hab.* "South Africa."

One ♀ in Mus. Berlin.

### 3. *Vegetia ducalis* spec. nov.

♀. *V. grimmiae* similis, minor, areis rubris fere nullis facile distinguenda.

♀. Head like abdomen, blackish mixed with grey. Collar white. Antenna with 35 segments, of which the third to the twenty-fifth are bipectinate, the longest branches being about as long as a segment (text-fig. 70). Antemedian band of forewing broken into two angulate spots, the upper less than half the size of the second; postdiscal band nearly as in *V. grimmia*, but rather narrower; marginal spots of both wings white with a faint tint of yellow, broadly separated, particularly on forewing. Hindwing above and forewing below with just a trace of red, while in the preceding two species the red areas are large and very conspicuous. Median lobe of vaginal plate (text-fig. 71) almost square, about as long as broad, the sides slightly incurved; the apical margin incurved in centre, incurved laterally, with distinct lateral angle.

*Hab.* Cape of Good Hope; 1 ♀ in Mus. Berlin.

### 4. Genus: *Goodia* Holland (1893).—Typus: *nubilata*.

*Saturnia*, Dewitz, *Nova Acta Leop. Carol. Ak. Naturf.* xlii. 2. p. 70 (1881).

*Saturnia* (?), Holland, in Donalds. Smith, *Through Unknown Afr. Countr.* p. 413 (1897).

*Goodia* Holland, *Ent. News*, p. 178 (1893) (type: *G. nubilata*); id., *Ann. Mag. N.H.* (6). xii. p. 25 (1893) (prior to *Orthogonioptilum*); South., *Essai Classif. Lép.* iv. p. 44 (1904) (no descr. of genus); Auriv., *Arkiv Zool.* ii. 4. p. 21 (1904) (type: "*nebulata*," recte *nubilata*; venation; = *Campimoptilum*); Strand, *Iris*, xxiv. p. 188 (1910) (difference from *Orthogonioptilum*); Pack., *Monogr. Bombyc. Moths*, iii. p. 11 (1914) (synon. partim).

*Tagoropsis*, Karsch (nec Felder, 1874), *Berlin. Ent. Zeits.* xxxvii. p. 500 (1893, May).

*Orthogonioptilum* Karsch, *Ent. Nachr.* xxii. p. 247 (1896) (= *Goodia*, error).

*Campimoptilum* Karsch, *l.c.* p. 248 (1896, August) (type: "*kunzei*," recte *kuntzei*); Strand, *Iris*, xxiv. p. 187 (1910) (enumer. of species).

*Lasioptila* Kirby, *Ann. Mag. N.H.* (6). xviii. p. 386 (1896, November) (type: *ansorgei* = *kuntzei*).

In the ♂-antenna the apical branch of a segment is separated by a gap from the basal branch of the segment following; ♀-antenna simple; in both sexes the distal segments with several apical sensory cones (text-fig. 3). SC<sup>1</sup> of forewing with four subcostals, SC<sup>1</sup> nearly always from cell (text-figs. 72-79). Epiphysis of foretibia small or absent in ♀. Long hairs on tubercles of larva plumose. Cremaster of pupa with numerous involute spines.

♂♀. Frons much narrower anteriorly than the eye is high. Genal groove deep. In contradistinction to *Orthogonioptilum* angles of labrum not tuber-

culiform, not elevate. Palpus projecting beyond labrum, with distinct central constriction between segments I. and II., but the joint solid, the segments not movable against each other; no separate third segment. Tongue very variable individually, from being several millimetres long to being reduced to two small tubercles, the two halves contiguous at base or separate.

Antenna of ♂ quadripectinate, in the larger species pectinate just beyond middle (12 or 13 segments pectinate, 10 or 11 non-pectinate); the distal branch of each segment apical, but as the proximal branches are not quite basal and, moreover, curve distad, the apical branch is not contiguous with the basal one

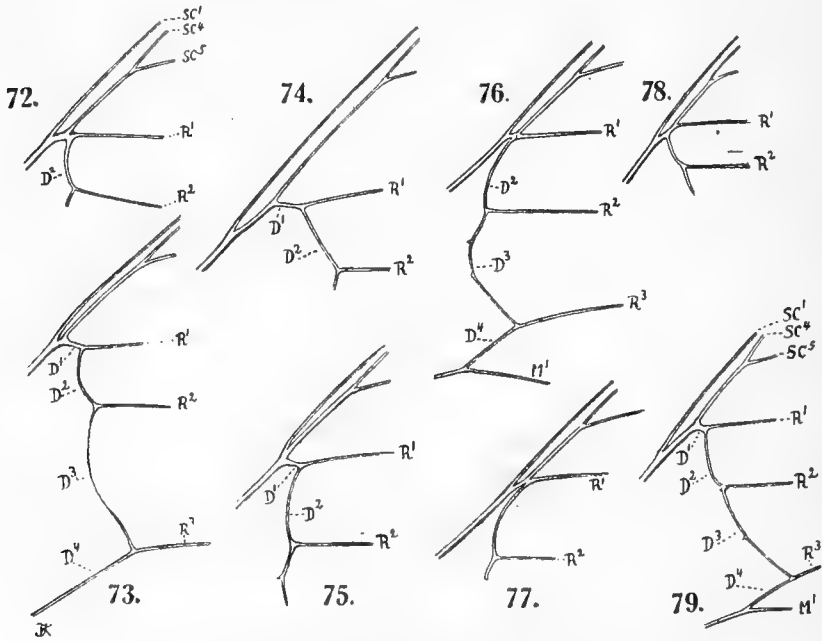


FIG. 72.—*Goodia oxytela* ♂ (Damba); neuroanatomy of forewing.  
 FIG. 73.—*Goodia nubilata* ♂ (Congo ?); neuroanatomy of forewing.  
 FIG. 74.—*Goodia oxytela* ♀ (Yakusu); neuroanatomy of forewing.  
 FIG. 75.—*Goodia hierax* ♀ (Nigeria); neuroanatomy of forewing.  
 FIG. 76.—*Goodia hierax* ♂ (Gold Coast); neuroanatomy of forewing.  
 FIG. 77.—*Goodia hierax* ♂ (Camerun); neuroanatomy of forewing.  
 FIG. 78.—*Goodia kuntzei* ♂ (Camerun); neuroanatomy of forewing.  
 FIG. 79.—*Goodia kuntzei* ♀ (Camerun); neuroanatomy of forewing.

following (or very rarely in one or the other segment); in this *Goodia* differs from all other *Ludiinae*. In ♀ non-pectinate, scaled above, flattened except distal segments; there is usually a slight constriction in or beyond the centre of the segment, with indication of a subbasal and of an apical hump corresponding to the branches of the ♂-antenna, but in some forms the sides evenly rounded. In both sexes the distal segments at the apical margins with multiple sensory cones, somewhat as in true Saturnians. Segments in ♂ much longer than broad except distal ones, in ♀ with one or two short bristles on the subbasal hump (text-figs. 3, 80-83).

Foretibia with large epiphysis in ♂, a small one or none in ♀. Pulvillus

large; paronychium long. Tarsal spines reduced to bristles, except the apical pair of the fourth foretarsal of ♀. One pair of spurs on mid- and hindtibiae. Sole of fifth segment densely scaled, except in foretarsus, where there is each side a non-scaled stripe studded with short sensory hair. Claw serrate.

Scaling soft, the upper scales deeply dentate; fringe long. No organ of

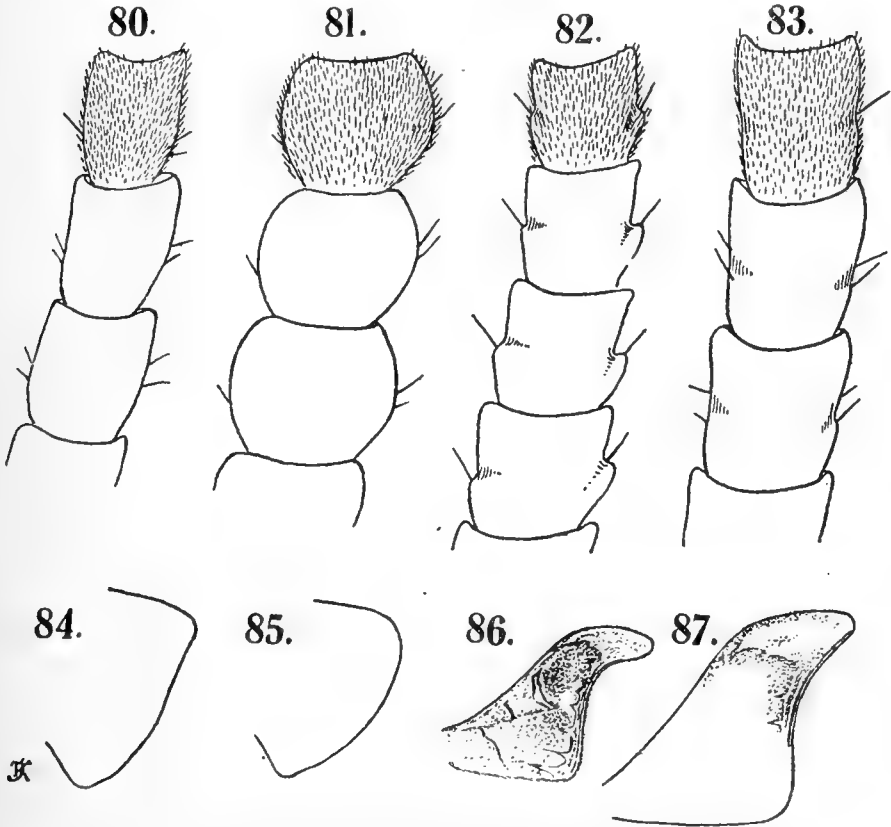


FIG. 80.—Segments 10 and previous of antenna of *Goodia thia* ♀ (Congo).  
 FIG. 81.—Segments 10 and previous of antenna of *Goodia hierax* ♀ (Nigeria).  
 FIG. 82.—Segments 10 and previous of antenna of *Goodia oxytela* ♀ (Damba).  
 FIG. 83.—Segments 10 and previous of antenna of *Goodia oxytela* ♀ (Yakusu).  
 FIG. 84.—*Goodia thia* ♀; hindwing (Luluabourg).  
 FIG. 85.—*Goodia hierax* ♀; hindwing (Nigeria).  
 FIG. 86.—*Goodia hierax* ♂; forewing, type.  
 FIG. 87.—*Goodia lunata* ♂; forewing, type.

stridulation. Forewing below and hindwing above with basal patch of shining modified scales.

Neuration: Forewing with four subcostals, SC<sup>1</sup> usually from cell, rarely a little beyond, SC<sup>4</sup> and SC<sup>5</sup> on a long stalk, SC<sup>3</sup> off SC<sup>4</sup> near apex as in *Holocera*; discocellular D<sup>1</sup> short or absent, D<sup>2</sup> slightly incurved, D<sup>3</sup> very long, medianly more or less obsolescent (text-figs. 72-79).

Genitalia: ♂. Eighth tergite (text-figs. 88, 94, 99, 104, 106) produced, with or without median process; eighth sternite medianly excurved or lobate-acu-

minate. Tenth tergite (X. t.) feebly chitinised, being a weak half-cylinder covering the anal cone, its angles more or less projecting. Tenth sternite (X. st.) with a long triangular median process, sulcate or flattened beneath. Penis-sheath granulate-dentate on outer side in the large species (text-figs. 102, 103), smooth in the small ones. Clasper different according to species.—♀. Genital sclerite (text-figs. 96–98, 100, 105, 108) with a smooth transverse ridge behind the cavity, which is more or less arched, sometimes tuberculiform in centre, not dentate.

Early stages: Larva (of *G. sentosa*), according to Dr. A. Schultze, gregarious when young; with soft white hair; tubercles low, bearing black spines. Cocoon an open network of brown silk covered with bits of leaves, stalks, and soil (*G. kuntzei* in Mus. Brit.). Pupa (of *kuntzei*) without gloss, granulate; cremaster densely studded with spines which are involute at the ends; meso- and metanota without tubercle.

Among C. A. Dollman's drawings in the British Museum there is a picture of the larva of *G. kuntzei*: Yellowish green, head and abdominal legs black, anal claspers ferruginous with large black lateral spot; below spiracles a white stripe from segment V. to XII. edged with black-brown above from base of each segment to near spiracle. From suprspiracular tubercle obliquely forward and downward a paler yellowish-green line, a similarly coloured line above this tubercle. Spiracles black. Tubercles low; hair mostly black, forming two long dorsal tufts on II. and III. and one on XI. From the shed larval skin in the cocoon of *G. kuntzei* I can add the following detail: the long hairs of the larva plumose as in *Ludia*, the spines on the tubercles and the short hairs on the body smooth; tufts of about a dozen long brown plumose hairs on some tubercles, the brown hairs thicker than the white ones. Among this vestiture some curious gourd-hairs, flat in the dried state except the apex, which is filled with amber-coloured matter (poison?), similar granules in the base of the gourd (text-fig. 109).

The species falls into two groups, which one might be inclined to treat as different genera. For the second group the generic term *Campimoptilum* is available. This name was proposed by Karsch (1896, August) for *G. kuntzei*, whereas the nearly allied *G. lunata* and *G. nubilata* were placed by him in *Orthogonioptilum*, of which he erroneously considered *Goodia* to be a synonym.

The name *Campimoptilum*, therefore, was originally due to an error in classification, but it may nevertheless be found useful, if and when the necessity arises of dividing *Goodia* up into several genera. *Lasioptila* Kirby (1896, November) is based on the same species, *kuntzei* = *ansorgei*. There are probably more species in existence than we know at present.

Key to the species:

I. Larger species: In ♂ 7 to 13 distal segments of the antenna non-pectinate; eighth abdominal tergite with long, narrow, somewhat spatulate process; penis-sheath with patch of small granules and teeth. Forewing much more falcate in ♂ than in ♀; in both sexes above with pale patch outside lower cell-angle.

A. No sharply defined terminal line on either wing.

- |  |                    |
|--|--------------------|
| 1. Clasper of ♂ with median hook . . . . .               | <i>G. nubilata</i> |
| 2. Clasper of ♂ with dentate apical hook . . . . .       | <i>G. sentosa</i>  |
| 3. Clasper of ♂ with long, smooth, apical hook . . . . . | <i>G. oxytela</i>  |

B. On both wings, above, a sharply defined chestnut-brown terminal line, separated from fringe by a thin pale line.

4. Forewing ♂ moderately falcate, apex of clasper pointed . *G. lunata*

5. Forewing ♂ strongly falcate, apex of clasper pointed, anal sternite spatulate . . . . . *G. hierax*

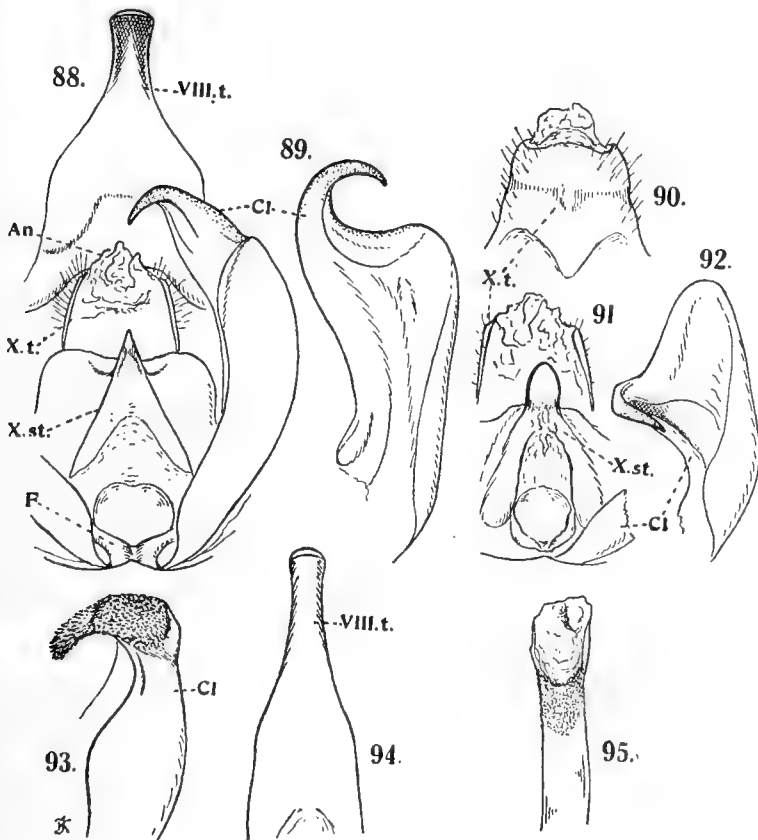


FIG. 88.—*Goodia oxytela* ♂; genitalia, ventral aspect.  
 FIG. 89.—*Goodia oxytela* ♂; clasper, inner side.  
 FIG. 90.—*Goodia nubilata* ♂; tenth tergite, dorsal aspect.  
 FIG. 91.—*Goodia nubilata* ♂; genitalia, ventral aspect.  
 FIG. 92.—*Goodia nubilata* ♂; clasper, inner side.  
 FIG. 93.—*Goodia sentosa* ♂; clasper, ventral aspect.  
 FIG. 94.—*Goodia nubilata* ♂; eighth tergite, ventral aspect.  
 FIG. 95.—*Goodia nubilata* ♂; penis-sheath, ventral aspect,

6. Forewing ♂ strongly falcate, apex of clasper obtuse, anal sternite sharply pointed *G. thia*

II. Smaller species: In ♂ only 5 or 6 distal segments of the antenna non-pectinate; eighth abdominal tergite broadly rounded or with truncate median lobe; penis-sheath smooth. Forewing almost alike in shape in ♂ and ♀, without large pale patch outside lower cell-angle.

7. Forewing 27-35 mm. long; above with a narrow, long, evenly arched,

chocolate-brown, discocellular crescent bearing centrally a long, thin, vitreous line. Clasper with a bundle of apical spines. . . . . *G. kuntzei*

8. Forewing 18 to 28 mm. long, the discocellular mark more blackish brown, less regularly arched, shorter, with a shorter and less distinct vitreous line. Clasper without black spines at apex . . . . . *G. smithi*

There are in this genus two groups of particularly difficult species, the groups represented by *G. nubilata* and *G. lunata* respectively. The fair number of specimens we have seen of what seemed to be *G. nubilata* had nothing in the outward appearance suggestive of the existence of more than one species. The examination of the ♂-genitalia, however, gave a very different result. We find three quite distinct forms of claspers, from which fact we conclude that we are dealing with three distinct (*i.e.* independent) species.

To which of these outwardly similar insects do the names *G. nubilata* Holland (1893), *G. nodulifera* Karsch (1893), and *G. falcata* Auriv. (1893) apply? In cases like this, the descriptions and figures of externals as usually given in picture-book entomology are inadequate. I am most grateful to Dr. Holland and Professor Aurivillius for having examined the genitalia of the types of *nubilata* and *falcata* respectively and given me the information necessary for a correct application of these two names. The third name, *nodulifera*, was based on a single ♀. This specimen we regard as the ♀ of *nubilata*.

We have compared the external genital armature of 11 ♀♀. There is considerable individual variability in the structure of the vaginal sclerite, but we can nevertheless recognise among them three different types corresponding to the three types of ♂-genitalia.

The neuration is individually variable in all three species and does not present any specific differences. As a rule the upper cell-angle of the forewing, *i.e.* the angle formed by cross-vein D<sup>1</sup> with cross-vein D<sup>2</sup>, is about 90°, but sometimes acute, sometimes (especially often in ♀♀) obtuse; occasionally D<sup>1</sup> is reduced to a point. In all specimens SC<sup>1</sup> of the forewing branches off from the cell (text-figs. 72-79) or from close to apex (text-fig. 75).

### 1. *Goodia nubilata* Holland (1893).

♂ ♀. *Goodia nubilata* Holland, *Ent. News*, iv. p. 179. tab. 11. fig. 3 ♂ (1893, early May) (Ogové River, ♀♀ partim); Packard, *Mon. Bombyc. Moths*, iii. p. 12 (1914) (descr. of ♂, ♀ mentioned).

♀. *Tagoropsis nodulifera* Karsch, *Berl. Ent. Zeits.* xxxvii. p. 500. no. 16 (1893) (middle of May) (Buea, Camerun).

♂. *Tagoropsis ? falcata* Aurivillius, *Ent. Tidskr.* xiv. p. 202. no. 7 (1893, end of May) (Camerun). *Goodia* (" *Tagoropsis* ") *nodulifera*, Strand, *Arch. Naturg.* lxxviii. A. 6. p. 145. no. 10 (1912) (Spanish Guinea).

Identified from sketch of genitalia kindly supplied by Dr. J. W. Holland. Professor Aurivillius has examined the tail-end of *falcata*-type; it agrees with that of *nubilata*.

♂♀. Ochreous, much shaded with ochraceous and russet. Occiput and pronotum greyish white. Costal area of forewing shaded with grey from base to postmedian bent; a postdiscal crenulate line brown, accentuated on the veins by blackish brown arrow-heads; a pale buff-yellow patch outside lower cell-angle traversed by vein R<sup>2</sup>, conspicuous; an apical patch of the same colour, irrorated with black. Both wings (if in good condition) with small tufts of pale



scales, which are broad at apex and deeply dentate, but otherwise very slender, such scaling especially abundant in abdominal area of hindwing, above and below.—*Underside* with numerous brownish black speckles; forewing outside cell, hindwing in cell and in apical region pale buff, more or less conspicuously shaded with pink in fresh specimens. Antenna in ♂ with 12 or 13 segments quadripectinate, 8 or 9 non-pectinate. Forewing strongly falcate in ♂. Wings much broader in ♀, apex of forewing acuminate, projecting beyond termen.

Genitalia: ♂. Eighth tergite produced into a long median process which is not unlike a hock-bottle when viewed from beneath; the process is gently curved downwards, convex above and flat beneath, apically rounded and usually distinctly dilated (text-fig. 90). This process takes the place of the anal tergite, which is reduced to a weak half-cylinder forming the dorsal covering of the anus. Tenth sternite an oblong, transverse, slightly incurved sclerite, from the ventral surface of which projects a triangular or spatulate process (text-fig. 91). Clasper irregularly elongate-ovate; ventral and apical margins simple, but from dorsal margin at a considerable distance from apex a long, curved, sharply pointed process projects towards the anus and recurves ventrad to some extent (text-figs. 91, 92). Penis-sheath with patch of pointed granules, the longitudinal diameter of the patch rather shorter than the transverse diameter of the penis-sheath; penis-funnel not independent of anal sternite (X. st.), being fused with it.—♀. Aperture of genital sclerite (text-fig. 96, Camerun) much smaller (in the only specimen examined) than in the next two species, ovate, longer than broad; behind it a smaller cavity bounded on posterior side by a smooth, semicircular ridge, which laterally is connected with an oblique longitudinal ridge extending forward and joining the anterior margin of the vaginal cavity. The proximal margin of the sclerite is medianly raised as a transverse carina. At each side of the post-vaginal semicircle and separated from it by a long and irregular ridge a large hump scaled like the sides of the eighth segment. Area posterior to the semicircle membranous.

*Hab.* Camerun and Ogové River, probably more widely distributed.

In Mus. Tring from Victoria, Camerun (Preuss), 1 ♂; Upper Congo ?, 1 ♂.

In coll. Joicey from Bitje, Ja River, Camerun (G. W. Bates), June and October, 4 ♂♂, 1 ♀.

In coll. Holland a series of both sexes from Camerun and Ogové River.

In Mus. Berlin from Camerun.

## 2. *Goodia sentosa* spec. nov.

♀. *Goodia nubillata* (!), Sonthonnax (nec Holland, 1893, error identif.), *Essai Classif. Lép.* iv. p. 45. no. 3. tab. 26. fig. 4 (1904) (Ogové; Mus. Brit.).

*Goodia nodulifera* var. *nubilata*, Strand, *Arch. Naturg.* lxxviii. A. 6. p. 145. no. 11 (1912) (Spanish Guinea; larva mentioned).

*Goodia nodulifera*, Schultze (nec Karsch, 1893), *ibid.* lxxx. A. 1. p. 161. no. 23 (1914) (Camerun, early stages).

♂♀. Occurs together with the preceding species. Colouring more diffuse, markings less prominent, especially the postdiscal scalloped line, together with its pale border not quite so well expressed as in *G. nubillata*; on underside the pinkish tint usually less conspicuous and more restricted, and the black discocellular dot on the hindwing a little larger.

Genitalia: ♂. Process of eighth tergite broader proximally than in *G. nubilata*, dorsally carinate; eighth sternite medianly more rounded, less acuminate. Clasper very different, bearing a long, somewhat twisted process which projects mesad from the ventral margin at the apex and is densely studded with small teeth (text-fig. 93). Penis-sheath thicker than in *G. nubilata*, the patch of teeth larger, the teeth coarser. Penis-funnel anteriorly higher than in *G. nubilata*.—♀. Aperture (text-fig. 97, Camerun) larger than in *G. nubilata*; its margin raised all round, the small postvaginal groove being separated by this elevate margin from the main cavity; postvaginal arc as in *G. nubilata*, but shorter; sclerite less impressed laterally to cavity.

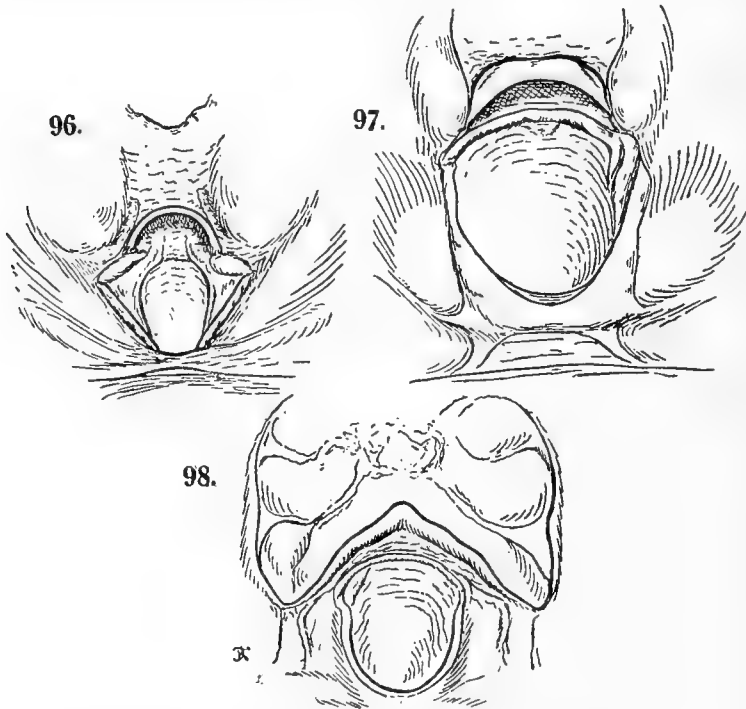


FIG. 96.—*Goodia nubilata* ♀; genital sclerite, ventral aspect.  
 FIG. 97.—*Goodia sentosa* ♀; genital sclerite, ventral aspect.  
 FIG. 98.—*Goodia oxytela* ♀; genital sclerite, ventral aspect.

Early stages: According to Schultze the larva white, with a greenish tint shining through; stigmata bright ochreous; tubercles dull green, with some brown-black spines; head and thoracic legs deep ochreous, abdominal legs and anal claspers dull ochreous; some specimens with large black patches on underside. The whole body covered with long white hair, partly in tufts. Gregarious when young, close together on the underside of a leaf. In May and again in August, probably several broods during the year.—Cocoon rather small, loose, brown, covered with bits of leaves. Imago appears in 4 to 5 weeks in daytime, flies at night.

Food-plant: *Amomum* (*Zingiberaceae*).

Strand says: The larva ( $\sigma$ ), according to Tessmann, densely covered with snow-white hair, on segments II. and III. laterally longer tufts, head brown-red, legs dark.

*Hab.* Camerun; Spanish Guinea; Ogové River.

In Mus. Tring from Spanish Guinea, 1  $\sigma$  (*type*); Alén, Benito, 1  $\varnothing$ ; and Nkolentangan, Spanish Guinea, 1  $\varnothing$ ; all collected by G. Tessmann and received from the Berlin Museum.

In the British Museum a  $\varnothing$  from Ogové River, "cotype" received from Dr. Holland; I consider the specimen to belong here.

In coll. Joicey from Bitje, Ja River, Camerun (G. W. Bates), 1  $\sigma$ , 3  $\varnothing\varnothing$ ; Mungo-ma-Lolah (near Victoria), Camerun (ex coll. Druce), 2  $\sigma\sigma$ , 1  $\varnothing$ .

In Mus. Berlin from Spanish Guinea (Tessmann) and N.W. Camerun (Arnold Schultze).

### 3. *Goodia oxytela* spec. nov.

$\sigma\varnothing$ . In colour and pattern like *G. nubilata*, differing in the genitalia. For neurulation and antenna, cf. text-figs. 74, 82, 83.— $\sigma$ . Process of eighth tergite (text-fig. 88) proximally even broader than in *G. sentosa*, this broad portion shorter and more abrupt than in that species, the apical portion narrower, not carinate above, less widened at apex; eighth sternite acuminate in centre. Process of tenth sternite sharply pointed, narrower than in *G. sentosa*. Clasper armed with a long, pointed hook which projects from the dorsal portion of the apical margin and is curved inward and basad; the ventral portion of the apex is produced as a broad, short, rounded lobe (text-fig. 89). On the inner surface of the clasper a deep channel runs from the base on to the hook parallel with the raised dorsal margin of the clasper. Penis-funnel ventrally about as short as in *G. nubilata*. Penis-sheath as stout as in *G. sentosa*, and the patch of teeth similar, extending on to the dorsal surface.— $\varnothing$ . Aperture of genital sclerite (text-fig. 98, Damba) large, the basal area of the sclerite smooth; the margin of the cavity elevate also posteriorly, bounding the postvaginal groove; the posterior wall of this groove is formed by a more or less triangular ridge or lobe, which is much higher than in both the previous species, and, instead of being continuous with the margin of the cavity, curves backwards at the sides and runs anad as a sharp ridge. From this longitudinal ridge two transverse ridges run on to the postvaginal median area (eighth sternite), which is much larger than in the two preceding species.

*Hab.* Uganda; Upper Congo.

In Mus. Tring 1  $\sigma$  and 1  $\varnothing$  and 2 pupae from Damba Island and Bugalla Island, Victoria Nyanza, bred August and December (Dr. G. D. H. Carpenter), received from Professor E. B. Poulton.

In Mus. Oxon a series from the same places.

A somewhat larger and darker-coloured  $\varnothing$  from Yakusu, Upper Congo (K. Smith), in Mus. Tring also belongs here. In this  $\varnothing$  the lobe behind the genital orifice is longer and its margin thicker than in Carpenter's examples. The antenna has the slight projections barely indicated (text-fig. 83).

The second group of species, exemplified by *G. lunata*, presents us with greater difficulties even than the preceding group, especially because the number

of specimens we have seen is very small, and because there was not a single example among them which agreed in the contour of the forewing either with *G. lunata* or with *fulvescens*. In these circumstances our endeavour to clear up the systematics of the group should be regarded as tentative. We will enumerate the facts which, for the time being, must guide us in forming an opinion :

(1) The specimens we have seen, as well as those of which Dr. Holland has very kindly sent us photographs, are practically identical in pattern, but there are differences in size, wing-contour, genitalia, and ♀-antennae.

(2) In *G. lunata* Holland (1893), of which we have a beautiful photograph, the forewing is moderately falcate (text-fig. 87).

(3) In *G. fulvescens* Sonth. (1898), likewise based on a ♂, the forewing resembles that of *G. lunata*, but the apex is much more broadly rounded off. This difference may be due to Sonthonnax's figure being incorrect, and may be dismissed as non-existing.

(4) The ♂♂ before me and photographs of 2 ♂♂ in Dr. Holland's collection have the forewing strongly falcate (cf. text-fig. 86).

(5) The clasper of *G. lunata* type is evidently the same as in the falcate ♂♂, judging from sketches kindly given me by Dr. Holland ; the other portions of the genitalia of *G. lunata* type have not been examined.

(6) Among the falcate ♂♂ before us is one in which the clasper differs slightly, the other genital organs strongly. It is therefore possible that in the case of *G. lunata* type those non-inspected portions also show differences from the more strongly falcate ♂♂.

(7) We have seen 4 ♀♀, two of them have been closely investigated. One of these two differs in the contour of the hindwing, the shape of the antennal segments, and very slightly in the genital plate.

This is all the evidence before us. It is quite clear that the strongly falcate ♂♂ belong to two species. One of them may be the same as *G. lunata*. Which one ? On the other hand, the subfalcate types of *G. lunata* and *fulvescens* may represent a third species. As the contour of the forewing in these types is undoubtedly different, and as the genitalia have not yet been compared minutely, it is advisable to treat *lunata* as distinct from the falcate species. As regards the two forms of ♀♀, we can only express the hope that we have assigned to them their right positions.

#### 4. *Goodia lunata* Holland (1893).

♂. *Goodia lunata* Holland, *Ent. News*, iv. p. 179. no. 19. tab. 9. fig. 2 ♂ (1893) (Ogové River).

(?) ♂. *Goodia fulvescens* Sonthonnax, *Ann. Labor. Ét. Soie* ix. p. 157. tab. 3. fig. 3 (1899) (Congo in coll. Oberthür) ; id., *Echange*, xvi. p. 30 (1900) ; id., *Essai Classif. Lép.* iv. p. 16. no. 4. tab. 26. fig. 5, ♂ (1904) (Congo).

♂. *Goodia lunata*, Strand, *Iris*, xxiv. p. 188 (1910) (= *fulvescens* ?) ; id., *Arch. Naturg.* lxxviii. A. 6. p. 145. no. 12 (1912) (Spanish Guinea).

(?) ♀. *Goodia lunata*, ab. *obscuripennis* Strand, *Arch. Naturg.* lxxviii. A. 6. p. 145. sub no. 12 (1912) (Alén, Spanish Guinea).

♂. Forewing moderately falcate (text-fig. 87), nearly as in *G. nubilata* ; a straight line connecting extreme point of apex with end of vein R<sup>2</sup> and prolonged backwards crosses hindwing about centre, in the two following species near base ; distance of lower cell-angle from termen, 11 mm. ; transparent discocellular line short, not extending to upper cell-angle, and also obscured behind ; the dull

tawny ochraceous area outside the discocellular bar does not project so far towards termen between  $SC^s$  and  $R^1$  as in the more falcate species. Clasper with short apical hook (the other parts of the genital armature still require to be studied).

Ochraceous, shaded with clay-colour in parts; pronotum grey or purplish grey; anterior edge of mesonotum and underside of body a deep chestnut. Forewing, above, more or less shaded with pale clay-colour from base to discocellular bar and on apical lobe; outside lower cell-angle a brighter ochraceous patch, above this patch a dull tawny-hazel area and below the patch a blackish or purplish brown cloud; antemedian line separated into two parts, which are parallel with one another and not connected, anterior portion in middle of cell, posterior portion much longer, beginning not quite halfway to base at vein M and running very obliquely to near middle of hindmargin; a very thin submarginal line parallel with termen to apical lobe and here curved costad; this line straight between the veins from  $R^1$  to  $SM^2$ , but forming on the veins very sharp arrowheads or angles pointing basad; these lines more or less deep chestnut like the discocellular lunule; close to fringe, but separated from it as well as from submarginal line, a thick uninterrupted line of the same tawny-brown colour as the fringe.—Submarginal and admarginal lines of hindwing as on forewing.

On *underside* the cell of forewing greyish, bearing a blackish patch in middle, a small spot of a similar dark colour near bent of costa.

*Hab.* Ogové River; Congo.

One ♂ in coll. Holland and another from the Congo in coll. Oberthür. I have placed here the ♀ named ab. *obscuripennis* by Strand, but am as doubtful about its position as I am in the case of the other ♀♀ mentioned under the next two species. In this specimen the middle segments of the antenna are very little longer than broad and show very slight indications of teeth. The disc is suffused with black in both wings.

##### 5. *Goodia hierax* spec. nov.

♂. In colour and pattern like the preceding, but forewing much more strongly falcate (text-fig. 86), dull tawny-hazel postmedian area projecting between  $SC^s$  and  $R^1$  to near margin.—Antenna with 12 segments quadripectinate and 10 or 11 simple, the former segments much longer than the latter; apex of penultimate segments ventrally much produced.

Genitalia: Eighth tergite gradually narrowed from the broad base to beyond middle, thence narrow to apex, this narrow process rather less than 1 millimetre long, slightly curved downward, convex above; apex rounded, beneath flat. Eighth sternite with a broad obtuse median lobe which does not project much (text-fig. 99). Tenth sternite very distinctive, the process widened apically, the apex broadly rounded. Clasper acuminate, the tip turned mesad, forming a short hook. Penis-sheath not quite so wide as the apex of the eighth tergite; the patch of teeth extending all round, being distally about parallel with the apical edge of the sheath and extending on ventral side much more cephalad than dorsally (text-fig. 102).

♀. Forewing much less falcate than in ♂, much broader, apex more pointed; markings as in ♂, but pale clayish apical area more sharply defined between

SC<sup>6</sup> and R<sup>1</sup>; on *underside* no black spot in cell and the subapical black dot larger. —Hindwing (text-fig. 85) somewhat longer costally than abdominally; apex rounded; termen convex; anal angle faintly produced. Antenna moniliform, the segments rounded at the sides (text-fig. 81).

Genitalia: Aperture ovate, placed obliquely, the cavity extending into the body towards the left side; this asymmetry noticeable also in *G. nubilata* and allied species (text-fig. 100). Rim of aperture highest behind. From in front of the aperture a fold runs obliquely laterad and joins a postvaginal transverse smooth ridge (or plate), which is slightly narrowed in centre.

For neuration of both sexes, cf. text-figs. 75-77.

*Hab.* Gold Coast; Cameroons; French Congo.

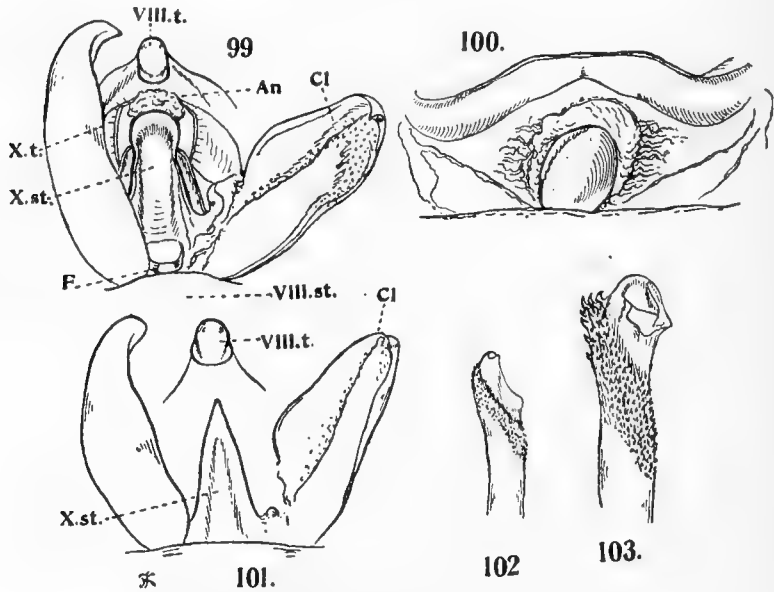


FIG. 99.—*Goodia hierax* ♂; genitalia, ventral aspect.

FIG. 100.—*Goodia hierax* ♀; genital sclerite.

FIG. 101.—*Goodia thia* ♂; genitalia, ventral aspect.

FIG. 102.—*Goodia hierax* ♂; penis-sheath, lateral aspect.

FIG. 103.—*Goodia thia* ♂; penis-sheath, lateral aspect.

In Mus. Tring 1 ♂ from Wassaw district, 45 miles inland from Sekondi, Gold Coast, *type*; Nigeria, 1 ♀.

In Mus. Brit. 1 ♂ from Port Victoria, Camerun (Captain Fitzroy).

In Mus. Berlin from Uelleburg, Spanish Guinea, and Kuilu, French Congo, 2 ♂♂ and 1 ♀.

#### 6. *Goodia thia* spec. nov.

♂. Like the preceding species, *G. hierax*, but differing in the genitalia. Process of eighth tergite stouter, the apex wider and dorsally more convex. Eighth sternite slightly thickened medianly, but not distinctly produced. Tenth sternite elongate-triangular, sharply pointed (text-fig. 101). Clasper less acuminate than

in *G. hierax*, without apical hook. Penis-sheath broader, the patch of teeth larger, the teeth longer, particularly dorsally (text-fig. 103).

♀. The specimen I place here possibly belongs to another species. It is larger than the ♀ mentioned above under *G. hierax*; the segments of the antenna are longer and less rounded (text-fig. 80); the termen of the hind wing is incurved below apex, the apical angle distinctly projecting (text-fig. 84). Vaginal sclerite similar, but the basal fold higher, the rim of the aperture thicker laterally, and the postvaginal transverse ridge higher.

*Hab.* Camerun; Congo.

In Mus. J. J. Joicey 1 ♂ (*type*) from Bitje, Ja River, Camerun (G. W. Bates).

In Mus. Tring 1 ♀ from Luluaburg, Kassai, Congo (R. Landbeck).

### 7. *Goodia kuntzei* Dewitz (1881).

*Saturnia kuntzei* Dewitz, *Nova Acta Leop. Carol. Ak. Naturf.* xlii. 2. p. 70. tab. 2. fig. 14 ♂ (1881) (Guinea).

*Saturnia* (?) *kuntzei* (!), Kirby, *Cat. Lep. Het.* p. 773. no. 18 (1891) (Guinea).

*Orthogonioptilum kuntzei* (!), Rothschild, *Nov. Zool.* ii. p. 49 (1895).

*Campimoptilum kuntzei* (!), Karsch, *Ent. Nachr.* xxii. p. 248 (1896).

♀. *Lasioptila ansorgei* Kirby, *Ann. Mag. N.H.* (6). xviii. p. 386. no. 43. tab. 19. fig. 8 ♀ (1896) (Uganda).

♀. *Lasioptila selene* Kirby, *l.c.* sub no. 44 (1896) (*selene* probably was the name Kirby originally intended to give to this species).

♂♀. *Goodia hollandi* Butler, *Proc. Zool. Soc.* p. 430. no. 188. tab. 33. fig. 1 ♂ (1898) (Voi, ♂; Yaru, ♀)

*Goodia ansorgei*, Butler, *l.c.* sub no. 188 (1898).

*Goodia kuntzei*, Distant, *Ins. Transvaal.*, p. 64. no. 23. tab. 5. fig. 6 ♂ (1903) (Transvaal).

♀. *Campimoptilum ochraceum* Aurivillius, *Tidskr. Ent.* xxii. p. 123. no. 98 (1901) (German E. Africa).

*Goodia hollandi*, Sonthonnax, *Essai Classif. Léop.* iv. p. 44. no. 1. tab. 26. fig. 3 ♂ (1904) (♂♀, Tanganyika).

*Goodia ansorgei*, id., *l.c.* p. 45. no. 2 (1904) (= *kuntzei*).

*Lasioptila ansorgei*, Strand, *Iris*, xxiv. p. 189 (1910) (doubts identity with *kuntzei*).

In colour and pattern similar to *G. lunata*, but differs considerably in the outline of the wings, size, scaling, antennae, etc. The species being fairly common in Central and East Africa, we have seen a good series of specimens, ranging in general coloration from hazel to clayish buff, the ♀♀ as a rule being paler than the ♂♂. This variability in colour accounts for the string of synonyms.

The scaling is very soft, like fur, the upper scales being deeply divided up into long hair-like teeth nearly over the entire upper and under surfaces inclusive of fringe; the long-stalked pale scales which project above the general scaling are less deeply dentate.

♂♀. Apex of forewing usually pointed and distinctly produced, but sometimes rectangular and not produced; the proximal area from base to beyond upper cell-angle and to one-third of hindmargin paler than rest of wing, sometimes contrasting rather strongly with it; this area bounded by a very diffuse, shadowy, darker median band, which is usually blackish brown at hindmargin and extends along the margin to the crenate postdiscal line; discocellular arc thin, regularly curved, bearing a very thin transparent line, which usually extends from near one end of the arc to the other; below apex a blackish brown, more or less triangular, cloud, rarely absent.—On hindwing a postdiscal line as on forewing, but much less crenate, often without dentition, incurved before abdominal margin. In both wings base of fringe ochreous, forming a pale line separating

a dark hazel terminal line from the similarly coloured dark line occupying the apex of the fringe.

Neuration: Lower cell-angle of forewing less than  $90^\circ$ ;  $R^1$  variable in position, sometimes off stalk of subcostals; cf. text-figs. 78, 79, which illustrate the variation in the position of  $SC^1$  and  $R^1$ .

Antenna in ♂ quadripectinate to near apex, the branches slender and, owing to their thinness, irregularly curved (in dry cabinet-specimens), apical branches and the following proximal branches closer together at their bases than in the preceding forms, but soon diverging, their apices usually crossing each other; 15 to 17 segments quadripectinate and 5 or 6 non-pectinate, the latter (except

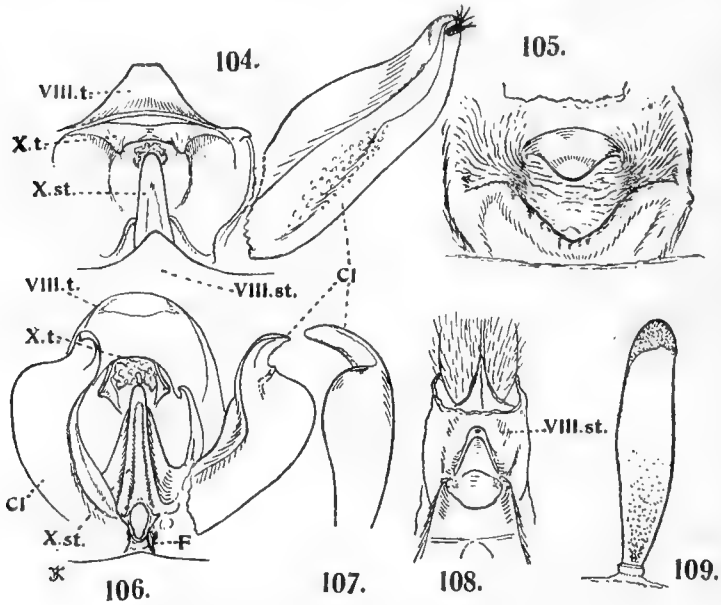


FIG. 104.—*Goodia kuntzei* ♂; genitalia, ventral aspect.

FIG. 105.—*Goodia kuntzei* ♀; genital sclerite.

FIG. 106.—*Goodia smithi* ♂; genitalia, ventral aspect.

FIG. 107.—*Goodia smithi* ♂; clasper, ventral aspect.

FIG. 108.—*Goodia smithi* ♀; genital sclerite.

FIG. 109.—*Goodia kuntzei* ♀; gourd hair of larva.

last one) with their multiple sense-cones ventrally strongly produced distad.—  
In ♀ simple, 19 to 23 segments, proximal two-thirds of them somewhat flattened ventrally and their apical margins oblique; on each side a small hump bearing a few short bristles; length of segments not constant, in some specimens the central ones longer than broad, in others broader than long, with intermediates.

Genitalia: ♂. Eighth tergite (text-fig. 104) gradually narrowed to form either a stumpy median lobe which is truncate or rounded at apex, or (rarely) a longer triangular process of which the tip is rounded off. Eighth sternite medianly widened, angulate, the apex of the angle distinct though obtuse. Tenth tergite with the lateral angles projecting, its upperside concave; tenth sternite produced into a long median process which varies individually, being



sometimes almost spathulate, sometimes more elongate-triangular with the tip rounded off. Clasper very distinctive, elongate, somewhat twisted, with an apical bunch of about 8 black spines (text-fig. 104); a deep channel runs from base of clasper to apex. Penis-sheath without armature, the membranous apical area several times as long as the sheath is wide, being very much longer than in *G. lunata*; penis-funnel also different from that of the previous species, being anteriorly about as long as it is broad and vanishing posteriorly.—♀. The cavity of the genital sclerite (text-fig. 105) is anteriorly bounded by a curved ridge which runs obliquely laterad to join the lateral longitudinal fold; as the sclerite is submembranous in and laterally to the cavity, it is more contracted in some (dry) specimens than in others, the cavity being accordingly sometimes longer than in our figure and the sides of the basal ridge more longitudinal. Behind the cavity a large central tubercle, convex above, concave on the side towards the cavity, variable in size, and appearing almost semilunate when viewed from front.

Early stages: cf. p. 294.

*Hab.* From Angola and Natal north-eastward to British East Africa.

In Mus. Tring a series from: Shilouvane, Transvaal (Dr. Junod); North-east Rhodesia (Dollman); Selukwe, Rhodesia; Nyasaland; Kalambo River, south end of Lake Tanganyika; Mamboia (Dr. Baxter); Masasi, ex-German East Africa.

In Mus. Brit. 1 ♂ from Voi River (type of *hollandi*) and a series of ♀♀ from Stanger, Natal (J. Delvin), Transvaal, Mashonaland, Rhodesia, and Katanga.

Also in Mus. J. J. Joicey and Mus. Berlin.

### 8. *Goodia smithi* Holland (1897).

♂. *Saturnia* (?) *smithi* Holland, in Donaldson Smith, *Through Unkn. Afric. Countries*, p. 413. tab. fig. 13 ♂ (1897) (loc. ?; congeneric with "*S. (?) kunzi*"); Strand, *Iris*, xxiv. p. 188 (1910) (belongs to *Campimoptilum*).

♀. *Goodia hollandi* Butler, *Proc. Zool. Soc. Lond.* p. 430. no. 188 (1898) (partim; ♀, Yaru).

♂♀. *Goodia oriens* Hampson, *Trans. Zool. Soc. Lond.* xix. p. 129. tab. 4. fig. 42 ♂ (1909) (Ruwenzori; ♀ *hollandi* Butl. 1898 this species).

♂. *Goodia decolor* Le Cerf, *Bull. Mus. Hist. Nat.* xvii. p. 308 (1911) (Kiu, Brit. E. Africa).

♀. *Goodia uniformis* Joannis, *Bull. Soc. Ent. Ital.* xlv. p. 139 (1912) (Eritrea).

♂♀. *Goodia oriens heptapora* Fawcett, *Proc. Zool. Soc. Lond.* p. 104. no. 81. tab. 1. fig. 13 ♂ (1915) (Kedai, Brit. E. Africa; lines of forewing too strong in fig.).

The smallest species of the genus, and, like *G. kuntzei*, liable to individual variation in size and colour. Wings more thinly scaled in ♀ than in ♂, with the markings less prominent, and the general colouring duller, a darker or lighter drab-brown, the veins standing out more distinctly than in the ♂.

♂. Varying from drab-brown to pale hazel with a tint of rufous, sometimes the forewing nearly black; hindwing paler than forewing, especially at base; basal half and apex of forewing usually shaded with grey. Markings as in *G. kuntzei*, but the discocellular lunule shorter and less regularly arched, with the vitreous line absent or vestigial; postdiscal crenulate line accentuated on the veins as in *G. kuntzei*, sometimes the line obsolete between the veins. Scaling similar to that of *G. kuntzei*.

Antenna similar to that of *G. kuntzei*-♂, quadripectinate to near apex, 16 to 18 segments pectinate and long, 4 to 6 non-pectinate and short, the branches

slender, crossing one another, apical branch and the following proximal branch not quite contiguous at their bases.

♀. The scales of wings reduced in width, most of the upper scales of the underside deeply divided into two hair-like prongs. Antenna simple, with 21 to 24 segments; middle segments somewhat flattened, longer than broad, more or less constricted centrally, apical margin oblique, vestigial lateral humps with a few short bristles.

Neuration: SC<sup>1</sup> of forewing as a rule from cell near apex, frequently from upper angle, rarely from beyond; in one ♂ from angle in right wing and from beyond in left wing, being coalescent with stalk of subcostal fork (the line of division partially indicated); lower cell-angle usually acute, rarely 90°.

Genitalia: ♂. Eighth tergite (text-fig. 106, VIII. t.) broadly produced, almost concealing the claspers in a view from above, strongly rounded, often the margin irregular, sometimes bituberculate medianly, not narrowed into a median process. Eighth sternite with a rudimentary median lobe, which is often missing. Clasper widest beyond middle, where the ventral margin is strongly rounded-excurved; dorsal margin incurved (text-fig. 106, the claspers, Cl, bent sideways, so as to show their inner surfaces); apex narrowed to form a somewhat variable hook, which in a view from the ventral side (text-fig. 107) is directed mesad. Tenth tergite (X. t) deeply sinuate, feebly chitinised, the angles projecting. Tenth sternite (X. st.) with a long median process, somewhat variable in contour, with a central ventral channel. Penis-sheath very slender, without armature; penis-funnel (F) anteriorly eleviate, the rim fading away posteriorly.—♀. On the frontal side of the cavity the genital sclerite, in the specimen from which our figure is taken (Kibwezi), smooth, transversely convex, somewhat tubuliform; in other examples this area is more or less concave (collapsed?) and the anterior margin of the central cavity is raised as a transverse ridge. Behind the cavity a median tubercle, hollow on frontal side and considerably raised above the level of the membranous postvaginal sternite (VIII. st.), variable in width.

Early stages not known.

*Hab.* Eastern half of the continental Aethiopian Region: from Eritrea, Harar, and the White Nile south- and westward to the Ruwenzori and British East Africa, probably also occurring further south.

Both sexes come to the light.

In Mus. Tring from: Harar (G. Kristensen), 1 ♂; White Nile, lat. 12° 11' (Captain Yardley), 6 ♂♂; S.E. Ruwenzori, 3,500 ft., June 1906 (Legge and Wollaston), 4 ♂♂; Entebbe, Uganda (F. J. Jackson), 2 ♂♂; Kedai, November 1914, and Kibwezi, British East Africa, January, April, November, December (W. Feather), a series of both sexes.

In Mus. Brit. from: S.E. Ruwenzori as above, 4 ♂♂, 1 ♀; Yaru and Kedai, British East Africa, 1 ♂ (type of *heptapora*), 1 ♀; British Somaliland, 1 ♂; Mongalla Province, S. Soudan.

In Mus. Oxon a series from the Nuba Mts., Sudan (10° 39' lat. N.) (R. S. Wilson).

6. Genus : *Orthogoniopitulum* Karsch (1893).

- Orthogoniopitulum* Karsch, *Berl. Ent. Zeits.* xxxvii. p. 501 (1893, May) (type not specified.—We select *adiegetum* as genotype); Holland, *Ann. Mag. N.H.* (6). xii. p. 251 (1893) (= *Goodia*, errore); Karsch, *Ent. Nachr.* xxii. p. 247 (1896) (= *Goodia*, errore; neuration of *O. prox*); Auriv., *Arkiv Zool.* ii. 4. p. 21 (1904) (different from *Goodia*, if Karsch's descr. of neuration correct), Strand, *Iris*, xxiv. p. 187 (1910) (distinctions from *Goodia*, enumerat. of species; his remark, p. 187, on position of *Orthogoniopitulum* erroneous, Strand having misunderstood Aurivillius).
- Guillemeia* Sonthonnax, *Ann. Lab. Et. Soie Lyon*, ix. p. 158 (1899) (type not specified.—We select *tristis* as type); id., *Échange*, xvi. p. 30 (1900); id., *Essai Classif. Lép.* iv. p. 47 (1904); Strand, *Iris*, xxiv. p. 188 (1910).
- Goodia*, Weymer (nec Holland 1893, err. in classific.), *Iris*, xxii. p. 14 (1909).
- Ludia*, id., *l.c.*
- Carnegia*, Strand (nec Holland 1896, err. in classific.), *Iris*, xxiv. p. 185 (1910).

Near *Goodia*, but in the ♂-antenna the apical branches of a segment contiguous with the proximal branches of the segment following, not separated by a gap at their bases as in *Goodia*, the branches regular in arrangement; in ♀ the antenna quadri- or bipectinate, not simple as in *Goodia*; first subcostal of forewing always beyond cell; epiphysis of foretibia large in both sexes, but smaller in ♀ than in ♂; labrum and angle of clipeus raised on each side as a prominent tubercle; anal angle of hindwing of ♀ projecting inward; etc.

The sexes are much more different than in any other genus of *Ludiinae*, which renders it sometimes exceedingly difficult to ascertain which ♂♂ and ♀♀ belong together. Strand, who described a new species of "*Carnegia*" from a ♀ of *Orthogoniopitulum*, and Weymer, who described one ♀ as a new *Holocera*, another as a new *Ludia*, and a ♂ of the former as a new *Goodia*, were not aware of this troublesome fact. Unfortunately, the difficulties one encounters in this genus do not end there. In several instances the ♂♂ are almost identical in markings, while they are very distinct in the genital armature, the descriptions and figures of the ordinary type being of little help for identification unless accompanied by a sketch of the sexual armature. Moreover, the vitreous marks of the ♀, on which Strand and Weymer lay great stress, are proved by the series of ♀♀ of *O. incana* before me to be variable in that species, and therefore may possibly also be unreliable in the other species, as I think they are. Furthermore, we are greatly puzzled by the absence in some specimens of the tuft of modified scales usually present on the underside of the forewing near tornus in the ♀, and homologous to the stridulation-scales of *Ludia* and *Holocera*. Is the presence of this feminine adornment of plumes (or organ of attraction) always of specific value, or is it sometimes merely an individual distinction? The genital armature varies in detail to a considerable extent in *O. incana*, the species of which alone we have a series of ♀♀ before us, only the general arrangement of the armature being the same in the various specimens.

In the case of other species no more than one or two examples of the ♀ are available, each with its own peculiarities, which renders it difficult or even impossible at our present state of knowledge to decide which features of a specimen are characteristic of the species.

Dr. Holland has been so kind as to assist us with sketches of the genitalia of the types of *O. vestigiata* ♂ and *O. kahli* ♂, and I have examined at the Berlin Museum the types of *O. adiegetum* ♂, *O. prox* ♂, *O. monochromum* ♂, and *O.*

*geniculipennis* ♀, and in coll. Richelmann the types of *O. servatia* ♀, *O. pancratia* ♀, and *O. septiguttata* ♂.

♂♀. Epipharynx distinct, excurved or nearly straight. Labrum on a plane with clipeus or inclining, separated by a suture which usually is indistinct; laterally the labrum and the angle of the clipeus raised together into a prominent tubercle, which is not the case in any other genus of *Ludiinae* except *Carnegia*. Between this tubercle and the eye the deep genal groove. Genal process impressed along eye and scaled. Tongue longer than palpus, usually several times as long, particularly in ♂, not functioning as a sucking tube. Palpus short, not projecting beyond margin of frons (= clipeus), non-segmented, with constriction in middle indicating joint between first and second segments; no third segment, but at apex a small groove. Frons narrower anteriorly than the eye is high.

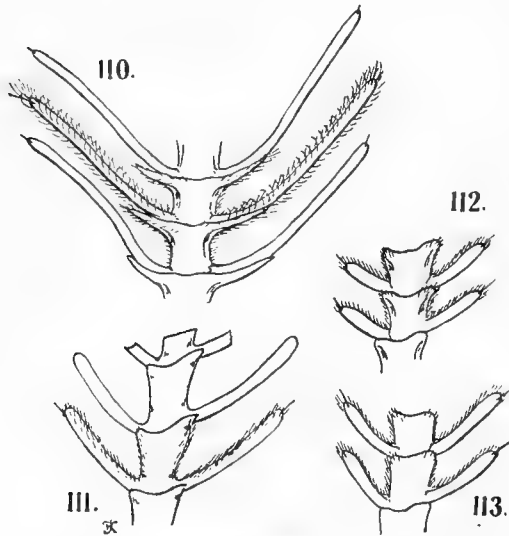


FIG. 110.—*Orthogoniopitulum dollmani* ♀; segments 8 and 9 of antenna.

FIG. 111.—*Orthogoniopitulum vestigiata* ♀; segments 8 and 9 of antenna.

FIG. 112.—*Orthogoniopitulum incana* ♀; segments 8 and 9 of antenna.

FIG. 113.—*Orthogoniopitulum incana* ♀; segments 8 and 9 of antenna.

Antenna in ♂ quadripectinate to two-thirds or beyond, 16 to 18 segments pectinate and 16 to 11 without branches, apical branch contiguous with basal branch following. In ♀ bipectinate to segments 17 to 21, the apical branches also present in the larger species, but not in *O. incana*; 13 to 9 segments non-pectinate. In both sexes the distal segments short, strongly compressed; the apical ventral angle of these segments projecting, bearing several sensory cones as in *Goodia*; one or the other segment with only a single cone. In ♀ the branches with three or four short stiff setae at apex and one or two before apex (text-figs. 110–113).

Epiphysis of foretibia large in ♂, reduced in ♀, but remaining long, being much larger than in any *Goodia*-♀♀. Spurs of mid- and hindtibia short, as in the allied genera. Tarsi with the spines reduced to short bristles, except the pair of apical spines of the fourth foretarsal of ♀. Sole of fifth segment scaled in all tarsi, in foretarsus of ♀ with a non-scaled lateral stripe studded with sensory hairs, which, however, do not form a dense mass. Lobe of paronychium long; pulvillus large. Claw serrate.

Neuration: Forewing with four subcostals, all beyond cell,  $SC^1$  off stalk of  $SC^{2+3}$ ,  $SC^4$  off  $SC^1$ . Discocellular  $D^1$  about as long as  $D^2$ , which stands at right angles (or nearly) to  $D^1$  and is straight or slightly incurved;  $D^2$  much longer and strongly incurved (text-fig. 154). For neuration hindwing, cf. text-figs. 114–117.

No organ of stridulation in ♀, but in most ♀♀ on underside of forewing near

tornus behind (SM<sup>2</sup>) a patch or spot of semi-erect scales which are larger than and different in colour and shape from the surrounding scales. On forewing beneath and on hindwing above a basal patch of shining modified scales.

Sexes different in wing-contour. In ♂ forewing falcate, termen evenly incurved, posteriorly straight, tornus about rectangular in the larger species, obtuse and more or less strongly rounded in *O. incana*; anal angle of hindwing not produced inward. In ♀ apex of forewing more pointed, termen excurved; hindwing costally longer than in ♂, apex angulate or even lobate at SC<sup>2</sup> (= vein 7), anal angle produced inward, forming a more or less prominent lobe. Scaling

in outer half of wings smoothes and much harder than in *Goodia*, the teeth of the scales much shorter and broader.

Genitalia: ♂. Eighth tergite medianly produced into a strongly chitinised process which is acuminate in centre and either simple or armed with spiniform teeth; this tergite projects far beyond tergites IX. + X. Eighth sternite simple, not projecting in centre as a lobe. Tenth segment peculiar; the homology of the various sclerites which have a dorsal position, and to which I shall refer as being portions of the tenth tergite, is by no means quite clear to me and requires further investigation; the dorso-lateral process probably is morphologically the enlarged upper end of the tenth sternite, but is functionally part of the tergite, a most interesting point well worth investigating. Tenth sternite without an infra-anal median process, being a low ridge

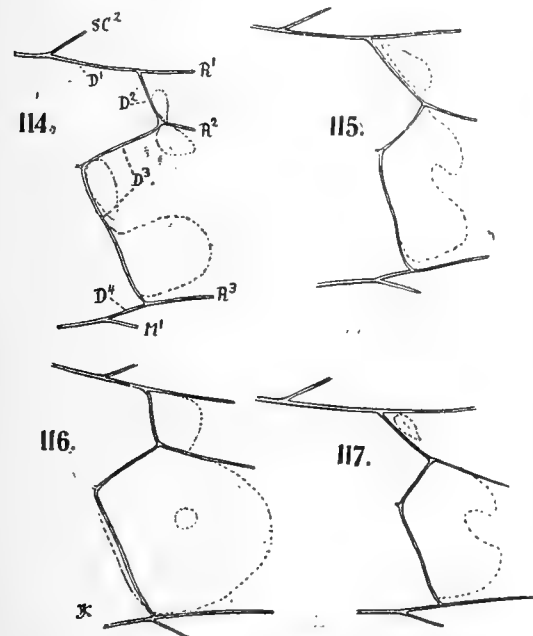


FIG. 114.—*Orthogonioptilum adustum* ♀; neuration of hindwing.

FIG. 115.—*Orthogonioptilum chalis* ♀; neuration of hindwing.

FIG. 116.—*Orthogonioptilum kahli* ♀; neuration of hindwing.

FIG. 117.—*Orthogonioptilum vestigiata* ♀; neuration of hindwing.

which is obsolescent in middle and laterally runs upwards to join the dorsal sclerite, with which it is firmly connected. Clasper compact, strongly armed, different according to species. Penis-sheath stout, without armature.—♀. Genital sclerite large, posterior edge a more or less denticulate transverse ridge which is centrally sinuate; this sharp and rough ridge very different from the smooth, anteriorly concave, postvaginal ridge of *Goodia*; aperture large, subapical, central, or basal. Hair-scales around base of anal segment yellow, ochraceous, or tawny.

Early stages not known. Schultze mentions a bluish emerald-green larva as possibly belonging to *Carnegia mirabilis* (cf. this species, p. 326);

found on *Avona senegalensis*. It may have been the larva of a species of *Orthogonioptilum*.

In all species of *Orthogonioptilum* the antemedian line of the forewing, which is widely interrupted in *Goodia*, is continuous, less oblique than in *Goodia*, and widened at costa into a patch or large spot; the line often indistinct in ♂. Collar (with the exception of *O. incana*) slightly paler than mesonotum in ♂, not in ♀.

Key to the species :

I. Antenna in ♂ quadripectinate to two-thirds, in ♀ quadripectinate with the apical branches short. On underside of forewing a pale, oblique stripe \* from costa near apex straight to vein R<sup>3</sup>, accompanied by a blackish stripe either on the distal side only or also on the proximal side; tarsi ringed with creamy buff or grey.

A. Males (this sex not known of *O. adustum* and *O. chalis*).

(a) Greyish drab (more or less pale).

1. Apical portion of eighth tergite dentate and much broader than long; harpe of clasper broad, dentate at dorsal and apical margins. With some ochraceous spots on underside . . . . . *O. adiegetum*

2. Eighth tergite as before; harpe elongate-triangular, not dentate. Without ochraceous spots . . . . . *O. dollmani* (Pl. 2, fig. 1)

3. Eighth tergite not dentate, truncate, with small rounded median lobe  
*O. vestigiata*

4. Eighth tergite long, with long spiniform median projection and a lateral tooth . . . . . *O. deletum* (Pl. 2, fig. 9)

(b) Warm brown (cinnamon to russet) or sepia-colour.

5. Antemedian line broader on both wings than in all the following species. Fawn, inclining to vinaceous. (Eighth tergite not examined) . . . . *O. kahli*

6. Antemedian line thin. Warm brown. Apical process of eighth tergite dentate, with the sides rounded and the apex acuminate, recalling a poplar leaf, numerous bristles on convex dorsal portion . . . . . *O. prox* (Pl. 2, fig. 8)

7. Sepia brown; antemedian and postdiscal lines indistinct on account of the dark general colour. Eighth tergite as before, apical tooth rather longer  
*O. monochromum*

8. Warm brown. Posterior vitreous spot on forewing large, irregularly reniform. Eighth tergite proximally to apical dentate portion with a large median tubercle . . . . . ? *O. brunneum* (Pl. 2, fig. 6)

B. Females (this sex not known of *O. deletum* and *O. monochromum*).

(a) Forewing below with a spot of modified scales near tornus in front of SM<sup>2</sup>.

1. Median cavity of genital sclerite subapical. Fore- and hindwing beneath with conspicuous ochraceous spots in some of the niches of the postmedian line . . . . . *O. adiegetum* (Pl. 2, fig. 3)

2. Genital sclerite as before. No ochraceous spots on underside  
*O. dollmani* (Pl. 2, fig. 2)

3. Genital sclerite nearly as before. Antemedian and postdiscal lines, above, more or less indistinct (apart from costal patches of forewing)

*O. adustum* (Pl. 2, figs. 14, 15)

\* This stripe indistinct in *O. chalis*, which we know only from one imperfect specimen.

4. Cavity of genital sclerite in or before middle, apical margin of sclerite not sinuate; oblique apical line on underside of forewing greyish

*O. kahli* (Pl. 2, fig. 16)

5. Genital sclerite as before, but apical margin sinuate in centre, lateral edge of cavity with tooth or tubercle. Oblique apical line on underside of forewing obsolescent . . . . .

*O. chalis* (Pl. 2, fig. 5)

6. Genital sclerite as before, but apical margin rather strongly dentate; wall of cavity subcylindrical. Oblique apical line of forewing below conspicuous, cinnamon . . . . .

*O. brunneum* (Pl. 2, fig. 13)

(b) No spot of modified scales on underside of forewing.

7. General colour cinnamon. Apical branches of pectinated antennal segments very distinct. In front of cavity of genital sclerite a conspicuous transverse ridge raised each side into a tooth or tubercle . . . . .

*O. prox* (Pl. 2, fig. 12).

8. Much shaded with whitish grey. Apical branches of pectinated antennal segments quite short. No conspicuous transverse ridge in front of vaginal cavity

*O. vestigiata* (Pl. 2, fig. 4)

II. Antenna in ♂ quadripectinate to four-fifths (of total length), in ♀ bipectinate; tarsi ringed with ochre yellow . . . . .

*O. incana* (Pl. 2, figs. 7, 10, 11)

1. *Orthogoniopitulum adiegetum* Karsch (1893) (Pl. 2, fig. 3 ♀).

♂. *Orthogoniopitulum adiegetum* Karsch, *Berl. Ent. Zeits.* xxxvii. 1892. p. 501. no. 17. tab. 20. fig. 1 ♂ (1893, May) (Buea, Camerun).

*Orthogoniopitulum odiegetum* (!), Rothschild, *Nov. Zool.* ii. p. 41 (1895).

♂. *Guillemeia tristis* Sonthonnax, *Ann. Labor. Ét. Soie*, ix. p. 153 (1899) (Camerun, coll. Oberthür); id., *Échange*, xvi. p. 31 (1900); id., *Essai Classif. Lép.* iv. p. 47. no. 1. tab. 26. fig. 1 ♂ (1904).

Dark markings more prominent than in the other species of this genus. Antemedian line strongly zigzag, taken as a whole evenly curved in ♂, while in ♀ it is much more distal between M<sup>1</sup> and M<sup>2</sup>, forming here a double tooth. A shadowy dark band obliquely across median area, having the appearance of being a continuation of the antemedian line of the hindwing.

In ♂ three or four minute vitreous dots on forewing, in ♀ three larger and one or two small spots. From apex of forewing a pale line runs to R<sup>2</sup> or R<sup>3</sup>, bordered with blackish brown on inner and outer sides, but more heavily on the terminal (= outer) side; the proximal dark border of this line continued backwards as a line or band, and the outer border of the apical line replaced further back by dark triangles which in the ♂ are separated from each other and vestigial, and in the ♀ form a dentate band. The niches of the postdiscal line on its basal side are partly filled in with ochraceous on the undersurface of both wings, these spots more numerous and more conspicuous in ♀.

In the ♀ in coll. Joicey (Pl. 2, fig. 3) the termen of the forewing is strongly convex, the apical lobe narrow and long; termen of hindwing sinuate below apical angle, which projects very distinctly. Antenna with 23 segments pectinate and 13 non-pectinate, the apical branches of segments 6 to 12 about as long as a segment. In both wings M<sup>1</sup> stalked with R<sup>2</sup>, the stalk shorter in fore- than in hindwing (in ♂ M<sup>1</sup> from before cell-angle). *Upperside* of body and wings chestnut, densely shaded with purplish ceru-drab, with the exception of the submarginal band, an ill-defined curved patch on forewing surrounding the vitreous dots on the proximal and costal sides, and the streak which runs parallel

with costal margin of forewing to abdominal margin of hindwing, these markings mummy-brown and, like the terminal fringes, not shaded with ecru-drab.—*Underside* of body and wings brighter chocolate than above; ochraceous spots very prominent on both wings. The spot of modified scales on forewing elongate-

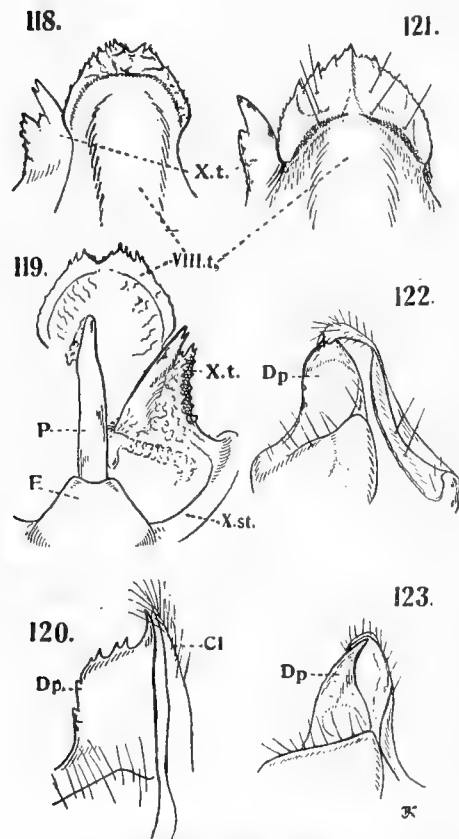


FIG. 118.—*Orthogonioptilum adiegetum* ♂; eighth tergite, dorsal aspect.

FIG. 119.—*Orthogonioptilum adiegetum* ♂; genitalia, ventral aspect.

FIG. 120.—*Orthogonioptilum adiegetum* ♂; clasper, inner side.

FIG. 121.—*Orthogonioptilum dollmani* ♂; eighth tergite, dorsal aspect.

FIG. 122.—*Orthogonioptilum dollmani* ♂; clasper, inner side.

FIG. 123.—*Orthogonioptilum dollmani* ♂; clasper, inner side, view vertical on apical lobes.

In Mus. J. J. Joicey 1 ♀ from Bitje, Ja River, Camerun, 2,000 ft., dry season (G. L. Bates).

In Mus. Berlin 1 ♂ from Buea, Camerun.

In coll. Charles Oberthür 1 ♂ from Camerun.

elliptical, dull ochraceous, its outer third blackish chocolate; the scales curved in S-shape, pointed, similar to text-fig. 148, *a* and *b*.

Genitalia: ♂. Eighth tergite (VIII. t., text-fig. 118) ending with a broad rounded process, which is dentate at the edges and acuminate, bearing in the paratype an asymmetrical apical sinus which is absent from the type. At each side of this process, but beneath it, the armature of the tenth tergite is visible. In a ventral aspect (text-fig. 119) the two large, very strongly chitinised, setiferous, bifid, supra-anal processes X. t. are found to be separated by a small median sclerite and connected laterally with the tenth sternite (X. st.) without a suture. The penis-sheath (P) slender; penis-funnel (F) broader proximally than long, its apex truncate-sinuate. The dorsal half (Dp) of the clasper (text-fig. 120) very broad, strongly dentate, ending with a long, curved tooth.

♀. Surface of genital sclerite convex in centre, this elevated part bearing the aperture, which is sub-apical; rim of aperture gradually lower distally and disappearing at the edge of the sclerite; this edge slightly denticulate, with a small median sinus.

Early stages not known.

*Hab.* Camerun; Spanish Guinea.

In Mus. Tring 1 ♂ from Nkolentangan, Spanish Guinea (G. Tessmann), received from the Berlin Museum.



2. *Orthogonioptilum dollmani* spec. nov. (Pl. 2, fig. 1 ♂, 2 ♀).

Probably a geographical form of *O. adiegetum*. Vein  $M^1$  in both wings from cell in ♂ and from angle in ♀.

Both sexes above broccoli-brown shaded with grey, the lines prominent, the antemedian one heavier in ♀ than in ♂, costal spots conspicuous, markings in terminal area of both wings weaker than in *O. adiegetum*, in ♂ scarcely a trace of such markings on hindwing; the vitreous spots of forewing bounded on costal and proximal sides by a shadowy curved band of a dull tawny-olive tint, the oblique stripe situated between the antemedian and postdiscal lines below the lower cell-angle of the same colour, being less prominent and paler than in *O. adiegetum*. Costal margin of hindwing slightly pink. Termen of forewing of ♀ much less convex than in the preceding species, hindwing also less excurved below sinus; in ♂ anal angle more rounded than in ♂ *adiegetum*.—On underside the body, forewing except terminal area, and base of hindwing washed with pinkish chocolate, rest a cinnamonaceous isabella colour. At costal bent of forewing outside postdiscal line a diffuse pale cloud; oblique pale apical line accompanied by a prominent black line on terminal side. In ♀ the space between discocellulars of forewing and postdiscal line, a spot below  $M^2$  at inner side of this line, and on hindwing such spot or clouds below costa, outside discocellulars, and below  $M^2$  dull raw umber colour, not ochraceous, and not much brighter than terminal area, in ♂ these spots practically absent.

Vitreous spots and antenna (text-fig. 110) as in *adiegetum*, the ♂ bearing three small vitreous dots on both wings.

Genitalia: ♂. Eighth tergite broader than in *O. adiegetum* (text-fig. 121). Supra-anal process X. t. narrower, less dentate. Penis-sheath much broader; penis-funnel apically not sinuate. Dorsal lobe of clasper (text-figs. 122, 123, Dp) elongate-triangular, acuminate, the apex curved ventrad and concealed in the clasper in a view vertical on the inner surface of the clasper (text-fig. 122).—♀. Genital sclerite (text-fig. 134) agreeing closely with that of *O. adiegetum*.

*Hab.* Rhodesia.

In Mus. Brit. one pair from Solwezi, N.W. Rhodesia, August 1917 (H. C. Dollman).

3. *Orthogonioptilum adustum* spec. nov. (Pl. 2, figs. 14 ♀, 15 ♀).

♀. Markings as in ♀ *O. adiegetum*, but much less prominent. Antenna with 20 segments pectinate and 10 non-pectinate, longest branches as long as four segments. Vitreous spots essentially as in *O. adiegetum* (cf. figs. on Pl. 2), remaining more or less completely separate; in hindwing the anterior spot directly above the second, while in the species following hereafter the upper spot has a more proximal position. This difference is due to a difference in neurination: in *O. adustum* ♀ the cross-vein  $D^2$  is short and but slightly oblique, and  $D^3$  is broken at a right angle (text-fig. 114). Subtornal spot of modified scales present on underside of forewing.

Genital sclerite (text-fig. 136) similar to that of *O. adiegetum*, but the convex median area longer, the anterior edge of the cavity higher, continued apicad as a sharp ridge which ends in the submedian tooth of the apical edge of the sclerite. Seen from the side the median portion of the sclerite has the appearance of an obliquely truncate cone.

The two specimens we place here differ considerably in colour. The example in the Tring Museum (type, Pl. 2, fig. 15) is tawny russet (faded ?), much shaded with ecru-drab; on the underside the niches of the postdiscal line, especially outside the vitreous spots, a somewhat brighter ferruginous tint, lighter than the spot of modified scales. This spot small, the outer scales olivaceous black, forming a rather well-defined halfring (as portion of the postdiscal crenate line). The modified scales broader than in *O. adiegetum*, the apex shorter and in many scales divided up into long, narrow teeth. In both wings  $M^1$  from cell near angle.

The ♀ in coll. Joicey is blackish olive shaded with ecru-drab; on underside the pale apical line of forewing very prominent; spots outside the vitreous marks dull ochraceous, vestigial on hindwing, three on forewing of which the posterior one is the most conspicuous. Patch of modified scales elliptical, about  $2.5 \times 4$  mm., cinnamomeous, edged with black all round, a few scattered black scales in outer half of spot; the great majority of the modified scales divided into a number of slender apical teeth. Above the patch a small pale ochraceous spot bounded on distal side by a black lunule (portion of postdiscal line). Genital sclerite as in the Tring specimen, except that the apical edge bears about halfway to the sides a small tooth which is barely indicated in the Tring example.  $M^1$  of both wings from cell-angle.

*Hab.* Congo.

In Mus. Tring 1 ♀ (type) from Coquilhatville, Congo, at light on board the *President Urban*, 8 to 9 p.m., October 16, 1905 (Wailbroeck), received in exchange from the Royal Museum, Brussels.

In coll. Joicey 1 ♀ from Ituri River, halfway between Avakubi and Penghe, Belgian Congo, May 1920 (T. A. Barnes).

#### 4. *Orthogonioptilum deletum* spec. nov. (Pl. 2, fig. 9 ♂).

♂. In colour similar to *O. vestigiata*, but more olivaceous isabella colour, markings less distinct, except the two costal spots of the forewing belonging to the antemedian and postdiscal lines. Forewing not quite so strongly falcate as in *O. vestigiata*; from antemedian costal spot backwards an ecru cloud, similar shading in submarginal region; pale and dark oblique apical streaks vestigial; two transparent dots and rudiment of a third; niches of postdiscal line not differently coloured from rest of disc, or faintly russet.—Hindwing with three vitreous dots, of which only the posterior one is distinct in the specimen figured.

On underside the forewing shaded with dark ecru-drab from base to or beyond apex of cell and to tornus; apical oblique pale and dark streak visible but not prominent; subapical costal triangular area pale wood brown or fawn; hindwing except the darker termen the same tone, paler at abdominal margin.

Antenna with 17 or 18 segments quadripectinate and 11 or 12 non-pectinate.

Genitalia: Process of eighth tergite (VIII. t., text-fig. 127) much narrower than in *O. vestigiata* and *O. prox*, ending with a long spiniform tooth; middle convex, lateral margin elevate, smooth, ending with a short tooth. Tenth tergite (X. t., text-fig. 131) represented by two strongly chitinised sclerites which are separated from one another by a wide median gap; each sclerite longer than broad, roughly oblong, with the apex sinuate, the inner apical angle prolonged

as a spiniform process and the outer angle and outer edge obtusely dentate. Penis-funnel (F) a large, transversely wrinkled, dorsally open half-cylinder which is somewhat angulate in middle. Clasper (Cl) divided by an apical slit into two lobes, both strongly chitinised, the ventral one the longer and narrower of the two, concealing the broader and shorter dorsal lobe in a view from the ventral side (if the claspers are closed), its apex black and rounded. The dorsal lobe pointed at apex, its inner surface concave (Dp, text-figs. 128, 129).

Length of forewing: 30 and 34 mm.

*Hab.* Bibianaha, 70 miles N.W. of Dimkwa, Gold Coast, 700 ft., October and November 1910 (H. G. F. Spurrell); 3 ♂♂ in Mus. Brit.

5. *Orthogonioptilum prox* Karsch (1893)  
(Pl. 2, figs. 8 ♂, 12 ♀).

♂. *Orthogonioptilum prox* Karsch, *Berl. Ent. Zeits.* xxxvii. p. 502 footnote (1893, May) (Malimba).

♀. *Carnegie geniculipennis* Strand, *Iris*, xxiv. p. 185 (1910) (N.W. Camerun).

Prevalent tone of colour a warm brown.

♂. Varying from mummy-brown to dull hazel, the niches of the post-discal line brightest, middle of forewing above with darker shadowy band or cloud, which widens costad and narrows behind, underside of hindwing sometimes clayish ochraceous. In contour of wings and markings similar to *O. vestigiata*, the termen of forewing a little less incurved, and the oblique apical streak less distinct above and below. Both wings with one to three small vitreous dots. Antenna with 17 segments quadripectinate and 12 to 15 non-pectinate.

Genitalia: Eighth tergite (text-fig. 124) with a broad process which is rounded-dilated before the apex, the apex itself pointed, the sides of the dilated portion irregularly denticulate and the dorsal surface centrally studded with bristles; this leaf-like apical portion is continued proximad by a very long convex strip of chitin, with parallel sides and extending to the base of the segment, the sides of the segment being membranous. Clasper, in ventral aspect narrow and apically curved inwards, but when detached or bent sideways and examined from the inner side, the two portions which are present in all species of *Orthogonioptilum* become visible; text-fig. 125 represents the clasper as seen when

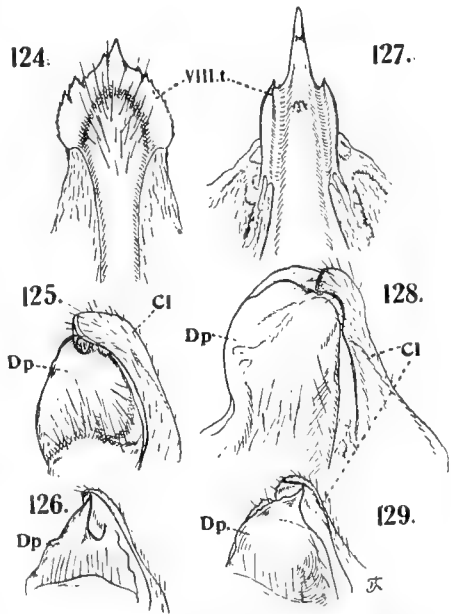


FIG. 124.—*Orthogonioptilum prox* ♂; eighth tergite, dorsal aspect.  
FIG. 125.—*Orthogonioptilum prox* ♂; clasper, inner side.  
FIG. 126.—*Orthogonioptilum prox* ♂; clasper, inner side, view vertical on apical lobes.  
FIG. 127.—*Orthogonioptilum deletum* ♂; eighth tergite, dorsal aspect.  
FIG. 128.—*Orthogonioptilum deletum* ♂; clasper, inner side.  
FIG. 129.—*Orthogonioptilum deletum* ♂; clasper, inner side, view vertical on apical lobes.

viewed vertically to the centre of the inner surface: the main distinction from *O. deletum* is in the shape of the dorsal lobe (Dp); this lobe is smaller than in *O. deletum* and ends with a much longer pointed process, of which the ventral edge recurves apicad, while in *O. deletum* this edge continues basad; compare text-figs. 126 and 129, which represent views vertical to the apical lobes. Penis-funnel (F) much smaller than in *O. deletum*. The tenth tergite (text-fig. 130) with a small central hump (the true X. t. ?), and on each side, firmly attached to the tenth sternite, a pyramidal process, very strongly chitinised, black, similar to the process of *O. deletum*, but with the lateral dilatation barely indicated. These processes can be examined from the upperside in both species when the scaling of the eighth tergite is moistened and brushed sideways.

♀. The ♀ described by Strand as *geniculipennis* and the one figured Pl. 2, fig. 12, probably belong here. No spot of modified scales on underside of forewing. Apical branches of pectinated segments of antenna rather short, all shorter than the segments are long, longest proximal branches as long as only three segments.

General colouring cinnamon (Ridgway, *Nomencl. Colours*, iii, 20), proximal and distal areas above somewhat shaded with grey, median area of forewing rather deeper in tone, tawny-olive; antemedian line and postdiscal one of forewing commencing with a large dark brown costal spot bounded by greyish white scaling. Forewing with a large vitreous ring open in front, and above it three small spots, of which the second and third are separated by the cross-vein only; M<sup>1</sup> from cell.

Apical edge of genital sclerite (text-fig. 137) deeply sinuate in centre, the sinus flanked on each side by a large triangular tooth. Aperture proximal; in front of the cavity in which the aperture is situated a prominent transverse ridge ending each side with a large tubercle.

Early stages not known.

*Hab.* Gold Coast, Nigeria, Camerun.

In Mus. Tring 3 ♂♂ from the Gold Coast: Abossi (Dr. J. J. Wilson), and Kumasi at light (Dr. Sander).

In Mus. Brit. 4 ♂♂ from Bibianaha, 70 miles N.W. of Dimkwa, Gold Coast, 700 ft., November 1910 (H. G. F. Spurrell), and one ♀ from Old Calabar.

In Mus. Berlin a ♂ and 2 ♀♀ from Camerun.

## 6. *Orthogonioptilum monochromum* Karsch (1893).

♂. *Orthogonioptilum monochromum* Karsch, *Berl. Ent. Zeits.* xxxvii, p. 502, no. 18, tab. 20, fig. 3 ♂ (1893, May) (Buea, Camerun).

♂. Probably a deep and uniformly coloured specimen of *O. prox*, similar in outward appearance to *O. deletum*. Genitalia similar to those of *O. prox*; tip of eighth tergite armed with a spiniform tooth which is slightly longer than in the eight specimens of *prox* I have examined; upperside of the dentate median process of this tergite setiferous, as in *O. prox*. The figure given by Karsch, *l.c.*, is too olivaceous; the type (unique) is of a warmer brown, with a very slight olive tone. The markings are all very weak on account of the deep ground-colour.

*Hab.* Camerun.

One ♂ in Mus. Berlin.

7. *Orthogonioptilum brunneum* spec. nov. (Pl. 2, fig. 13 ♀).

♀. In colouring and wing-contour very similar to *O. prox*-♀. Body and wings olivaceous russet, a deeper and warmer brown than in *prox*-♀. Forewing on the outer side of the postdiscal line at costa and posteriorly shaded with grey, likewise the median area and admarginal region of the hindwing, ante-median line of forewing bordered with grey. Forewing with a vitreous ring bearing a brown dot, in front of the ring three vitreous spots; hindwing with an irregular vitreous halfring and above it a dot.—On *underside*, which is tawny olive (Ridgway, *Nomencl. of Colours*, iii. no. 17), an oblique streak of this colour from costal margin close to apex straight to R<sup>1</sup>, bounded on distal side by a broad stripe and on basal side by a less conspicuous one, both blackish ;

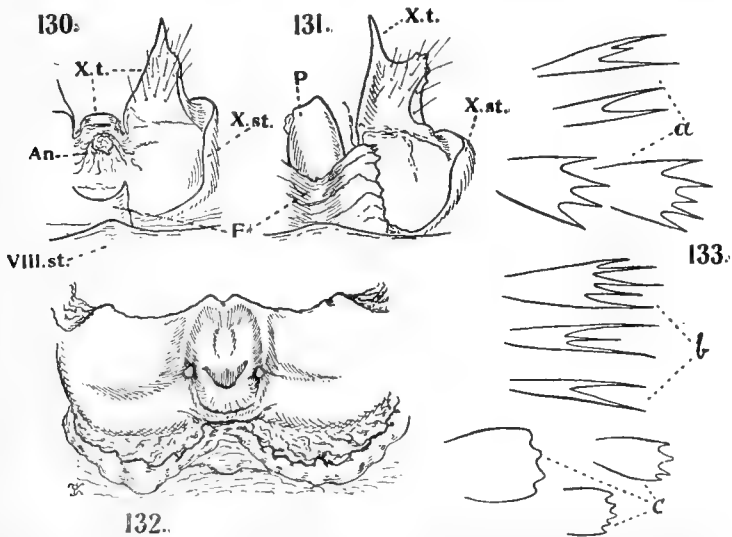


FIG. 130.—*Orthogonioptilum prox* ♂; genitalia, ventral aspect, claspers removed.  
 FIG. 131.—*Orthogonioptilum deletum* ♂; genitalia, ventral aspect, claspers removed.  
 FIG. 132.—*Orthogonioptilum chaliz* ♀; genital sclerite.  
 FIG. 133.—(a) Four white scales from apical area of forewing above of *O. chaliz* ♀;  
 (b) Three white scales from fringe of forewing above of *O. chaliz* ♀;  
 (c) Three white scales from apical area of forewing above of *O. brunneum* ♀.

before tornus a small spot of modified scales, these scales moderately curved in S-shape, nearly all sharply pointed, most of them dark hazel, a few blackish, the spot ill-defined. No conspicuous bright spots in the niches of the postdiscal line, the niches outside the transparent spots only slightly brighter than the outer half of the wing. Postdiscal line of hindwing commencing with a rather large transverse spot. White scales at apex of forewing, above, with short teeth (text-fig. 133, c).

Antenna with 19 segments pectinate and 14 non-pectinate, the apical branches of the pectinated segments very distinct, those of segments 6 to 12 as long as or rather longer than a segment, longer than in *prox*-♀; longest proximal branches nearly as long as four segments. Angle formed in forewing by cross-veins D<sup>1</sup> and D<sup>2</sup> less than 90°.

Genital armature: The edge of the genital sclerite sharply dentate (text-fig. 135); aperture round, wall of cavity subcylindrical, lying much above the level of the sides of the sclerite, somewhat uneven; edge of aperture fading away and into the two median teeth of the apical margin.

♂. The ♂ figured Pl. 2, fig. 6 may belong here. It differs from *O. prox*-♂ in the larger vitreous spots (cf. figs.) and in the eighth abdominal tergite bearing a large truncate tubercle in middle a short distance from the dilated apical portion of the process. The genitalia agree otherwise so well with those of *O. prox* that I am inclined to regard the tubercle, which is not quite symmetrical in shape, as a malformation, possibly due to a local disturbance in the chrysalis. The specimen came with 4 ♂♂ of *O. prox*, which it resembles in colour.

*Hab.* Gold Coast.

In Mus. Brit. 1 ♀ from Takwa, Gold Coast (type); and a ♂ doubtfully belonging here from Bibianaha, Gold Coast, 700 ft., October 1911 (H. G. F. Spurrell).

### 8. *Orthogonioptilum kahli* Holland (1921).

♂. *Goodia kahli* Holland, *Proc. Ent. Soc. Washingt.* xxiii. p. 99 (1921) (Efulen, Camerun).

♂. *Goodia (Orthogonioptilum) kahli* id., *l.c.* tab. 7 (1921).

♂. According to the figure and description published and a photograph kindly supplied by the author, the specimen is similar to *O. prox*, but has the transverse lines more pronounced, particularly the antemedian line; this line broader also on hindwing than in *O. prox*.

♀. A ♀ in coll. Joicey, represented Pl. 2, fig. 16, probably belongs here. In colour and pattern, apart from the very different vitreous spots, it looks like a small edition of *O. adiegetum*. Sepia colour, shaded with grey in parts, a large grey cloud on forewing below costa outside the postdiscal line rather sharply defined, triangular, accentuated at costal margin by a nearly white spot; anterior half of terminal area of forewing as dark sepia as centre of wing.

Vitreous marks enlarged: on forewing second and third separated from each other and from the fourth by a vein only, fourth large, triangular, enclosing a scaled dot, proximal side of spot somewhat rounded, the lower angle slightly produced, a small vitreous spot in the cell-angle being confluent with the large spot. In hindwing the three posterior spots merged together to form a large irregular ring enclosing a scaled dot, above the ring and separated from it only by the vein is placed the upper spot, which is traversed near its basal margin by the second cross-vein.

On *underside* the black postdiscal line very prominent on the nearly uniform sepia ground; pale oblique apical streak of forewing without distinct black proximal border; a slight tint of ochraceous between vitreous spots and postdiscal line on forewing, barely indicated on hindwing. Spot of modified scales ochraceous, traversed near its outer margin by a black lunule (postdiscal line); the scales broad, inclining distad, slightly bent in S-shape, narrowed apically, but apex divided up into a number of teeth.

Antenna with 18 segments pectinate (tip broken off); the branches rather stouter than usual, the apical branches quite short, though distinct (nearly as in text-fig. 111). Cross-veins D<sup>1</sup> and D<sup>2</sup> of hindwing short (text-fig. 116), D<sup>1</sup>

rectangularly elbowed,  $M^1$  from just beyond cell-angle. In forewing the angle formed by  $D^2$  and  $D^3$  much larger than  $90^\circ$ .

Genital armature: Vaginal sclerite smooth, glossy, apical edge not very sharp, neither sinuate nor dentate; frontal margin of aperture raised as a transverse smooth ridge, which is deeply sinuate in middle and slants down laterally; base of sclerite marginate, the elevate margin low in middle, but more raised laterally (text-fig. 138).

*Hab.* Camerun.

Two ♂♂ in coll. Holland from Efulen, Camerun, May and October.

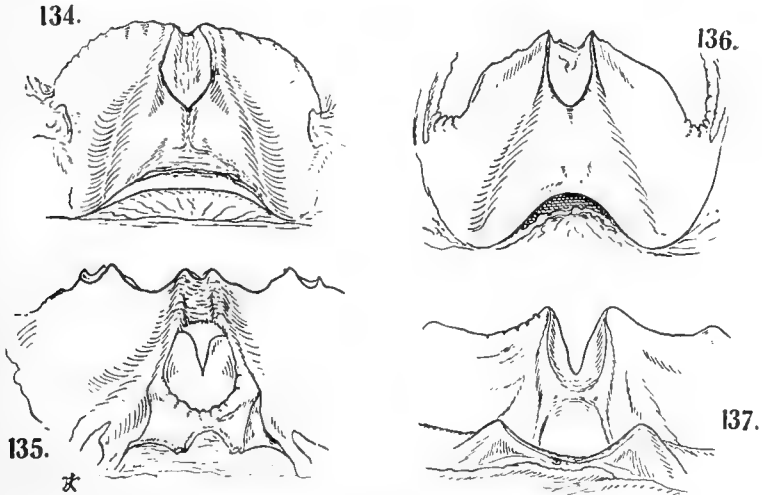


FIG. 134.—*Orthogonioptilum dollmani* ♀; genital sclerite.  
 FIG. 135.—*Orthogonioptilum brunneum* ♀; genital sclerite.  
 FIG. 136.—*Orthogonioptilum adustum* ♀; genital sclerite.  
 FIG. 137.—*Orthogonioptilum prox* ♀; genital sclerite.

One ♀ in coll. J. J. Joicey from Bitje, Ja River, Camerun, 2,000 ft., October—November 1913, wet season (G. L. Bates).

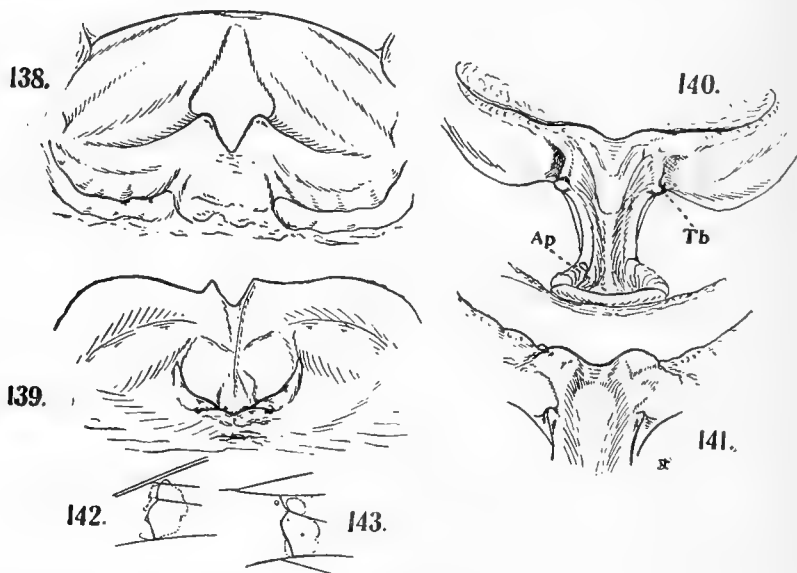
9. *Orthogonioptilum chalice* spec. nov. (Pl. 2, fig. 5 ♀).

♀. Only one imperfect specimen known to me. Not unlike the ♀ of *O. incana*, but the remnant which is left of the antennae proves the species to have the apical branches of the pectinated segments quite distinct. Upperside dull hazel, underside vinaceous-cinnamon, the colouring probably not constant. Forewing slightly shaded with grey above, both lines present, but not prominent, no oblique apical line, but instead a shadowy, undulate, submarginal band from costa towards tornus, termen clayish outside this band; three vitreous marks, second divided by the cross-vein  $D^2$ , third a halfring open on the distal side, widened behind, entering lower cell-angle.—Hindwing with two vitreous spots, the upper one small, second large, sinuate on outer side; apical angle of wing prominent; postdiscal line distinct, but rather weak.

On underside the transparent spots as above, except that on the right forewing

the large spot is a complete ring enclosing an elongate scaled spot. Transverse lines not prominent, their costal spot diffuse, on forewing some slight grey shading along the line, particularly near costa. Spot of modified scales present, blackish brown to the naked eye, but in reality dark hazel, darker proximally than distally, the scales densely packed. The base and apex of a scale curved distad and the central portion erect, but the S-shape not so strongly pronounced as in text-fig. 148, *a* and *b* (*O. dollmani*), apex acuminate and dentate (text-fig. 148 *e*, a scale flattened).

The scales of the upper layer in both wings with longer teeth than in the previous forms. For comparison we figure the white scales placed near apex



- FIG. 138.—*Orthogonioptilum kahli* ♀; genital sclerite.  
 FIG. 139.—*Orthogonioptilum vestigiata* ♀; genital sclerite.  
 FIG. 140.—*Orthogonioptilum incana* ♀; genital sclerite.  
 FIG. 141.—*Orthogonioptilum incana* ♀; genital sclerite.  
 FIG. 142.—*Orthogonioptilum incana* ♀; vitreous spots of forewing of type of "*servatia* Weym."  
 FIG. 143.—*Orthogonioptilum incana* ♀; vitreous spots of hindwing of type of "*servatia* Weym."

of forewing above (and in addition some scales of the terminal fringe) of the present species (text-fig. 133) and the corresponding white scales of *O. prox*-♀. In both wings  $M^1$  from cell near angle;  $D^1$  of hindwing as long as  $D^2$ , angle of  $D^2$  very obtuse (text-fig. 115); in forewing the angle formed by  $D^2$  with  $D^3$  acute.

Genital armature: Apical edge of vaginal sclerite (text-fig. 132) slightly sinuate in centre, feebly denticulate, in front of cavity at each side a conical hump. Basal margin incurved centrally, excurved and upturned laterally, a curved, obtusely denticulate, rough basal ridge being formed each side.

*Hab.* Dar Runga and Dar Kouti, Shari-Tchad Protectorate, Ironstone Plateau, 2,000 ft., 22° E., 10° N. (Karl Kumm), 1 ♀ in Mus. Brit.



10. *Orthogoniopitulum vestigiata* Holland (1893) (Pl. 2, fig. 4 ♀).

♂. *Goodia vestigiata* Holland, *Ent. News*, iv. p. 180. no. 20. tab. 9. fig. 1 ♂ (1893) (Ogové River Strand, *Iris*, xxiv. p. 188 (1910) ("very probably an *Orthogoniopitulum*").

♀. *Ludia servatia* Weymer, *Iris*, xxii. p. 14. no. 9 (1909) (Bipindi, Camerun; in coll. Richelmann).

♂. Upperside of body and wings wood brown shaded with ceru-drab, which gives the insect a decided grey appearance. Collar paler than mesonotum. The niches of the postdiscal line of the forewing, a patch in which the transparent dots are placed on both wings, and the two or three niches outside these dots on hindwing creamy buff on upperside and darker buff below.—On *underside* the costal edge of forewing for the greater part ferruginous; abdominal area of forewing and base of hindwing slightly tinged with pink; terminal fringe of hindwing dull ferruginous or tawny. Antenna with 17 segments quadripectinate and 14 or 15 non-pectinate.

**Genitalia:**  
Eighth tergite with a broad, truncate, non-dentate process, which bears a median lobe slightly variable in length and shape (text-fig. 144), the upper surface of the sclerite medianly convex. Above the anus (An, text-fig. 145) the anal tergite represented by two short, obtuse, stout, heavily chitinised sclerites, which are separated from each other by a narrow and deep incision and are firmly joined to the sub-circular low ridge which is homologous to the tenth sternite (X. st.). Clasper (Cl) broad, apically divided by a deep slit into a hairy ventral lobe (Cl) and a strongly chitinised, black, glossy, acuminate dorsal process (Dp); on the inner surface of the clasper there is a broad sclerite, which is studded with bristles proximally and terminates with a curved, somewhat spatulate process (H, text-fig. 146, view vertical on centre of inner surface; text-fig. 147, view from innerside vertical on surface of apical lobes).

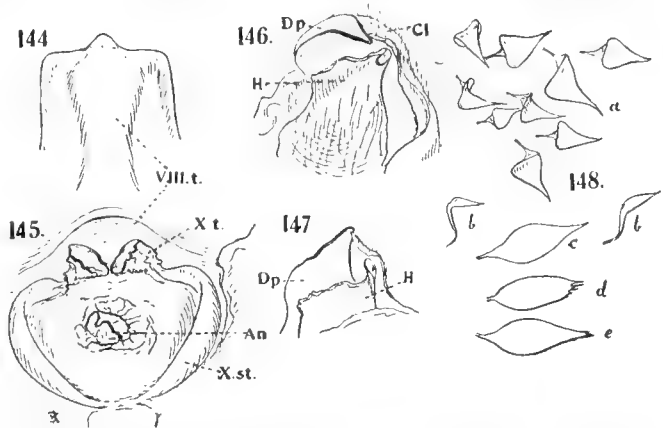


FIG. 144.—*Orthogoniopitulum vestigiata* ♂; eighth tergite, dorsal aspect.

FIG. 145.—*Orthogoniopitulum vestigiata* ♂; genital, ventral aspect, claspers removed.

FIG. 146.—*Orthogoniopitulum vestigiata* ♂; clasper, view vertical on centre.

FIG. 147.—*Orthogoniopitulum vestigiata* ♂; clasper, view vertical on apical lobe.

FIG. 148.—(a) Scales of plume-spot (*in situ*) of *O. dollmani* ♀; view vertical on plane of wing.

(b) Two such scales in lateral aspect (*in situ*) of *O. dollmani*.

(c) A scale pressed flat.

(d) A corresponding scale from plume-spot of *O. incana* ♀.

(e) A corresponding scale from plume-spot of *O. chalis* ♀.

♀. We think the ♀ described as *servatia* by Weymer is the ♀ of *O. vestigiata*: General colouring ceru-drab to whitish grey. Apical branches of pectinated

segments of antenna quite short, nearly as in *O. incana*-♀. On *underside* of forewing no spot of modified scales, and pale subapical line whitish. Vitreous spots large, forming one large patch in forewing; cf. sketches (text-figs. 142, 143) taken from type of *servatia*. The specimen is much worn.

A ♀ in coll. Joicey, in rather better state of preservation, probably also belongs here (Pl. 2, fig. 4). *Upperside* fawn colour, *i.e.* a warm brown shaded with ecru-drab; centre of forewing dull walnut-brown, antemedian line indistinct (worn), placed in a faint ecru-drab band; postdiscal line thin and weak; no distinct oblique apical streak; terminal area slightly brownish below apical lobe, with feeble traces of brown submarginal blotches farther back. A large vitreous ring, enclosing a scaled spot, in front of the ring three vitreous spots (cf. Pl. 2, fig. 4).—On hindwing the postdiscal line more distal than in all the other large species (with sub-quadruplicate antenna in ♀), being in centre only a little nearer to the large vitreous spot than to the terminal margin; the niches of this line very slightly brighter brown, as is also the case on the forewing. Two vitreous spots, the posterior one large, sinuate on distal side, the other small, obliquely above it. D<sup>2</sup> strongly oblique, angle of D<sup>1</sup> very obtuse (text-fig. 117); in forewing the angle formed by D<sup>2</sup> with D<sup>3</sup> somewhat less than 90°.

*Underside* drab (Ridgway, *Nomencl. of Colours*, iii. 18), shaded with fawn colour along the postdiscal line. On forewing a clayish oblique apical streak from costal margin to R<sup>3</sup>, with a faint dark border on distal side, terminal area bounded by this streak and the postdiscal line dull vandyke brown (Ridgway, *l.c.* iii. 5); postdiscal line faint, slightly more prominent on hindwing, the costal spot with which the line commences diffuse and obsolescent on both wings; the niches of the line tinted with ochraceous on forewing outside the large vitreous ring only, with a trace of the same colour in the two cellules above it, on hindwing a row of five diffuse but distinct ochraceous spots from R<sup>1</sup> to SM<sup>2</sup> and a trace of a spot before R<sup>1</sup>; postdiscal line of hindwing in front of R<sup>3</sup> 5 mm. from vitreous spot and 7 mm. distant from fringe.

Antenna with 16 segments bipectinate and 13 non-pectinate in Mr. Joicey's specimen, the numbers being about 19 and 16 in the type of *servatia*; the longest branches as long as two segments only, the apical branches in both specimens very short (text-fig. 111), even shorter than in the ♀ we have placed with *O. kahli*.

Genital armature of type of *servatia* not visible except the apical margin of the vaginal plate; this margin is centrally incurved and does not bear any prominent teeth. In the specimen in coll. Joicey (text-fig. 139) the edge of the sclerite is very sharp, rounded laterally, sinuate in centre, with a tooth flanking the sinus on each side. Cavity extending to near base; frontal margin of cavity raised; sides of sclerite uneven.

No spot of modified scales near tornus of forewing beneath.

Early stages not known.

*Hab.* Gold Coast; Camerun; Ogové River.

In Mus. Tring 3 ♂♂ from Prestea, 75 miles inland from Secondi, Gold Coast.

In coll. Holland a ♂ from the Ogové River.

In coll. Richelmann 1 ♀ from Bipindi, Camerun.

In coll. Joicey 1 ♀ from Bitje, Ja River, Camerun, October—November 1912 (G. L. Bates).

11. *Orthogonioptilum incana* Sonthon. (1899) (Pl. 2, figs. 7 ♂, 10 ♀, 11 ♂).

- ♀. *Guillemeia incana* Sonthonnax, *Ann. Labor. Ét. Soic.*, ix. p. 12 (Separ.), tab. 3. fig. 5 (1899) (M'Pala, Tanganyika); id., *Échange*, xvi. p. 31 (1900); id., *Essai Classif. Lép.* iv. p. 48. no. 2. tab. 26. fig. 2 (1904).  
 ♀. *Holocera pancratia* Weymer, *Iris*, xvi. p. 232. no. 10. tab. 2. fig. 8 (1903) (Lindi).  
 ♂. *Goodia septiguttata* Weymer, *l.c.* xxii. p. 14. no. 8 (1909) (Ilonga, Usambara).  
 ♂. *Orthogonioptilum septiguttata*, Strand, *ibid.* xxiv. p. 188 (1910).  
 ♀. *Ludia* (?) *incana*, id., *l.c.* (1910) ("*incana* probably a *Ludia*").

The smallest species known. Tornus of forewing more oblique than in any of the previous species, particularly in the ♀. Tarsi ringed with black and ochre-yellow. Colour of body and wings very variable in both sexes. ♀ with spot of modified scales on underside of forewing.

♂. Clayish buff, vinaceous cinnamon, hazel, dark liver-brown, or grey, sometimes with prominent vinaceous shading, underside more uniform than upper. Forewing with four vitreous dots, of which 1, 2, and 4 are arranged in a line, spot 3 being more proximal and often obsolescent. Hindwing with three vitreous dots in a triangle, the proximal dot and sometimes also the upper one obsolescent. Two lines as in the previous species, antemedian one often much reduced in distinctness, sometimes both almost obliterated; as a rule the lines of the forewing bordered with greyish white, the antemedian line on the proximal side and the postmedian one on the distal side, but this whitish scaling sometimes absent.

Antenna quadripectinate to near tip, 21 or 22 segments pectinate, 8 to 11 simple.

♀. Drab, wood brown, fawn, reddish chocolate or pinkish cinnamon rufous, the basal and terminal areas shaded with whitish grey to a more or less great extent, this whitish scaling condensed along the ante- and postmedian lines. Forewing with three vitreous spots, the upper one smallest, the second penetrating into upper cell-angle, usually incised on outer side, the third large, triangular, entering lower cell-angle and enclosing a scaled dot, which is often connected with

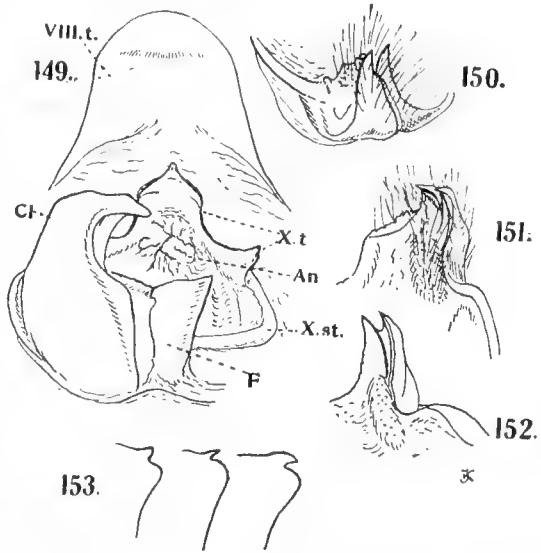


FIG. 149.—*Orthogonioptilum incana* ♂; genitalia, ventral aspect.  
 FIG. 150.—*Orthogonioptilum incana* ♂; apex of clasper, from anal side.  
 FIG. 151.—*Orthogonioptilum incana* ♂; clasper, inside, view vertical on centre.  
 FIG. 152.—*Orthogonioptilum incana* ♂; clasper, inside, view vertical on apical lobes.  
 FIG. 153.—*Orthogonioptilum incana* ♂; penis-funnel (of three specimens).

the disc, in which case the third spot has more or less the shape of a horse-shoe.— On hindwing two vitreous spots, the upper small, sometimes absent, the second an irregular halfring, of which the upper arm sometimes is a separate spot. For neuration, cf. text-figs. 154, 155.

Antenna of ♀ with shorter pectination than in any of the previous species, bipectinate to segment 18, the last 11 or 12 segments simple; the apical branches of the pectinated segments usually scarcely indicated (text-fig. 113), sometimes slightly more distinct (text-fig. 112). Spot of modified scales present on underside of forewing near tornus large in all specimens we have seen, ochraceous, chestnut, walnut, mummy-brown or brick-red, darkest distally, usually the dark scales forming a well-defined crescent; the scales of the spot densely packed, less pointed than in the previous forms, all or practically all dentate (text-fig. 148, *d*), in a dwarfed (underfed) specimen these scales broader than usual and less erect.

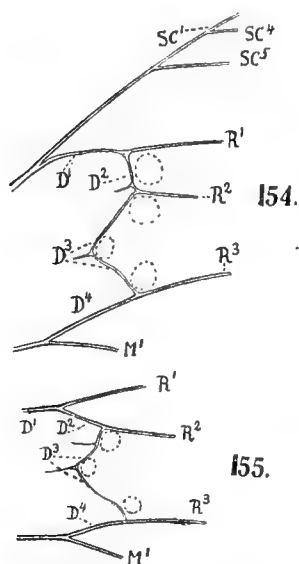


FIG. 154.—*Orthogonioptilum incana* ♂; neuration of forewing.

FIG. 155.—*Orthogonioptilum incana* ♂; neuration of hindwing.

Genitalia: ♂. Eighth tergite (VIII. t., text-fig. 149) with a very broad, rounded, apical lobe, of which the sides are sometimes curved in; proximally to centre a median tubercle. Tenth tergite a strongly chitinised, black, transverse sclerite which bears a median lobe of variable width and length and at the lateral angles a sharp tooth, which is sometimes bifid; the median lobe is sinuate-bidentate in a specimen in the British Museum labelled Natal Museum, Maritzburg, and which possibly represents a geographical form (shape of hindwing slightly different, Pl. 2, fig. 7). Tenth sternite, as in the other species of *Orthogonioptilum*, a low ridge. Clasper (Cl), in ventral aspect (text-fig. 149) narrowing apicad, with the apex curved inward. When viewed from the anal or inner sides the clasper is seen to be divided into two sharply pointed apical lobes (text-figs. 150–152).

Penis-funnel (F) peculiar, dorsally open, sides nearly flat and ventrally meeting in a carina, which is excised before reaching the apical margin, an apical hook of variable size being formed (text-fig. 153), sometimes the carina slightly denticulate; the hook longest in the above-mentioned specimen from the Natal Museum. Penis-sheath broad, flattened.—♀. Edge of genital sclerite incurved in centre (text-figs. 140, 141), the sinus sometimes flanked by two short rounded lobes or even by two sharp teeth; aperture (Ap) always basal, with a low, submembranous ridge in front; centre of sclerite elevate, a depression or channel running from the aperture to the apical margin; the sides of this channel raised at about one-third the way to the apex into a tubercle (Tb) of variable size.

Length of forewing: ♂, 24 to 29 mm.; ♀, 25 to 43 mm.

*Hab.* West side of Lake Tanganyika to Usambara, southward to Salisbury, Rhodesia, probably extending farther south and north-east.

In Mus. Tring 1 ♂, 2 ♀♀ from Salisbury (J. O'Neil).

In Mus. Brit. a series of both sexes from Mt. Mlange, Nyasaland, March and October, and Petauke, East Loangwa district, 2,400 ft., January (S. A. Neave); Solwezi, Kashitu, and Mwenga, N.W. Rhodesia, August, September, November, and December (H. C. Dollman). Also 1 ♂ labelled Natal Museum, Maritzburg.

In Mus. J. J. Joicey 3 ♀♀ from Shirwa, February (H. Barlow), and Mlanje, Nyasaland.

In coll. Janse from Victoria Falls, January 1918.

The type of *O. septiguttata* in coll. Richelmann is a dark mouse-grey colour, with the antemedian line of the forewing above very indistinct; on forewing, above, faint vestiges of two reddish patches, on hindwing of one; tarsi, antenna, and genitalia (as far as visible in the specimen) as in other *incana*-♂♂.

Genus: **Carnegia** Holland (1896).—Typus: *mirabilis*.

*Holocera*?, Aurivillius, *Ent. Tidskr.* xvi. p. 120 (1895).

*Carnegia* Holland, *Ent. News*, vii. p. 138 (1896) (type: *mirabilis*).

*Goodia*, Aurivillius, *l.c.* xx. p. 247 (1899) (" *mirabilis* " the ♀ of some species of *Goodia*).

*Carnegia*, Aurivillius, *Arkiv Zool.* ii. 4. p. 21 (1904); Strand, *Iris*, xxiv. p. 187 (1910) (partim).

♂♀. Differs from *Orthogonioptilum* in the hindwing of the ♂ (as well as ♀) being produced inward into an anal lobe, and in the terminal margin of the ♀ being bisinuate in the forewing and irregularly scalloped in the hindwing. In ♂, moreover, vein SC<sup>2</sup> of hindwing more proximal than in the ♂♂ of *Orthogonioptilum*.

*Hab.* West Africa.—One species.

### 1. *Carnegia mirabilis* Auriv. (1895).

♀. *Holocera*? *mirabilis* Aurivillius, *Ent. Tidskr.* xvi. p. 120. no. 38 (1895) (Nyong River, Camerun.—Mus. Hamburg).

♀. *Carnegia mirabilis* Holland, *Ent. News*, vii. p. 138. p. 134. tab. 6 (1896) (Efulen, Camerun; ♀, neuration and pupa figured).

♂. *Goodia impar* Aurivillius, *l.c.* xx. p. 246. no. 73. fig. 15 (1899) (Nyongwe River, Camerun; ♂ of *mirabilis*?—Mus. Hamburg).

♂. *Orthogonioptilum impar*, Strand, *Iris*, xxiv. p. 188 (1910).

♀. *Carnegia mirabilis*, Schultze, *Arch. Naturg.* lxxx. A. 1. p. 162. no. 25c (1914) (Adamaua, ♀; larva?).

♂. There can hardly be any doubt that *C. impar* is the ♂ of *C. mirabilis*. Chocolate, sometimes brighter, sometimes darker, apical third of forewing irregularly covered with grey scaling; antemedian and postdiscal lines each bordered with a thin grey line both on the proximal and distal sides. On *underside* the forewing with an ochraceous discocellular patch and a smaller and paler costal subapical spot. Collar grey. The anal lobe of the hindwing is more directed inward than in the figure given by Aurivillius.

On forewing 4 to 6, on hindwing 3 to 5 vitreous or semivitreous dots.

Antenna with 17 to 20 segments quadripectinate and 13 to 16 non-pectinate.

♀. It is significant that, as in the ♂, the upper vitreous spots of the forewing are the largest (they are very much larger in ♀ than in ♂), and that the grey outer border of the antemedian line curves distad in middle, as in ♂. Termen of forewing sinuate below apex and below R<sup>3</sup> and M<sup>1</sup>. Antenna with 19 segments quadripectinate and 14 simple, apical branches of anterior (= inner side) only one-fourth shorter than proximal branches.

Genitalia: ♂. Of the *Orthogoniopitulum* type. Eighth tergite (VIII. t., text-fig. 156) produced into a smooth, dorsally convex process which is rounded at the apex. Eighth sternite with obtuse, short, broad, triangular median lobe. Tenth tergite (X. t.) a transverse sclerite, which is broadly sinuate in middle and bears at each side at the base a large denticulate tubercle which projects from beneath the eighth tergite (cf. text-figs. 156, 157). Tenth sternite (X. st.) a low ridge.

Clasper, viewed from ventral side, narrowed distad, dilated at apex, which is subspathulate and bears a long spiniform tooth at the ventral margin, the tooth pointing distad (text-fig. 158). On the inner surface (text-fig. 159) the

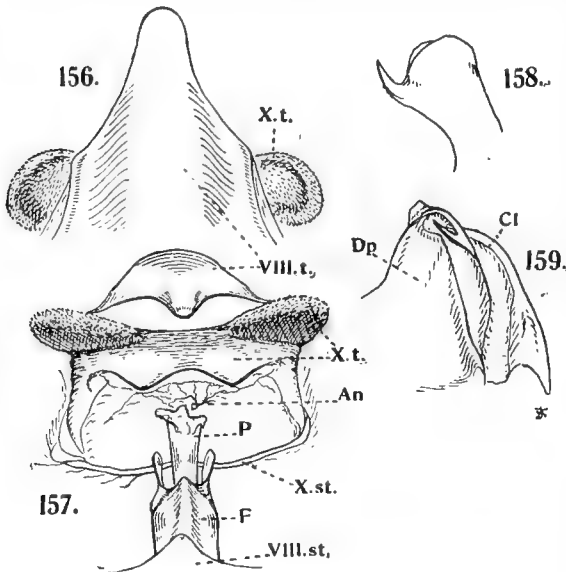


FIG. 156.—*Carnegia mirabilis* ♂; eighth tergite, dorsal aspect.  
 FIG. 157.—*Carnegia mirabilis* ♂; genitalia, ventral aspect, claspers removed.  
 FIG. 158.—*Carnegia mirabilis* ♂; apex of clasper, externo-lateral aspect.  
 FIG. 159.—*Carnegia mirabilis* ♂; clasper, from inner side.

clasper is divided by a longitudinal channel, which starts from before the centre and ends at the apex, a second channel running along the ventral margin from the base of the clasper to the base of the apical tooth. Penis-funnel (F) open dorsally, subcarinate ventrally, the apical margin produced into a lobe dorso-laterally.—♀. Genitalia not examined.

Early stages: Schultze, *l.c.*, records a larva which "possibly belongs to this species." Similar to a *Ludia* larva, much flatter. Conspicuously emerald-green; spines and long hairs light green. A small number on *Anona senegalensis*. Pupa figured by Holland, *l.c.*, but structure of cremaster not indicated (with hooks as in *Goodia*,

or without as in *Holocera* and *Ludia*?). Cocoon similar to that of *Ludia*.

*Hab.* West Africa: Sierra Leone to Gabun, probably farther south.

In Mus. Tring 3 ♂♂ from Sierra Leone (Major Bainbridge); Wassaw district, 45 miles inland from Sekondi, Gold Coast.

In Mus. Brit. 1 ♂ from between coast and Kumasi, Gold Coast (C. H. McDowall).

In Mus. J. J. Joicey 1 ♂ from French Gabun.

In Mus. Hamburg 1 pair from Nyong River and Nyongwe River, Camerun.

In coll. Holland 1 ♀ from Efulen, Camerun.

In coll. Arnold Schultze 1 ♀ from Adamaua, Camerun.

## NEW AND LITTLE-KNOWN GEOMETRIDAE.

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

## SUBFAM. HEMITHEINAE.

1. *Anisozyga diversifimbria* sp. nov.

♀, 28–31 mm. Near *griseonotata* Warr., but of a slightly more vivid green, the white dorsal spots of mesothorax and abdomen larger.

*Forewing* with the red-brown costal edge on an average broader than in *griseonotata*; the purple-grey shades entirely wanting, except that a rather conspicuous hindmarginal white spot at the end of the postmedian is proximally and distally grey-edged; white terminal dots larger than in *griseonotata*; fringe strongly spotted with red-grey opposite the veins.—*Hindwing* with corresponding distinctions, except costally; hindmarginal postmedian white spot rather larger, only proximally with a slight grey edging.

Underside less noticeably dotted with white than in *griseonotata*, the bright green costal part of forewing more extended and perhaps more vivid.

British New Guinea: Hydrographer Mountains, 2,500 feet, June 1918 (Eichhorn Bros.). 3 ♀♀ in coll. Tring Museum.

Recalls a small ♀ of *A. speciosa* T. P. Luc., but belongs to the other structure-group, with the discocellulars excessively oblique posteriorly and M<sup>1</sup> of the hindwing widely separate from R<sup>3</sup>. The ♂ will probably prove similar, as in the case of *griseonotata*.

2. *Archichlora trygodes* sp. nov.

♂, 25 mm. Head and body predominantly pale flesh-colour, in parts (especially vertex and front of thorax) with a very pale vinaceous tinge; face and pectus in front redder; patagia and tegulae, together with subdorsal spots at base of abdomen, green. Palpus minute. Tongue wanting.

*Forewing* narrower than in the *viridimacula* group, thinly scaled, recalling a *Trygodes*; M<sup>1</sup> just separate (almost connate); very pale vinaceous, in parts (especially at base and costally) shaded with flesh-colour; costal edge deeper flesh-colour, spotted (especially in distal part) with greenish black-grey; cell-mark somewhat angular, deep flesh-colour; a large, rather elongate green spot in middle of cell, confluent in its proximal half with a larger posterior one, which reaches hindmargin; two green spots midway between DC and termen, the anterior terminating just behind R<sup>1</sup>, the posterior commencing just before R<sup>2</sup>, narrow in front, broader behind, not quite reaching M<sup>1</sup>; shadowy traces of a line beyond, broadening posteriorly into a large diffuse ill-defined greyish tormal shade; all the green spots with some black scales at their edges; terminal line brownish, broadening irregularly into spots or dots between the veins; fringe with some red-brown spots opposite the veins, stronger posteriorly, the tormal part (nearly to M<sup>1</sup>) almost entirely red-brown.—*Hindwing* with termen crenulate, the tooth at R<sup>1</sup> long, the excision between this and R<sup>2</sup> deep; M<sup>1</sup> separate; concolorous

with forewings, the outer line more distinct, more proximal, almost the entire area beyond (excepting three small terminal patches between SC<sup>2</sup> and R<sup>3</sup>) darkened with violet-grey; the green mark in middle of cell less elongate than that of forewing, the posterior one curving and running along abdominal margin almost to the outer line; no outer green spots.

Underside with the green markings shadowy; outer line and shades stronger and darker than above, but remaining subterminal throughout (though thick posteriorly and on hindwing), only connected with termen by the darkening of the veins.

Madagascar: Diego Suarez, July 2, 1917 (G. Melou). Type in coll. Tring Museum.

Probably nearest to *devoluta* Walk., but very distinct, remarkably reminiscent of a tiny *Trygodes musivaria* H.-Sch.

### 3. *Archichlora engenes* sp. nov.

♂, 27-30 mm. Face dull black. Palpus minute; blackish, beneath rufous. Vertex and antenna pale rufous, irrorated (at base of antenna very thickly) with black. Pectinations long. Thorax and base of abdomen above green; body otherwise whitish brown with some admixture of ochreous; abdomen above also with some rufous shading and a very slight sprinkling of black-grey scales; only the first abdominal crest developed.

Wings formed about as in *Bathycolpodes*, hindwing with slight basal expansion but with well-developed frenulum.

*Forewing* with SC<sup>1</sup> free, DC very deeply inbent, R<sup>1</sup> just stalked, M<sup>1</sup> separate; bright green, with costal margin as far as SC fleshy to rufescent, with black-grey irroration; antemedian line indicated by a very small pale spot on fold at one-third and a slightly more distal one at hindmargin, both partially edged with black-grey irroration; distal border irregularly pale (whitish buff with slight fleshy tinge), about 2 mm. wide (but in three lobes, the middle one the smallest) between apex and R<sup>3</sup>, then very narrow, almost linear, expanding again behind M<sup>2</sup> into a hindmargin patch at least 3 mm. long; this patch with some pale olive-brown proximal and black-grey central shading; a terminal line of blackish interneural lunules, the anterior four short, well separated (that between apex and SC<sup>2</sup> almost obsolete); fringe pale proximally, with dark mottling distally.—*Hindwing* with M<sup>1</sup> separate; bright green, with costal margin pale; distal border coloured much as on forewing but with more copious dark irroration; its anterior part narrow at apex, widening to R<sup>3</sup>, separated from ground-colour by a thinly-scaled white patch; its tornal part very small, triangular, with apex of triangle on fold.

Underside whitish green; costal area of forewing light ochreous brown, pale border shadowy but containing conspicuous blackish-fuscous tornal patch and terminal dots; hindwing also with shadowy borders and conspicuous terminal dots, but with a dark submarginal half-band from apex to radial fold instead of a tornal blotch.

Madagascar: Diego Suarez, April 24, 1917 (G. Melou). Type in coll. Tring Museum. Several other ♂♂, April, May, and August.

Somewhat anomalous in structure, nearest to *A. trygodes* Prout (*supra*). Much like a heavily pectinate *Bathycolpodes*; the coloration of the upperside recalls *B. subfasciata* Warr., while the shape of the wings and the underside are more as in *B. anisotes* Prout.



4. *Bathycolpodes melanceuthes* sp. nov.

♂, 24 mm. Head black, with a very narrow liver-coloured band between the antennae. Palpus minute, beneath liver-coloured. Tongue very slight. Antennal ciliation very short (scarcely one-half). Thorax and base of abdomen above ochreous (probably discoloured from green), the rest of abdomen above mostly black; underside of body greyer.

*Forewing* with termen rather deeply excavated between  $SC^5$  and  $R^3$ , very strongly oblique posteriorly; black, with a small green proximal patch from  $SC$  to hindmargin, measuring nearly (at hindmargin more than) one-third of the wing-length, but with its distal edge slightly concave in cell and more deeply between base of  $M^2$  and  $SM^2$ .—*Hindwing* similar.

Underside less deep black, more brownish, the forewing with the costal margin (at base narrowly, at apex broadly) and the hindmargin (irregularly) dull rosy, a pale line at base of fringe in the excavation, scarcely continued posteriorly.

Cameroons: Bitje, Ja River, September. Type in coll. Deutsch. Ent. Museum, received through A. Heyne; paratypes in coll. Joicey.

Near *semigrisea* Warr. (Nov. Zool. iv. 38), but with termen of forewing rather more oblique posteriorly, the colouring black, not brown or drab (even on the underside blacker), the costal margin beneath reddish, not ochreous. It is very unlikely to be a local form, as *semigrisea*—described from the Congo—occurs without geographical modification in Ashanti.

5. *Perithalera oblongula* sp. nov.

♂, 27–28 mm. General coloration and markings as in the genotype (*oblongata* Warr., from West Africa), but differing in some structural and other details.

*Forewing* with termen rather less strongly ventricose,  $SC^1$  arising from stalk of  $SC^2$ ;  $SC^2$  well away from  $SC^1$ ,  $R^1$  just separate at origin from the subcostals; cell-dot smaller; the faint crenulate lines more noticeable than in Warren's type, the postmedian ending in a red dot on hindmargin.—*Hindwing* with termen less strongly ventricose than in *oblongata*, bent at  $R^3$  but not noticeably at  $R^1$ ;  $M^1$  connate; cell-dot very small; postmedian as on forewing.

Madagascar: Diego Suarez, January 8 (type) and January 16, 1917 (G. Melou). In coll. Tring Museum.

The abdomen shows—especially in the paratype—a dark dorsal blotch on the second and third somites.

6. *Heterorachis trita* sp. nov.

♂, 20–22 mm. Face and palpus burnt carmine, sometimes more mixed with black; palpus minute. Tongue very short and slender. Vertex whitish; occiput green. Antenna cream-colour; pectinations rather long. Thorax and abdomen nearly as in *melanophragma* Prout (*Ann. Mag. Nat. Hist.* (9) i. 314), abdomen less irrorated with black. Hindtibia not dilated.

*Forewing* with  $SC^1$  anastomosing with  $C^1$ ,  $R^1$  not stalked,  $R^2$  arising very near  $R^1$ ,  $M^1$  not stalked; French green; costal margin cream-colour, tinged with red proximally; lines wanting; cell-dot wanting or very faint; termen marked as in *carpenteri* Prout (Nov. Zool. xxii. 321); fringe reddish, proximally with strong black irroration.—*Hindwing* with termen bent;  $C$  anastomosing with  $SC$  at a

point near base, rather rapidly diverging;  $R^2$  arising very near  $R^1$ ,  $M^1$  separate (not remote); as forewing, except costal margin.

Underside much paler green, the forewing suffused with reddish, except distally and posteriorly; an indistinct, interrupted dark terminal line; fringe vaguely spotted.

Madagascar: Diego Suarez (G. Melou), April, July, and September 1917. A long series in coll. Tring Museum.

#### 7. *Heterorachis tornata* sp. nov.

♂, 15–18 mm; ♀, 20–21 mm. Similar to the preceding but smaller, at least in the ♂. Face more mixed with black. Vertex and base of antenna reddish.

*Forewing* with  $M^1$  connate; costal margin fleshy or reddish, with some black irroration; an appreciably darker green cell-dot; border broadening behind  $SM^2$  into a small tornal blotch.—*Hindwing* with  $M^1$  connate or shortly stalked; cell-dot as on forewing; border broadening slightly anteriorly.

Madagascar: Diego Suarez (G. Melou), May–September 1917. 5 ♂♂, 2 ♀♀, in coll. Tring Museum.

#### 8. *Heterorachis* (?) *diphrontis* sp. nov.

♂, 19–23 mm. Face deep red. Palpus minute, shortly rough-haired, deep red. Tongue vestigial. Vertex and base of antenna red; pectinations moderate. Thorax above green. Abdomen buff, above strongly mixed with red; crests red. Foreleg reddened above and on inner side.

*Forewing* decidedly narrower than in typical *Heterorachis*;  $SC^1$  anastomosing with C,  $SC^{2-5}$  usually long-stalked (variably),  $R^1$  just separate,  $R^2$  from very near  $R^1$ ,  $M^1$  separate; bright green (rather less bluish than in *despoliata* Walk.); markings deep flesh-pink; a moderate anterior border, more deeply coloured at costal edge; sometimes a small cell-spot; an ample, irregular distal border, separated from the ground-colour by a sinuous darker brown-red line; width of border in front of  $R^1$  about 1 mm., then a little broader to  $M^1$ , behind which it widens suddenly, so as to approach or sometimes even reach the base of  $M^2$ ; terminal line and proximal part of fringe deeper flesh-colour.—*Hindwing* not very broad, termen rounded; C shortly approximated to SC near base,  $SC^2$  shortly stalked,  $R^2$  from near  $R^1$ ,  $M^1$  separate; concolorous with forewing; a patch of flesh-colour on proximal part of abdominal margin, variable in size; costal border widening distally; distal border broad anteriorly, narrowing posteriorly, its proximal edge somewhat sinuous.

Underside dull ochreous, the forewing flushed with red at base of costa and in a broad, ill-defined longitudinal shade behind middle.

♀, 26–29 mm., the borders broader, that of the forewing in one example confluent with an enlarged cell-spot.

Madagascar: Diego Suarez (G. Melou). A long series of ♂♂ (variable in the extent of the markings) and 2 ♀♀, in coll. Tring Museum.

Differs from typical *Heterorachis* in the obsolescent tongue and in some details of venation; perhaps an independent development of the *Hypocoela-Bathycolpodes* group.

9. *Heterorachis* (?) *insueta* sp. nov.

♂, 21–24 mm. Face yellow-green. Palpus fully 1, second joint with appressed scales, third joint short but distinct; whitish buff above and at tip red-brown. Tongue strong. Vertex and base of antenna white; shaft of antenna rather broad, pectinations moderate. Thorax above dull green, beneath whitish. Abdomen not appreciably crested; pale. Hindtibia dilated, with hair-pencil.

*Forewing* with SC<sup>1</sup> anastomosing shortly with C, R<sup>1</sup> just separate, M<sup>1</sup> separate; not very densely scaled, dull pale blue-green, with close darker green irroration; costal edge narrowly pale buff; cell-dot black; lines not conspicuous, more yellowish green; antemedian angled outward at folds, inward at M and SM<sup>2</sup>; postmedian wavy anteriorly, nearer to termen than to cell-dot, behind M<sup>2</sup> incurved; white vein-dots at distal edge of postmedian; terminal line very fine, blackish, interrupted; fringe duller, paler green, with a whitish line at base.—*Hindwing* with abdominal margin fairly long, termen slightly waved, weakly bent at R<sup>3</sup>; C very shortly approximated to SC near base, rapidly diverging, SC<sup>2</sup> connate or barely stalked, M<sup>2</sup> well separate; antemedian line wanting, the rest nearly as on forewing; a very slight additional (greyish) cell-dot on DC<sup>2</sup>.

Underside whitish green; forewing with costal area ochreous, cell-dot blackish, interrupted terminal line grey; hindwing almost unmarked.

Madagascar: Diego Suarez (G. Melou). 4 ♂♂ in coll. Tring Museum, the type dated September 10, 1917.

The only ♀, dated June 24–26, 1917, is very remarkable in being pale purple, with the irroration dark brownish purple, the green lines showing up more strongly by contrast. It is unfortunately in poor condition, but it is hard to believe that the change of colour is artificial, as it is no different from the normal changes in the fugitive Hemitheine greens and is quite uniform. The palpus is scarcely longer than in the ♂, the pectinations short (the longest little over 1), the hindtibial spurs rather approximated, SC<sup>1</sup> of the forewing free.

10. *Diplodesma xanthochlora timida* subsp. nov.

♂, 15–16 mm. Very much smaller than *x. xanthochlora* Swinh., distal margins with the excisions slightly shallower.

*Forewing* with basal patch more restricted.—*Both wings* with cell-spot smaller; band beyond postmedian less broad.

Underside with cell-spots and proximal dark shades wanting.

Portuguese Timor: Suai, December 1912 (E. Wahr). 3 ♂♂ in coll. Tring Museum.

Perhaps a good species. At first glance it recalls *celataria* Walk., but the short antennal ciliation, non-dilated hindtibia, non-anastomosis of SC<sup>2</sup> of forewing, and deeply sinuate postmedian line reveal its true position.

11. *Lophostola atridisca cumatilis* subsp. nov.

♂, 29 mm.; ♀, 36–39 mm. Bluer green than *a. atridisca* Warr., from Natal, the cell-spots larger, white vein-dots more strongly developed, termen in addition with white dots at vein-ends.

Madagascar: Ambinandrano, 50 km. W. of Mohanoro (G. K. Kestell-

Cornish), February 1913; type ♂, November 14, 1916, and August 3 (? year); 2 ♀♀ in coll. Tring Museum; Tananarive, 1 ♀ in coll. Joicey.

**Doloma** gen. nov.

Face smooth. Palpus moderate, second joint shortly rough-scaled, third joint in ♂ rather short but distinct (in ♀ probably elongate). Tongue present. Antenna in ♂ bipectinate to near apex, the last joints dentate and ciliate. Pectus moderately hairy. Femora slightly hairy. Hindtibia in ♂ not dilated, with two pairs of unequal spurs. Abdomen not crested. Frenulum wanting.

*Forewing* with costa slightly arched, apex acute, termen bowed, rather strongly oblique posteriorly; cell about two-fifths. DC curved, strongly oblique posteriorly; SC<sup>1</sup> from stalk of SC<sup>2,3,4</sup>, anastomosing with C, R<sup>1</sup> well separate, R<sup>2</sup> from close to R<sup>1</sup>, occasionally connate, M<sup>1</sup> separate.—*Hindwing* rather long, apex not sharp, termen slightly prominent at R<sup>1</sup>, feebly sinuate between R<sup>1</sup> and R<sup>2</sup>, strongly angled at R<sup>2</sup>, then nearly straight to tornus; DC as in forewing; C touching SC at a point near base, rapidly diverging, SC<sup>2</sup> well stalked, R<sup>2</sup> and M<sup>1</sup> as in forewing.

Type of the genus: *D. leucocephala* sp. nov.

12. **Doloma leucocephala** sp. nov.

♂, 22–26 mm. Head and base of antenna white; palpus whitish, with a red-brown band on upper and outer side of first and second joints. Thorax pale green, paler beneath; abdomen almost white. Legs mostly white.

*Forewing* pale apple-green, inclining to olive-yellow; costal edge cream-colour; cell-dot small or minute, red; lines slightly deeper green; antemedian subobsolete, curved, rather near cell-dot; postmedian obsolete at costa, strongly excurved between radials, then straightish, posteriorly slightly less oblique than termen; at hindmargin sometimes marked with some red scales; terminal line dark red, slightly or scarcely interrupted at the veins; fringe white, strongly spotted with red at the veins.—*Hindwing* similar, without first line; postmedian bent, though rather less strongly than termen; cell-dot generally rather larger.

Underside whitish green; cell-dot generally indicated, at least on forewing, but feeble; terminal line and fringe-dots weaker than above.

Madagascar: Diego Suarez, April–June and September 1917 (G. Melou). A good series in coll. Tring Museum.

**Oneiliana** gen. nov.

Face smooth. Palpus in ♂ short, upcurved (appressed to frons), second joint with appressed scales, third joint very small; (in ♀?). Tongue developed. Antenna rather short, in ♂ bipectinate to about two-thirds, in ♀ almost simple. Pectus and femora hairy. Hindtibia in ♂ not dilated, in both sexes with all spurs. Abdomen in ♀ very robust, in both sexes with small (on posterior segments very small) crests.

*Forewing* with costa slightly arched near apex, apex moderate, termen nearly smooth, bowed, oblique; cell rather less than one-half, DC<sup>1</sup> incurved anteriorly, oblique outward posteriorly, SC<sup>1</sup> from near end of cell, anastomosing with C and sometimes with SC<sup>2</sup>, SC<sup>3</sup> stalked, arising before SC<sup>5</sup>, R<sup>1</sup> very shortly stalked, M<sup>1</sup> just separate.—*Hindwing* with moderate basal expansion, frenulum rather short in ♂, obsolete in ♀, apex not very pronounced, termen scarcely sub-

crenulate, strongly rounded in middle, very slightly bent at  $R^3$  and scarcely appreciably at  $R^1$ , tornus about rectangular, abdominal margin relatively rather long, cell nearly as in forewing, shortly approximated to SC near base, rapidly diverging,  $SC^2$  shortly stalked,  $M^1$  connate or barely stalked.

Type of the genus: *Oneiliana multifera* sp. nov.

Unfortunately the ♀, otherwise in beautiful condition, has lost the palpi—a very useful character in the *Hemitheinae*; but whether they prove long or short, the species will fall into no known genus.

### 13. *Oneiliana multifera* sp. nov.

♂, 23 mm.; ♀, 33 mm. Face reddish. Palpus reddish brown above, white beneath. Vertex, postorbital rim, and base of antenna white; occiput very narrowly rosy behind. Thorax above red-brown, mixed with rosy-purplish, beneath white; abdomen above similarly coloured to thorax but somewhat mixed with violet-whitish scales, beneath yellowish; crests blackish, with whitish summit. Legs in part rosy, in part white; the hind nearly all white.

*Forewing* light ochreous-brown, with red-brown irroration and with ill-defined reddish clouding in median area; costal edge white, succeeded by a violet-mixed subcostal streak; no definite lines; markings whitish violet, irrorated with some rosy and some dark scales; a rather large subbasal patch (on hind-margin); a cell-spot; an irregular chain of terminal markings, consisting of a rather large patch between apex and  $R^3$  (tapering to a point at apex and indented at  $SC^2$ ), two small (shallowly triangular) spots between  $R^3$  and  $M^2$  and a moderately large, irregular patch from  $M^1$  to tornus, proximally throwing out an anterior projecting across  $M^1$ ; an ill-defined streak of denser irroration near the proximal edge of the last-named patch; a rosy, black-mixed terminal line; fringe white, irrorated with rosy and cut by darker markings opposite the veins.—*Hindwing* similar; subbasal and discocellular spots whiter, the latter much narrower; terminal marks rather differently arranged, being narrow between apex and  $R^1$ , rather large between the radials (in the ♂ slightly, in the ♀ more deeply indented proximally at  $R^2$ ), as in forewing between  $R^2$  and  $M^2$ , moderate at tornus, without projection across  $M^1$ ; termen and fringe as on forewing.

Underside rosy whitish, with the markings of upperside faintly indicated; forewing with deeper rosy subcostal streak; termen and fringes as above.

Rhodesia: Shamva, December 1920. Type ♂ in coll. Brit. Museum, allotype ♀ in coll. L. B. Prout, both kindly presented by the Rev. Father O'Neil.

A very striking species.

### SUBFAM. STERRHINAE.

### 14. *Anisodes seposita* sp. nov.

♂ ♀, 36–42 mm. Face dull rufous, narrowly whitish below. Palpus in both sexes long. Vertex and proximal part of antenna white. Abdomen dorsally vinaceous rufous in anterior half, whitish in posterior. Hindleg of ♂ not tufted, with terminal spurs only. Both wings with termen slightly more crenulate than in *globaria* Guen., about as in *ordinata* Walk. and *fluvidiscata* Warr., termen of forewing slightly more oblique anteriorly than in these latter species.

*Forewing* coloured and marked as in *globaria*, or on an average slightly less red.—*Hindwing* also similar to that of *globaria*, the cell-spot variable, in the

type formed of a tolerably large black orb (1-1.5 mm. diameter) with a small white pupil, in aberrations of a less small yellow-tinged pupil surrounded successively by slender black, broad white and slender black rings (as in *flavidiscata*).

Forewing beneath less red or pink than in *globaria*, the aberration otherwise resembling that species on the underside, the type form in addition on each wing with a small blackish, white-pupilled cell-spot.

Peru: Cushi, prov. Huanuco, 1,820-1,900 m. (W. Hoffmanns). A series in coll. Tring Museum, including the type. Also from Huancabamba (near Cerro de Pasco) and Carabaya and from Cañon de Tolima (Colombia), Riobamba (Ecuador), and Chulumani (Bolivia).

The conspicuously two-coloured abdomen above is distinctive. The only other species of this group known to me with simple ♂ hindleg are *globaria* Guen. and *ordinata* Walk., the latter confined to Jamaica; in *flavidiscata* the femur is tufted, in *sypharia* Guen. (= *fimbripedata* Walk.) the whole tibia strongly fringed.

#### 15. *Anisodes spadix* sp. nov.

♂ ♀, 33-38 mm. Palpus in ♂ with third joint over one-half, in ♀ about 1. Antenna in ♀ ciliate, the ciliation rather under one-half. Hindfemur and tibia of ♂ densely clothed with (predominantly cinnamon-rufous) hair, the tibia with terminal spurs only. Face and upperside of palpus and thorax coloured nearly as wings, abdomen becoming more purple-grey posteriorly; beneath predominantly cream-colour. Vertex pale-mixed. Tegulae and base of antenna deep purple-grey.

*Forewing* rather broad, termen curved, slightly waved, hardly more oblique than in *nodigera* Butl. (*Tr. Ent. Soc. Lond.* 1881, p. 334); areole moderate, SC<sup>5</sup> variably stalked beyond it; rather variable in colour, cinnamon or vinaceous-cinnamon, usually (perhaps always in fresh specimens, at least of the ♂) sufficiently strongly irrorated with chestnut to produce a tone of hazel; costal margin dark purplish grey, at the extreme edge more olive-grey; markings dark olive-grey, not very sharp; antemedian excurved before middle, incurved behind middle, then oblique outward; cell-mark elongate, open, but very narrow, nearly as in some *nodigera* but without distinct blackish dots at its extremities; median and postmedian nearly as in *nodigera*, the former always well beyond cell-spot; a vague shade proximally to the (obsolescent) subterminal, slightly incurved between SC<sup>4</sup> and R<sup>2</sup>, where it is angulated outward and approaches termen, posteriorly more ill-defined and macular; terminal blotches of *nodigera* only faintly indicated; termen with blackish interneural dots; fringe with small blackish basal dots at vein, distal half paler.—*Hindwing* with termen crenulate, slightly angled at R<sup>2</sup>, M<sup>1</sup> arising close to R<sup>2</sup>; concolorous with forewing and with similar markings, but with a small white, very finely dark-edged cell-dot.

Underside vinaceous-cinnamon, the forewing (except hindmargin) and the anterior part of the hindwing predominantly or almost entirely vinaceous, the hindmargin of both wings cream-colour; median, postmedian, and subterminal shades faintly indicated in darker, duller vinaceous; dots on termen and on fringe rather weak, vinaceous.

Upper Amazons (S. M. Klages): Fonte Boa, June 1906 (type ♂), May and July 1906, July and August 1907; Santo Antonio do Javary, May and June 1907. A short series in the coll. Tring Museum.

16. *Anisodes suspiciens* sp. nov.

♂ ♀, 32–34 mm. Structure nearly as in the preceding, third joint of palpus perhaps slightly shorter, antennal ciliation in ♀ shorter (less than one-third); forewing with termen slightly less oblique (as in a narrow-winged *nodigera*), slightly more crenulate; entire coloration paler. Lower part of face cream-colour. Vertex cream or buff. The cinnamon and hazel parts replaced by cream-colour, buff, or buff-yellow, with some dull vinaceous irroration. Tufts on hindfemur and base of tibia cream-colour, on rest of tibia mixed with vinaceous.

*Forewing* with nearly the markings of *spadix*; extreme costal edge similar, costal margin otherwise vinaceous; markings vinaceous; cell-mark with a dark anterior dot; subterminal shade less developed, less angled, marked with a pair of dark dots or spots between the radials and feebler ones anteriorly and posteriorly.—*Hindwing* with termen slightly less angled than in *spadix*, cell-dot with a less fine black circumscription.

Underside paler (especially on hindwing) and more variegated than in *spadix*.

Upper Amazons (S. M. Klages): Fonte Boa, type and 13 others; Santo Antonio do Javary, 2 ♀ ♀; taken together with preceding. In coll. Tring Museum.

17. *Anisodes itinerans* sp. nov.

♂ ♀, 28 mm. Smaller than *multipunctata* Warr. (Nov. Zool. xi. 509), from Peru, otherwise apparently indistinguishable except that the third joint of the palpus is in both sexes shorter, especially in the ♂.—In ♂ one-half second joint, against fully two-thirds in *multipunctata*; in ♀ barely longer than second joint, whereas in *multipunctata* ♀ it is appreciably longer than second joint. Thus it should be treated as a representative species rather than a race.

S.E. Brazil: São Paulo and Castro, Parana. Type from São Paulo in coll. Tring Museum.

18. *Anisodes (Perixera) orbiculata* sp. nov.

♂ ♀, 39 and 35 mm. Face reddish. Palpus in both sexes elongate, third joint long; deeper red on outer side, pale ochreous beneath. Vertex and base of antenna white; occiput reddish. Thorax and abdomen above concolorous with wings; abdomen in ♂ above showing four indistinct dark dots on the anterior segments, beneath whitish ochreous with rather brighter ochreous lateral hair-pencils. Hindfemur in ♂ with a purple-red curled tuft about as in *dotilla* Swinh. (*Tr. Ent. Soc. Lond.* 1894, p. 179), the tibia not (as in that species) shortened.

*Forewing* rather less broad than in *dotilla*, termen equally crenulate, rather more oblique; areole present; deep fawn, with very fine dark-grey irroration (rather less purplish than *dotilla*, more recalling some Neotropical species—between *globaria* Guen. and *flavidiscata* Warr.); costal edge very narrowly whitish; antemedian line almost obsolete, suggested by faint dark vein-dots; cell-spot round and black, about 1 mm. in diameter, with a minute white pupil; postmedian about 3 mm. from termen, slightly sinuous, consisting of black vein-dots; termen with blackish interneural dots; fringe with blackish basal dots at veins.—*Hindwing* with termen crenulate, but rather less deeply than in *dotilla*; as forewing, but with the cell-spot larger, nearly 2 mm.

Underside more fleshy-coloured, in the ♂ with the hindwing paler, in the

middle tinged with ochreous; both sexes with well-developed postmedian dots and very slight traces of cell-spot; terminal line continuous, slender.

Madagascar: Diego Suarez (G. Melou), July 8, 1917 (type ♂), and September 16, 1917 (♀). In coll. Tring Museum.

Very distinct from any African *Anisodes* hitherto known, in facies recalling the *globalia* group of South America.

#### 19. *Hamalia dognini* sp. nov.

♂♀, 26 mm. Extremely like the darkest specimens of *grisescens* Warr. (Nov. Zool. xii, 46), but with the hindtarsus rather shorter, its first joint (which in both species is partly overlapped by the tibial pencil) *considerably swollen*. Wings still darker, the violet reflections stronger, both wings with a stronger blue-violet band between the subterminal shade and the terminal black lunules. Forewing with the median shade broader and more diffuse than the corresponding line of *grisescens*.

S. Peru: Chaquimayo, 2,500–3,000 ft., June–July 1910 (H. and C. Watkins), type ♂ in coll. Dognin; Rio Huacamayo, Carabaya, 3,100 ft., June 1904 (G. Ockenden), a pair in coll. Tring Museum.

#### 20. *Somatina figurata transfigurata* subsp. nov.

Differs from *f. figurata* Warr. (1897) as follows:

*Forewing* with the shading in the terminal area weak or obsolete, cell-mark broader, almost as broad as long, its margins with a heavier admixture of black scales.—*Hindwing* with the cell-mark punctuated with black anteriorly.

Madagascar: Diego Suarez (G. Melou). A series in coll. Tring Museum.

#### 21. *Scopula dimoera* sp. nov.

♂♀, 25–27 mm. Face deep brown. Palpus deep brown above, whitish beneath. Vertex whitish. Antenna of ♂ furnished, to beyond the thirtieth joint, with short pectinations, mostly about twice as long as diameter of shaft and surmounted by fascicles of cilia of about their own length. Thorax and abdomen pale ochreous-fleshy, the abdomen in the ♂ with a series of black subdorsal spots, on segments 1, 2, 6, and 7 small, on 3, 4, and 5 large. Fore and middle legs somewhat infuscated on upper and inner sides; hind leg of ♂ long and slender, with a pair of well-developed terminal spurs.

*Forewing* narrow, apex pointed, termen strongly oblique, little curved; pale ochreous fleshy, with fine black irroration; antemedian line extremely oblique, scarcely indicated except in a dash at hindmargin and a rather sharp black dot on M close to M<sup>2</sup>; cell-dot black, well beyond middle of wing; median shade broad, dark-grey mixed with red-brown, very oblique from about middle of hindmargin to postmedian at R<sup>1</sup>, anteriorly obsolete; postmedian extremely fine, subobsolete, but marked with sharp vein-dots, slightly less oblique than termen posteriorly, more oblique anteriorly, thus angled at R<sup>1</sup>; subterminal defined by faint or moderate greyish line on each side; termen with black interneural dots, which are sometimes faintly connected; fringe slightly chequered.—*Hindwing* rather narrow, costal margin long, apex rounded-prominent, termen weakly bent at R<sup>3</sup>, then straight to the prominent tornus; as forewing, but costal region whiter, unmarked (except at apex), first line wanting, median and postmedian straight.



Underside similar but more strongly irrorated, the proximal part of forewing suffused or blurred, the costal margin of hindwing less white, the postmedian of forewing sometimes traceable to costa (oblique inward from R<sup>1</sup>).

S. India: Palni Hills (W. H. Campbell). Type ♂ and others in coll. L. B. Prout; also in other collections.

The ♀♀ seem to be more weakly marked.

Hampson (*Faun. Ind. Moths*, iii, 435) evidently misidentified this (from the Nilgiris) as *defamataria* Walk.; the true *defamataria* is a synonym, or slight modification, of *emissaria* Walk., with the ♂ antenna fasciculate but not pectinate. The new species should form, together with *anaïtaria* Walk. (which has also pectinate-ciliate ♂ antenna) a separate section, *in sensu Hampsonianano*, as they have clearly nothing to do with the more fully pectinate section *Induna* Warr. I prefer, however, to regard the difference from merely dentate-fasciculate antennae as here of quite secondary importance (a similar phenomenon being provided by the pectinate-ciliate *sordida* Warr. and the non-pectinate *walkeri* Butl.) and to keep them in the section *Lycauges* with the closely similar *emissaria* Walk., *donovani* Dist., etc.

## 22. *Scopula* (Pylarge) *neophyta* sp. nov.

♂, 21–23 mm. Face and palpus black. Vertex white. Antennal joints triangularly projecting; ciliation somewhat over 1. Collar brown. Thorax and abdomen slender; brownish white, with blackish irroration. Legs long and slender, the hindtibial spurs moderately long, especially the inner one.

*Forewing* rather elongate, apex moderately acute, termen straightish, oblique; cell slightly over one-half; white with a tinge of brown and with sparse blackish irroration; cell-dot black; lines brown, mainly parallel with termen; antemedian vague and diffuse, but marked with blackish dots on the veins, nearer to median line than to base; median line slightly incurved at costa, crossing the cell-dot or touching its outer side; postmedian slightly incurved at costa and very slightly between the radial and in submedian area, marked by coarse black dots on the veins (weakest posteriorly) and accompanied distally by an ill-defined brown band; subterminal line white, placed between vague brown shades; termen with sharp black interneural dots; fringe irregularly dark-spotted in centre opposite the veins.—*Hindwing* not broad, rather elongate costally, apex rounded, termen very slightly sinuous, not very strongly convex; SC<sup>2</sup> almost connate; white; cell-dot black; an ill-defined postmedian line of brown or blackish vein-dots, the last a little nearer termen, somewhat strengthened and confluent with one on abdominal margin; terminal dots as on forewing; fringe almost unmarked.

Forewing beneath more suffused, especially proximally; cell-dot and markings beyond present.—*Hindwing* white, with coarse brown irroration; cell-dot, terminal dots, and an ill-defined postmedian line present.

Colombia: Bogota, 2,800–3,200 m. (Fassl). 2 ♂♂ in coll. Dognin.

More recalls some African species of the section (*dapharia* Swinh., *fulvilinea* Warr., etc.) than anything Neotropical.

## 23. *Scopula* *lathraea* sp. nov.

♂, 26 mm. Face black. Palpus black, with some light scales beneath. Vertex yellow. Antennal shaft proximally ochre-yellow; joints slightly pro-

jecting, with fascicles of rather long cilia (probably nearly 2, but slightly damaged). Thorax and abdomen above pale yellowish, beneath almost white. Hindtibia about twice as long as femur, strongly dilated, with hair-pencil; tarsus scarcely over one-third, second joint half as long as first.

*Forewing* straw yellow, with a very few scattered blackish scales; costal edge narrowly deeper, more ochreous yellow; a slightly sinuous brown postmedian line (on some of the veins, particularly  $R^2$  and  $R^3$ , slightly thickened or dentate outward) arising at hindmargin just beyond three-fifths, rather less oblique than termen to near  $M^2$ , then curved, becoming more oblique to  $R^2$ , fainter and slightly excurved between  $R^2$  and  $SC^2$ , obsolete at costa; no terminal line; fringe proximally rather deeper yellow than ground-colour, distally much deeper yellow, almost orange.—*Hindwing* with termen very bluntly bent at  $R^3$ ; as forewing but with the postmedian line complete, very gently curved (much less bent than termen), very feebly sinuate inward between  $R^2$  and  $R^3$ .

Underside whitish yellow, unmarked; costal edge of forewing more ochreous; tips of fringes nearly as above.

Magunda Estate, Luchenza, Nyassa (F. Nisbet). Type in coll. Tring Museum.

Near *rectisecta* Prout (Nov. Zool. xxvii. 291) and other West African species of the genus; lighter yellow (less ochreous) than that species, with more bent hindwing, differently formed postmedian line and slightly shorter hindtarsus. From *laevipennis* Warr. (Nov. Zool. iv. 52) it is at once distinguishable by the much less dentate postmedian, as well as the absence of antemedian line and cell-mark.

#### 24. *Scopula klaphecki* sp. nov.

♂ ♀, 23–24 mm. Very similar to *caricaria* Reutti, differing as follows:

Collar white. *Forewing* with costal margin on an average rather more strongly grey-dusted; cell-dot sharper and blacker; lines generally distinct, the postmedian perhaps more angled and placed less far from the termen; subterminal less far from termen; termen with well-developed black dots, especially in anterior half.—*Hindwing* with postmedian line more bent and farther from cell-dot; subterminal less far from termen; termen as on forewing.

N. China: Tsingtau, Shantung, August 1–3, 1908 (L. Klapheck), type ♂ and allotype ♀ in coll. Tring Museum; Western Hills, Pekin, August 10–14, 1911 (F. S. Hughes), 4 ♂♂ and 2 ♀♀ in coll. Brit. Museum.

Differs from *leuraria* Prout (*Seitz Macrolep.* iv. 69) in its smaller size and much longer hindtarsus.

#### 25. *Scopula umbilicata peruviana* subsp. nov.

♀. Ground-colour darker than in *u. umbilicata* Guen., decidedly tinged with greyish fawn; lines less firm, the postmedian of the forewing showing a tendency to form thicker marks on the two distal curves, foreshadowing those developed in the Old-World allies *pulchellata* Fab., *misera* Walk., etc.; terminal line more broken into dots or well-separated dashes.

W. Peru: Barranco, near Lima, April 2 (type), April 12 (3 ♀♀), May 7, 1913 (1 ♀) in coll. Tring Museum, collected by H. O. Forbes; Callao, 1 ♂, 1 ♀ (J. J. Walker) in coll. Brit. Museum.

I do not know *u. umbilicata* from Peru, but as it occurs again in E. Bolivia it ought to be found in E. Peru.

26. *Scopula hieronyma* sp. nov.

♂ ♀, 24–26 mm. Closely related to *S. plantagenaria* Hulst (*Ent. Amer.* ii. 185), from Texas, possibly a local form. In general larger. Wings relatively longer, with a more yellowish or ochreous tinge; markings more sharply expressed, dark costal spots of forewing enlarged, postmedian dark shades at radials and at hindmargin well expressed, subterminal line broad, rather deeply inbent at radials, here tending to become thickened.

Arizona: Jerome, June 1892 (E. J. Oslar), type ♂ and a ♀ in coll. Tring Museum; Palmerlee, a ♀ in coll. L. B. Prout; also a ♂ from "Arizona" (Oslar), without more exact locality, in coll. Tring Museum.

Hulst united this with *plantagenaria*, but founded his description mainly on the Texan insect. To my eye the two forms are very distinct.

27. *Scopula stenoptera* sp. nov.

♂, 19 mm. Face and upperside of palpus black. Vertex white. Collar light brownish. Antennal ciliation about 1. Thorax and abdomen whitish grey, dorsally with some fine black irroration. Foreleg darkened on inner side and (? by accidental discoloration) on last three joints of tarsus. Hindtibia somewhat elongate, dilated, with ochreous-whitish hair-pencil; tarsus about one-third tibia.

Wings narrow for the genus, recalling in shape those of *Lobocleta borunta* Schaus, but with the coloration of *L. jamaicensis* Warr.; white, with moderately dense blackish irroration; a black cell-dot; lines brownish grey, slightly thickened and blackened at costa and hindmargin; antemedian at one-third, obscure in cell, marked with a minute black dash on M, incurved behind M, angled outward on SM<sup>2</sup>; median shade feeble except at costa, angled outward (and with a slight black distal dash) at R<sup>1</sup>, then retracted, passing near the cell-dot, dentate outward on the veins, again retracted on M<sup>2</sup>, posteriorly near and parallel with the antemedian; postmedian at five-sevenths, lunulate-dentate, chiefly marked by black points on the veins, acutely projecting outward at R<sup>1</sup>, incurved between the radials, inbent at fold; distal area with some dark shades, leaving free a lunulate subterminal, which forms larger inward-projecting spots at fold and (especially) between the radials, as in the *marginepunctata* group; termen with strong, somewhat lunulate black dots; fringe brownish, with some irroration, especially in the form of dots or dashes opposite the veins.—*Hindwing* with termen subcrenulate, with a slight excision (shallower than in *perfunosa* Warr., Nov. Zool. xi. 512) between the radials; antemedian line and the costal spots wanting; median shade rather thin, feeble, incurved proximally to the cell-dot, dentate outward at R<sup>2</sup>-M<sup>1</sup>, incurved posteriorly; the rest nearly as in forewing, the fringe whiter.

Forewing beneath infuscated, except at abdominal margin, rather glossy, the markings obliterated excepting the cell-dot. Hindwing whitish, the cell-dot minute, the markings beyond very faintly suggested, the terminal dots strong.

Ucayali, Peruvian Amazonas (ex Staudinger, May 1905), type in coll. Dognin; Callanga, Cuzco, Peru, 1,500m., 1898 (O. Garlepp), a slightly whiter aberration, in coll. Tring Museum.

28. *Euacidalia oriochares* sp. nov.

♂, 26–28 mm. Closely similar to *E. rosea* Warr., Nov. Zool. iv. 444, from Dutch and French Guiana. Larger, the costal margins, especially of the hindwing, relatively more elongate. Less rosy, more irrorated with grey.

*Forewing* with SC<sup>2</sup> stalked (in *rosea* from the cell); the lines stronger, black-grey, the median rather thick and diffuse, closer to the cell-dot, which is distinct, black, and slightly elongate.—*Hindwing* more suffused, the median line less conspicuous, more narrowly and inconspicuously pale-edged distally.

Peru: La Merced, Chanchamayo, 1,000 m., type and another in coll. Tring Museum. Also a ♂ from Colombia (Fassl) in coll. Dognin and a ♀ from Caldera, Panama, in coll. Brit. Museum, the latter misidentified by Druce (*Biol. Centr.-Amer. Lep. Het.* ii. 146) as *oroandes* Druce, which is rather less elongate but has still longer cell of forewing, stronger cell-dot, lines more proximally placed, postmedian differently shaped, etc. As this Panama example is slightly intermediate in tone towards *rosea*, it is just possible that *oriochares* should be regarded as a western race of that species, in spite of the different venation.

29. *Lobocleta griseolimbata* (Warr. MS.) sp. nov.

♂ ♀, 16–17 mm. Closely related to *ossularia* Hb.-Gey. and *cocaria* Schaus, both wings somewhat narrower.

*Forewing* with the lines more feebly expressed, the median (as in the allies) somewhat variable in position—in the type touching the cell-dot, in the allotype rather more distal; distal area for a breadth of nearly 1 mm. darkened with blackish irroration.—*Hindwing* with termen slightly sinuous, minutely toothed at R<sup>3</sup>, the tooth itself, together with a spot proximally thereto free from dark irroration, hence inconspicuous on the under-surface, but rendered conspicuous on the upper by an enlargement of the black dot at base of fringe; markings similar to those of forewing.

Forewing beneath strongly infuscated, excepting posteriorly and in a narrow pale band distally to the postmedian row of dots. Hindwing beneath whitish, with scattered coarse irroration, especially at base; the cell-dot well expressed, the median and postmedian moderately, the dark terminal shade strong.

Costa Rica: La Uruca, near San José, 1,100 m., type ♂ in coll. Dognin; San Carlos, June 1899 (Underwood), allotype in coll. Tring Museum.

Neither specimen is in perfect condition, but the distinctive dark borders and characteristic underside will render it easy of recognition.

30. *Ptychopoda ludovicaria* (Culot).

*Acidalia ludovicaria* Culot, *Noct. et Géom. Eur.* (2) i. (livr. 48–50) 74, t. 11, f. 215 [1918], ♀ (Geryville).

The species which, on account of the coloration and markings (especially the unusually proximal position of the median line of the forewing and the postmedian of hindwing), I take to be the true *ludovicaria* of Culot, is represented in the Tring Museum by 6 ♂♂ and 3 ♀♀ from Bou Saada, April–May, one ♀ as dark and almost as heavily marked as Culot's type, the rest of a lighter clay-colour, 2 ♂♂ from Guelt-es-Stel, May 20 and 29, both rather densely irrorated, and a pair from Tala Kana, Gr. Kabylic, September 30, both small, with whiter ground-colour but with strong dark irroration and strong (in the ♀ thick) dark rufescent lines (confusingly similar to some aberrations of the following species).

As Culot neither describes nor figures the venation, and both he and Staudinger compared the type specimen with species of *Glossotrophia* and *Scopula*, the determination is perhaps somewhat precarious, the more so as Culot's beautiful figure scarcely does full justice to the sinuosities in the termen of the hindwing nor to the proximal curve of the postmedian of the forewing between  $M^1$  and  $SM^2$ ; but all else agrees so excellently that, pending more precise information, I think it should be accepted. The ♂ hindtibia has two strong spurs, the tarsus is longer than the tibia,  $SC^2$  of hindwing always long-stalked, though variably. The species may be placed in the vicinity of *asellaria* H.-Sch.

### 31. *Ptychopoda unicalcarata* sp. nov.

♂ ♀, 18–20 mm. Smaller than the preceding. Tongue apparently longer. Hindtibia of ♂ with a single long terminal spur. Ground-colour more rufous, markings generally weaker. Frenulum of ♂ black or blackish (in *ludovicaria* light ochreous brown).

*Forewing* with the median line crossing, or outbent just distally to, the cell-dot, posteriorly in general rather strongly incurved, sometimes almost obsolete; subterminal line ill-defined or almost obsolete.—*Hindwing* with corresponding distinctions.

Algeria: Bou Saada, May 18–27, 1911, May 12–14, 1912 (V. Faroult); 2 ♂ ♂ and 6 ♀ ♀ in coll. Tring Museum.

Worn specimens from Seksawa and Lalla Aziza, Morocco, from Aïn Sefra, S. Oran, and from Oued Nça, Nzab Country, seem, on account of the structure and general tone, to be referable to the same species, though two of the females from Aïn Sefra are large and heavily marked.

### 32. *Ptychopoda jonesi* sp. nov.

♂, 15–16 mm. Similar to *quadrirubrata* Warr. (Nov. Zool. iv. 437), slightly shorter winged. Face red, not black (in one example, however, somewhat mixed with black). Vertex red, not yellow. Ground-colour deeper gold-yellow, all the lines much thicker, brighter red. Hindwing beneath less whitish, more strongly marked.

Castro, Parana (E. D. Jones), November 1897 (type ♂) and November 1901, in coll. Tring Museum; 1 ♂, undated, in coll. E. D. Jones. Also a ♂ in coll. Dognin merely labelled "Santa Cruz."

Mr. Warren misidentified this as *quadrirubrata*, Mr. Jones as "*flexilinea* Warr."—a laps. cal. for *flexivitta* Warr. (*Proc. U.S. Nat. Mus.* xxx. 456); the latter, however, is a close ally, if not synonym, of *deportata* Walk. (*List Lep. Ins. Brit. Mus.* xxii. 673), differing structurally from *Ptychopoda* in the double areole and the three-spurred ♀ hindtibia.

### 33. *Ptychopoda charitotes* sp. nov.

♂ ♀, 20–22 mm. Face deep red-brown to blackish. Antennal joints of ♂ scarcely projecting, ciliation fine, about 1. Hindtibia of ♂ not very long, slightly thickened, tarsus fully 1.

General aspect of *persimilis* Warr., Nov. Zool. iii. 109.

*Forewing* with apex rather less produced; more glossy, with the dark irroration slighter, but generally with more reddish suffusions; antemedian lines faint

or almost obsolete, reddish; postmedian line straightish and sharply defined, parallel with termen, nearly as in *persimilis*, but whereas in that species it shows a very slight angle outward near costa and scarcely any curve inward at fold, in *charitotes* it is quite straight anteriorly and more appreciably incurved about fold; distal shades more red-brown or purple-brown, of almost equal intensity throughout posterior half of wing, marked close to the termen with the interrupted waved pale subterminal, which becomes thicker and more distinct close to tornus; additional narrower proximal subterminal shading between the radials; terminal line obsolescent; dots on fringe generally minute.—*Hindwing* with the lines more reddish than in *persimilis*; the postmedian markedly farther from termen, especially in the middle, where it does not make the strong outward curve of that species; terminal dots as on forewing.

Underside with corresponding distinctions in the postmedian line.

Assam: Khasia Hills, March, April, May, and October, 3 ♂♂ and 2 ♀♀ in coll. Tring Museum (including the type), 1 ♂ in coll. L. B. Prout.

### 34. *Ptychopoda dura* sp. nov.

♂, 24–28 mm. Tongue developed. Antenna with minute processes, bearing fascicles of long, very slender cilia. Hindtibia dilated, fringed above with rather short, vertical hair-scales; a very long pencil from femoro-tibial joint, reaching nearly to the end of the rather long, slightly thickened and curved tarsus. Abdomen elongate. Head and body concolorous with wings, the face mostly overlaid with black, the abdomen with some faint dark spots anteriorly. Wings strongly elongate, rather thinly scaled, of the form and texture of *latiferaria* Walk. (*List Lep. Ins.* xxiii. 787) or of *Euacidalia oroandes* Druce, *rosea* Warr., etc.

*Forewing* with cell very long, areole ample, SC<sup>1</sup> from well before its apex, SC<sup>5</sup> and stalk of SC<sup>2+4</sup> from its apex, M<sup>2</sup> arising late, almost perpendicularly, then very strongly curved; whitish brown, with a fleshy tinge, especially at base, along costa, and distally; cell-dot obsolescent; strong blackish costal spots before one-third and beyond two-thirds, marking the beginning of the lines, and a fainter costal shade between marking the beginning of the extremely faint median shade, which is somewhat tinged with fleshy grey and approaches the postmedian; antemedian spot oblique outward, a little produced on C–SC, the line otherwise only indicated by vein-dots, very slightly oblique inward; postmedian spot slightly oblique inward, the succeeding line formed apparently as in the *rosea* group of *Euacidalia*, but scarcely traceable to the acute angle on SC<sup>5</sup>, then slightly inbent at R<sup>2</sup> and very slightly incurved between M<sup>1</sup> and SM<sup>2</sup>, indicated chiefly by dashes on the veins; position of subterminal shown anteriorly by a pale space between fleshy-grey shades, these shades strengthening and meeting posteriorly so as to obliterate it; termen with feeble dark dashes; fringe slightly spotted.—*Hindwing* with termen slightly sinuous; C not quite anastomosing, rather gradually diverging, SC<sup>2</sup> moderately stalked; rather paler than forewing, except at distal and abdominal margins; lines marked at abdominal margin, postmedian continuing as vein-dots half across wing; subterminal complete, though vague, between fleshy-grey shades; terminal line and fringe as on forewing.

Underside rather more suffused. Forewing with base of costa darkened, costal spots present, a sinuous, interrupted postmedian line, a grey proximal-subterminal band; spots on fringe stronger. Hindwing with costal spots, cell-

dot and the markings beyond, postmedian series of vein-dots complete, somewhat sinuous; terminal line complete; dots on fringe rather strong.

Brazil: São Paulo; type in coll. Dognin. Paraguay: Sapucay (W. Foster), a large ♂ in coll. Tring Museum.

Very like a pale *Euacidalia oroandes* Druce, except in venation.

### 35. *Ptychopoda amnesta* sp. nov.

♀, 14–16 mm. Face black. Palpus slender, black, beneath whitish. Vertex impure white. Collar brown. Thorax and abdomen concolorous with wings. Forecoxa with dark irroration, femur and tibia less strongly so.

*Forewing* not broad, termen smooth, strongly oblique, very gently curved; areole long,  $SC^1$  from well before its apex,  $SC^5$  from or close to its apex; whitish, with very fine brown irroration and a few scattered black scales; the irroration forms in particular an ill-defined basal shade, a rather broad and ill-defined median fascia (anteriorly strongly excurved round cell-dot, in some specimens diffused over it, posteriorly rather strongly incurved and deeply dentate) and shades proximally and distally to the subterminal; cell-dot black, minute; lines brown, lunulate-dentate, with black dots on the veins; antemedian indistinct, nearly parallel with median shade, more oblique inward at hindmargin; postmedian fine, oblique outward from two-thirds costa, acutely angulated at  $R^1$ , rather deeply incurved between the radials, then incurved again (chiefly between  $M^2$  and  $SM^2$ ), slightly angled outward at  $SM^2$ ; subterminal line free of irroration, moderate anteriorly, forming an outward curve between  $SC^5$  and  $R^2$ , between  $R^2$  and  $R^3$  forming a large inward-projecting spot which almost reaches the postmedian, at fold a similar but smaller and more angular spot, between  $R^2$  and  $M^1$  slender and very near termen; termen with large whitish spots at veins; fringe white, chequered (except at extremities) with brown between the veins and with dark brown basal spots at the vein-ends.—*Hindwing* with termen waved; basal area pale; the rest nearly as on forewing.

Forewing beneath with smoky suffusion throughout, except behind  $SM^2$ ; cell-dot present, sometimes also a faint row of postmedian vein-dots; a dark terminal line; fringe paler, distally white.—*Hindwing* beneath less sharply marked than above, but similar, the postmedian less incurved posteriorly; terminal line and fringe as on forewing beneath.

Cuba: Santiago, May and June 1902 (W. Schaus), 8 ♀♀ in coll. L. B. Prout, including the type; also 1 ♂ and 4 ♀♀ in coll. Brit. Museum, the ♂ in poor condition but admitting of the addition of the following structural characters:

♂ antenna with the joints projecting, the fascicles of cilia long (fully 2); hindtibia very short and slender (shorter than femur), tarsus rather long, slender.

### 36. *Ptychopoda macouma concinna* form. nov.

*Haemalea concinna* Dogn. ined. (in coll.).

♂, 21–24 mm. In general larger than name-typical *macouma* Schaus (*Tr. Amer. Ent. Soc.* xxvii. 258). Ground-colour less whitish—more strongly shaded with grey and in places with brown, more recalling the coloration of *elegantaria* H.-Sch. (*Samml. Aussereur. Schmett.* i. f. 191); subterminal shade better developed, generally scarcely at all interrupted, particularly on the forewing, where it forms an irregular brown, distally dark-mixed band.

Bolivia : Charaplaya, 1,300 m., June 1901 (Simons), 11 ♂♂ in coll. Tring Museum, including the type, others in other collections ; Santiago del Estero (J. Steinbach). Peru : Pozuzo, Huanuco ; La Union, Rio Huacamayo.

Seems seldom to occur with name-typical *macouma*, which is the only form yet known from Colombia, Venezuela, and the Amazons, but which also occurs in Peru (Palcazu and La Union) and Bolivia (Chimate, Salampioni, and Chulumani). Possibly we have two extremely similar species mixed, but the Peruvian and Bolivian forms of the two are not very sharply differentiated.

### 37. *Ptychopoda invocata* sp. nov.

♂, 22–24 mm. Akin to *elegantaria* H.-Sch., the hindtibial tufts, as in that species, reaching about to the end of the greatly abbreviated tarsus. Abdomen with the dorsal whitish spots reduced in size, leaving the dark coloration prominent. Both wings browner than in *elegantaria*, on account of the development of coarse and rather copious dark irroration.

*Forewing* with the margins, as in *elegantaria*, somewhat shaded with violaceous, the dark costal margin broader, the blackish cell-mark stronger, rather elongate ; antemedian line more equally developed throughout, less sinuous ; postmedian forming an **acute angle inward** at fold, then markedly oblique outward to hindmargin ; median also more angulated inward at fold than in most *elegantaria*.—*Hindwing* with corresponding distinctions.

S.E. Peru : La Oroya, Rio Inambari, 3,100 ft., October 1904, wet season (type) ; Rio Huacamayo, Carabaya, 3,100 ft., June 1904, dry season ; both in coll. Tring Museum, collected by G. Ockenden.

The only densely irrorated species in the group.

### 38. *Ptychopoda pareupithex* sp. nov.

*Pareupithex eupitheciata* Warr., *Nov. Zool.* xiv. 222 (1907), indescr. (nec Guen.).

♂, 18–21 mm. Face and palpus buff, strongly mixed with rufous ; vertex whitish buff. Antennal ciliation even, slightly over 1. Collar ochraceous buff, or slightly rufous. Thorax and abdomen pale buff, the former scarcely, the latter very strongly, mixed with chestnut ; abdomen tufted beneath. Midtibia not tufted. Hindleg strongly tufted, the tuft having a rufous tinge distally. Wing-structure as given by Warren (loc. cit.).

*Forewing* pale cream-buff, with faintest tinge of olive ; some slight chestnut shading at base and along costa ; a dark cell-dot at one-half ; a somewhat sinuous, posteriorly widening, chestnut band just beyond, separated from a much paler (more vinaceous) subterminal band by a thread of the ground-colour ; the bed of hairs towards anal angle predominantly chestnut.—*Hindwing* with cell-dot ; chestnut band more proximal, rather broad, but in anterior half obsolescent ; subterminal band irregular, in anterior half shadowy, posteriorly developing a triangular chestnut patch which touches tornus.

Underside with markings similar, on forewing more indefinite, on hindwing with the cell-dot very conspicuous ; pencil of forewing somewhat ochreous, tuft of hindwing more chestnut, with one or two blackish spots.

S.E. Peru : La Oroya, Carabaya, 3,100 ft. (G. R. Ockenden), November–December 1905, wet season (type and others), June and September 1904 ; in coll. Tring Museum.



One of the males bears Warren's label, showing that he misidentified Guenée's Brazilian species. The non-stalking of  $SC^2$  and  $R^1$  of hindwing is no doubt—as in the group *Xenocentris*—a ♂ character and certainly does not show a derivation from *Scopula* = *Emmittis*.

### 39. *Ptychopoda* (*Lobura*) *cellifimbria* sp. nov.

♂, 14–15 mm. Closely similar to *subcrinita* Schaus, *Ann. Mag. Nat. Hist.* (8) xi, 353.

*Forewing* with the inner-marginal flap scarcely so long; areole small; beneath long-haired in cell; on an average less reddish or purplish than in *subcrinita*, the pale patch beyond DC less conspicuous and less anteriorly extended.—*Hindwing* perhaps rather less elongate than in that species; beneath less covered with hair, but with long costal fringe and abdominal-marginal tuft or pencil well developed, the latter paler than the floccous rufous masses found in *subcrinita*.

♀ paler and narrower winged, with the typical *Ptychopoda* structure; not unlike a small *praetextaria* Guen. ♀, but with the band-like markings of distal area much less developed.

Trinidad: Caparo, November 1905 (S. M. Klages), type and allotype ♀ in coll. Tring Museum; a damaged ♂ in coll. Deutsch. Ent. Museum.

## SUBFAM. LARENTIINAE.

### 40. *Polynesia curtitibia* sp. nov.

♂ ♀, 21–24 mm. Similar to *sunandava* Walk. Face with the yellow transverse band more broadly separated from the white fillet (as in *truncapex* Swinh.). Palpus with third joint rather longer and slenderer. Hindcoxa of ♂ swollen at base much as in *truncapex*, the hindtibia shortish and much swollen (in *sunandava* slender, slightly longer than femur). Abdomen of ♂ dorsally darker than in *sunandava*.

*Forewing* with costal margin rather less convex (straighter in middle); ground-colour in ♂ rather lighter straw-yellow, with the markings darker drab (less rufescent), the silvery scales less numerous; both sexes with the irregular and interrupted lines of proximal area (as far as cell-dot) more strongly developed, the cell-dot itself small and concise, the double postmedian row of spots much thickened from costal margin to  $R^3$ , confluent at the radials, the spot of the outer row on  $R^2$  produced distally.—*Hindwing* with the markings at (or just beyond) two-thirds abdominal margin stronger than in *sunandava*.

Assam: Khasia Hills, April 1894 (type ♂ and a ♀), September 1893 (a ♂, Cherrapunji), June 1894 (a ♀), all in coll. Tring Museum.

### 41. *Eois carnana aberrans* (Warr., MS.) subsp. nov.

♂ ♀. Less variegated than *c. carnana* Druce (*Biol. Centr.-Amer., Lep. Het.* ii, 115, t. 52, f. 10, 11), from Central America, the yellow markings paler and more restricted, the shade beyond the postmedian on the forewing only expanding into a spot at the radials, not again posteriorly. *Hindwing* with the dark median line rather strong and nearly straight, the postmedian more strongly sinuous than in *c. carnana*.

Brazil: Rio Janeiro (Edwin Wilson), type ♂ in coll. Brit. Museum; Castro, Parana, a series in coll. E. D. Jones, a worn ♀ in coll. Tring Museum; "off Montevideo" [or rather, off S. Brazil], 28° 24' S. lat., 46° 30' W. long., November 26, 1911 (Dr. Charles Chilton), 4 ♂♂, 5 ♀♀ in coll. L. B. Prout (vide *Entom.* xlv. 204-5).

#### 42. *Eois lucivittata expurgata* subsp. nov.

♂, 25-28 mm. On an average larger than *l. lucivittata* Warr. (Nov. Zool. xiv. 239), from Peru.

*Forewing* with the strong V-shaped subcostal projections on the proximal lines, which in *l. lucivittata* are generally highly developed, reduced to small insignificant teeth; the outer of the postcellular pair of lines wanting (4 specimens) or rudimentary (1); terminal dashes wanting.—*Hindwing* with the outer of the post-cellular lines wanting; terminal dashes wanting.

Colombia: Cañon de Tolima, 1,700 feet (A. H. Fassl), December 1909, 4 ♂♂, March 1910, 1 ♂, in coll. Tring Museum.

Both the forms of this "species" may have to sink as races to *carmentis* Druce, of which only the type, from Guatemala, is known to me; this is smaller, rounder winged, with the admarginal line and subapical mark wanting, etc.

#### 43. *Eois primularis* sp. nov.

♂♀, 26-28 mm. Similar to *lucivittata* Warr.

*Forewing* slightly less broad, with rather more oblique distal margin; ground-colour lighter, more primrose-yellow; outer postcellular line irregularly developed, forming a **longitudinally produced dark spot** between R<sup>3</sup> and M<sup>1</sup> (touching the inner postcellular line) and a smaller dark spot between M<sup>1</sup> and M<sup>2</sup>; fifth line (last but one) angulated inward subcostally and more markedly inward between the radials than in *lucivittata*; terminal dashes reduced to dots or obsolete.—*Hindwing* with similar spots on the outer postcellular line, though generally reduced; the succeeding line corresponding to that of forewing; terminal dots generally strong, but less elongate than in *lucivittata*.

Forewing beneath with the reddish markings much darker and duller, more restricted (especially in distal area) to the costal part of the wing; a distinct cell-spot developed.

Peru: Huancabamba, Cerro de Pasco (E. Boettger), 4 ♂♂, including the type; Oconeque, Carabaya, 7,000 ft., July 1904, dry season (G. R. Ockenden), 1 ♂, 1 ♀; Agualani, 9,000 ft., December 1905, wet season (G. R. Ockenden), 1 ♀; all in coll. Tring Museum.

#### 44. *Eois camptographata* sp. nov.

♂♀, 20-26 mm. Similar in general aspect and coloration to *isographata* Walk. (*List Lep. Ins.* xxvi. 1756), on which account—notwithstanding several important differences—it has hitherto remained undetected. ♀ antenna bipectinate with long branches (bringing it into the group *Pseudasthena*).

*Forewing* with the curved antemedian line from hindmargin **throwing out a broad tooth on SM<sup>2</sup>**, the extremely oblique streak from base of hindmargin to M (overlooked or obsolete in Walker's type) replaced by a longer, less oblique one, which continues along the cell-fold and meets the antemedian line on DC, the two

thicker, darker (more purple-mixed) than the corresponding lines of *isographata*, the area enclosed between them slightly vinaceous-cinnamon, the anterior end of the antemedian subobsolete; postmedian pair of lines nearer the termen than in *isographata*, forming a very much stronger rounded projection at  $R^{2+3}$ , anteriorly somewhat divergent instead of coalescing, extremely oblique inward to midcosta, the proximal one thickened anteriorly; no streak across median area between  $R$  and  $R^2$ , but instead a subcostal streak from apex, generally at least reaching the postmedian lines; subterminal line rather nearer to termen, especially anteriorly. — *Hindwing* with postmedian lines generally more divergent at abdominal margin than in *isographata*.

Forewing beneath more strongly marked than in *isographata*, with a complete or nearly complete costal streak.

E. Peru: Huancabamba, Cerro de Pasco (Hoffmanns), the type and four others. Also from S.E. Peru (La Oroya, etc.) and Bolivia (Charaplaya). All in coll. Tring Museum. The Huancabamba specimens are on an average the largest.

45. *Eois verisimilis* sp. nov.

♂, 21 mm. Indistinguishable from *dissimilis* Moore (*Lep. Ceyl.* iii. 450) except in two structural characters. The ♂ antenna, which in *dissimilis* is nearly simple, with minute ciliation, bears short pectinations (scarcely longer than diameter of shaft) surmounted by fascicles of cilia.

*Forewing* with the areole (which is present in all the *dissimilis* I have examined, though nearly always small, sometimes minute) entirely wanting. In both species, though perhaps more markedly in *verisimilis*,  $R^2$  arises well before the middle of DC.

Sambawa: Tambora (W. Doherty), 6 ♂♂ in coll. Tring Museum, the type and three others taken in June 1896 at 2,500–4,000 feet, one in low country April–May 1896, and one, without indication of altitude, in June 1896.

46. *Eois memorata* (Walk.).

*Pomasia memorata* Walk., *List Lep. Ins.* xxii. 657 (1861) (Moulmein).

*Anisodes rapistriaria* Swinh., *Tr. Ent. Soc. Lond.* 1890, p. 210, t. 7, f. 9 (Rangoon).

*Pseudasthena memorata*, Moore, *Lep. Ceyl.* iii. 450 (1887).

*Psillocambogia memorata* Hmps., *Ill. Lep. Hel.* ix. 151 (1893).

I find that three Indian species are mixed under this name. Briefly they may be distinguished as follows:

Antennal ciliation of ♂ about as long as diameter of shaft . . . . .	1
Antennal ciliation of ♂ extremely short:	
Areole developed, face red-brown on upper half, yellow on lower, wing-expanse 19–22 mm. . . . .	2
Areole wanting, face uniformly ochraceous red-brown, wing-expanse 16–20 mm. . . . .	3

To facilitate the study, I first redescribe No. 1, which is the true *memorata* Walk. = *rapistriaria* Swinh. (*ephyrata* Walk., wrongly sunk by Swinhoe, *Cat. Lep. Oxf. Mus.* ii. 351, is a close ally of *pallidula* Warr., *Nov. Zool.* iii. 383).

♂ ♀. 21–26 mm. On an average larger than the two following, more reddish than *anydroscia*, scarcely at all variable in tone. The ♂ distinguishable at once by the longer antennal ciliation. Face red-brown on upper half, yellow on lower,

even more sharply bicoloured than in *amydroscia*. Abdomen dorsally red-brown, with clear yellow, sharply defined spots.

*Forewing* with areole nearly always present, though often minute (in three out of some three dozen examined, entirely wanting); the network of reddish lines rather sharply and evenly developed, the group immediately beyond the cell-dot usually accompanied by some greyish shading; radial and subternal dots of proximal subterminal line usually rather small and thin but sharp, looking a little darker than those of *amydroscia*.—*Hindwing* with the line immediately beyond the cell-dot almost always sharply expressed, oftenest touching or even absorbing the dot; very generally some grey shading developed between this and the succeeding line.

Burmah (type), also from Ceylon, Travancore, Kulu, Sikkim (common), Bhotan, Assam (common), S. Java, Bali.

#### 47. *Eois amydroscia* sp. nov.

♂ ♀, 19–22 mm. (= No. 2 above). Face red-brown on upper half, yellow on lower. Areole developed. General tone yellower (less rufous) than the preceding and following species, though rufescent aberrations do occur and may become normal in the S.E. of its range, as the only Sunda Island examples before me (Pulo Laut, 3; W. Java, 1) are of this tone. The group of lines beyond the cell-dot not so often connected by grey shading as in the allies, the dark radial and subternal spots of the proximal subterminal line generally diffused, occasionally obsolete, scarcely ever sharp. Dorsal pattern of abdomen (consisting of large yellow spots on the more rufescent ground) rather feebly developed, often almost obsolete.

Hainan (type in coll. Tring Museum), Sikkim to Malay Peninsula, Pulo Laut, W. Java, in coll. Tring Museum.

#### 48. *Eois phaneroscia* sp. nov.

♂ ♀, 16–20 mm. (= No. 3 above). Face uniform red-brown. ♂ antennal ciliation very short. Abdomen about as in *amydroscia*.

*Forewing* with areole wanting; ground-colour generally as in *memorata* or slightly more reddish, but variable, sometimes with a decided tinge of vinaceous pink, sometimes as ochreous as in normal *amydroscia*; reddish lines in general less sharply expressed than in the allies; those immediately beyond the cell-dot generally obscured or subobsolete, being replaced by a single dark-grey line (rather less strongly oblique inward anteriorly than the corresponding line of *memorata* and *amydroscia*) or more commonly by a shadowy grey band.—*Hindwing* with similar distinctions.

Sikkim, Assam, Malay Peninsula, Java, Bali, Pulo Laut. Type ♂ from the Khasia Hills, February 1894, in coll. Tring Museum.

May conceivably be a subspecies of *sanguilineata* Warr., Nov. Zool. viii. 195.

#### 49. *Eois planifimbria* (Warr. MS.) sp. nov.

♂ ♀, 16–20 mm. Face yellow, almost entirely overspread with red suffusions. Palpus reddish on outer side. Vertex narrowly white between antennae, then narrowly red or red-spotted; occiput predominantly yellow. Antenna of ♂

somewhat thickened proximally, somewhat lamellate, the ciliation extremely short (about as in the two preceding species). Thorax and abdomen yellow, paler beneath; the thorax anteriorly mottled with red. Foreleg reddened on inner side.

*Forewing* with small areole; buff-yellow, the markings rosy; a more purplish costal streak or shade almost to apex, leaving the extreme costal edge yellow with some dark spots; some slight irroration at base; antemedian line weak or almost obsolete, wavy and very slightly curved; traces of an interrupted line commonly appearing midway between this and cell-dot; cell-dot small, mixed with black; postmedian line double, both elements fine, parallel, sometimes more or less fused together, placed rather near the cell-dot, angulated outward at  $SC^2$ , inbent at fold; one or two lines (more or less interrupted, oftenest only developed subcostally and between  $R^2$  and  $M^1$ ) in the succeeding area; proximal subterminal line diffuse, wavy, sometimes broken into spots, inbent at fold; distal subterminal generally finer and more feeble, usually connected with proximal by some shading between  $R^2$  and  $R^3$  and between  $M^1$  and  $M^2$ ; no terminal line; fringe yellow.—*Hindwing* with termen somewhat wavy, not noticeably bent at  $R^3$ ;  $R^3$  and  $M^1$  separate; proximal area with one or two fine rosy lines; cell-dot minute; markings beyond corresponding to those of forewing.

Forewing beneath predominantly rosy; becoming cream-colour at hindmargin and with an admixture of cream-colour between cell and postmedian and between postmedian and subterminal; extreme costal edge partly yellow; extreme distal margin and fringe pale yellow. Hindwing beneath cream-colour, with markings rosy; a slight antemedian; a broad, sinuate postmedian (touching the cell-dot); a double, broad subterminal, partly confluent.

Solomon Islands: S. side of Choiseul, January 1904 (A. S. Meek), 4 ♂♂, 3 ♀♀, including the type ♂; Tulagi Island (Woodford), 1 ♀; Florida Island, January 1901 (A. S. Meek), 7 ♂♂, 8 ♀♀; Guadalcanar, April and May 1901 (A. S. Meek), 4 ♂♂; all in coll. Tring Museum.

Warren labelled the Tulagi specimen (which is in poor condition) "*planifimbria*," but apparently afterwards decided to sink the species to *dissimilis* Moore (!).

#### 50. *Acolutha flavipictaria* sp. nov.

♂, 20–22 mm. Closely like *pictaria* Moore (*Lep. Coll. Atk.* p. 267) except in coloration. Both wings slightly broader.

*Forewing* with distal margin slightly less oblique; costal area less variegated, the grey being mottled almost throughout with shades of ochreous, the beginnings of the lines only a little brighter ochreous, hence not conspicuous; posterior half of wing brighter yellow than in *pictaria*, not or scarcely at all mixed with white, the continuation of the lines at hindmargin bright ochreous brownish, termen also shaded with ochreous brownish, thus very different from that of *pictaria*, in which it is white between two interrupted fuscous lines.—*Hindwing* predominantly yellow (in *pictaria* predominantly white); the markings similar to those of *pictaria*.

Forewing beneath as in *pictaria*; hindwing with an indistinct dark subterminal line, or at the least with a dark subapical shade; in strongly marked specimens the beginning of a second, rather more proximally placed line appears at abdominal margin (in *pictaria* the hindwing beneath is pure white throughout).

Khasia Hills, December 1893, February and March 1894, 10 ♂♂ in coll. Tring Museum.

I do not think this can be a form of *pictaria*, but even if it be it well deserves naming; there is an absolutely sharp demarcation in the two Khasia series.

51. *Acolutha subrotunda* sp. nov.

♂♀, 23–24 mm.

*Forewing* with apex more rounded than in any other *Acolutha* except *flavipictaria*; coloration similar to that of *flavipictaria* but paler, more mixed with white in middle; cell-dot minute; the double postmedian line rather more regular, less thickened at radials and posteriorly, less interrupted between; subterminal lines feeble, coloured nearly as in *flavipictaria*, but separated by a white line as in *pictaria*.—*Hindwing* rounder than in any other species of the genus, the distal margin being more feebly and regularly subcrenulate, the strong excision between  $R^1$  and  $R^2$  being replaced by a pair of very feeble excisions, leaving a tooth at  $R^2$  almost as strong as that at  $R^1$ ; only at  $R^2$  a rather stronger tooth; predominantly pale yellow, the brownish markings weak; white bands in proximal part.

Underside similar to that of weakly marked *pictaria* but with the dark costal shade less posteriorly produced near termen.

Lesser Sunda Islands: Sambawa, September 1891 (W. Doherty), type ♂ and a ♀ in coll. Tring Museum, ex coll. H. J. Elwes; S. Flores, October 1896, dry season (Everett), a smaller, perhaps paler (but rather worn) ♂ in the same collection.

52. *Xanthorhoë politula* sp. nov.

♀, 36 mm. Face without developed cone of scales. Palpus moderately long, heavily scaled. Antenna subserrate. Head and body brown.

*Forewing* rather broad, termen crenulate, very gently curved, rather strongly oblique; brown, somewhat as in *Camptogramma stellata* Guen. but more glossy, and with more purplish or vinous hue, more recalling the *monastica* group (from New Guinea) or even approaching the Indian *Paracomucha chalybearia* Moore; basal patch traversed by ill-defined lines, its boundary rather straight, at about one-fourth; median band rather broad, at costa occupying the middle third, at hindmargin more than one-third (nearer to tornus than to base), with the limiting lines and some costal spots the darkest, but containing also a second antemedian line and two highly crenulate postmedian ones, the proximal of them angulated inwards subcostally; the true antemedian fairly direct, but more sinuous than subbasal; the postmedian much broadened in anterior half, indented at the veins, the indentations filled in with white dots, the normal projection at the radials and inward bends at  $R^2$  and to  $M^2$  present but weak; pale band beyond postmedian not very conspicuous, its distal boundary-line only strong anteriorly; a subterminal costal patch, a weaker one about the radials and an oblique shade from  $M^2$  to near tornus proximally to the subterminal; the rest of the distal shades slight; terminal line blackish, interrupted by small pale dots at the veins and slightly weakened at middle of interspaces; fringe weakly mottled.—*Hindwing* with termen crenulate; greyer than forewing, almost unmarked except at abdominal margin and especially in tornal region; terminal line and fringe as on forewing.

Both wings beneath, but especially the forewing, rather weakly marked;

cell-dots present, that of the hindwing the larger; some pale wavy lines, more or less broken into whitish dots, only the postmedian distinct on the forewing; terminal line and fringe nearly as above.

Panama: Volcano de Chiriqui, 5,000-9,000 ft. (Watson), type in coll. Tring Museum.

The British Museum collection possesses a ♂ from Boguete, Chirigui; antenna rather long, with rather long pectinations, the last eleven joints merely serrate and ciliate. Possibly a form of *veraria* Warr. (*Proc. U.S. Museum*, xxxiv, 102) from Mexico, only known to me from the description and an unpublished drawing of Warren's; but the latter has a differently shaped median band and the figure shows the forewing more elongate.

### 53. *Xanthorhoë exorista* sp. nov.

*Xanthorhoë saturata* Janse, *Check-List S. Afr. Lep. Het.* p. 100 (1917) (nec Guen.).

♂♀. Very similar to the well-known *saturata* Guen. (*Spec. Gén. Lép.* x, 269) of India, the sexual dimorphism parallel. More variegated both above and beneath, the band of forewing above very variable in colour, redder or blacker, but not of the dirty grey-brown of *saturata*, the postmedian line at costa (at least on underside) less incurved, its median projections generally stronger, subbasal band better defined; both wings (especially beneath) with dark subterminal shading better developed, beneath commonly forming almost continuous bands; underside less mixed with whitish.

South and Central Africa: Natal (the type ♂ from Durban, in coll. Tring Museum, bred by G. F. Leigh, October 1902) and general from the Cape to Tanganyika, also from Nyassaland and Uganda.

This common species has never until recently been studied critically. In the British Museum the ♂♂ have been placed with *saturata* and the ♀♀ misidentified with *Epirrhoë submaculata* Warr. (Nov. Zool. ix, 515); while at Tring Mr. Warren curiously mistook it for the very different *spatiosata* Walk. Increasing familiarity with its distinctive facies led me gradually to doubt its identity with its Indian ally, and at last I submitted the ♂ genitalia to my kind friends Rev. C. R. N. Burrows and F. N. Pierce, who find my suspicions confirmed. The apex of the valve is not bifurcate, whereas it is markedly so in *saturata*; saccus less narrowed than in that species; cornuti less numerous (in *saturata* forming two patches); calcar perhaps less delicate.

### 54. *Ortholitha propinguata superlata* subsp. nov.

♂, 43-44 mm.; ♀, 46 mm. Larger and relatively broader-winged than *p. propinguata* Koll. Both wings with a decided tinge of brown, the medium band of the forewing less darkened than in the other races, giving altogether a more uniform appearance to the insect.

N. Luzan, 5,000-6,000 ft. (Whitehead), 3 ♂♂, 1 ♀, in coll. Tring Museum.

*Cidaria propinguata* Koll., *Hügel's Kaschmir*, iv, 488 (1848), not identified by Hampson and others, is the oldest name for the collective species which has passed as *niphonica* Butl. (1878). Besides the one here described, there seem to be at least three separable races: *p. propinguata* Koll. (N.W. India to Sikkim), *p. niphonica* Butl. (Japan), and *p. suavuta* Christ. (E. Siberia); *ignotata* Stgr.

(Tibet), conjecturally referred here by me in Seitz (*Macrolep.* iv. 165), is now known to me from two examples in the Tring Museum and proves to be a race of *latifusata* Walk.

55. *Lampropteryx neelys* sp. nov.

♂ ♀, 28–32 mm. Closely similar to *minna* Butl. (*Tr. Ent. Soc. Lond.* 1881, p. 424), from Japan and E. Siberia. Antenna of ♂ without the rudimentary pectinations of that species, scarcely even so dentate as in *suffumata* Schiff.; the fascicles of cilia scarcely as long as diameter of shaft. Face blacker, the pale irroration being quite sparse.

*Forewing* at least as strongly glossy as in *minna*, the markings almost identical, but darker (coloured as in dark *argentilineata* Moore); white lines even slenderer; antemedian rather more direct (not at all oblique inward anteriorly); postmedian in general more distally placed, median band always broad.—*Hindwing* rather darker than in *minna*, with markings still more obsolete.

Underside likewise a little darker than in *minna*, the pale parts warmer in tone; postmedian of hindwing more vertical at costa (not or scarcely oblique inward).

N. India, apparently not uncommon, especially in the Khasia Hills; type from that locality in coll. Tring Museum, paratypes in coll. Brit. Museum, coll. Joicey, coll. Prout.

Has hitherto been confused with *minna*.

56. *Lampropteryx synthetica* sp. nov.

♂ ♀, 32–34 mm. Antenna of ♂ with pectinations almost as well developed as in *minna*. Termen of forewing more oblique, nearly as in *siderifera* Moore (*Lep. Coll. Atk.* p. 276), to which it is also akin in the strong development of lateral pencils on the last segments of the abdomen (section *Paralophia*). Head and body nearly as light as in *minna*, the abdomen with dark dorsal spots as in that species.

*Forewing* a trifle less glossy than in *minna*; the dark markings slightly less brown; cell-mark enlarged; antemedian slightly more distally placed, its tooth on fold rather longer; median band narrower posteriorly.—*Hindwing* with DC strongly biangulate; abdominal fringe in ♂ strong, in part tinged with ochreous; ground-colour nearly as dark as in *neelys* Prout, cell-dot stronger.

Underside much as in *neelys*, but more uniform purple-grey (less brown-mixed).

Formosa: Arizan, August 1908, 1 ♂ and 1 ♀, July 1908, 1 ♀; in coll. Tring Museum.

57. *Lampropteryx producta* sp. nov.

♂ ♀, 33–38 mm. Extremely like the preceding and agreeing in most points of structure. Antenna of ♂ dentate-fasciculate, slightly more strongly than in *suffumata* Schiff., but without the pectinations of *synthetica*. Wings still more elongate, shaped as in *siderifera* Moore.

*Forewing* with median band nearly as broad and dark as in *neelys*, the proximal indentations (at both folds) strong, the distal indentation on M<sup>2</sup> also deep; termen and fringe rather strongly marked.—*Hindwing* as in *synthetica* or rather more strongly marked.



Underside more variegated with whitish than in *synthetica*, intermediate towards that of *minna*. Hindwing with postmedian rather more zigzag than in the allies, dark spots or wedges proximal to the white subterminal dots generally well developed.

W. China: Pu-tsu-fang, 9,820 ft., June and July 1890 (native collector), type and others; Pu-tsu-fu; Che-tou. Described from a series in coll. Tring Museum, but I have also seen many in the Leech collection, where it was misidentified as *suffumata* Schiff.

58. *Perizoma illimitata* sp. nov.

♂, 24–26 mm. Near *cinereolimitata* Th.-Mieg (*Le Nat.* 1892, p. 235). Rather smaller.

*Forewing* slightly narrower, with margins slightly more curved; cell rather longer (nearly one-half); duller fuscous, less glossy; subterminal line less pure white, less closely approaching termen, its course, though similar, distinguishable by being sharply angulated inward on  $R^3$  and more slightly on  $M^1$  and  $M^2$ , bilunulate outward between; terminal area not appreciably paler than ground-colour; fringe more strongly chequered than in *cinereolimitata*.—*Hindwing* narrower than in that species, with costal margin relatively longer.

S.E. Peru: Agualani, Carabaya, 9,000 ft. (G. R. Ockenden), August 1905 (type) and August 1904, both in coll. Tring Museum.

59. *Perizoma vacillans tolimensis* subsp. nov.

♂. Both wings with the ground-colour whiter than in *v. vacillans* Warr. (*Nov. Zool.* xii. 327, Bolivia).

*Forewing* almost without dark shading in the outer area proximally to the subterminal in cellules 2 and 3.—*Hindwing* above and beneath more feebly marked than in *v. vacillans*, but with the cell-dot at least as large and prominent.

Colombia: Paramo del Tolima, 4,200 m., January 1910 (A. H. Fassl), 6 ♂♂ in coll. Tring Museum.

60. *Perizoma cyrtozona* sp. nov.

♂, 32–34 mm. Face slightly rough-scaled. Palpus almost 2, moderately rough-scaled. Antenna almost simple. Metathoracic crest slight. Abdomen rather slender, smooth. Head and body concolorous with wings, the face and palpus darkened.

*Forewing* moderately broad, costal margin gently curved (straightish in middle), termen moderately oblique, little curved; DC curved, strongly oblique posteriorly,  $R^1$  connate or just separate,  $M^1$  widely separate; rather glossy whitish, from costal margin to SC and on most of the veins more buff; markings brown; basal patch moderately strong, distally darker, 2 or 5 mm. wide, limited by a nearly straight but slightly dentate white line with a stronger tooth behind  $SM^2$ ; succeeding area traversed by close but indefinite lines of irroration; median band 5 or 6 mm. wide at costa, 1 mm. at hindmargin, limited by white lines and enclosing a large oblique pale patch from costa to near  $R^3$ ; cell-dot fairly large, at proximal edge of this patch; antemedian line from costa at nearly one-third,

acutely angulated outward behind cell-fold (reaching the plane of the cell-dot), posteriorly convex baseward; postmedian forming a strong outward curve between costa and  $M^2$ , then nearly vertical to hindmargin, somewhat lunulate-dentate throughout, the indentations (on the veins) all slight except on the medians; two succeeding lines, best defined anteriorly; distal area dark-clouded, especially in anterior half; subterminal deeply dentate, filled in proximally with three or four blackish triangles anteriorly and with feeble indications of smaller ones posteriorly; terminal line blackish, finely cut by the veins and more or less interrupted midway between; fringe somewhat mottled and with dark spots opposite the veins.—*Hindwing* with termen slightly waved, prominent at  $SC^2$ ; pale brownish grey, slightly browner distally than proximally; cell-dot small; an ill-defined lunulate-dentate brown postmedian line; terminal line weak; dots on fringe rather strong.

Underside glossy brownish. Forewing as far as the postmedian darker, with some pale costal irroration or strigulation; cell-dot present; postmedian rather strong in anterior half; subterminal indicated in anterior half, with strong proximal clouding and traces of the dark triangles; termen and fringe nearly as above. *Hindwing* with cell-dot, a strong and thick postmedian line (rather more proximal than above) and ill-developed subterminal line, with some proximal shading (generally strongest towards abdominal margin).

Colombia: Monte Tolima, 3,800 m., February 1910 (A. H. Fassl), 4 ♂♂ in coll. Tring Museum.

Like the related species (*rostrinota* Dogn., *Hét. Nouv. Amér. Sud*, xxii. 11, *camptogrammaria* Warr., Nov. Zool. xiv. 229, etc.), as well as the two just described, this has probably no close relationship with the typical *Perizoma* of Europe.

#### 61. *Lithostege scoliogramma* sp. nov.

♀, 27 mm. Face protuberant, blackish fuscous. Palpus about 2, stout; blackish fuscous. Vertex mixed with whitish. Thorax above fuscous, beneath (with coxae) white-mixed. Abdomen pale brown, whiter beneath. Legs pale brownish, the foreleg somewhat darkened on inner side; foretibial claw rather long, the second (outer) one vestigial.

*Forewing* rather broad, costa strongly arched, termen gently curved, tornus moderate; violet-grey, with brownish fuscous irroration; a small brown patch just outside cell, a black mark at  $DC^1$ ; lines fine, black; subbasal at 1.5 or less, scarcely bent; antemedian from beyond two-fifths costa to well beyond middle of hindmargin, strongly angled inward in cell and outward on  $M$  at base of  $M^2$ , then slightly sinuous to hindmargin; slightly pale-edged proximally, especially at costa; faint traces of a broader line 1 or 2 mm. proximally to it, subparallel but with the outward angle less deep; postmedian at about two-thirds, slightly lunulate-dentate (the teeth pointing inward on the veins), very feebly incurved between the radials and in submedian area, finely pale-edged distally, especially at costa; a dark cell-dot and (crossing it) traces of a median shade in middle of central area, giving place in its narrow posterior part to some longitudinal lines connecting antemedian with postmedian, an oblique one in front of  $SM^2$  particularly noticeable; traces of a subparallel line beyond the postmedian; a pale, irregularly lunulate-dentate subterminal line from costa near apex to tornus, slightly

incurved between the radials; terminal line blackish, interrupted at the veins; fringe rather duller, weakly marked.—*Hindwing* not extremely small, the veins not much curved; uniform glossy pale grey.

Underside glossy brown-grey, unmarked, except for a whitish postmedian costal spot on forewing.

Misiones, Argentina, July (per A. Heyne), type in coll. Deutsch. Ent. Museum.

Larger and broader winged than *tzaddi* Prout (*Tr. Ent. Soc. Lond.* 1910, p. 236), much more uniform, the lines different, the palpus longer. Almost a *Chesias* by the shape of the forewing, only with the tornus too pronounced.

#### 62. *Lithostege biernis* sp. nov.

♂, 32 mm. Palpus moderate. Antenna rather stout, lamellate, pubescent. Foretibia with both the claws highly developed, though the inner, as usual, is much the longer. Head and body fuscous.

*Forewing* not broad, costa straightish, apex moderately pointed; greyish fuscous, slightly glossy, but less so than in *Chesias*; proximal area, as far as the median band, more or less strongly irrorated with ochreous-brown; veins in distal area largely ochreous-brown, especially on the space just beyond the median band, where, moreover, they are marked with two rows of dark fuscous dots; median band darkest at its borders, where it is somewhat blackish-marked on the veins; at costa 5 mm. in width, its proximal edge from costa to cell oblique outward, its distal edge from R<sup>1</sup> oblique inward, its posterior part consequently quite narrow (on M only reaching between the bases of M<sup>1</sup> and M<sup>2</sup>); subterminal pale line strongly dentate; termen partly pale-mixed; terminal line slight, interrupted.—*Hindwing* rather glossy, nearly uniform greyish-fuscous.

Underside glossy fuscous, feebly marked. Forewing with the postmedian arising from a distinct dark costal dot; the costal margin distally paler, tinged with ochreous; a slender, interrupted terminal line. Hindwing with indications of a rather thick, curved postmedian line little beyond the middle.

Morocco: Casablanca, 1911. Type in coll. L. B. Prout, kindly presented by Monsieur P. Dognin.

Another link between *Chesias* and *Lithostege*, having the general coloration of the former, from which it differs in the less arched costa and the tibial claws.

#### SUBFAM. GEOMETRINAE.

#### 63. *Mauna perquisita* sp. nov.

♀, 38–40 mm. Face dull reddish purple, with some greyer shading below. Palpus a little redder, at base beneath with some pale ochreous hairs. Vertex dull purplish; occiput olive-grey. Thorax above dull purple, with the “tegulae” mixed ochreous and rufous; beneath whitish, shaded in places with ochreous and roseate. Abdomen light ochreous-brown. Legs light ochreous-brown, mixed with roseate, the middle and hind femora and proximal part of hindtibia whitish on one side.

*Forewing* not very narrow, apex minutely produced, termen faintly waved; glossy, very variegated, the markings not sharply defined; prevailing tone dull grey-purple (formed of a blend of red-brown, pale violet, and sparser black scales), more ferruginous at base of costa, at apex, in posterior half of median area and

towards tornus; costal edge mostly brighter (more tawny), especially towards apex; ill-defined pale violaceous shades at costa proximally to postmedian line and at mid-termen; still fainter pale shades (with more of a tinge of olivaceous buff) in posterior half on each side of median area (in the paratype lighter and much more strongly developed); median line black, obscure, obsolescent posteriorly, oblique outward from costa at about one-fourth or rather beyond, joining a longitudinal shade across the median area behind  $M^2$ ; postmedian from just beyond three-fourths costa, slightly incurved in posterior half, formed of a small but distinct blackish spot at costa and weaker dots or teeth on the veins (chiefly defined by the pale shading which accompanies it distally); no terminal line; fringe purple-grey.—*Hindwing* white, with a moderately broad, dull purple border, which is mostly about 4 mm. broad (but not quite sharply defined proximally), narrowing at tornus; fainter purplish shading costally; fringe whitish grey, tipped with white.

Both wings beneath more nearly as hindwing above, but with the white more broadly suffused with purplish anteriorly, border of forewing rather narrower and duller, costal margin of forewing bright yellow ochre with some minute purplish dots proximally and a larger one representing the postmedian.

Rhodesia: Shamva, December 19, 1917, type in coll. Brit. Museum; Salisbury, January 12, 1920, paratype in coll. L. B. Prout; both kindly presented by Rev. Father J. O'Neil.

A true *Mauna*, the forewing beneath being clothed—as in the type species, *filia* Cram. (= *acuminata* Walk., *scelestaria* Feld.)—with long, longitudinally appressed hair at the base of the costa and in the whole of the cell. This development is lacking in *ardescens* Prout and *electa* Prout, which perhaps require generic separation.

#### 64. *Euexia percnopis aora* subsp. nov.

♂, 35–36 mm. Differs from *p. percnopis* Prout (Nov. Zool. xxii. 379) chiefly in shape and in its smaller size.

*Forewing* slightly narrowed, with costal margin faintly sinuous, termen appearing prominent at  $R^3$ , the posterior half being subconcave.—*Hindwing* with termen very slightly bent in middle.

In colouring extremely variable, vinaceous cinnamon (type), drab or deep fawn-colour, the purplish admixture in the distal area and the olivaceous in the median equally inconstant.

Rhodesia: Shamva, December 1920, 3 ♂♂ submitted by Rev. Father J. O'Neil, type in coll. Brit. Museum, paratypes in coll. J. O'Neil et coll. L. B. Prout.

Here belongs also the specimen from Tanganyika Territory ("German East Africa") mentioned in the original description of *percnopis*. Its wing-margins being a little damaged, I did not notice its difference in shape and could not erect a race on a single example on account merely of smaller size.

#### 65. *Xylopteryx o'neili* sp. nov.

♂, 40 mm. Head cream-white, with strong black irroration. Palpus white, the second joint on outer side and beneath black, the third (which is longer than in typical *Xylopteryx* and exposed) black at base beneath. Occiput black. Antenna irregularly spotted, black and white; the fascicles of cilia moderate,

slender. Thorax above predominantly black, patagia and pectus white; metathoracic crest deep black. Abdomen white, dorsally almost entirely clouded with purple-grey; dorsal crests undeveloped; anal end deep black, with spreading tufts of white hair. Legs white, the femora dotted, the tibiae and tarsi ringed with black; hindtibia not dilated.

*Forewing* with termen almost smooth; clouded over with purple-grey or red-grey, traversed by numerous excessively fine, interrupted black lines, the white ground-colour only showing in slight irroration, in costal and hindmarginal spots and dots (especially a triangular one at base of hindmargin), in irregular distal edging to the subbasal and antemedian lines, and especially in parts of the terminal area; markings broad, deep black; subbasal line thickest at costa (where it reaches base), oblique outward; antemedian from just beyond one-fourth costa, angled outward in cell, inward before fold, then oblique outward to hindmargin at 5 mm.; postmedian only conspicuous at costa and hindmargin, deeply excurved between the radials but mostly lost in a broad black band which reaches the subterminal; broad diffuse blackish median clouding from hindmargin to M, then running out behind M<sup>2</sup> to join the postmedian; subterminal white, slender, deeply dentate in middle, straightish anteriorly and posteriorly; distal area partly ochreous-brown mixed with white, crossed by an ill-defined black patch at R<sup>2</sup> and a second between the medians, the intervening spot (R<sup>3</sup>-M<sup>1</sup>) predominantly white; terminal interneural dots large, black, accompanied on the white fringe by black or grey shading.—*Hindwing* with termen very feebly crenulate; white, suffused (except costally) with light purple-grey; a black, proximally somewhat diffused, distally dentate, submarginal band of 2-3 mm. width, narrowing to tornus; a dot just proximal to it behind SM<sup>2</sup>.

Forewing beneath white, suffused (except in distal area) with light bluish grey, which becomes darker and more strigulate in median area behind M and M<sup>2</sup>; costa dotted with black except in distal area; antemedian and postmedian lines present, finer and weaker than above; submarginal black band and its distal branch between the radials strong. Hindwing white, here and there (at costal margin more strongly) irrorated with black; submarginal black band strong.

S. Rhodesia: Salisbury, July 6, 1920 (Rev. Father J. O'Neil). Type in coll. Brit. Museum, kindly presented by the captor.

A striking species, agreeing structurally (except in third joint of palpus) with the genotype (*protearia* Guen.), but with the distal margins even more regular than in *arcuata* Walk., which it also more recalls in the white, dark-bordered hindwing and undersurface, but which has strong abdominal crests and DC<sup>1</sup> and DC<sup>4</sup> of both wings shorter.

#### 66. *Gonodontis breviata* sp. nov.

♂, 31 mm. Face cinnamon. Palpus formed about as in *Crocallis boisduvalaria* H. Luc.; mostly black-mixed, leaving only the tip conspicuously pale. Tongue slight. Vertex brown, the hair not forming a projecting tuft between the antennae; occiput paler. Thorax with slight anterior and posterior crests; wood-brown, above mixed with redder brown; abdomen mostly paler, brightest at anal end, above with very feeble dark spots. Legs irregularly spotted, the first two pairs predominantly dark, the posterior pale.

*Forewing* with costal margin shorter than typical, apex not produced, termen

even less oblique than in *C. boisduvalaria*, the crenulations moderately strong and the bend at  $R^3$  appreciable; cinnamon, mixed, as far as postmedian line, with Mars brown and with some black irroration; antemedian line blackish, pale-edged proximally but not very sharp, oblique outward and sinuous from two-sevenths costa to near middle of hindmargin; cell-mark a black ring; postmedian black, slightly pale-edged distally, from costa at 2-3 mm. from apex to hindmargin close to tornus, slightly oblique inward to near  $R^2$ , gently excurved between this and  $M^2$  and again at  $SM^2$ ; terminal interneural black dots slight or in part obsolescent; fringe in part slightly more reddish than distal area.—*Hindwing* only moderately elongate apically; ochreous whitish, becoming more fawn-coloured distally; black irroration only appreciable distally, nowhere heavy, unless along distal half of abdominal margin; no cell-spot; an incomplete dark, somewhat macular postmedian line starting in a thicker spot on abdominal margin at tornus, straight but oblique to  $R^3$ , then incurved but almost obsolete; terminal dots subobsolete.

Underside light brown, the forewing, except costally and apically, whiter, the hindwing and costal region of forewing irrorated with black; a black cell-spot (not annular) on forewing and a weaker one on hindwing; both wings with a postmedian line of strong black vein-dots, on the forewing fairly straight, on the hindwing straighter than termen, thus ending close to tornus.

Kenya Colony: Kibwezi (W. Feather), October 26, 1917 (type ♂), November 4, 1918, a ♀ slightly larger and still broader winged, both in coll. Tring Museum.

Two larger, but otherwise identical, ♂♂ from Nairobi, March 29, 1911 (T. J. Anderson), are in coll. Brit. Museum.

#### 67. *Gonodontis zera* sp. nov.

♀, 32 mm. Head and thorax very pale wood-brown, pectus and abdomen whiter. Akin to *aemoniaria* Swinh. (*Tr. Ent. Soc. Lond.* 1904, p. 527), much smaller; palpus shorter (little over 1) and with rather shorter hair; tongue weaker; antennal serrations longer (nearly 1).

*Forewing*: termen with the sinus between the teeth at  $R^1$  and  $R^3$  rather deeper than in *aemoniaria*;  $R^2$  from rather before middle of DC; paler, the markings, excepting the blackish cell-spot (beneath larger and blacker than above) and terminal interneural dots or dashes, very weak, the postmedian apparently less acute at  $R^1$  than in *aemoniaria*, the subapical costal spot obsolescent.—*Hindwing* white, above unmarked, beneath with a small grey cell-spot and very weak postmedian dots; termen with a few interneural dots anteriorly.

Kenya Colony: Kibwezi (W. Feather), November 22, 1916 (type), May 8, 1917, and December 22, 1918 (two other ♀♀), all in coll. Tring Museum.

#### 68. *Chogada oligodranes* sp. nov.

♂♀, 34-37 mm. Like *acaciaria* Bdv. but smaller and with the ground-colour light brown (slightly tinged with ochreous) instead of white, the brown bands proximally to the antemedian and distally to the postmedian consequently less conspicuous.

*Forewing* with  $SC^{1+2}$  sometimes (1 ♂, 1 ♀) very shortly stalked instead of arising separately; antemedian and postmedian lines mostly only very finely dentate

(except costally), in general more approximated than in *acaciaria*, median line as variable as in that species.—*Hindwing* with median line generally stronger and straighter, sometimes more proximally placed; postmedian formed nearly as on forewing, in general less strongly bent in middle than in *acaciaria*.

Underside greyer and much more uniform in tone than in *acaciaria*, the cell-spots well darkened, the postmedian moderately (at least on forewing), the subterminal and terminal dark shades, on the other hand, obsolescent or quite inconspicuous.

Orange Free State: Thaba'nchu, January 1915 (G. Edelsten), 6 ♂♂, 1 ♀, in coll. L. B. Prout.

Variable; the female and one of the males have the central area of forewing and proximal part of hindwing heavily suffused with black-grey, especially on posterior part of forewing and anterior part of hindwing, this in large measure parallel to *acaciaria* ab. *fumata* Warr. It is just possible that *oligodranes* is an extremely well differentiated form of that remarkably variable species.

#### 69. *Hyostomodes featheri* sp. nov.

♂ ♀, 21–24 mm. Head and body light brown, in places with an ochreous admixture; some blackish-fuscous irroration, strongest on head and legs; antenna dotted with blackish, in ♂ rather stout, serrate, the ciliation slightly over 1.

*Forewing* shorter and broader than in the type species and with termen more regularly curved (nearly of the shape of *Tephрина cinerascens* Butl.);  $SC^{1+2}$  coincident, commonly connected (occasionally anastomosing at a point) with C and connected with  $SC^{3+4}$ ; pale fawn-colour, mottled with cinnamon and with some scattered black irroration; the veins (except anteriorly to  $SC^2$ ) conspicuously pale (cream-buff); antemedian line rather broad, ill-defined, at two-sevenths, whitish buff, excurved anteriorly, nearly vertical (slightly incurved) posteriorly, accompanied distally by a row of black spots; cell-mark long-oval, black, usually pale-centred; median shade cinnamon, usually more or less mixed with black; postmedian rather broad, whitish buff, from costa before two-thirds to hindmargin beyond two-thirds, sinuous (oblique outward from costa, gently incurved between the radials and very gently in posterior half); accompanied proximally, from costa to  $M^2$ , by conspicuous black spots, which are separated only by the light veins; some black irroration or strigulation between the postmedian and the (almost obsolete) subterminal, also not continued behind  $M^2$ ; terminal line scarcely darkened; a fine yellowish line at base of fringe.—*Hindwing* relatively rather ample, the termen (except for the weak sinus in middle) a little smoother than in the type species; less mottled with cinnamon than forewing; cell-spot smaller, not annular; antemedian wanting; postmedian less sinuous than on forewing, without the black spots; no strigulation beyond; termen and fringe as on forewing.

Underside duller, more densely and evenly irrorated with grey and blackish, the veins remaining clearer; antemedian line wanting; both wings with cell-spot and pale postmedian line, the latter accompanied distally by a very slight, but nearly complete, dark shade; terminal line (of interneural dark spots) better expressed than above; fringe as above.

Kenya Colony: Kibwezi, November 23, 1917 (1 ♂, 2 ♀♀), November 4–29,

1918 (1 ♂, 14 ♀♀), April 4-8, 1919 (9 ♀♀). In coll. Tring Museum, collected by W. Feather.

An elegant and very distinct little species. Both the males are somewhat worn.

70. *Hyostomodes zelota* sp. nov.

♂ ♀, 22-25 mm. Head ochreous-brown, with darker admixture; face ochreous-brown. Palpus  $1\frac{1}{2}$ , stout, heavily scaled; ochreous-brown. Vertex darker. Antenna of ♂ pectinate, with short branches ( $1\frac{1}{2}$  to 2). Thorax light ochreous-brown, anteriorly dark purple-grey and with a band of the same colour across the patagia. Abdomen light ochreous-brown, with indistinct darker spots or belts dorsally and with paired black dorsal dots at the ends of the first few segments.

*Forewing* shaped nearly as in the preceding species; buff, in proximal half irregularly spotted or mottled with fuscous, in distal half with scattered atoms of the same; costal margin proximally dotted with blackish; a blackish subcostal dot close to base; antemedian line at little beyond one-fourth, nearly straight and erect, ochreous, almost entirely overlaid with blackish irroration, which thickens into dots on SC and at hindmargin; cell-dot black, moderately large; a thick median line (or narrow shade), anteriorly excurved just outside cell-dot, between  $M^1$  and  $SM^2$  gently incurved, mostly fuscous, but forming blackish spots at costa and hindmargin and with a ferruginous mark at base of  $R^3-M^1$ ; postmedian just beyond two-thirds, nearly parallel with median, fine, ochreous, marked with black costally and more feebly at hindmargin and bearing a pair of subconfluent black spots between  $R^2$  and  $M^1$ ; an ill-defined, somewhat interrupted shade shortly beyond, bearing a pair of strong spots opposite those of the postmedian; termen with somewhat elongate, sharply blackish interneural spots; fringe very feebly mottled.—*Hindwing* with termen nearly smooth, only slightly more bent at  $R^3$  than in a *Tephрина* and less rounded in front of the bend; slightly paler (at least proximally) than forewing, less strongly mottled; median line (or shade) strong, incurved anteriorly (well proximal to cell-dot); cell-dot moderately large; postmedian obsolescent, but with a small blackish spot between  $R^2$  and  $M^1$ ; the shade beyond well developed, straighter than termen forming spots at costa near apex and behind  $M^2$  close to tornus; termen and fringe as on forewing.

Underside pale buff, with costal area (especially of forewing) brighter; forewing with fuscous proximal mottlings but without antemedian line; all the other markings of upperside reproduced in fuscous, more macular than above.

Kenya Colony: Kibwezi (W. Feather), December 12, 1916 (type ♂), April 21, 1919 (1 ♂); March, April, and November 1917, May, November, and December 1918, April and May 1919 (9 ♀♀). In coll. Tring Museum.

Evidently variable; the second ♂ has all the markings darker and heavier and the distal area tinged with fawn-colour; only one ♀ resembles the ♂♂ in ground-colour, all the rest are more or less strongly tinged on the upperside with fawn-colour.

71. *Milocera divorsa* sp. nov.

♂ ♀, 25-28 mm. Nearly akin to *diffusata* Warr. (Nov. Zool. ix, 528, as *Azata*). Face mixed with black. Upperside of palpus black at ends of second and third joints. Pectination of ♂ less long? (apparently scarcely 1, but damaged).



*Forewing* with costa more markedly arched; colour appearing darker, especially in the ♂, in which the light ochreous-brown colour is almost covered with dark irroration, mostly laid on in innumerable transverse striations (in ♀ the irroration more scattered, yet coarse and strong); cell-dot and lines fairly distinct, antemedian strongly excurved, postmedian rather oblique outward from two-thirds hindmargin, about middle of wing beginning to curve so as to become gradually more oblique, about SC<sup>1</sup> (near the apex) acutely angled and retracted, becoming indistinct; a rather distinct dark grey shade (thick line) running obliquely from tornus so as almost to meet the postmedian about R<sup>2</sup>, then recurved so as to run parallel with it but becoming indistinct; terminal area outside this curved shade mostly paler, conspicuously so in middle and on undersurface; termen with rather strong, slightly elongate black interneural dots; a fine pale line at base of fringe.—*Hindwing* with termen in ♂ considerably more convex than in *diffusata*, rather full in middle; cell-dot more proximal than on forewing; postmedian about central, straight; succeeding grey shade strongly sinuous, arising from abdominal margin near tornus, rather deeply incurved between the radials; outer pale shading stronger proximally than distally; a rather dark apical shade.

Underside similar, rather lighter.

Cameroons: Bitye, Ja River. ♂ type in coll. Deutsch. Ent. Mus., paratype in coll. Joicey; ♀ allotype in coll. L. B. Prout.

*Milocera* Swinh., with the coincident SC<sup>1+2</sup> arising from stalk of SC<sup>3+5</sup> and anastomosing shortly (or connected) with C, embraces provisionally the type (*horaria* Swinh., *Tr. Ent. Soc. Lond.* 1904, p. 522), *arcifera* Hmps. (*Proc. Zool. Soc. Lond.* 1910, p. 469), *diffusata* Warr, and the new species. The two last-named have less falcate forewing, less long cells, M<sup>1</sup> of both wings arising nearer R<sup>3</sup>. In the ♀ of *divorsa* the base of SC<sup>1+2</sup> is obsolete, leaving it to arise out of C.

## 72. *Melinoëssa horni* sp. nov.

♂, 44–45 mm. Head, body, and legs yellow, beneath mostly white. Face with a broad irregular transverse red-brown band below middle, from which a streak projects upwards on either side, almost meeting some dots at upper edge. Second joint of palpus with some red-brown admixture on outer side, at least at extremity; third joint mostly black-grey. Vertex mixed with black-grey, a few red-brown hairs between this and the yellow occiput. Thorax in front with the usual dark anterior band.

*Forewing* shaped and marked nearly as *croesaria* H.-Sch.\* (= *sodaliata* Walk., *costalis* Walk.); lighter yellow, the reddish admixture being restricted to comparatively sparse, though well distributed, dots and strigulae; a very small dark cell-dot, in place of the large white-pupilled ocellus of *croesaria*; the red-brown lines rather distinct, not mixed with grey; the postmedian posteriorly vertical or slightly oblique inward; subterminal silvery dots small, the one behind R<sup>3</sup> not or scarcely larger than the others.—*Hindwing* with termen between SC<sup>3</sup> and M<sup>1</sup> much less convex than in *croesaria*, recalling the shape of *stellata* Butl.; cell-dot

\* Herrich-Schaeffer's figure (*Samml. Aussercur. Schmett.* i. fig. 370), if accurately drawn, represents a rare aberration with the postmedian line rather more proximally placed, its angle at R<sup>3</sup> not reaching the silvery subterminal spot.

almost or quite obsolete; postmedian line almost straight, from costa a little beyond middle to abdominal margin at nearly two-thirds; subterminal as on forewing.

Underside also yellower than in *croesaria*, the hindwing little whiter than the forewing; distal dark shades narrower, farther from termen; no differentiated whitish patch at midtermen; line of upperside reproduced.

Cameroons: Bitje, Ja River, in October; type in coll. Deutsch. Ent. Mus.; paratype (damaged) in coll. Joicey.

♀ much more orange (more densely irrorated), though still less reddish than in *croesaria*. Bitje, October–November 1912, in coll. Joicey et coll. Tring Museum; Sierra Leone (D. Cator), in coll. Brit. Museum; Nigeria: Warri, April 1897 (Dr. Roth), in coll. Tring Museum.

Dedicated to Dr. Walther Horn, the director of the Deutsch. Ent. Mus., to whom I am indebted for the opportunity of working out some of its Geometrid material and retaining the duplicates.

### 73. *Melinoëssa midas* sp. nov.

♂, 46–48 mm. Larger than *croesaria* H.–Sch. Lighter ochreous, the reddish irroration and strigulae being rather less bright and much less dense.

*Forewing* with the lines rather well developed; subterminal silvery spots smaller, the longest one (behind  $R^2$ ) narrower (more lunular or comma-shaped) than in *croesaria*, the rest very small, but with a firmer, more continuous (though very fine) dark line distally.—*Hindwing* with cell-dot almost obsolete; postmedian line more distinct (at least anteriorly) than in *croesaria*, more weakly angled in the middle; subterminal corresponding to that of forewing, reaching abdominal margin at tornus (in *croesaria* just proximally to tornus).

Both wings beneath with the dark submarginal shades much narrower than in *croesaria*.

Cameroons; Bitje, Ja River, 2,000 ft., November 1907, wet season, type ♂ in coll. L. B. Prout; also two other ♂♂, undated.

### 74. *Zamarada dorsiplaga* sp. nov.

♀, 30 mm. Face and upperside of palpus spotted with black. Vertex and thorax above pale lilac-grey, slightly dotted with black. Abdomen above with the ground-colour pale grey, but with a large black patch occupying the greater part of the second, third, and fourth somites, leaving free the slight mediodorsal crests; fifth, sixth, and seventh somites narrowly belted with black posteriorly. Body beneath pale.

Wings superficially recalling a large *secutaria* Guen., but with the hyaline part and its dark-grey irroration slightly more olive-tinted.

*Forewing* with cell-spot less large, with only a few pale scales in its centre, the median shade arising from a stronger black costal spot, very strongly bent outward anteriorly (running along vein  $R^1$ ), thus nearer to the postmedian from  $R^1$  to hindmargin, somewhat thickened and blackened at hindmargin, the postmedian black line more dentate, with a shallower sinus between  $R^3$  and  $M^2$ , the distal area more narrowly and less brightly shaded with brown proximally to the subterminal, the black triangular markings (and a sinuous mark between  $M^1$  and hindmargin) proximal to the subterminal on the other hand strong.—

*Hindwing* with the cell-dot rather stronger than in *secutaria*, median shade thicker and more black-mixed, postmedian line and markings beyond nearly as on forewing, but with the sinuous black mark towards tornus mostly obsolete.

Underside more uniformly dark bordered than in typical *secutaria*.

S. Rhodesia: Salisbury, August 1, 1918 (Rev. J. O'Neil). Type in coll. Brit. Museum, presented by the captor.

75. *Zamarada densisparsa* sp. nov.

♂, 24 mm.; ♀, 30-32 mm. Head and body pale brownish-grey or violet-grey, above with some dark irroration (rather dense on abdomen except at the incisions) and with some slight ochreous shades in places. Hindtibia in ♂ somewhat dilated.

Wings of the same texture as in the other species, very pale brownish with a somewhat olivaceous hue and sprinkled with fine but dense violet-grey irroration and strigulation.

*Forewing* with costal margin ochreous, heavily spotted with lustrous violet-grey; cell-dot small; a narrow violet-grey distal border, measuring only  $1\frac{1}{2}$  or 2 mm. at its broadest parts, somewhat sinuous-edged proximally (but not or only feebly dentate), the posterior sinus long (commencing about  $R^2$ ) but very shallow.

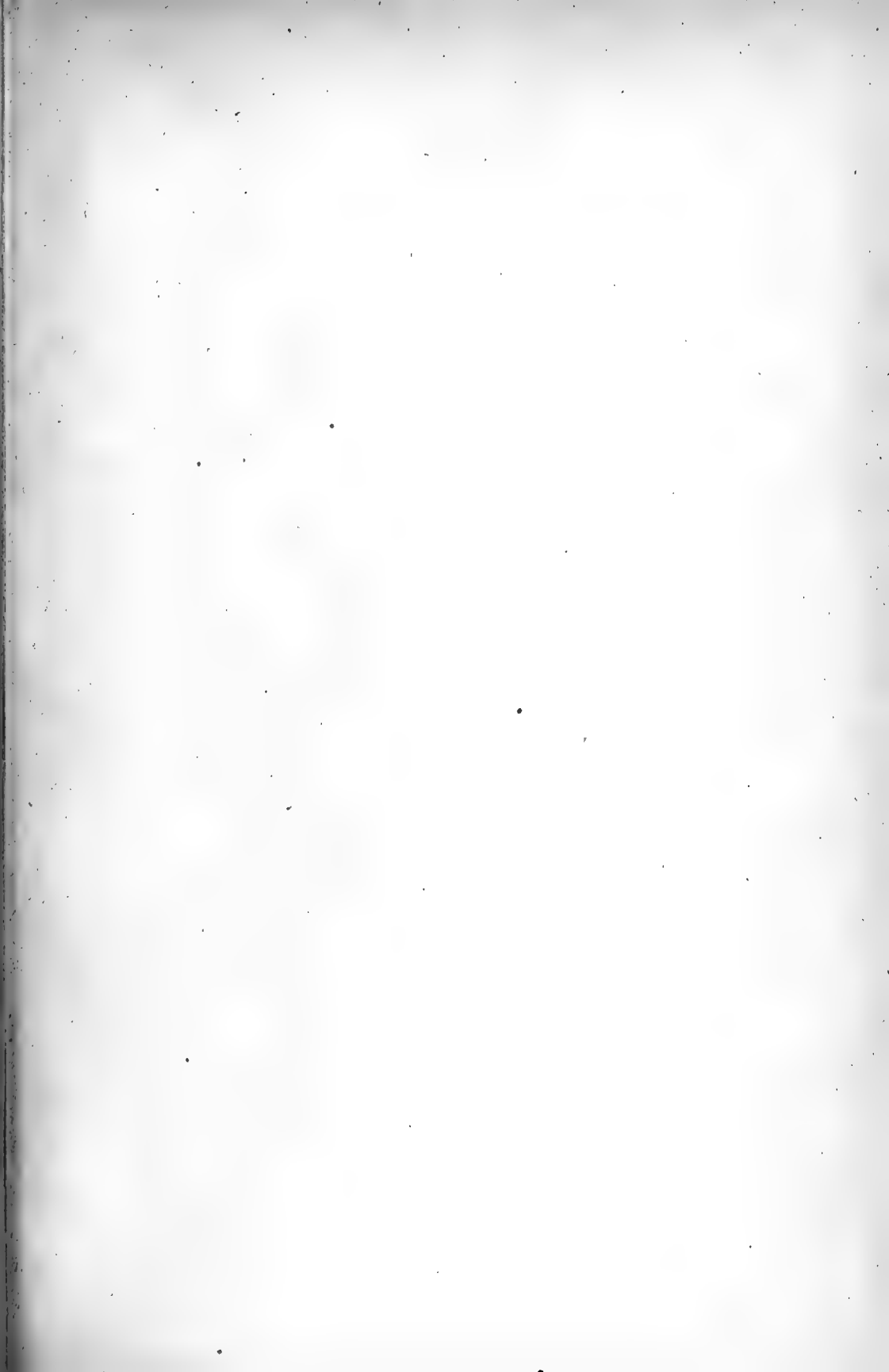
—*Hindwing* with similar cell-dot and distal border.

Underside with the ochreous costa less spotted, the cell-dots obsolescent, the distal borders darker grey.

S. Rhodesia: Salisbury, July 24, 1918, type ♂ in coll. Brit. Museum, other specimens in coll. L. B. Prout, coll. A. J. T. Janse, and coll. J. O'Neil, all collected by Father O'Neil.

Distinguished from narrow-bordered *aclea* Prout by the coloration and irroration.





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# NOVITATES ZOOLOGICAE.

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## TYPES OF BIRDS IN THE TRING MUSEUM.

By ERNST HARTERT, PH.D.

### B. Types in the General Collection.\*

#### TROGLODYTIDAE (continued).

879. *Henicorhina leucophrys venezuelensis* Hellm. = *Henicorhina leucophrys venezuelensis*.

*Henicorhina leucophrys venezuelensis* Hellmayr, *Journ. f. Orn.* 1903, p. 530 ("Habitat in montibus Venezuelae septentrionalis circum Tucuyó et Caripé").

Type: Near Mt. Bucarito, Tucuyo, Venezuela, Oct.-Nov. 1893. Albert Mocquerys leg.

880. *Microcerculus caurensis* Berl. & Hart. = *Microcerculus caurensis*.

*Microcerculus caurensis* Berlepsch & Hartert, *Nov. Zool.* ix, p. 5 (1902—Nicare, Caura River, tributary of Orinoco).

Type: ♀, Nicare, Caura R., 18.1.1901. E. André leg. Perhaps subspecies of *M. bambla*.

881. *Microcerculus marginatus occidentalis* Hellm. = *Microc. marg. occidentalis*.

*Microcerculus marginatus occidentalis* Hellmayr, *Nov. Zool.* xiii, p. 354 (1906—N.W. Ecuador).

Type: ♂ ad., Lita, N.W. Ecuador, 3,000 feet, 4.x.1899, Miketta & Fleming leg. No. 210.

882. *Orthnocichla subulata advena* Hart. = *Orthnocichla subulata advena*.

*Orthnocichla subulata advena* Hartert, *Nov. Zool.* 1906, p. 298 (Babber, S.W. Islands).

Type: ♂, Tapa, Babber I., 6.ix.1905. Collected by Heinrich Kühn's hunters. No. 6858.

883. *Orthnocichla everetti* Hart. = *Orthnocichla everetti*.

*Orthnocichla everetti* Hartert, *Nov. Zool.* iv, p. 170 (1897—South Flores).

Type: ♂, South Flores, Nov. 1896. Collected by Alfred Everett's natives.

\* Continued from NOVITATES ZOOLOGICAE, 1920, p. 505. See NOVITATES ZOOLOGICAE, 1918, pp. 4-63, 1919, pp. 124-178, and 1920, pp. 425-505.

884. *Orthnocichla whiteheadi* Sharpe = *Orthnocichla whiteheadi*.

*Orthnocichla whiteheadi* Sharpe, *Ibis*, 1888, p. 478 (Kina-Balu, Borneo).

Type: ♂, Kina Balu, 4,000 feet, 14. iii. 1888. John Whitehead leg. No. 2207.

885. *Pnoepyga everetti* Rothschild, = *Pnoepyga rufa everetti*.

*Pnoepyga everetti* Rothschild, *Nov. Zool.* iv. p. 168 (1897—South Flores).

Type: ♂, South Flores, 3,500 feet, November 1896. Alfred Everett leg.

## PYCNONOTIDAE.

886. *Chloropsis flavocincta* Sharpe = *Chloropsis flavocincta*.

*Chloropsis flavocincta* Sharpe, *Ibis*, 1887, p. 445 (Kina Balu).

Type: ♂ ad., Kina Balu, N. Borneo, 4,000 feet, 24. ii. 1887. John Whitehead leg. No. 1003.

† 887. *Chloropsis kinabaluensis* Sharpe = *Chloropsis flavocincta*.

*Chloropsis kinabaluensis* Sharpe, *Ibis*, 1887, p. 445, but after *flavocincta* (Kina Balu).

Type: (♀) ad., Kina Balu. John Whitehead leg. No. 1005.

Whitehead (cf. *Explor. Mt. Kina Balu*, p. 219) has proved that *C. kinabaluensis* is the female of *flavocincta*.

888. *Chloropsis viridis viriditectus* = *C. v. viriditectus*.

*Chloropsis viridis viriditectus* Hartert, *Nov. Zool.* ix. p. 212 (1902—Borneo).

Type: ♂, Baram, Borneo. Alfred Everett leg.

889. *Chloropsis viridis parvirostris* Hart. = *C. v. parvirostris*.

*Chloropsis viridis parvirostris* Hartert, *Orn. Monatsber.* 1898, p. 93 (Nias).

Type: ♂ ad., Gunung Limbu, Nias. Raap leg. No. 473.

890. *Hypsipetes amaurotis magnirostris* = *Microscelis amaurotis magnirostris*.

*Hypsipetes amaurotis magnirostris* Hartert, *Bull. B.O. Club*, xv. p. 46 (1905—"Volcano Islands, south of Bonin").

Type: ♂?, S. Dionisio, Volcano Is., 24° N. by 141° E., 16. v. 1904.

891. *Hypsipetes amaurotis ogawae* Hart. = *Microscelis amaurotis ogawae*.

*Hypsipetes amaurotis ogawae* Hartert, *Vög. pal. Fauna*, p. 465 (1907—Amami Island, northern Riu-Kiu group).

Type: ♂ ad., Amami Oshima, 13. xii. 1904. Collected by Alan Owston's hunters. No. 192.

892. *Hypsipetes amaurotis stejneri* Hart. = *Microscelis amaurotis stejneri*.

*Hypsipetes amaurotis stejneri* Hartert, *Vög. pal. Fauna*, p. 464 (1907—Ishigaki and Iriomoto Islands, southern Riu-Kiu group).

Type: ♂ ad., Ishigaki Island, 26. v. 1904. Collected by Alan Owston's Japanese hunters. No. 174.

(The generic name *Hypsipetes* must be replaced by *Microscelis*, not because of the slight structural differences, but because *Hypsipetes* is anticipated by

*Ypsipetes*, which is the same word and spelt alike in Greek, only aspirated and not aspirated. Similar cases are *Henicurus* and *Enicurus*, *Eniconetta* and *Heniconetta*.)

893. *Hemixus connectens* Sharpe = *Hemixus connectens*.

*Hemixus connectens* Sharpe, *Ibis*, 1887, p. 446 (Kina Balu, Borneo).

Type: ♂ ad., Kina Balu, 4,000 feet, 14.ii.1887. John Whitehead leg. No. 963.

† 894. *Iole striaticeps* Sharpe = *Iole palawanensis* (Tweedd.).

*Iole striaticeps* Sharpe, *Ibis*, 1888, p. 200 (Palawan).

Type: ♀, Taguso, Palawan, 1.vii.1887. John Whitehead leg. No. 1474.

I consider *Iole striaticeps* the very worn state of *Iole palawanensis*. The pale shaft-lines of the feathers of the head are due to wear, the upper side and tail are very much faded. The ♂, also shot at Taguso on 1.vii.1887, has a few fresh feathers on the back, and they are of the same colour as feathers of *palawanensis*, shot end July, August, and February. *I. palawanensis* has been found by every collector on Palawan, where it is common, i.e. Everett, Platen, Steere, Whitehead, Bourns & Worcester, Celestino, while "*striaticeps*" was only met with once by Whitehead. On the collector's \* label the type of *striaticeps* was called "*Criniger palawanensis*" by Whitehead, and another specimen of the latter was first called *Criniger palawanensis*, then *Iole striaticeps* (apparently in Sharpe's handwriting), then again *C. palawanensis*.

This species is not a typical *Criniger*, and agrees structurally with *Iole olivacea*, the type of the genus *Iole*. I see no reason to call it *Trichophorus palawanensis*, as Oberholser (1905) and Macgregor have done.

895. *Criniger Haynaldi* Blas. = *Iole everetti haynaldi*.

*Criniger Haynaldi* Blasius, *Journ. f. Orn.* 1890, p. 143 ("Sulu-Inseln").

Type: ♀ ad., Jolo, Sulu Islands, 23.v.1887. Dr. Platen leg. (Exchanged from the late Ad. Nehr Korn.) Coll. Nehr Korn No. 3032.

896. *Iole philippensis saturator* Hart. = *Iole gularis saturator*.

*Iole philippensis saturator* Hartert, *Bull. B.O. Club*, xxxvi. p. 58 (1916—Mindanao).

Type: ♂ ad., Davao, Mindanao, January 1903. Walter Goodfellow leg. No. 116.

897. *Iole holti binghami* Hart. = *Iole maclellandi binghami*.

*Iole holti binghami* Hartert, *Nov. Zool.* 1902, p. 558 (Southern Shan States).

Type: ♂ ad., Loi-San-Pa in the Mōng Kōng state, southern Shan States, 5,500 feet, 29.xii.1899. C. T. Bingham leg.

(About the nomenclature of these birds see NOVITATES ZOOLOGICAE, 1921, p. 51.)

\* These labels were, however, written and tied on in England; the actual original labels were little tickets with a number and sex mark only, and are mostly not preserved. This detestable, though convenient way of labelling is now fortunately not practised by many collectors.

898. *Iole tickelli peracensis* Hart. & Butl. = *Iole maclellandi peracensis*.

*Iole tickelli peracensis* Hartert & Butler, *Nov. Zool.* 1898, p. 506 (Gunong Ijau in Perak, Malay Peninsula).

Type: ♂ ad., Gunong Ijau, 4,500 feet, March 1898. A. L. Butler leg. No. 30.

899. *Criniger barbatus ansorgeanus* Hart. = *Criniger barbatus ansorgeanus*.

*Criniger barbatus ansorgeanus* Hartert, *Bull. B.O. Club*, xix, p. 97 (1907—"Delta of River Niger, Degama, Oguta").

Type: ♂ ad., Degama, 12.v.1902. W. J. Ansorge leg. No. 427.

900. *Criniger gularis balicus* Stres. = *Criniger gularis balicus*.

*Criniger gularis balicus* Stresemann, *Nov. Zool.* xx, p. 358 (1913—Bali).

Type: ♂ ad., Gitgit, Bali, 2.2.1911. Erwin Stresemann leg. No. 222.

901. *Criniger affinis harterti* Stres. = *Thapsinillas affinis harterti*.

*Criniger affinis harterti* Stresemann, *Nov. Zool.* xix, p. 342 (1912—Peling Island between Sula and Celebes).

Type: Adult, Peling Island, May–August 1895. From Cursham's native hunters.

902. *Criniger lucasi* Hart. = *Thapsinillas chloris lucasi*.

*Criniger lucasi* Hartert, *Nov. Zool.* 1903, p. 13 (Obi Major).

Type: ♂ ad., Obi Major Island, Moluccas, September 1897. William Doherty leg. No. 938.

(Though differing by its yellow lores and larger size, the Obi form can hardly be anything but a subspecies of *chloris*.)

903. *Xenocichla flavicollis soror* Neum. = *Atimastillas flavicollis soror*.

*Xenocichla flavicollis soror* Neumann, *Orn. Monatsber.* 1914, p. 9 ("Ng' Goumie Fluss," i.e. Ngounie River, Ogowe).

Type: ♀ (not fully ad. ?), Komadekke, Ngounie River, 23.xi.1907 (not 23.xii.). W. J. Ansorge leg.

(Reichenow, *Journ. f. Orn.* 1918, p. 95, says that *soror* is the same as *flavigula* Cab., but it differs from the latter as described by Neumann. On the other hand, I agree with Neumann that *pallidigula* Sharpe is not separable from *flavigula*.)

The genera of these *Pycnonotidae* are very little understood. As I cannot at present go in for a detailed study of these birds, I adopt Oberholser's genus *Atimastillas*. Oberholser carefully reviewed these genera, but I shall finally doubtless not recognise all his genera, though at present I am unable to say how many should be suppressed.)

† 904. *Xenocichla harterti* Rchw. = *Criniger simplex*.

*Xenocichla harterti* Reichenow, *Nov. Zool.* 1895, p. 60 ("Südliche Teile von Sierra Leone und Liberia").

Type: ♂ ad., Robertsport, Liberia, 12.vi.1891. Jackson Demery leg. No. 15. The type specimen, like many others from Liberia, had been in spirits, and it is now admitted that the supposed differences were due to the effect of the spirits.

905. *Bleda syndactyla ogowensis* Naum. = *Bleda syndactyla ogowensis*.

*Bleda syndactyla ogowensis* Neumann, *Orn. Monatsber.* 1914, p. 9 (Ogowe River, Gaboon).

Type: ♂ ad., Umpokosa, Lake Ogemwe, near Ogowe River, 9.vi.1907.  
W. J. Ansorge leg. No. 312.

906. *Bleda exima ugandae* Som. = *Bleda eximia ugandae*.

*Bleda exima ugandae* van Someren, *Bull. B.O. Club*, xxxv. p. 116 (1915—Mabira Forest, Uganda).

Type: ♂ ad., Mabira Forest, Uganda, 17. I. 1914. Dr. V. G. L. van Someren leg. No. 13.

907. *Chlorocichla indicator chlorosaturata* Som. = *Chlorocichla indicator chlorosaturata*.

*Chlorocichla indicator chlorosaturata* van Someren, *Bull. B.O. Club*, xxxv. p. 127 (1915—Uganda forests).

Type: ♂ ad., Kyetume forest, Chagwe, Uganda, 7. xii. 1914. Dr. V. G. L. van Someren leg.

(Genus *Baeopogon* in Oberholser's arrangement.)

908. *Xenocichla orientalis* Hartl. = *Pyrhrurus scandens orientalis*.

*Xenocichla orientalis* Hartlaub, *Journ. f. Orn.* 1883, p. 425 (Tomaja).

Type: ♀ ad., Tomaja, 4. xi. 1882. Emin Pasha leg. No. 222.

(Though much smaller than *P. scandens scandens*, clearly a subspecies of the latter.)

909. *Phyllastrephus graueri* Neum. = *Phyllastrephus graueri*.

*Phyllastrephus graueri* Neumann, *Bull. B.O. Club*, xxiii. p. 13 ("Country west of Lake Albert Edward").

Type: ♂, Forest 90 kilometres west of Lake Albert Edward, 5. ii. 1908.  
Rudolf Grauer leg.

910. *Phyllastrephus icterinus sethsmithi* Hart. & Neum. = *Ph. ict. sethsmithi*.

*Phyllastrephus icterinus sethsmithi* Hartert & Neumann, *Orn. Monatsber.* 1910, p. 81 (Budongo Forest, Unyoro).

Type: ♂, Budongo Forest, 20. ii. 1907. L. M. Seth-Smith leg.

911. *Chlorocichla gracilirostris chagwensis* Som. = *Stelgidillas gracilirostris chagwensis*.

*Chlorocichla gracilirostris chagwensis* van Someren, *Bull. B.O. Club*, xxxv. p. 127 (1915—"Uganda Forests").

Type: ♂ ad., Nazigo Hill, Chagwe Province, 20. x. 1914. Dr. V. G. L. van Someren leg.

912. *Andropadus gracilis extremus* subsp. nov.

Subspeciei *A. gracilis gracilis* dictae persimilis, sed epigastrio virescentiore, gula grisosecentiore haud difficile distingendus.

Type: ♂ ad., near Mattra, near Sherbro, Jong River, Sierra Leone, 8. x. 1912.  
H. Kelsall leg. No. 783.

Three adult males from Sierra Leone in the Tring Museum and other specimens in the British Museum differ from a series from Kamerun, Gabun, and the Lower Congo, which I look upon as typical *A. gracilis* (type N. Angola) in having the abdomen brighter and more greenish, the throat in contrast more greyish. Wings 70, 72, 72 mm.

A series from the Lower Niger (Ansorge leg.) appear to be the same race, though some approach *A. gracilis gracilis*.

913. **Andropadus ugandae** Som. = *Andropadus gracilis ugandae*.  
*Andropadus ugandae* van Someren, *Bull. B.O. Club*, xxxv. p. 127 (1915—Uganda).

Type: ♂ ad., Mabira Forest, 7.ii.1914 (not 20.iv.!). V. G. L. van Someren leg.

914. **Andropadus ansorgei** Hart. = *Andropadus ansorgei*.  
*Andropadus ansorgei* Hartert, *Bull. B.O. Club*, xxi. p. 10 (Dgama and Gregani, southern Nigeria).  
Type: ♂, Degama, Southern Nigeria, 19.v. (not 19.x) 1902. W. J. Ansorge leg. No. 468.

This species has nothing to do with *A. gracilis*. Bannerman's note in *Rev. Zool. Afr.* ix. p. 405, refers to my *A. g. extremus*!

† 915. **Andropadus gracilirostris liberiensis** Rchw. = *Stelgidillas gracilirostris gracilirostris*.  
*Andropadus gracilirostris liberiensis* Reichenow, *Nov. Zool.* 1895, p. 160 (Liberia).

Type: Adult, Grand Cape Mount, Liberia, 26.1.1893. Demery leg. *From spirits*!!

916. **Charitillas kavirondensis** Som. = *Andropadus kavirondensis*.  
*Charitillas kavirondensis* van Someren, *Bull. B.O. Club*, xl. p. 95 ("Elgon and North Kavirondo to Nandi").

Type: ♂ ad., Kakamega Road, 9.ii.1917. H. J. Allen Turner leg. Meinertzhagen Coll.

917. **Pycnonotus barbatus schoanus** = *Pycnonotus barbatus schoanus*.  
*Pycnonotus barbatus schoanus* Neumann, *Orn. Monatsber.* 1905, p. 77 ("Hochgebirge Abyssiniens, Schoas und Süd-Aethiopiens").  
Type: ♂, Kilbe, province of Kollu, Shoa, 7.x.1900. Oscar Neumaun leg. No. 173.

918. **Pycnonotus sinensis formosae** Hart. = *Pycnonotus sinensis formosae*.  
*Pycnonotus sinensis formosae* Hartert, *Nov. Zool.* 1910, p. 230 (Formosa).  
Type: ♂, Taipeh, Formosa, October 1896. Collected by Owston's Japanese hunters.

919. **Pycnonotus prillwitzii** Hart. = *Pycnonotus simplex prillwitzii*.  
*Pycnonotus prillwitzii* Hartert, *Nov. Zool.* 1902, p. 561 (Java).  
Type: Ad., Karangbolong, S. Java, April–May 1901. Ernst Prillwitz leg. (In 1902 I thought we did not know enough about these birds, and described

the Java form under a binomial, but I am now convinced that it is a subspecies of *simplex*.)

920. *Oreostictes leucops* Sharpe = *Oreostictes leucops*.

*Oreostictes leucops* Sharpe, *Ibis*, 1888, p. 388, pl. ix, fig. 1 (Kina Balu, Borneo).

Type: ♂ ad., Kina Balu, 8,000 feet, 7.ii.1888. John Whitehead leg. No. 1963.

**CAMPOPHAGIDAE.**

921. *Artamides guillemardi* Salvad. = *Coracina personata guillemardi*.

*Artamides guillemardi* Salvadori, *Ibis*, 1886, p. 154 (Sulu Islands).

Type: (♂), Lapac Island, Sulu Islands, 18.v.1883. H. Guillemard leg.

(I do not see how we can avoid to look upon *C. guillemardi* as a subspecies of *personata*. Hellmayr, *Avif. Timor*, p. 37, does not mention *guillemardi*, but says that doubtless *floris* and *personatus* are subspecies of *personata*. I am afraid this can be doubted, the snow-white (instead of slate-coloured) under tail-coverts and belly being a rather striking character. If, however, this is accepted, then these two forms form an evident connecting link with *atriceps*, so that all would be forms of *atriceps*, which was described on the same page as *personata*, but before it. I think it is safer at present to treat *atriceps* and *personata* as distinct species, also *floris* (and *alfredianus*) as a third.)

922. *Graucalus normani* Sharpe = *Coracina* (? *personata*) *normani*.

*Graucalus normani* Sharpe, *Ibis*, 1887, p. 438 (Kina Balu).

Types: ♂♀, Kina Balu, Borneo, 3.iii, 10.ii.1887. John Whitehead leg. Nos. 1055, 952.

(It is doubtful if this form can be looked upon as a subspecies of *personata*. A critical review of the genus is required, in order to group all forms into species and subspecies.)

923. *Graucalus fortis alfredianus* Hart. = *Coracina fortis alfrediana*.

*Graucalus fortis alfrediana* Hartert, *Nov. Zool.* 1898, p. 458 (Alor).

Type: ♂, Alor Island, May 1897. Alfred Everett leg.

924. *Coracina welchmani kulambangrae* R. & H. = *Coracina welchmani kulambangrae*.

*Coracina welchmani kulambangrae* Rothschild & Hartert, *Nov. Zool.* xxiii. p. 289 (1916—Kulambangra Solomon Islands).

Type: ♂ ad., Kulambangra, 25.ii.1901. A. S. Meek. Coll. No. 2796.

(These large forms, *welchmani* and *kulambangrae*, might also be subspecies of *personata*, and require further consideration.)

925. *Graucalus bungurensis* Hart. = *Coracina sumatrensis bungurensis*.

*Graucalus bungurensis* Hartert, *Nov. Zool.* 1894, p. 477 (Bunguran, Natuna Islands).

Types: ♂♀, Bunguran, October 1893. Alfred Everett leg.

926. **Graucalus crissalis** Salvad. = *Coracina sumatrensis crissalis*.

*Graucalus crissalis* Salvadori, *Ann. Mus. Civ. Genōva*, xxxiv. p. 592 (1894—Si Oban Island, west of Sumatra).

Types: ♂♀, Si Oban, 26.iv.1894. Modigliani leg.

Both specimens are marked in the author's handwriting: "*Graucalus crissalis* Salvad. Typus!" They are specimens A and D of Salvadori's list, who marked all skins as "Typus." They are thus cotypes, or paratypes according to modern nomenclature.

927. **Graucalus vordermani** Hart. = *Coracina sumatrensis vordermani*.

*Graucalus vordermani* Hartert, *Bull. B.O. Club*, xii. p. 32 (1901—Kangean Island).

Type: ♂, Kangean Island, September 1901. Ernst Prillwitz leg.

928. **Graucalus sumatrensis difficilis** Hart. = *Coracina sumatrensis difficilis*.

*Graucalus sumatrensis difficilis* Hartert, *Nov. Zool.* 1895, p. 470 (Balabac).

Type: ♂ ad., Balabac Island, 25.xii.1893. Alfred Everett leg.

929. **Graucalus papuensis ingens** R. & H. = *Coracina papuensis ingens*.

*Graucalus papuensis ingens* Rothschild & Hartert, *Bull. B.O. Club*, xxxiii. p. 107 (1914—Manus, Admiralty Island).

Type: ♂ ad., Manus, 9.ix.1913. A. S. Meek Coll. No. 6012.

930. **Coracina papuensis meekiana** R. & H. = *Coracina papuensis meekiana*.

*Coracina papuensis meekiana* Rothschild & Hartert, *Nov. Zool.* xix. p. 201 (1912—Kumusi River, north-eastern British New Guinea).

Type: ♂, Kumusi River, 17.vi.1907. A. S. Meek Coll. No. 3209.

931. **Graucalus hypoleucus louisiadensis** Hart. = *Coracina papuensis louisiadensis*.

*Graucalus hypoleucus louisiadensis* Hartert, *Nov. Zool.* v. p. 524 (1898—Lousiades Islands, Sudest Island).

Type: ♂ ad., Sudest Island, 5.iv.1898. A. S. Meek Coll. No. 1668.

932. **Coracina papuensis perpallida** R. & H. = *Coracina papuensis perpallida*.

*Coracina papuensis perpallida* Rothschild & Hartert, *Nov. Zool.* xxiii. p. 290 (1916—Bougainville, Choiseul, Isabel and Florida, Solomon Islands)

Type: "♀" ad., Bougainville Island, 6.v.1904. A. S. Meek Coll. No. A 1739.

933. **Coracina novaehollandiae kuehni** Hart. = *Coracina novaehollandiae kuehni*.

*Coracina novaehollandiae kuehni* Hartert, *Bull. B.O. Club*, xxxvi, p. 65 (1916—Little Key Islands).

Type: ♂ (not ♀!) ad., Tual, Little Key, 1.x.1897. Heinr. Kühn leg.

934. **Graucalus macei larvivorus** Hart. = *Coracina macei larvivorus*.

*Graucalus macei larvivorus* Hartert, *Nov. Zool.* xvii. p. 227 (1910—Hainan).

Type: ♂, Mt. Wuchi, Hainan, 21.iii.1903. Katsumata leg.



935. *Coracina graueri* Neum. = *Coracina graueri*.

*Coracina graueri* Neumann, *Bull. B.O. Club*, xxiii, p. 11 (1908—"forest 90 km. west of Lake Albert Edward").

Type: ♂ (not ♀), forest west of Lake Albert Edward, 14.ii.1908. Rudolf Grauer leg. No. 2042.

936. *Graucalus pusillus ombriosus* R. & H. = *Coracina pusilla ombriosa*.

*Graucalus pusillus ombriosus* Rothschild & Hartert, *Nov. Zool.* 1905, p. 264 (western central group of Solomon Islands, New Georgia, Rendova, Gizo, Kulambangra).

Type: ♂ ad., Gizo, 31.x.1913. A. S. Meek Coll. No. A 695.

937. *Edoliisoma melas meeki* = *Edoliisoma melas meeki*.

*Edoliisoma melas meeki* Rothschild & Hartert, x, p. 207 (1903—"British New Guinea and Fly River").

Type: ♀, Milne Bay, south-eastern New Guinea, 11.iv.1899. A. S. Meek leg. No. 2458.

I cannot agree with Ogilvie-Grant's remarks on p. 121 of the Jubilee Volume of the *Ibis*, No. 2, 1915, who states that *meeki* cannot be separated from *E. m. melas*, as the whole series of females from British New Guinea is pale.

A female from the Sattelberg, collected by C. Wahnes, 11.xii.1905, seems also to belong to *meeki*.

938. *Edoliisoma melas tommasonis* R. & H. = *Edolisoma melas tommasonis*.

*Edolisoma melas tommasonis* Rothschild & Hartert, *Nov. Zool.* x, p. 206 (1903—Jobi Island).

Type: ♀ ad., Ansum, Jobi Island, in the Geelvink Bay, 12.xi.1883. Powell leg. No. J 965.

939. *Edoliisoma montana minus* R. & H. = *Edolisoma montanum minus*.

*Edolisoma montana minus* Rothschild & Hartert, *Nov. Zool.* xiv, p. 464 (1907—British New Guinea),

Type: ♂ ad., Bihagi, head of Mambare River, north side of the Owen Stanley Mts., 29.iii.1906. A. S. Meek Coll. No. A 2672.

(Ogilvie-Grant, *Ibis*, Jubilee Suppl. ii, p. 127, "prefers" not to acknowledge this subspecies, but in our now very fine series is not one that reaches the usual average size of *E. m. montanum*, which has wings of 135–141.5 mm., while the south-eastern males are often under 130, and run up to 132, according to Ogilvie-Grant in one case to 134. *E. m. minus* is therefore a good subspecies, though its "difference is merely a matter of size" as Grant said.)

940. *Edoliisoma schisticeps vittatum* R. & H. = *Edolisoma schisticeps vittatum*.

*Edolisoma schisticeps vittatum* Rothschild & Hartert, *Nov. Zool.* xxi, p. 5 (1914—Fergusson and Goodenough Islands, D'Entrecasteaux group).

Type: ♀ ad., Goodenough Island, 11.v.1913. A. S. Meek Coll. No. 5683.

941. *Edoliisoma meyeri sharpei* R. & H. = *Edolisoma incertum sharpei*.

*Edolisoma meyeri sharpei* Rothschild & Hartert, *Nov. Zool.* x, p. 209 (1903—"North coast of Dutch New Guinea").

Type: ♂ ad., northern coast of Dutch New Guinea east of the Huon Gulf, 1900, collected by J. M. Dumas.

(Lord Rothschild, *Bull. B.O. Club*, xxxvi. p. 58, declared that "the type of *E. meyeri sharpei* and the specimens from South New Guinea are nothing more nor less than the adult males of *Edolisoma incertum*." We have now seven adult and one juvenile male from the Lower Snow Mts. and the Hydrographer Range, W. of Dyke Acland Bay, S.E. New Guinea, and also seven females from the Snow Mts., Aroa River, and Hydrographer Range. The ♀ has only blackish lores, but no black ear-coverts or throat, and the under wing-coverts and axillaries are barred grey and white, instead of uniform slaty-grey. I agree that *meyeri*, *sharpei*, and *incertum* are subspecies, and as *incertum* is an older name, our form must be called *E. incertum sharpei*. As the type of *incertum* is from Jobi, and Meyer, *Abh. naturw. Ges. Isis*, 1884, p. 29, states a number of differences between his Jobi type and a specimen from Andai—which I compared with our New Guinea examples, and which agrees absolutely with the females—we cannot at present conclude that *incertum* and *sharpei* are "identical," but we may treat them as subspecies.)

942. *Edolisoma mindanense sula* Hart. = *Edolisoma mindanense sula*.

*Edolisoma mindanense sula* Hartert, *Bull. B.O. Club*, xxxviii. p. 28 (published January 1918—"Sula Besi and Sula Mangoli Islands").

Type: ♀ ad., Sula Besi, October 1897. William Doherty leg.

943. *Edolisoma emancipata* Hart. = *Edolisoma emancipata*.

*Edolisoma emancipata* Hartert, *Nov. Zool.* iii. p. 170 (1896—Djampea Island).

Types: ♂♀, Djampea, between Flores and Celebes, December 1895. Alfred Everett leg.

944. *Edolisoma morio pererratum* Hart. = *Edolisoma morio pererratum*.

*Edolisoma morio pererratum* Hartert, *Bull. B.O. Club*, xxxviii. p. 28 (published January 1918—Tukang-Besi Islands, Tomi and Kalidupa).

Type: ♂, Tomia Island, Tukang-Besi group, S.E. of Celebes, 23.xii.1901. Heinrich Kühn leg. No. 4408.

945. *Edolisoma obiense pelingi* Hart. = *Edolisoma obiense pelingi*.

*Edolisoma obiense pelingi* Hartert, *Bull. B.O. Club*, xxxviii. p. 27 (published January 1918—"islands of Peling and Banggai between East Celebes and the Sula Islands").

Type: ♀ ad., Peling, summer 1895. Cursham leg.

946. *Edolisoma amboinense tagulanum* Hart. = *Edolisoma tagulanum*.

*Edolisoma amboinense tagulanum* Hartert, *Nov. Zool.* v. p. 524 (1898—Sudest or Tagula Island, S.E. of New Guinea).

Type: ♂ ad., Sudest Island, 20.iv.1898. A. S. Meek leg. No. 1767.

(This form is probably a subspecies of *E. amboinense* or *incertum*, but it requires a full study of all forms of the genus to group this, *emancipata*, and other forms finally, and in order to avoid uncertain experiments and changes, it will be best to use binomials for the present for this and other forms.)

947. *Edoliosoma rostratum* Hart. = *Edoliosoma rostratum*.*Edoliosoma rostratum* Hartert, *Bull. B.O. Club*, viii. p. xx (1898—Rossel Island, Louisiade group).

Type: ♂ ad., Rossel Island, 26.i.1898. A. S. Meek leg. No. 1296.

948. *Edoliosoma amboinense rooki* R. & H. = *Edoliosoma amboinense rooki*.*Edoliosoma amboinense rooki* Rothschild & Hartert, *Bull. B.O. Club*, xxxiii. p. 107 (1914—Rook Island, west of New Britain).

Type: ♂ ad., Rook Island, 26.vii.1913. Eichhorn Bros. leg. No. 5831 of the A. S. Meek collections.

949. *Edoliosoma amboinense admiralitatis* R. & H. = *Edoliosoma amboinense admiralitatis*.*Edoliosoma amboinense admiralitatis* Rothschild & Hartert, *Bull. B.O. Club*, xxxiii. p. 108 (1914—“Admiralty Islands”).

Type: ♂ ad., Manus, Admiralty Islands, 5.ix.1913. Eichhorn Bros. leg. No. 5962 of the A. S. Meek collections.

950. *Edoliosoma erythropygium saturatius* R. & H. = *Edoliosoma erythr. saturatius*.*Edoliosoma erythropygium saturatius* Rothschild & Hartert, *Nov. Zool.* ix. p. 582 (1902—“Ysabel, Kulambangra and Shortland Islands”).

Type: ♀ ad., Isabel Island, Solomon Islands, 20.vi.1901. Albert S. Meek leg. No. 3350.

951. *Edoliosoma dohertyi* Hart. = *Edoliosoma dohertyi*.*Edoliosoma dohertyi* Hartert, *Nov. Zool.* iii. p. 584 (1896—Sumba Island).

Type: ♂ ad., Sumba, February 1896. William Doherty leg.

952. *Chlamydochaera jefferyi* Sharpe = *Chlamydochaera jefferyi*.*Chlamydochaera jefferyi* Sharpe, *Ibis*, 1887, p. 439, pl. xiii. (Mt. Kina Balu, Borneo).

Type: ♂ ad., Kina Balu, 3,000 feet, 7.iii.1887. John Whitehead leg. No. 1078.

† 953. *Campephaga rothschildi* Neum. = *Campephaga phoenicea* aberr.*Campephaga rothschildi* Neumann, *Journ. f. Orn.* 1907, p. 594 (“Gmezo im Bovana Land, 24.v.1905”).

Type: ♂, Gmezo, 24.v.1905. Maurice de Rothschild leg.

(There can be no doubt that *C. rothschildi* is not a species, but an aberrant specimen of the yellow-shouldered variety [“*xanthornoides*”] of *Campephaga phoenicea*, with yellow outer primary coverts. Not only the colour of the shoulder-patch, but also the extent of the red or yellow colour varies, and in this case the latter colour has extended over the outer primary coverts.)954. *Pericrocotus marchesae* Guill. = *Pericrocotus marchesae*.*Pericrocotus marchesae* Guillemard, *Proc. Zool. Soc. London*, 1885, p. 259, pl. xviii, fig. 1 (Maimbun, Sulu Island, 15.v.1883).Type or cotype: ♂, Maimbun, 15.v.1883. Cruise of the *Marchesa*. Powell leg.

(“ Only two examples of this beautiful new species were obtained, and no others were observed during the *Marchesa's* visit to the Archipelago.” Since then it has been collected by Platen, Bourns & Worcester, and Bartsch.)

955. **Pericrocotus cinereigula** Sharpe = *Pericrocotus montanus cinereigula*.

*Pericrocotus cinereigula* Sharpe, *Ibis*, 1889, p. 192 (Kina Balu).

Type: ♂, Kina Balu, Borneo, 3,000 feet, 16.ii.1887. John Whitehead leg. No. 973.

(*P. m. cinereigula* was described by Sharpe from an aberrant male, while typical specimens were united with *P. montanus*, described from Sumatra by Salvadori. Thus really *cinereigula* is not better than *wrayi* and *croceus*, which were both named by Sharpe from aberrant *montanus* from the Malay Peninsula. But, while I cannot separate Malay Peninsula and Sumatra specimens (cf. Robinson, *Journ. Fed. Mal. States Mus.* ii. p. 78, 1907), those from Borneo are not quite the same, all the males having entirely black central rectrices, while in *P. m. montanus* from the mountains of Sumatra and the Malay Peninsula they show more or less red; the Bornean form therefore becomes *P. m. cinereigula*, although originally named under an erroneous impression.)

956. **Lalage karu keyensis** R. & H. = *Lalage karu keyensis*.

*Lalage karu keyensis* Rothschild & Hartert, *Bull. B.O. Club*, xxxvii. p. 17 (1917—Key Islands).

Type: ♀, Tual, Little Key Island, 14.ix.1897. Heinrich Kühn leg. No. 67.

957. **Lalage karu obscurior** R. & H. = *Lalage karu obscurior*.

*Lalage karu obscurior* Rothschild & Hartert, *Bull. B.O. Club*, xxxvii. p. 16 (1917—“ Fergusson and Goodenough Islands”).

Type: ♀, Fergusson Island, 20.ix.1894. A. S. Meek leg.

958. **Lalage karu pallescens** R. & H. = *Lalage karu pallescens*.

*Lalage karu pallescens* Rothschild & Hartert, *Bull. B.O. Club*, xxxvii. p. 17 (January 1917—“ St. Aignan and Sudest Islands in the Lousiade group”).

Type: ♂ ad., Sudest Island, 26.ii.1916. A. S. Meek Coll. No. 7269.

959. **Lalage sharpei** Rothschild = *Lalage sharpei*.

*Lalage sharpei* Rothschild, *Bull. B.O. Club*, x. p. xl. (1900—Upolu, Samoa).

Type: ♂, Apia, Upolu, Samoa, 13.iii.1895. C. M. Woodford leg.

#### HIRUNDINIDÆ.

960. **Hirundo urbica meridionalis** Hart. = *Delichon urbica meridionalis*.

*Hirundo urbica meridionalis* Hartert, *Vög. pal. Fauna*, i. p. 809 (1910—Algeria).

Type: ♂ ad., Hammam R'hira, N. Algeria, 8.v.1908. Walter Rothschild & E. Hartert leg. No. 337.

961. **Hirundo urbica nigrimentalis** Hart. = *Delichon urbica nigrimentalis*.

*Hirundo urbica nigrimentalis* Hartert, *Vög. pal. Fauna*, i. p. 810 (1910—“ Fokien im südwestlichen China”).

Type: ♂ ad., Kuantun, hills of N.W. Fokien, 30.iv.1897. J. D. La Touche leg.

962. *Cotile pembertoni* Hart. = *Riparia paludicola pembertoni*.

*Cotile pembertoni* Hartert, *Bull. B.O. Club*, xii. p. 76 (1902—"Angola, ad flumen Cuanza").

Type: ♂ ad., Dondo, Cuanza River, Angola, 8.vi.1901. Hubert C. Pemberton leg.

† 963. *Riparia paludicola dohertyi* Hart. = *Riparia paludicola ducis*.

*Riparia ducis* Reichenow, *Orn. Monatsber.* 1908, p. 81 (Ruanda).

*Riparia paludicola dohertyi* Hartert, *Bull. B.O. Club*, xxv. p. 95 (1910—"British East Africa").

Type: ♂, Kikuyu Escarpment (not Mau Escarpment!), 8,000 feet, September 1900. W. Doherty leg.

(I have compared the type of *R. ducis* Reichenow and find that it must be the same as my *dohertyi*, as suggested by Reichenow, *Journ. f. Orn.* 1918, p. 76. The original examples from Escarpment, Kikuyu Mts. (not Mau!), are smaller, but specimens collected by van Someren at Nairobi, Kisumu, Nakuru, have partially longer wings, up to 104 mm., while the left wing of the type of *ducis* is barely 106 mm., which is hardly a difference worth considering.)

964. *Riparia obsoleta buchanani* Hart. = *Riparia obsoleta buchanani*.

*Riparia obsoleta buchanani* Hartert, *Nov. Zool.* xxviii. p. 112 (1921—Asben Mts.).

Type: ♂ ad., Mt. Baguezan, 5,200 feet, 27.v.1920. A. Buchanan leg. No. 643.

965. *Hirundo rothschildi* Neum. = *Hirundo lucida rothschildi*.

*Hirundo rothschildi* Neumann, *Orn. Monatsber.* 1904, p. 143 (Kaffa).

Type: ♂ ad., Schubba in West Kaffa, South Aethiopia, 11.iv.1901. Oscar Neumann leg.

(This form requires confirmation. The rufous colour on the forehead and throat is, in my opinion, not different from that of some *lucida*, collected by Ansorge at Cachen and Gunnal in Portuguese Guinea, and the more purple colour of the upperside appears to be the only difference.)

966. *Hirundo albigularis microptera* Hart. = *Hirundo albigularis microptera*.

*Hirundo albigularis microptera* Hartert, *Bull. B.O. Club*, xiv. p. 73 (1904—Angola).

Type: ♂ ad., Ambaca, Angola, 18.v.1903. W. J. Ansorge leg. No. 168.

967. *Psalidoprocne holomelaena massaica* Neum. = *Psalidoprocne holomelaena massaica*.

*Psalidoprocne holomelaena massaica* Neumann, *Orn. Monatsber.* 1904, p. 144 ("Gebirge von Ost-Afrika").

Type: ♂ ad., Escarpment, Kikuyu Mts., Brit. E. Africa, December 1900. William Doherty leg.

968. *Psalidoprocne orientalis oleaginea* Neum. = *Psalidoprocne orientalis oleaginea*.

*Psalidoprocne orientalis oleaginea* Neumann, *Orn. Monatsber.* 1904, p. 144 (Kaffa).

Type: ♂ ad., Schubba in West Kaffa, 11.iv.1901. O. Neumann leg. No. 1081.

**XENICIDAE.**969. *Traversia lyalli* Rothsch. = *Traversia lyalli*.

*Traversia lyalli* Rothschild, *Bull. B.O. Club*, iv. p. x. (December 1894—"Stephen's Island, New Zealand").

Type: ♂ ad., Stephen Island in Cook Strait between North and South Islands of New Zealand, 1894, caught by the lighthouse keeper's cat, bought from Henry Travers.

**PITTIDAE.**970. *Pitta concinna everetti* Hart. = *Pitta elegans everetti*.

*Pitta concinna everetti* Hartert, *Nov. Zool.* v. p. 459 (1898—Alor).

Type: ♂ ad., Island of Alor (between Flores and Wetter), April 1897. Alfred Everett leg.

(There can, in my opinion, be no doubt that *P. concinna*, *everetti*, *maria*, *vigorsi*, and *virginalis* are all subspecies of *Pitta elegans* [*irena* auct !], the question only being if they could not all be subspecies of the Indian *brachyura* !)

971. *Pitta maria* Hart. = *Pitta elegans maria*.

*Pitta maria* Hartert, *Bull. B.O. Club*, v. p. 47 (1896—Sumba Island).

Type: Adult, hills of Sumba, back at Melola, February 1896, given to William Doherty by Mejuffrouw Marie de Korte.

972. *Pitta virginalis* Hart. = *Pitta elegans virginalis*.

*Pitta virginalis* or *Pitta irena virginalis* Hartert, *Nov. Zool.* iii. p. 174 (1896—Djampea).

Type: ♂ ad., Djampea, December 1895. Alfred Everett leg.

973. *Pitta anerythra* Rothsch. = *Pitta anerythra anerythra*.

*Pitta anerythra* Rothschild, *Bull. B.O. Club*, xii. p. 22 (1901—Isabel Island, Solomon Islands).

Type: ♂ ad., Isabel Island, 4.vii.1901. Albert S. Meek leg. No. 349. (Figure NOVITATES ZOOLOGICAE, ix.)

974. *Pitta anerythra pallida* Rothsch. = *Pitta anerythra pallida*.

*Pitta anerythra pallida* Rothschild, *Bull. B.O. Club*, xv. p. 7 (November 1904—Bougainville Island, Solomon Islands).

Type: ♂ ad., Bougainville Island, 26.iv.1904. Albert S. Meek leg. No. 1664.

975. *Pitta mackloti aruensis* Rothsch. & Hart. = *Pitta mackloti aruensis*.

*Pitta mackloti aruensis* Rothschild & Hartert, *Nov. Zool.* viii. p. 63 (1901—Aru Islands).

Type: ♂ ad., Wokan, Aru Islands, 4.x.1900. Heinrich Kühn leg. No. 254.

976. *Pitta kuehni* Rothsch. = *Pitta mackloti kuehni*.

*Pitta kuehni* Rothschild, *Bull. B.O. Club*, x. p. iii. (1899—"Key Islands and Koer").

Type: ♂ ad., Kilsocin, Koer Islands, 26.vi.1899. Heinrich Kühn leg. No. 1190.

977. *Pitta mackloti oblita* Rothsch. & H. = *Pitta mackloti oblita*.

*Pitta mackloti oblita* Rothschild & Hartert, *Nov. Zool.* xix. p. 197 (1912—Aroa River).

Type: ♂ ad., Avera, Aroa River, Owen Stanley Mts., 23.ii.1903. Albert S. Meek leg. No. A 279.

978. *Pitta meeki* Rothsch. = *Pitta mackloti meeki*.

*Pitta meeki* Rothschild, *Bull. B.O. Club*, viii. p. vi. (1898—Rossel Island).

Type: ♂ ad., Rossel Island, Louisiade group, 2.ii.1898. A. S. Meek leg. No. 1357.

(I have recognized these interesting forms as subspecies of *mackloti*, which they undoubtedly are, but an intricate study of the genus may lead to looking upon them all as forms of *Pitta erythrogastra*, which appears to be the oldest name of this group.)

979. *Pitta dohertyi* Rothsch. = *Pitta dohertyi*.

*Pitta dohertyi* Rothschild, *Bull. B.O. Club*, vii. p. xxxiii. (1898—Sula Mangoli).

Type: ♂ ad., Sula Mangoli, October 1897. William Doherty leg.

† 980. *Pitta atricapilla rothschildi* Parrot = *Pitta atricapilla atricapilla*.

*Pitta atricapilla rothschildi* Parrot, *Abhandl. k. Bayer. Akad.* ii. Kl., xxiv. i. p. 223 (1907—Marinduque Island, Philippines).

Type: ♂ Marinduque, May 19th, 1888. J. B. Steere leg.

Parrot gave the name *rothschildi* to the one specimen he saw from Marinduque, in case this should be a new form. The differences, however, are merely individual. The extent of white on the primaries varies in this species and is much less in another specimen from Marinduque. The bluish colour of the underside is also seen in birds from other islands and apparently due to exposure to the light. In size the type of *rothschildi* is not larger than birds from other islands; the red of the under tail-coverts is not strikingly different.

981. *Pitta schneideri* Hart. = *Pitta schneideri*.

*Pitta schneideri* Hartert, *Bull. B.O. Club*, xxv. p. 9 (1909—"Mt. Si Bajak, Battak Mountains, Upper Deli, Northwest Sumatra").

Type: Adult (male, but not sexed originally), Si Bajak. Gustav Schneider leg.

982. *Pitta superba* R. & H. = *Pitta superba*.

*Pitta superba* Rothschild & Hartert, *Bull. B.O. Club*, xxxiii. p. 106 (1914—Manus, Admiralty Islands).

Type: ♂ ad., Manus, 13.x.1913. Eichhorn Bros. leg. A. S. Meek Coll. No. 6250.

(Figure NOVITATES ZOOLOGICAE, xxi.)

983. *Melopitta gigantea* Rothsch. = *Melopitta gigantea*.

*Melopitta gigantea* Rothschild, *Orn. Monatsber.* 1899, p. 137 ("Mt. Maori," west of Humboldt Bay, north coast of New Guinea).

Type: "♂" (?), "Mt. Maori," 3,000 feet, January 1899. J. M. Dumas leg. (Cf. NOVITATES ZOOLOGICAE, xx. p. 491.)

## COTINGIDAE.

984. **Pachyrhamphus peruanus** Hart. & Goodson = *Pachyrhamphus peruanus*.  
*Pachyrhamphus peruanus* Hartert & Goodson, *Nov. Zool.* xxiv. p. 410 (1917—Chanchamayo, Cuzco, S.E. Peru, 1,500 m.).

Type: ♀, Chanchamayo, Peru, January 1905. C. O. Schunke leg.

985. **Lathria unirufus castaneotinctus** Hart. = *Lathria unirufa castaneotincta*.  
*Lathria unirufus castaneotinctus* Hartert, *Nov. Zool.* 1902, p. 610 (Cachavé, Rio Durango, N.W. Ecuador).

Type: "♀," Rio Durango, N.W. Ecuador, 17. v. 1901. Miketta & Flemming leg. No. 23.

986. **Aulia tertia** Hart. = *Laniocera rufescens tertia*.

*Aulia tertia* Hartert, *Nov. Zool.* 1902, p. 609 (Bulón, in N.W. Ecuador).

Type: ♂, Bulón, 17. xi. 1900. Miketta & Flemming leg. No. 92.

987. **Lipangus holerythrus rosenbergi** Hart. = *Lipangus holerythrus rosenbergi*.  
*Lipangus holerythrus rosenbergi* Hartert, *Bull. B.O. Club*, xvi, p. 12 (1905—Rio Dagua, W. Colombia).

Type: ♂, Rio Dagua, 1. vi. 1895. W. F. Rosenberg leg.

988. **Attila braziliensis parambae** Hart. = *Attila braziliensis parambae*.  
*Attila braziliensis parambae* Hartert, *Bull. B.O. Club*, xi, p. 39 (1900—Paramba, N. Ecuador).

Type: ♂ ad., Paramba, N. Ecuador, 3,500 feet, 22. iii. 1899. G. Flemming leg. No. 222.

(Cf. also NOVITATES ZOOLOGICAE, ix, p. 610; Chapman, *Distr. Bird-life Colombia*, p. 495.)

## PIPRIDAE.

989. **Chloropipo holochlora litae** Hellm. = *Chloropipo holochlora litae*.  
*Chloropipo holochlora litae* Hellmayr, *Nov. Zool.* xiii. p. 325 (1906—Lita in N.W. Ecuador).

Type: ♂ ad., Lita, 22. ix. 1899. G. Flemming leg. No. 143.

990. **Masius chrysopterus bellus** Hart. & Hellm. = *Masius chrysopterus bellus*.  
*Masius chrysopterus bellus* Hartert & Hellmayr, *Orn. Monatsber.* 1903, p. 35 ("Cauca-Tal in Colombia").

Type: ♂ ad., Rio Lima, Cauca valley, Colombia, 4,000 feet, 19. viii. 1898. J. H. Batty leg. No. 5599.

991. **Pipra aureola calamae** Hellm. = *Pipra aureola calamae*.

*Pipra aureola calamae* Hellmayr, *Nov. Zool.* xvii. p. 303 (1910—Rio Madeira).

Type: ♂ ad., Calama, Rio Madeira, 23. viii. 1907. W. Hoffmanns leg. No. 445.

992. **Pipra mentalis minor** Hart. = *Pipra mentalis minor*.

*Pipra mentalis minor* Hartert, *Nov. Zool.* v. p. 489 (1898—Cachavé, N.W. Ecuador).

Type: ♂ ad., Cachavé, 7. i. 1897. W. F. H. Rosenberg leg. No. 207.



993. **Pipra exquisita** Hellm. = *Pipra exquisita exquisita*.*Pipra exquisita* Hellmayr, *Bull. B.O. Club*, xv. p. 56 (1905—"Chuchurras, Central Peru").

Type: ♂ ad., Chuchurras, July 1904. 320 m. W. Hoffmanns leg.

994. **Pipra hoffmannsi** Hellm. = *Pipra hoffmannsi*.*Pipra hoffmannsi* Hellmayr, *Nov. Zool.* xiv. p. 49 (1907—Jeffé, Rio Solimoes, Brazil).

Type: ♂ ad., Jeffé, 7.vi.1906. W. Hoffmanns leg. No. 769.

995. **Corapipo leucorrhoea altera** Hellm. = *Corapipo leucorrhoea altera*.*Corapipo leucorrhoea altera* Hellmayr, *Bull. B.O. Club*, xvi. p. 84 (1906—"Costa Rica and Chiriqui").

Type: ♂ Carrillo, Costa Rica, 13.x.1898. C. F. Underwood leg. No. 1098.

996. **Chiroxiphia pareola atlantica** Dalmas = *Chiroxiphia pareola atlantica*.*Chiroxiphia pareola atlantica* Dalmas, *Mém. Soc. Zool. France*, xiii. p. 139 (1900—Tobago).

Type: ♂ ad., Tobago, 9.xii.1898. André leg.

997. **Chiromachaeris manacus trinitatis** Hart. = *Manacus manacus trinitatis*.*Chiromachaeris manacus trinitatis* Hartert, *Bull. B.O. Club*, xxix. p. 63 (1912—Trinidad).

Type: ♂ ad., Chaguaramas, Trinidad, 6.i.1903. E. André leg.

998. **Sapayoa aenigma** Hart. = *Sapayoa aenigma*.*Sapayoa aenigma* Hartert, *Nov. Zool.* x. p. 117 (1903—Rio Sapayo, N.W. Ecuador).

Type of genus and species names: ♂ ad., Rio Sapayo, 2.xi.1901. Miketta &amp; Flemming leg. No. 141.

999. **Heteropelma rosenbergi** Hart. = *Schiffornis turdinus rosenbergi*.*Heteropelma rosenbergi* Hartert, *Nov. Zool.* v. p. 489 (1898—Cachavé, N.W. Ecuador).

Type: ♂ ad., Cachavé, 20.i.1897. W. F. H. Rosenberg leg. No. 237.

**TYRANNIDAE.**1000. **Agriornis livida fortis** Berl. = *Agriornis livida fortis*.*Agriornis livida fortis* Berlepsch, *Proc. Fourth Intern. Orn. Congress*, p. 352 (1907—Chubut, Valle del Lago Blanco, Patagonia).

Type: ♂, Chubut, 27.vii.1900. Julius Koslowsky leg.

† 1001. **Knipolegus aterrimus ockendeni** Hart. = *Knipolegus aterrimus anthracinus*.\**Knipolegus aterrimus ockendeni* Hartert, *Bull. B.O. Club*, xxiii. p. 11 (1908—Carabaya, Peru).

Type: ♀ ad., Carabaya, 4.vii.1904, 7,000 feet. G. Ockenden leg. No. 768.

\* That this form must be called *Knipolegus aterrimus anthracinus* (Heine) will be fully explained later on by Hellmayr in *NOVITATES ZOOLOGICAE*, in a further instalment on the birds collected by Alcide d'Orbigny.

1002. **Rhynchocyclus sulphurescens pallescens** Hart. & Goodson = *Rhynchocyclus sulph. pallescens*.

*Rhynchocyclus sulphurescens pallescens* Hartert & Goodson, *Nov. Zool.* xxiv. p. 414 (1917—Santa Cruz and Province Sara, Bolivia).

Type: Adult, Santa Cruz, Bolivia, 21.viii.1889. Gustav Garlepp leg. No. 197.

1003. **Rhynchocyclus sulphurescens cherriei** Hart. & Goods. = *Rhynch. sulph. cherriei*.

*Rhynchocyclus sulphurescens cherriei* Hartert & Goodson, *Nov. Zool.* xxiv. p. 414 (1917—"Cayenne, Surinam, British Guiana, Caura River, and Maipures on the Orinoco").

Type: ♂ Cayenne, 2.xii.1902. Geo. K. Cherrie & B. T. Gault leg. No. 1001.

† 1004. **Rhynchocyclus sulphurescens berlepschi** Hart. & Goods. = *Rhynchocyclus sulphur. exortivus*.

*Rhynchocyclus sulphurescens berlepschi* Hartert & Goodson, *Nov. Zool.* xxiv. p. 415 (1917—"Northern Venezuela (Cumana, Puerto Cabella and Trinidad).")

Type: ♂ ad., Caparo, Trinidad, 9.iv.1902. E. André leg.

Hellmayr writes to me as follows:

"A series from Santa Marta, received through Chapman, proves the birds from N. Venezuela (Caribbean coast), Trinidad, and Sta. Marta to belong to one and the same form, the oldest name of which is *exortivus* Bangs. The specimens from Colombia in the Tring Museum formerly labelled *R. s. exortivus* by myself are, however, *R. sulph. asemus* Bangs. My wrong identification evidently misled you to redescribe *exortivus* as *berlepschi*."

† 1005. **Rhynchocyclus megacephala flavotectus** Hart. = *Rhynchocyclus cinereiceps marginatus*.

*Rhynchocyclus megacephala flavotectus* Hartert, *Nov. Zool.* ix. p. 608 (1902—S. Javier and Paramba).

Type: ♀, S. Javier, N.W. Ecuador, 60 feet, 25.vii.1900. G. Flemming leg. No. 893.

Chapman, *Distrib. Bird-life Colombia*, p. 436, suggested that *flavotectus* is the same as *marginatus* Lawr. from Panama. This is quite correct.

Hellmayr writes to me as follows:

"Through the kindness of F. M. Chapman I have been able to compare the type of *R. marginatus* Lawr. with the type of *flavotectus*, and found them practically identical.

"I was quite wrong in referring *flavotectus* (= *marginatus*) as a subspecies to *R. cinereiceps*. The latter is the northern representative of the *sulphurescens* group. *R. marginatus*, however, in some localities lives side by side with races of *R. sulphurescens*, and is specifically different. Its nearest relations are with *R. poliocephalus sclateri* (*megacephala* auct. nec Swainson!), as had been recognized with his usual acumen by our late friend Berlepsch. The specimens from Guayaquil and Esmeraldas in W. Ecuador, mentioned by Chapman as being probably referable to *flavotectus*, turned out to belong to *R. sulphurescens aequatorialis* Berl. & Tacz.!"

1006. **Todirostrum fumifrons penardi** Hellm. = *Todirostrum fumifrons penardi*.

*Todirostrum fumifrons penardi* Hellmayr, *Bull. Brit. Orn. Club*, xv. p. 90 (1905—near Paramaribo, Surinam).

Type: ♂ ad., near Paramaribo, 19.iii.1905. Chunkoo leg. No. S 56.

1007. **Taeniotriccus andrei** Berl. & Hart. = *Taeniotriccus andrei*.

*Taeniotriccus andrei*, gen. nov. et spec. nov., Berlepsch & Hartert, *Nov. Zool.* ix. p. 38 (1902—"La Pricion ad flumen Caura dictum").

Type: "♂," La Pricion, Caura River, Orinoco region, 18.ii.1901. E. André leg.

1008. **Idioptilon rothschildi** Berl. = *Idioptilon rothschildi*.

*Idioptilon rothschildi* Berlepsch, *Proc. IV. Intern. Orn. Congr.*, p. 356 (1907—gen. nov. et spec. nova, Rio Approuague, Cayenne).

Type: ♂, Ipourin, Rio Approuague, Cayenne, 8.i.1903. Geo. K. Cherrie leg. No. 18057.

1009. **Habrura pectoralis brevipennis** Berl. & Hart. = *Habrura pectoralis brevipennis*.

*Habrura pectoralis brevipennis* Berlepsch & Hartert, *Nov. Zool.* ix. p. 40 (1902—"Habitat in Venezuela: Orinoco et in Brit. Guiana: Roraima").

Type: ♂, Quiribana de Caicara, Orinoco, 26.iv.1898. Geo. K. Cherrie and Stella M. Cherrie leg. No. 10835.

1010. **Leptotriccus flaviventris** Hart. = *Leptotriccus flaviventris*.

*Leptotriccus flaviventris* Hartert, *Bull. B.O. Club*, vii. p. v. (1897—Merida, Venezuela).

Type: ad., Merida, iv.1894. A. Mocquerys leg. No. 200.

1011. **Cyanotis rubrigastra alticola** Berl. & Stolz. = *Cyanotis rubrigastra alticola*.

*Cyanotis rubrigastra alticola* Berlepsch & Stolzmann, *Proc. Zool. Soc. London*, 1896, p. 361 ("Hab. in Peruvia centrali alta").

"Type": ♀ ad., Incapirca, Junin, Peru, 26.v.1890. J. Kalinowski leg. No. 585.

(This specimen is marked "typus" by Stolzmann and one of the specimens mentioned. We would call it "cotype," as no single type was mentioned, and Stolzmann probably labelled all eight specimens "typus," *more antiquo*.)

1012. **Mionectes oleagineus pallidiventris** Hellm. = *Mionectes oleagineus pallidiventris*.

*Mionectes oleagineus pallidiventris* Hellmayr, *Nov. Zool.* xiii. p. 22 (1906—State of Cumana, Venezuela).

Type: ♂ ad., Rincon de San Antonio, State of Cumana, Venezuela, 14.iii.1898. Caracciolo leg. No. 859.

1013. **Leptopogon superciliaris venezuelensis** Hart. & Goodson = *Leptopogon superciliaris venezuelensis*.

*Leptopogon superciliaris venezuelensis* Hartert & Goodson, *Nov. Zool.* xxiv. p. 413 (Cumaná, Caripé, Cumbre de Valencia, N. Venezuela).

Type: ♂ ad., Cumbre de Valencia, inland of Pto. Cabello, 14.i.1910. S. M. Klages leg.

1014. **Capsiempis flaveola magnirostris** Hart. = *Capsiempis flaveola magnirostris*.

*Capsiempis flaveola magnirostris* Hartert, *Nov. Zool.* v. p. 487 (1898—Chimbo, N.W. Ecuador).

Type: ♂ ad., Chimbo, 1,000 feet, 1.ix.1897. W. F. H. Rosenberg leg. No. 825.

† 1015. **Phyllomyias venezuelensis** Hart. = *Xanthomyias urichi*.

*Phyllomyias venezuelensis* Hartert, *Bull. B.O. Club*, xi. p. 39 (1900—State of Cumana, Venezuela).

*Xanthomyias urichi* Chapman, *Bull. Amer. Mus. Nat. Hist.* xii. p. 155 (1899—Quebrada Seca, Venezuela).

Type: ♀ ad., Forest of los Palmales, State of Cumana, 25.ii.1898. Caracciolo leg. No. 557.

(Chapman's name has some months priority.)

1016. **Elainia gaimardii trinitatis** Hart. & Goods. = *Elainia gaimardi trinitatis*.

*Elainia gaimardii trinitatis* Hartert & Goodson, *Nov. Zool.* xxiv. p. 411 (1917—Trinidad).

Type: ♂, Caparo, Trinidad, 20.iv.1902. E. André leg.

1017. **Myiozetetes cayanensis hellmayri** Hart. & Goods. = *Myiozetetes cayanensis hellmayri*.

*Myiozetetes cayanensis hellmayri* Hartert & Goodson, *Nov. Zool.* xxiv. p. 412 (1917—"West Ecuador, Canca valley in Colombia, and in Bogotá collections").

Type: ♂ ad., Cachavé, W. Ecuador, 10.xi.1896. W. F. H. Rosenberg leg. No. 19.

1018. **Pitangus sulphuratus trinitatis** Hellm. = *Pitangus sulphuratus trinitatis*.

*Pitangus sulphuratus trinitatis* Hellmayr, *Nov. Zool.* xiii. p. 24 (1906—Trinidad).

Type: ♀ ad., Caparo, Trinidad, 16.iv.1902. E. André leg.

1019. **Hirundinea bellicosa pallidior** Hart. & Goods. = *Hirundinea bellicosa pallidior*.

*Hirundinea bellicosa pallidior* Hartert & Goodson, *Nov. Zool.* xxiv. p. 411 (1917—Tucuman, Salta and Catamarca).

Type: ♂ ad., Salta, Cachi, Argentina, 2,500 m., 5.iv.1905. José Steinbach leg. No. 49.

1020. **Myiobius litae** Hart. = *Myiobius litae*.

*Myiobius litae* Hartert, *Bull. B.O. Club*, xi. p. 40 (1900—Lita, N.W. Ecuador).

Type: ♂, Lita, 11.ix.1899. G. Flemming leg. No. 103.

† 1021. **Pyrocephalus intercedens** Ridgw. = *Pyrocephalus nanus nanus*.

*Pyrocephalus intercedens* Ridgway, *Proc. U.S. Nat. Mus.* xvii. p. 366; xix. p. 575 (1894—Indefatigable Island, Galapagos Island).

Type (marked and red-labelled as such by Ridgway): ♂ ad., Indefatigable Island, 5.viii.1891. Dr. G. Baur leg. No. 418.

(As we have said, NOVITATES ZOOLOGICAE, 1899, p. 173, this form was described from supposed differences in the colour of the female; therefore, logically, the ♀ should have been made the type of the name *intercedens*.)

1022. **Empidochanes fuscatus fumosus** Berl. = *Empidochanes fuscatus fumosus*.

*Empidochanes fuscatus fumosus* Berlepsch, *Nov. Zool.* xv. p. 129 (1908—"Cayenne").

Type: ♂, Cayenne, Approuague, 19.xii.1902. G. K. Cherrie leg. No. 12773.

1023. **Mitrephanes berlepschi** Hart. = *Mitrephanes berlepschi*.

*Mitrephanes berlepschi* Hartert, *Nov. Zool.* ix. p. 608 (1902—"Bulún, Ecuadoria septentr., alt. 160 ped.")

Type: ♀, Bulún, 10.xii.1900. G. Flemming leg. No. 275.

(This very distinct form—as far as I know not recorded since 1902—is probably a subspecies of *M. olivaceus*.)

† 1024. **Blacicus brachytarsus guianarum** Hart. & Goods. = *Blacicus brachytarsus surinamensis*.

*Blacicus brachytarsus guianarum* Hartert & Goodson, *Nov. Zool.* xxiv. p. 411 (1917—"Cayenne and Surinam").

*Contopus brachytarsus surinamensis* Penard, *Vogels van Guyana*, ii. p. 259 (1910—Surinam).

Type: ♂ ad., near Paramaribo, Surinam, 6.ix.1900. B. Chunkoo leg. (Ex Coll. Penard.)

(I agree with Oberholser and Berlepsch that *Myiochanes* should not be separated from *Blacicus*.)

1025. **Serpophaga parambae** Hellm. = *Elainia cinerea parambae*.

*Serpophaga parambae* Hellmayr, *Bull. B.O. Club*, xiv. p. 54 (1904—Paramba, N.W. Ecuador).

*Elainia cinerea parambae* id., *Proc. Zool. Soc. London*, 1911, vol. ii. p. 1132 (Paramba, Nóvita and Noanamu in W. Colombia).

Type: ♂, Paramba, 23.vii.1899. R. Miketta leg. No. 473.

(I can find no mention of this form in Chapman's *Distrib. of Bird-life in Colombia*.)

1026. **Myiarchus brevipennis** Hart. = *Myiarchus tyrannulus brevipennis*.

*Myiarchus brevipennis* Hartert, *Bull. B.O. Club*, i. p. xii. (1892—"Islands of Aruba, Curaçao, and Bonaire").

Type: ♂ ad., near Savonct, Curaçao, 16.vi.1892. Ernst & Cl. Hartert leg. No. 74.

1027. **Myiarchus tyrannulus santaeluciae** Hellm. & Scil. = *Myiarchus tyrannulus santaeluciae*.

*Myiarchus tyrannulus santaeluciae* Hellmayr & Seilern, *Verh. Orn. Ges. Bayern*, xii. p. 201 (1915—Santa-Lucia, W. Indies).

Type: ♂, Santa Lucia Island, 24.xi.1900. S. Branch leg. No. 10,

1028. **Tyrannus melancholicus occidentalis** Hart. & Goods. = *Tyrannus melancholicus occidentalis*.

*Tyrannus melancholicus occidentalis* Hartert & Goodson, *Nov. Zool.* xxiv. p. 412 (1917—"San Blas, Tepic, N.W. Mexico").

Type: ♂ ad., San Blas, 20.iv.1897. (Bought from American dealer.)

#### DENDROCOLAPTIDAE.

1029. **Leptasthenura aegithaloides berlepschi** Hart. = *Leptasthenura aegithaloides berlepschi*.

*Leptasthenura aegithaloides berlepschi* Hartert, *Nov. Zool.* xvi. p. 210 (1909—Salta and Jujuy, N.W. Bolivia).

Type: ♂ ad., Augusto Pericheli, Jujuy, 2,550 m., November 1905. L. Dinelli leg.

1030. **Synallaxis simoni** Hellm. = *Synallaxis simoni*.

*Synallaxis simoni* Hellmayr, *Bull. B.O. Club*, xix. p. 54 (1907—Rio Araguaya, Goyaz, Brazil, one specimen).

Type: "♀ fere ad.," Rio Araguaya, 550 m., August 1906. G. A. Baer leg. No. 2370.

1031. **Synallaxis omissa** Hart. = *Synallaxis rutilans omissa*.

*Synallaxis omissa* Hartert, *Bull. B.O. Club*, xi. p. 71 (1901—Pará, Brazil).

Type: Pará, 19.vii.1897. J. B. Steere leg.  
(Cf. NOVITATES ZOOLOGICAE, 1907, p. 15.)

1032. **Synallaxis rutilans amazonica** Hellm. = *Synallaxis rutilans amazonica*.

*Synallaxis rutilans amazonica* Hellmayr, *Nov. Zool.* xiv. p. 13 (1907—"N. Brazil, Lower Amazons: Santarem. N.E. Peru: Xeberos, Chamicuros, Chyavetas, Yurimaguas").

Type: ♂ ad., Itaituba, Santarem, 22.i.1906. W. Hoffmanns leg. No. 481.

1033. **Synallaxis unirufa meridana** Hart. & Goods. = *Synallaxis unirufa meridana*.

*Synallaxis unirufa meridana* Hartert & Goodson, *Nov. Zool.* xxiv. p. 498 (1917—"Andes of Merida, Escorial, 3,000 m., Walle 2,165 m.).

Type: ♂ ad., Escorial, 15.v.1903. Salomon Briceño Gabaldon & Sons leg.

1034. **Synallaxis terrestris bolivari** Hart. = *Synallaxis terrestris bolivari*.

*Synallaxis terrestris bolivari* Hartert, *Bull. B.O. Club*, xxxvii. p. 31 (1917—"Silla de Caracas and Cumbre de Valencia in Northern Venezuela, 2♂ 3♀").

Type: Silla de Caracas, 17.i.1917. S. M. Klages leg. No. 2090.

1035. **Synallaxis maximiliani argentina** Hellm. = *Melanopareia maximiliani argentina*.\*

*Synallaxis maximiliani argentina* Hellmayr, *Bull. B.O. Club*, xix. p. 74 (1907—"Argentine Republic: Tucumán to the Chaco").

Type: ♂ ad., Norco, Tucumán, 1,200 m., 6.viii.1904. L. Dinelli Coll. No. 3244.

\* Is a member of the family *Formicariidae*, and belongs to the very distinct genus *Melanopareia*, Hellmayr, *in litt*.

1036. *Siptornis steinbachi* Hart. = *Siptornis steinbachi*.

*Siptornis steinbachi* Hartert, *Nov. Zool.* xvi. p. 213 (1909—"Cachí, province de Salta").

Type (unique) : ♀, Cachí, 2,500 m., 17.iv.1905. José Steinbach leg. No. 45.

1037. *Pseudocolaptes boissonneautii meridae* Hart. & Goods. = *Pseudocolaptes boissonneautii meridae*.

*Pseudocolaptes boissonneautii meridae* Hartert & Goodson, *Nov. Zool.* xxiv. p. 499 (1917—Andes of Merida, Venezuela).

Type : ♀ ad., Valle de Merida, 16.ii.1888. Salomon Briceño Gabaldon leg. (Cf. *Archiv. f. Naturg.* lxxviii. Heft 5, p. 98!)

† 1038. *Pseudocolaptes boissonneaui flavescens* Berl. & Stolzm. = *Pseudocolaptes boissonneautii auritus*.

*Pseudocolaptes boissonneaui flavescens* Berlepsch & Stolzmann, *Proc. Zool. Soc. London*, 1896, p. 374 ("Hab. in Peruvia centrali (Maraynioc) et septentrionali (Cutervo) et in Bolivia").—*Terra typica* : Maraynioc !

Type (rather cotype, but marked "typus" by Stolzmann, see No. 1011!) : ♂, Maraynioc, central Peru, 1.viii.1892. J. Kalinowski leg. No. 1652.

(NOVITATES ZOOLOGICAE, xxiv. pp. 499, 500, 1917, Arthur Goodson and I have explained that we do not believe that *P. b. flavescens* is identical with *auritus*, as Hellmayr & Seilern, *Archiv. f. Naturg.* lxxviii. Heft 5, p. 99, supposed, but that further researches were necessary. These have now been made. Hellmayr has examined the type of *auritus* Tschudi, which settles the matter. Cf. *Verhandl. Orn. Ges. Bayern*, xiv. Heft 1, p. 130, 1919.)

1039. *Thripophaga berlepschi* Hellm. = *Thripophaga berlepschi*.

*Thripophaga berlepschi* Hellmayr, *Nov. Zool.* xii. p. 503 (1905—Leimabamba, N. Peru).

Type : ♂, Leimabamba, N. Peru, 10,000 feet, 13.vii.1894. O. T. Baron leg.

1040. *Automolus sclateri paraensis* Hart. = *Automolus infuscatus paraensis*.

*Automolus sclateri paraensis* Hartert, *Nov. Zool.* ix. p. 61 (1902—Para, E. Brazil).

Type : ♂, Bemavides, Pará, 24.vii.1879. J. B. Steere leg.

1041. *Automolus pallidigularis albidior* Hart. = *Automolus pallidigularis albidior*.

*Automolus pallidigularis albidior* Hartert, *Nov. Zool.* viii. p. 369 (1901—N.W. Ecuador).

Type : "♀," S. Javier, N.W. Ecuador, 60 feet, 13.vii.1900. G. Flemming leg. No. 829.

(Chapman, *Distrib. Bird-life in Colombia*, p. 410, suggests that this form is "an apparently invalid form," but, comparing our five skins with ten from Central America, the white throats of the former appear to be clearly different from the yellowish ones of *A. p. pallidigularis*.)

1042. *Automolus cinnamomeigula* Hellm. = *Automolus cinnamomeigula*.

*Automolus cinnamomeigula* Hellmayr, *Bull. B.O. Club.* xv. p. 55 (1905—trade-skin found in a large consignment of skins of Bogotá make, therefore no exact locality. Has since been found by the collectors of the American Museum of Natural History at La Morelia, Rio Bodaquera, Caquotá, Colombia. Chapman, in his admirable work on the *Bird-life in Colombia*, p. 411, "proposes" La Morelia as the typical locality; I cannot agree to this, as it is arbitrary, there being no indi-

cation that the type came exactly from La Morelia, which is surely not the only place where this species occurs. If a species from an unknown place is divided into various geographical forms, and no type-specimens exists to show which of these subspecies it is, the Gordian knot must be cut and we must restrict the first name to some locality or area, but otherwise the arbitrary practice of proposing an exact "typical locality" cannot be accepted, unless there is some indication that the type was obtained there. Thus the "make" of trade-skins can decide that a species came from the province of Rio, from Guatemala, or Colombia (Bogotá collections!), but not that it came from a certain town or village.

Type: Trade-skin (evidently adult) from a Bogotá collection, purchased from Mantou in Paris.

1043. **Automolus nigricauda** Hart. = *Automolus nigricauda nigricauda*.

*Automolus nigricauda* Hartert, *Bull. B.O. Club*, vii. p. 30 (1898—Cachabé, N. Ecuador).

Type: ♂ ad., Cachabé, 10.xi.1896. W. F. H. Rosenberg leg. No. 18.

(Unique specimen, but later on two specimens were sent from Paramba and Rio Sapayo by Flemming and Miketta, while a subspecies, *A. nigricauda saturatus*, has been described by Chapman from the tropical zone in the lower Atrato Valley, and ranges northwards to eastern Panama, according to Chapman, p. 410.)

1044. **Xenops genibarbis ridgwayi** Hart. & Goods. = *Xenops genibarbis ridgwayi*.

*Xenops genibarbis ridgwayi* Hartert & Goodson, *Nov. Zool.* xxiv. p. 417 (1917—"Costa Rica, Panama, and the little islands of Iguaros, Sevilla, Almijas, and Medidor").

Type: ♂, Tocoumé, Panama, 7.iii.1899. E. André leg.

1045. **Sclerurus mexicanus obscurior** Hart. = *Sclerurus mexicanus obscurior*.

*Sclerurus mexicanus obscurior* Hartert, *Nov. Zool.* viii. p. 370 (1901—Lita in N.W. Ecuador).

Type: ♀, Lita, 3,000 feet, 20.x.1899. Miketta & Flemming leg. No. 453. (Cf. Chapman, *Distr. Bird-life Colombia*, p. 415.)

1046. **Glyphorhynchus cuneatus simillimus** Hart. & Goods. = *Glyphorhynchus cuneatus simillimus*.

*Glyphorhynchus cuneatus simillimus* Hartert & Goodson, *Nov. Zool.* xxiv. p. 419 (1917—"Cayenne, Orinoco Valley, British Guiana, and Surinam").

Type: ♂, Ipousin, Approuague River, Cayenne, 6.i.1903. Geo. K. Cherrie leg. No. 13020.

1047. **Deconychura secunda** Hellm. = *Deconychura secunda*.

*Deconychura secunda* Hellmayr, *Bull. B.O. Club*, xiv. p. 51 (1904—Rio Napo, Ecuador).

Type: "♀," Coca, Rio Napo, E. Ecuador, June 1899. Goodfellow & Hamilton leg.

1048. **Xiphorhynchus nanus demonstratus** Hart. & Goods. = *Xiphorhynchus nanus demonstratus*.

*Xiphorhynchus nanus demonstratus* Hartert & Goodson, *Nov. Zool.* xxiv. p. 419 (1917—"North-western Venezuela from Tocuyo to Puerto Cabello").

Type: ♂ ad., San Esteban valley near Puerto Cabello, 11.xi.1909. S. M. Klages leg. No. 2823,



1049. **Hylexetastes uniformis** Hellm. = *Hylexetastes uniformis*.

*Hylexetastes uniformis* Hellmayr, *Rev. Franç. Orn.* i. p. 100 (1909—Calama, Rio Madeira, Brazil, also Borba).

Type: ♂ vix ad., Calama, 25.vii.1907. W. Hoffmanns leg. No. 271.  
(See also NOVITATES ZOOLOGICAE, 1910, p. 329.)

1050. **Xiphocolaptes orenocensis** Berl. & Hart. = *Xiphocolaptes promeropirhynchus orenocensis*.

*Xiphocolaptes orenocensis* Berlepsch & Hartert, *Nov. Zool.* ix. p. 65 (1902—Nericagua and Munduapo, Orinoco).

Type: ♂, Nericagua, 12.iv.1899. Geo. K. and Stella Cherrie leg. No. 12484.

(Though my mentor and master in South American ornithology and I described this rare form as a species, I have now no doubt that it should be regarded as a subspecies of *X. promeropirhynchus* and *procerus*, and it appears indeed to be nearer the latter, though different in several details, and much larger.)

1051. **Picolaptes albolineatus littoralis** Hart. & Goods. = *Picolaptes lineaticeps littoralis*.

*Picolaptes albolineatus littoralis* Hartert & Goodson, *Nov. Zool.* xxiv. p. 417 (1917—"Coastal region of North Venezuela").

Type: ♂ ad., Quebrada Secca, State of Cumana, Venezuela, 9.ii.1898. Caracciolo leg. No. 143.

(There seems to me no doubt now that *albolineatus* and *littoralis*, and others, are subspecies of *P. lineaticeps*.)

† 1052. **Dendrornis consobrinus** Dalmas = *Xiphorhynchus susurrans susurrans*.

*Dendrornis consobrinus* Dalmas, *Mém. Soc. zool. France*, xiii. p. 140 (1900—Trinidad).

*Dendrocolaptes susurrans* Jardine, *Ann. & Mag. Nat. Hist.*, 1847, p. 81 (Tobago).

Type: Trinidad, 20.i.1897. Ex Coll. Dalmas.

(I agree with Hellmayr, *Nov. Zool.* 1906, pp. 29, 30, that specimens from Trinidad and Tobago cannot be separated.)

1053. **Dendrornis jardinei** Dalmas = *Xiphorhynchus susurrans jardinei*.

*Dendrornis jardinei* Dalmas, *Mém. Soc. zool. France*, xiii. p. 140 (1900—Cumana, northern Venezuela).

Type: adult, Cumana, 1897. E. André leg. (Ex coll. Dalmas.)

(The validity of this form is confirmed by our series, though the differences are slight. See also NOVITATES ZOOLOGICAE, 1906, p. 30.)

1054. **Dendrocolaptes validus seilerni** Hart. & Goods. = *Dendrocolaptes validus seilerni*.

*Dendrocolaptes validus seilerni* Hartert & Goodson, *Nov. Zool.* xxiv. p. 416 (1917—San Esteban near Puerto Cabello, Venezuela, and Cumbre de Valencia).

Type: ♂, Cumbre Chiquito, near San Esteban, 19.xi.1909. S. M. Klages leg. No. 2803.

(Cf. *Archiv f. Naturg.* 1912, 5. Heft, p. 118!)

1055. *Dendrocolaptes hoffmannsi* Hellm. = *Dendrocolaptes hoffmannsi*.

*Dendrocolaptes hoffmannsi* Hellmayr, *Bull. B.O. Club*, xxiii. p. 66 (Calama and Allianca, Rio Madeira, Brazil).

Type: ♂ ad., Calama, 29. vi. 1907. W. Hoffmanns leg. No. 128.

(Cf. also NOVITATES ZOOLOGICAE, 1910, p. 335. It seems to me that this is also a subspecies of *D. validus*?)

## FORMICARIIDAE.

1056. *Cymbilanius lineatus intermedius* Hart. & Goods. = *Cymbilanius lineatus intermedius*.

*Cymbilanius lineatus intermedius* Hartert & Goodson, *Nov. Zool.* xxiv. p. 495 (1917—Rio Madeira, Santarem, and Tefé in Brazil, Yquitos and province of Huanaco in Peru).

Type: ♀, Humaytha, Rio Madeira, 31. vii. 1906. W. Hoffmanns leg. No. 1023.

1057. *Thamnophilus paraguayensis* Hellm. = *Thamnophilus caerulescens paraguayensis*.

*Thamnophilus paraguayensis* Hellmayr, *Bull. B.O. Club*, xiv. p. 53 (1904—Rio Apa, Paraguay).

Type: ♂, Colonia Risso, Rio Apa, mid October 1893. A. Borelli leg. No. 198.

(*T. paraguayensis* is connected by *sticturus* with *ambiguus*, both of which are subspecies of *caerulescens*.)

† 1058. *Thamnophilus bernardi baroni* Hart. & Goods. = *Thamnophilus bernardi cajamarcae*.

*Thamnophilus bernardi baroni* Hartert & Goodson, *Nov. Zool.* xxiv. p. 498 (December 1917—North-west Peru, Trujillo and Yonan R.).

Type: ♂ ad., Yonan River, 3,000 feet, north-east of Trujillo, 15. vi. 1894. O. T. Baron leg.

*Hypolophus bernardi cajamarcae* Hellm., *Verh. Orn. Ges. Bayern*, xiii. 2, p. 188, was published in September 1917, and has thus two months priority over *baroni*!

1059. *Thamnophilus doliatus tobagoensis* Hart. & Goods. = *Thamnophilus doliatus tobagoensis*.

*Thamnophilus doliatus tobagoensis* Hartert & Goodson, *Nov. Zool.* xxiv. p. 497 (1917—Tobago Island).

Type: ♂ ad., Plymouth, Tobago, 23. iv. 1903. Pasca leg. (one of André's collectors.)

1060. *Thamnophilus punctatus interpositus* Hart. & Goods. = *Thamnophilus punctatus interpositus*.

*Thamnophilus punctatus interpositus* Hartert & Goodson, *Nov. Zool.* xxiv. p. 496 (1917—Bogotá collections, Colombia).

Type: ♂ ad., trade-skin found in a Bogotá collection, exchanged from the late Ad. Nehrkorn.

(*Thamnophilus punctatus atrinucha* is apparently also found in Bogotá collections. It is widely spread over the tropical zone of Colombia, but Chapman

states that American collectors did not take it in the Cauca valley. It is well known that often two subspecies were found in Bogotá collections, since the Indians who collected those birds went into many parts of Colombia.)

† 1061. **Thamnophilus bricenoi** Hart. = *Thamnophilus nigrescens*.

*Thamnophilus bricenoi* Hartert, *Nov. Zool.* v. p. 220, pl. iv (1898—Andes of Venezuela).  
*Thamnophilus nigrescens* Lawrence, *Ann. Lyc. N.Y.* viii. p. 469 (1867—Merida).

Type: ♂ ad., Sabanetas de Estanques, Andes of Merida, 800 m., 7.iv.1897.  
Salomon Briceño Gabaldón leg.

1062. **Dysithamnus mentalis emiliae** Hellm. = *Dysithamnus mentalis emiliae*.

*Dysithamnus mentalis emiliae* Hellmayr, *Abh. K. Bayer. Akad. Wiss. math. phys. Kl.* xxvi. 2, p. 92 (November 1912—Pará district, N.E. Brazil).

Type: ♂, Prata, near Pará, 14.x.1905, 45 m. W. Hoffmanns leg. No. 15.

1063. **Dysithamnus affinis andrei** Hellm. = *Dysithamnus mentalis andrei*.

*Dysithamnus affinis andrei* Hellmayr, *Nov. Zool.* xiii. p. 31 (1906—Trinidad).

Type: ♀ ad., Caparo, Trinidad, 12.iv.1902. E. André leg.

1064. **Dysithamnus schistaceus heterogynus** Hellm. = *Dysithamnus schistaceus heterogynus*.

*Dysithamnus schistaceus heterogynus* Hellmayr, *Nov. Zool.* xiv. p. 61 (1907—Teffé, Brazilian Amazons).

Type: ♀ ad., Teffé, 12.vii.1906. W. Hoffmanns leg. No. 812.

1065. **Dysithamnus tucuyensis** Hart. = *Dysithamnus plumbeus tucuyensis*.

*Dysithamnus tucuyensis* Hartert, *Nov. Zool.* i. p. 674, pl. xv (1894—"Hills of Bucarito, Tucuyo, N. Venezuela").

Type: ♂ med., hills near Bucarito, Tucuyo, October–November 1893.  
Albert Mocquerys leg. No. 145.

(First described from a single specimen, not adult, but an adult male was sent later on by the same collector from a place which he called "El Guacharo," and there was already long ago a not quite adult male in the British Museum, collected by Goering. Recently S. M. Klages sent a fine series to München and Tring from the Cumbre de Valencia, above San Esteban, inland from Puerto Cabello. Cf. Hellmayr & Seilern, *Archiv f. Naturg.* lxxviii. 5. Heft, p. 122, 1912.)

1066. **Dysithamnus flemmingi** Hart. = *Dysithamnus puncticeps flemmingi*.

*Dysithamnus flemmingi* Hartert, *Bull. B.O. Club*, xi. p. 38 (1900—"Rio Verde, Cachyjacu, Lita, and Cachavé in North Ecuador").

Type: ♂, Rio Verde, N.W. Ecuador, 6.xii.1899. G. Flemming leg. No. 711.

1067. **Dysithamnus aroyae** Hellm. = *Dysithamnus aroyae*.

*Dysithamnus aroyae* Hellmayr, *Bull. B.O. Club*, xiv. p. 52 (1904—La Aroya, Inambari Valley, Marcapata district, S.E. Peru, 3,000 ft.).

Type: ♂, La Aroya, 22.iv.1901. G. Oekenden leg. No. 95.

1068. **Thamnomanes caesius hoffmannsi** Hellm. = *Thamnomanes caesius hoffmannsi*.

*Thamnomanes caesius hoffmannsi* Hellmayr, *Bull. B.O. Club*, xvi. p. 53 (1906—Pará, Brazil).

Type: ♂, Prata, Pará, 45 m., 15.xi.1905. W. Hoffmanns leg. No. 148.  
(See also NOVITATES ZOOLOGICAE, 1906, p. 367; 1907, p. 65.)

1069. **Thamnomanes caesius persimilis** Hellm. = *Thamnomanes caesius persimilis*.

*Thamnomanes caesius persimilis* Hellmayr, *Nov. Zool.* xiv. pp. 64, 65 (1907—"Environs of Tefé, on the south bank of the Rio Solimões, Brazil").

Type: ♂ ad., Tefé, 21.v.1906. W. Hoffmanns leg. No. 674.

1070. **Myrmotherula cherriei** Berl. & Hart. = *Myrmotherula cherriei*.

*Myrmotherula cherriei* Berlepsch & Hartert, *Nov. Zool.* ix. p. 72 (1902—"Ad flumen Orinoco dictum et in Cayenne. Typus Perico").

Type: ♂ ad., Perico, Rio Orinoco, 20.xi.1898. Geo. K. & Stella M. Cherrie leg. No. 11292.

1071. **Myrmotherula viduata** Hart. = *Myrmotherula fulviventris viduata*.

*Myrmotherula viduata* Hartert, *Nov. Zool.* v. p. 492 (1898—Cachavé, N.W. Ecuador).

Type: ♀, Cachavé, 500 feet, 5.1.1897. W. F. H. Rosenberg leg. No. 203.  
(There is no doubt that *viduata* is a subspecies of *M. fulviventris*, as first explained by Hellmayr, *Proc. Zool. Soc. London*, 1911, p. 1162. Chapman, *Distr. Bird-life Colombia*, p. 374, unites *viduata* with *fulviventris*, from comparison of his specimens from the western parts of Colombia with Panama skins. I do not accept this for the moment, as *viduata* is separable from a series of Costa Rica birds, which are supposed to be the same as Panama ones, but the question requires further investigation.)

1072. **Myrmotherula ornata hoffmannsi** Hellm. = *Myrmotherula ornata hoffmannsi*.

*Myrmotherula ornata hoffmannsi* Hellmayr, *Bull. B.O. Club*, xvi. p. 84 (1906—"Itaituba, near Santarem, Lower Amazons").

Type: ♀, Itaituba, 31.i.1906. W. Hoffmanns leg. No. 521.

(The ♂ differs indeed very little from that of *M. ornata ornata*, while the ♀ is strikingly different.)

1073. **Myrmotherula cinereiventris pallida** Berl. & Hart. = *Myrm. cinereiv. pallida*.

*Myrmotherula cinereiventris pallida* Berlepsch & Hartert, *Nov. Zool.* ix. p. 74 (1902—"Ad flumen Orinoco dictum, in Peruvia or., Ecuadoria or.").

Type: ♂ ad., Nericagua on the River Orinoco, 27.iii.1899. Geo. K. & Stella M. Cherrie leg. No. 12271.

1074. **Formicivora orenocensis** Hellm. = *Formicivora grisea orenocensis*.

*Formicivora orenocensis* Hellmayr, *Bull. B.O. Club*, xiv, p. 54 (1904—"Orinoco and Caura Rivers in Venezuela").

Type: ♂ ad., Altagracia, Orinoco, 5.xi.1897. Geo. K. Cherrie leg. No. 8472.

(While I quite agree that Hellmayr is undoubtedly right that this form is obviously different from *F. intermedia*, with which Berlepsch and I had identified it, it is certainly a subspecies of *F. grisea*, together with *intermedia*, *tobagensis*, and others. Hellmayr, in litt., now agrees with my opinion.)

1075. **Formicivora tobagensis** Dalmas = *Formicivora grisea tobagensis*.

*Formicivora tobagensis* Dalmas, *Mém. Soc. zool. France*, xiii, p. 141 (1900—Island of Tobago).

Type: ♀, Tobago, 26.xi.1898.

1076. **Formicivora melanogaster bahiae** Hellm. = *Formicivora melanogaster bahiae*.

*Formicivora melanogaster bahiae* Hellmayr, *Bull. B.O. Club*, xxiii, p. 65 (1909—Bahia).

Type: ♂ ad., Lamarão, Bahia, 300 m., 28.vi.1903. A. Robert leg. No. 1681.

1077. **Formicivora consobrina microsticta** Berl. = *Formicivora quixensis microsticta*.

*Formicivora consobrina microsticta* Berlepsch, *Nov. Zool.* xv, p. 157 (1908—Cayenne).

Type: ♂ ad., Approuague, Cayenne, 16.xii.1902. Geo. K. Cherrie leg. No. 12736.

(*F. consobrina*, *boucardi*, *microsticta*, and other black *Formicivorae* are all subspecies of *Th. quixensis* Cornalia.)

1078. **Rhamphocaenus melanurus amazonum** Hellm. = *Rhamphocaenus melanurus amazonum*.

*Rhamphocaenus melanurus amazonum* Hellmayr, *Nov. Zool.* xiv, p. 66 (1907—Teffé, Rio Solimões, Brazil, and Peruvian Amazons).

Type: ♂, Teffé, 20.vii.1906. W. Hoffmanns leg. No. 863.

1079. **Cercomacra sclateri** Hellm. = *Cercomacra sclateri*.

*Cercomacra sclateri* Hellmayr, *Nov. Zool.* xii, p. 288 (1905—N.E. Peru, W. and N. Brazil).

Type: "♂," Chyavetas, E. Peru, 16.vii.1866. E. Bartlett leg. No. 1588.

1080. **Cercomacra rosenbergi** Hart. = *Cercomacra rosenbergi*.

*Cercomacra rosenbergi* Hartert, *Bull. B.O. Club*, vii, p. 29 (1898—Cachavé, N. Ecuador).

Type: ♂ ad., Cachavé, 500 feet, 2.xii.1896. W. F. H. Rosenberg leg. No. 137.

(Described from a single ♂, and I am not aware that it has been recorded since.)

1081. *Pyriglena berlepschi* Hart. = *Cercomacra berlepschi*.

*Cercomacra berlepschi* Hartert, *Bull. B.O. Club*, xvii. p. xxix (1898—Cachavé, N.W. Ecuador).

Type: ♂, Cachavé, 500 feeté, 21.i.1897. W. F. H. Rosenberg leg. No. 244.

† 1082. *Thamnophilus cachabiensis* Hart. = *Cercomacra berlepschi*.

*Thamnophilus cachabiensis* Hartert, *Bull. B.O. Club*, xvii. p. xxix (1898—Cachavé, N.W. Ecuador).

Type: ♀ ad., Cachavé, 21.i.1897. W. F. H. Rosenberg leg. No. 243.

(Cf. NOVITATES ZOOLOGICAE, 1902, p. 612; Hellmayr, *Proc. Zool.* 1911, ii. p. 1167; Chapman, *Distr. Bird-life Colombia*, p. 381.)

1083. *Gymnopathys bicolor daguae* Hellm. = *Gymnopathys bicolor daguae*.

*Gymnopathys bicolor daguae* Hellmayr, *Bull. B.O. Club*, xvi. p. 83 (1906—near Buenaventura, valley of the Dagua River).

Type: ♂, El Paillon, near Buenaventura, 9.v.1899 E. André leg. No. 9599.

(Hellmayr calls my attention to the fact that the generic name *Gymnopathys* was proposed in valid form by Bonaparte in 1857, i.e. two years earlier than *Anoplops* Cab. & Heine, 1859. *Gymnopathys* Bp. 1854 was a *nomen nudum*.)

1084. *Anoplops hoffmannsi* Hellm. = *Gymnopathys hoffmannsi*.

*Anoplops hoffmannsi* Hellmayr, *Bull. B.O. Club*, xix. p. 52 (1907—"Borba on the right bank of the Rio Madeira, Brazil").

Type: ♂ ad., Borba, 29.xi.1906. W. Hoffmanns leg. No. 1417.  
(NOVITATES ZOOLOGICAE, 1907, Plate III, Figs. 2, 3.)

1085. *Sclateria naevia trinitatis* Hart. & Goods. = *Sclateria naevia trinitatis*.

*Sclateria naevia trinitatis* Hartert & Goodson, *Nov. Zool.* xxiv. p. 499 (1917—Trinidad).

Type: ♂, Caparo, Trinidad, 10.iv.1902. E. André leg.

(This form is very close to *S. n. naevia*, and Hellmayr, in litt., considers it inseparable, but I cannot agree.)

1086. *Sclateria schistacea caurensis* Hellm. = *Sclateria schistacea caurensis*.

*Sclateria schistacea caurensis* Hellmayr, *Bull. B.O. Club*, xix. p. 9 (1906—Valley of the Caura River, Venezuela).

Type: ♂ ad., Mt. Juragua, Caura district, March 1898. E. André leg. No. 601. (Ex. Coll. Dalmas.)

(Hellmayr, in litt., calls my attention to the exact locality mentioned in André's book, and that Todd, in 1913, redescribed this form as *Myrmeciza schistacea* !)

1087. *Sclateria schistacea humaythae* Hellm. = *Sclateria schistacea humaythae*.

*Sclateria schistacea humaythae* Hellmayr, *Bull. B.O. Club*, xix. p. 51 (1907—Humaytha, on the left bank of the Rio Madeira, Brazil).

Type: ♀ ad., Humaytha, 9.viii.1906. W. Hoffmanns leg. No. 1067.

1088. **Myrmelastes luctuosus araguayae** Hellm. = *Myrmelastes luctuosus araguayae*.

*Myrmelastes luctuosus araguayae* Hellmayr, *Nov. Zool.* xv. p. 68 (1908—Rio Araguaya, Goyaz, Brazil).

Type: ♂ ad., Rio Araguaya, 556 m., Goyaz, viii.1906. G. A. Baer leg. No. 2399.

1089. **Myrmelastes exsul maculifer** Hellm. = *Myrmelastes exsul maculifer*.

*Myrmelastes exsul maculifer* Hellmayr, *Nov. Zool.* xiii. p. 340, 342 (1906—Western Ecuador and Western Colombia).

Type: ♂ ad., Paramba, N.W. Ecuador, 3,500 feet, 22.v.1899. R. Miketta leg. No. 414.

1090. **Myrmeciza swainsoni griseipectus** Berl. & Hart. = *Myrmeciza swainsoni griseipectus*.

*Myrmeciza swainsoni griseipectus* Berlepsch & Hartert, *Nov. Zool.* ix. p. 76 (1902—"Hab. in regione fluminum Orinoco et Caura dictorum et in Guiana Britannica").

Type: ♂ ad., Caicara, 17.iii.1898. Geo. K. & Stella M. Cherrie leg. No. 10507.

1091. **Hypocnemis vidua** Hellm. = *Hypocnemis poecilinota vidua*.

*Hypocnemis vidua* Hellmayr, *Nov. Zool.* xii. p. 290 (1905—near Pará).

Type: ♀ ad., Igarapé-Assu, Pará, 50 m., 22.ii.1904. A. Robert leg. No. 1990.

(Cf. NOVITATES ZOOLOGICAE, 1906, pp. 370–372.)

1092. **Hypocnemis myotherina ochrolaema** Hellm. = *Hypocnemis myotherina ochrolaema*.

*Hypocnemis myotherina ochrolaema* Hellmayr, *Bull. B.O. Club*, xvi. p. 109 (1906—"Itaituba, near Santarem, Lower Amazons, Brazil").

Type: ♀ ad., Itaituba, 31.i.1906. W. Hoffmanns leg. No. 520.

1093. **Hypocnemis myotherina sororia** Hellm. = *Hypocnemis myotherina sororia*.

*Hypocnemis myotherina sororia* Hellmayr, *Nov. Zool.* xvii. p. 358 (1910—Calama on the Rio Madeira and Rio Machados, Brazil).

Type: ♂ ad., Calama, 3.vii.1907. W. Hoffmanns leg. No. 158.

1094. **Phlegopsis borbae** Hellm. = *Phlegopsis borbae*.

*Phlegopsis borbae* Hellmayr, *Bull. B.O. Club*, xix, p. 53 (1907—Borba, Lower Rio Madeira).

Type: ♂ imm., Borba, 29.xi.1906. W. Hoffmanns leg. No. 1421.

(Described from a single immature bird, and, as far as I am aware, never obtained since.)

1095. **Formicarius analis destructus** Hart. = *Formicarius nigricapillus destructus*.

*Formicarius analis destructus* Hartert, *Nov. Zool.* v. p. 493 (1898—Paramba, N.W. Ecuador).

Type: ♂ ad., Paramba, 3,500 feet, 24.iv.1897. W. F. H. Rosenberg leg. No. 377.

(Described from a single damaged and moulting male, but afterwards obtained by Miketta and Flemming, also by Palmer near Novitá in Western Colombia,

and at San José. Cf. Chapman, *Distr. Bird-life Colombia*, p. 389, who concludes that *Formic. nigricapillus* and *destructus*, "form a small and distinct group, distinguished mainly by its jet black head" and tail markings, so that *destructus* would become *Formic. nigricapillus destructus*. Cf. also Ridgway.)

1096. *Chamaeza turdina chionogaster* Hellm. = *Chamaeza ruficauda chionogaster*.  
*Chamaeza turdina chionogaster* Hellmayr, *Bull. B.O. Club*, xvi. p. 91 (1906—"El Guacharo near Caripé, N. Venezuela").

Type: ♂, El Guacharo, i.1894. Albert Mocquerys leg. No. 281.

(Described from a single specimen, but a series has recently been collected by S. M. Klages on the Cumbre de Valencia inland of Puerto Cabello.)

1097. *Pittasoma rufopileatum* Hart. = *Pittasoma rufopileatum*.

*Pittasoma rufopileatum* Hartert, *Nov. Zool.* viii. p. 370 (1901—Bulun, Salidero, Rio Bogotá, N.W. Ecuador).

Type: ♂ ad. (erroneously marked ♀), Bulún, N.W. Ecuador, 160 feet, 31. xii. 1900. Miketta & Flemming leg. No. 307.

(While this species is only known from N.W. Ecuador, *P. rosenbergi* Hellm. occurs on the headwaters of the San Juan, *P. harterti* Chapm. at Barbacoas, Nariño, in Colombia, and *P. michleri* in Eastern Panama and on the Lower Atrato. Cf. Plate VIII, *Novitates Zoologicae*, 1902; *Proc. Zool. Soc. London*, 1911, ii. p. 1176; Chapman, *Colombia*, pp. 392-394.)

1098. *Grallaria parambae* Rothschild. = *Grallaria haplonota parambae*.

*Grallaria parambae* Rothschild, *Bull. B.O. Club*, xi. p. 36 (1900—Paramba, N. Ecuador).

Type: "♀," Paramba, N. Ecuador, 3,500 feet, 3. x. 1898. G. Flemming leg. No. 205.

(Described from a single ♀, and, as far as I know, not yet recorded again. I think it is correct to treat this distinct form as a subspecies of *haplonota*, with which it agrees in its main characters, but the bill is a little larger, more powerful, the underside deeper coloured, more rufous, the throat hardly paler than the rest of the underside, the crown more rufous.)

1099. *Grallaricula cumanensis* Hart. = *Grallaricula nana cumanensis*.

*Grallaricula cumanensis* Hartert, *Bull. B.O. Club*, xi. p. 37 (1900—"Los Palmales and Rincon de San Antonio, Cumaná, Venezuela").

Type: ♂ ad., Forest of Los Palmales, State of Cumana, 17. ii. 1898. Caraciolo coll., No. 379.

#### CONOPOPHAGIDAE.

1100. *Conopophaga roberti* Hellm. = *Conopophaga roberti*.

*Conopophaga roberti* Hellmayr, *Bull. B.O. Club*, xv. p. 54 (1905—near Pará, Brazil).

Type: ♂ ad., Igarapé-Assu, near Pará, 4. iv. 1904. A. Robert leg. No. 2032.

(Described from a single male, but afterwards Dr. Sneath gave a description of the ♀, and W. Hoffmanns collected 9 ♂ and 5 ♀ near Pará. Cf. Sneath, *Orn. Monatsber.* 1906, p. 9; Hellmayr, *Novitates Zoologicae*, 13, 1906, p. 373.)



## EURYLAEMIDAE.

1101. *Calypptomena whiteheadi* Sharpe = *Calypptomena whiteheadi*.

*Calypptomena whiteheadi* Sharpe, *Proc. Zool. Soc. London*, 1887, p. 558 ("Hab. in monte Kina Balu dicto, in Borneo septentrionali").

Type: ♂ ad., Kina Balu, 3,000 feet, 25.ii.1887. John Whitehead leg. No. 1019.

(Fig. *Ibis*, 1888, Plate V.)

1102. *Parisoma dalhousiae borneensis* Hart. = *Parisoma dalhousiae borneensis*.

*Parisoma dalhousiae borneensis* Hartert, *Genera Avium*, pt. i. Eurylaemidae, pp. 6, 7 (1904—"Mountains of N.W. Borneo").\*

(This form is very much like *P.d. dalhousiae* and *psittacinus*, but the differences stated by me, though very slight, can be seen on comparison without difficulty.)

1103. *Serilophus lunatus polionotus* Rothschild. = *Serilophus lunatus polionotus*.

*Serilophus lunatus polionotus* Rothschild, *Bull. B.O. Club*, xiv. p. 7 (1903—Mt. Wuchi, Hainan).

Type: ♂ ad., Mt. Wuchi, 22.iii.1903. Katsumata leg. No. 176A.

1104. *Serilophus rothschildi* Hart. & Butl. = *Serilophus lunatus rothschildi*.

*Serilophus rothschildi* Hartert & Butler, *Bull. B.O. Club*, vii. p. 1 (1898—"Gunong Ijau, Perak, Malay Peninsula").

Type: ♂ ad., Gunong Ijau, February 1898. A. L. Butler leg.

1105. *Corydon sumatranus brunnescens* Hart. = *Corydon sumatranus brunnescens*.

*Corydon sumatranus brunnescens* Hartert, *Bull. B.O. Club*, xxxvii, p. 4 (1916—Borneo).

Type: ♂ ad., Baram, Borneo, September 1891. Alfred Everett leg.

## CYPSELI.

1106. *Hemiprocne longipennis harterti* Stres. = *Hemiprocne longipennis harterti*.†

*Hemiprocne longipennis harterti* Stresemann, *Nov. Zool.* xx. p. 339 (1913—"Burma, Tenasserim, Malakka, Bunguran, Borneo, Bangka, Sumatra. Typus Sumatra").

Type: ♀, Batu Sankahan, 1,800 feet, Deli, Sumatra, January 1889. Ernst Hartert leg.

1107. *Macropteryx comata major* Hart. = *Hemiprocne comata major*.

*Macropteryx comata major* Hartert, *Nov. Zool.* ii. p. 473 (1895—Philippine Islands).

Type: ♂ ad., Luzon. G. A. Baer leg.

(This subspecies only differs in size, but the difference is constant and striking.)

\* The first part of the *Genera Avium* appeared in 1904, and was unnecessarily marked "Specimen part," whatever that may have meant. Another edition, spoiled by misprints on pages 5 and 8, was brought out in 1905 by the Publisher and Editor, Mr. P. Wytsman, without consulting the author. It is regrettable that the useful *Genera Avium* are not continued; twenty-six parts only, mostly very thin and of easy families, appeared from 1904 to 1914.

† From Oberholser, *Proc. Biol. Soc. Washington*, xix. p. 68, 1906, I accept the use of the name *Hemiprocne Nitzsch*, 1829, instead of *Macropteryx Swains*, 1832. The anatomical paper of Nitzsch, "Observ. Av. Arter. Carot. Com., 1829" (I quote from Oberholser!) is unknown to me; Nitzsch's *Hemiprocne* was a mixture, but Oberholser's restriction may be accepted.

1108. *Macropteryx mystacea woodfordiana* Hart. = *Hemiprocne mystacea woodfordiana*.

*Macropteryx mystacea woodfordiana* Hartert, *Nov. Zool.* iii. p. 19 (1896—Guadalcanar).

Type: ♂ ad., Guadalcanar, Solomon Islands, 24.vi.1887. C. Woodford leg. (Differs in size and colour of the underside, and has since been found by Meek on most other islands of the Solomons group.)

1109. *Hemiprocne mystacea confirmata* Stres. = *Hemiprocne mystacea confirmata*.

*Hemiprocne mystacea confirmata* Stresemann, *Nov. Zool.* xxi. p. 110 (1914—"Seran, Ambon, Haruku, Buru, Batjan, Obi, Halmahera, Ternate, Morotai, Aru").

Type: ♂ ad., Amahei, Ceram, 30.iv.1911. Erwin Stresemann leg. No. 531. (Differs only in size, and many specimens "overlap." According to Stresemann's measures, t.c. p. 111, the New Guinea form has wings of 225–243, the Moluccan one of 210–232 mm. In 1896 I had already called attention to the generally smaller size of the Moluccan form, which has been confirmed by Stresemann's and other recent collections.)

1110. *Collocalia gigas* Hart. & Butl. = *Collocalia gigas*.

*Collocalia gigas* Hartert & Butler, *Bull. B.O. Club*, xi. p. 65 (1901—"Interior of Selangore").

Type: ♀ ad., Selangore, Malay Peninsula. A. L. Butler leg.

1111. *Collocalia fuciphaga micans* Stres. = *Collocalia fuciphaga micans*.

*Collocalia fuciphaga micans* Stresemann, *Verh. Orn. Ges. Bayern*, xii. p. 6 (1914—"Sumba, Savu, Timor, Celebes").

Type: ♂ ad., Savu, August 1896. Alfred Everett leg.

1112. *Collocalia fuciphaga moluccarum* Stres. = *Collocalia fuciphaga moluccarum*.

*Collocalia fuciphaga moluccarum* Stresemann, *Verh. Orn. Ges. Bayern*, xii. p. 7 (1914—"Kei- und Südost-Inseln, Banda, Ambon, Morotai").

Type: ♀ ad., Banda, 29.xii.1895. Cayley Webster leg.

1113. *Collocalia fuciphaga hirundinacea* Stres. = *Collocalia fuciphaga hirundinacea*

*Collocalia fuciphaga hirundinacea* Stresemann, *Verh. Orn. Ges. Bayern*, xii. p. 7 (1914—" (Westliches Neu-Guinea)").

Type: ♂, Upper Setekwa River, lower Snow Mountains, New Guinea, 28.vii.1910. A. S. Meek Coll. No. 4438.

1114. *Collocalia lowi palawanensis* Stres. = *Collocalia lowi palawanensis*.

*Collocalia lowi palawanensis* Stresemann, *Verh. Orn. Ges. Bayern*, xii. p. 10 (1914—Palawan).

Type: ♂ ad., Puerto-Princesa, Palawan, 30.vi.1887. Platen leg.

1115. *Collocalia francica assimilis* Stres. = *Collocalia francica assimilis*.

*Collocalia francica assimilis* Stresemann, *Nov. Zool.* xix. p. 350 (1912—Fiji Islands).

Type: Fiji Islands. Sir Walter Buller Coll.

1116. *Collocalia francica reichenowi* Stres. = *Collocalia francica reichenowi*.

*Collocalia francica reichenowi* Stresemann, *Nov. Zool.* xix. p. 350 (1912—"Salomons-Inseln, Neu-Mecklenburg, Neu-Pommern; S.O. Neuguinea?").

Type: ♀ ad., Guadalcanar, Solomon Islands, 9.v.1901. A. S. Meek leg. No. 3117.

1117. *Collocalia esculenta stresemanni* Rothsch. & Hart. = *Collocalia esculenta stresemanni*.

*Collocalia esculenta stresemanni* Rothschild & Hartert, *Nov. Zool.* xxi. p. 293 (1914—Manus, Admiralty Islands).

Type: ♂ ad., Manus, 13.ix.1913. A. S. Meek's collectors (Eichhorns). No. 6051.

(Described from a single specimen, but its differences are so obvious that we considered ourselves quite justified in separating it.)

1118. *Chaetura zonaris pallidifrons* Hart. = *Chaetura zonaris pallidifrons*.

*Chaetura zonaris pallidifrons* Hartert, *Ibis*, 1896, p. 368 (Jamaica).

Type: ♂ ad., Ferry River, St. Catherine, Jamaica, 19.ii.1896. C. B. Taylor leg.

(Seems to inhabit only Jamaica and Cuba with the Isle of Pines, while the Haytian form has been named *melanotis* by Peters, 1916. The genus "*Strepto-procne*" is unnecessary.)

1119. *Chaetura andrei* Berl. & Hart. = *Chaetura andrei andrei*.

*Chaetura andrei* Berlepsch & Hartert, *Nov. Zool.* ix. p. 91 (1902—"Hab. Orinoco centr., Cumana").

Type: ♂ ad., Caicara, 21.iii.1898. Geo. K. and Stella M. Cherrie leg. No. 10534.

1120. *Chaetura andrei meridionalis* Hellm. = *Chaetura andrei meridionalis*.

*Chaetura andrei meridionalis* Hellmayr, *Bull. B.O. Club*, xix. p. 63 (1907—Argentina, South Brazil).

Type: ♂ ad., Province de Santiago, Argentina, 580 m., 2.ii.1906. Dinelli leg. No. 3976.

1121. *Chaetura chapmani* Hellm. = *Chaetura chapmani chapmani*.

*Chaetura chapmani* Hellmayr, *Bull. B.O. Club*, xix. p. 62 (1907—Trinidad and Cayenne).

Type: ♂ ad., Caparo, Trinidad, 27.iii.1894. Frank M. Chapman leg. No. 60645.

1122. *Chaetura cinereiventris phaeopygos* Hellm. = *Chaetura cinereiventris phaeopygos*.

*Chaetura cinereiventris phaeopygos* Hellmayr, *Bull. B.O. Club*, xvi. p. 83 (1906—Carrillo, Costa Rica).

Type: ♀, Carrillo, Costa Rica, 11.x.1898. C. F. Underwood leg. No. 1198.

? 1123. *Chaetura sabini ogowensis* Neum. = *Chaetura sabini ogowensis*.

*Chaetura sabini ogowensis* Neumann, *Bull. B.O. Club*, xxi. p. 69 (1908—"Ogowe and Aruwimi Rivers Loango and Fernando Po").

Type: ♂ ad., Ntungo (Lake Onange), Ogowe River, Gabun, 17.vii.1907. W. J. Ansorge leg. No. 524.

(The author examined not less than 19 specimens, but was only able to compare it with one, the type, from the typical locality, which does not differ, except by being much larger. This character, however, is probably not constant, as a specimen from Sierra Leone now in the British Museum has wings of only 127 mm.)

1124. *Chaetura thomensis* Hart. = *Chaetura thomensis*.

*Chaetura thomensis* Hartert, *Bull. B.O. Club*, x. p. liii. (1900—Island of San Thomé, W. Africa).

Type: Ad., Pedroma, San Thomé, November 1899. Albert Mocquerys leg. (Figured in NOVITATES ZOOLOGICAE, 1901. No less than nine specimens of this very distinct species are now in the Tring Museum.)

1125. *Chaetura ussheri benguellensis* Neum. = *Chaetura ussheri benguellensis*.

*Chaetura ussheri benguellensis* Neumann, *Bull. B.O. Club*, xxi. p. 57 (1908—Benguella).

Type: ♂ ad., Blasbalk Fontein, 26.xi.1905. W. J. Ansorge leg. No. 611.

(Another specimen was obtained at Cassualalla in northern Angola, 30.vi.1908, by the same collector. It agrees with the type in having a much narrower white rump band, interrupted from the white abdominal band by a brown stripe; these birds would thus agree with *Chaetura ussheri stictilaema*, but Neumann says it is paler. More material of the very rare *C. u. stictilaema* and of *benguellensis* is desired, to confirm the differences of these forms.)

1126. *Chaetura ussheri sharpei* Neum. = *Chaetura ussheri sharpei*.

*Chaetura ussheri sharpei* Neumann, *Bull. B.O. Club*, xxi. p. 57 (1908—"South Camaroon").

Type: ♂ ad., Efulen, South Cameroons, 15.vii.1905 (not 15.iv.1902). G. L. Bates leg. No. 919.

(Of this very distinct form we have now eight skins, and there is a series in the British Museum.)

1127. *Micropus willsi* Hart. = *Apus melba willsi*.

*Micropus willsi* Hartert, *Nov. Zool.* iii. p. 231 (1896—E. Imerina, E. Madagascar).

Type: adult, E. Imerina, 1.ii.1896. Rev. Wills leg.

(Described from a single specimen. It differs from *Apus melba africana* by its much smaller size, not only shorter wings and tail, but narrower remiges and rectrices, smaller bill and feet! This can hardly mean anything else than a local species, or rather subspecies of *Apus melba*. Since 1896 it has not been rediscovered, but Madagascar, notwithstanding the great amount of excellent work which has been done there, is not so thoroughly and exhaustively explored that this may seem incredible. It must also be mentioned that no other *Apus melba* has ever been obtained there!)

1128. *Apus apus* Brehmorum Hart. = *Apus murinus brehmorum*.

*Apus apus Brehmorum* Hartert, "Naumann, *Naturgesch. d. Vögel Mitteleuropas*" (sic—generally quoted as "New Ed. of Naumann"), iv. p. 233 (1901—"Südspanien, Madeira, Kanaren").

Type: ♂ ad., Funchal, Madeira, 7.vii.1892. E Museo Seminar. Funchal. Padre Schmitz leg.

(There is no doubt that *Apus apus* and *murinus* breed side by side in Spain and north-western Africa, and therefore I treat them nomenclatorially as two different species, but the forms of *murinus* are not yet finally understood. Cf. NOVITATES ZOOLOGICAE, 1921, pp. 110, 111.)

1129. *Apus unicolor alexandri* Hart. = *Apus unicolor alexandri*.

*Apus unicolor alexandri* Hartert, *Nov. Zool.* viii. p. 328 (1901—St. Nicholas, Cape Verd Islands).

Type: ♂ ad., St. Nicholas, 8.xi.1897. Boyd Alexander leg.  
(Breeds on the Cape Verd Islands.)

1130. *Apus andecolus dinellii* Hart. = *Apus andecolus dinellii*.

*Apus andecolus dinellii* Hartert, *Bull. B.O. Club*, xxiii. p. 43 (1908—Jujuy and Mendoza, Argentine Republic).

Type: ♂ ad., Angosta Perchela, Jujuy, 2,550 m., 3.xi.1905. L. Dinelli leg.

† 1131. *Apus nakuruensis* van Someren = *Apus apus shelleyi* (?).

*Apus nakuruensis* van Someren, *Bull. B.O. Club*, xl. p. 58 (1919—Nakuru, Brit. East Africa).

Type: ♂ ad., Nakuru, 14.v.1917. Dr. V. G. L. van Someren leg.

(I have no doubt, judging from the specimens available, that Dr. van Someren is in error, believing that both "*shelleyi*" and "*nakuruensis*" nest on the same cliffs near Nakuru! All the birds which nest there belong to what we called "*shelleyi*," which, however, was described from Abyssinia, and before we can decide whether East African and Abyssinian birds are alike, a series from Abyssinia should be compared with our East African birds. Cf. also Meinertzhagen, *Ibis*, 1922, p. 39.)

## CAPRIMULGIDAE.

? 1132. *Caprimulgus keniensis* van Som. = *Caprimulgus fraenatus keniensis* (?).

*Caprimulgus keniensis* van Someren, *Bull. B.O. Club*, xl. p. 25 (1919—Mt. Kenia).

Type: ♂ ad., "1st camp north of Kenia, April 1919." A. B. Percival leg.

(The alleged "more numerous" and larger spots on the wing-coverts are not different from several other true *fraenatus*, but the bird is darker on the upperside and chest; the shafts have a white line in front of the white patches, within which it is partially black. This coloration of the shafts is exceptional, but may possibly be an aberrant character. Otherwise the form might be a subspecies of *fraenatus*, but it was rash to describe it.)

† 1133. *Caprimulgus nubicus taruensis* van Someren = *Caprim. torridus*.

*Caprimulgus nubicus taruensis* van Someren, *Bull. B.O. Club*, xl. p. 25 (1919—"Taru Desert to E. Kilimanjaro").

*Caprimulgus torridus* Phillips, *Bull. B.O. Club*, viii. p. 23 (1898—Howd plateau, Somaliland).

Type: ♂ ad., Tsavo, 17.iii.1918. Van Someren leg.

1134. **Caprimulgus rosenbergi** Hart. = *Caprimulgus rosenbergi*.

*Caprimulgus rosenbergi* Hartert, *Bull. B.O. Club*, v. p. 10 (1895—Rio Dagua, W. Colombia).

Type: ♀ ad., Rio Dagua, 2.iv.1895. F. W. Rosenberg leg.

(Originally described from a single ♀, but afterwards Rosenberg shot another female, and his correspondents Miketta and Flemming collected several more. More recently, according to Chapman, Richardson obtained two at Barbacos in S.W. Colombia. Chapman placed this species in the genus "*Antrostomus*," which I united with *Caprimulgus*. From this genus-splitters might differ, but then *rosenbergi* cannot be put in *Antrostomus*. If the latter is separated, the reasons are, I suppose, the apparently more pointed head, pointed feathers of the head, very strong, straight rictal bristles, pointed wing, and rounded tail. *C. rosenbergi*, however, has a more rounded forehead, weak, bent bristles, much more rounded wing, almost straight tail. The coloration is also quite different from typical *Antrostomus*.)

1135. **Caprimulgus apatelius** Neum. = *Caprimulgus fossei apatelius*.

*Caprimulgus apatelius* Neumann, *Orn. Monatsber.* 1904, p. 143 ("Vom Hauasch bis zum Kilimandscharo").

Type: ♂ ad., Galana-River, near Lake Abaya, 30.xii.1900. Oscar Neumann leg. No. 529.

(I think we must consider *apatelius* to be a subspecies of *C. fossei*; but see Van Someren antea p. 86 !)

1136. **Caprimulgus eximius simplicior** Hart. = *Caprimulgus eximius simplicior*.

*Caprimulgus eximius simplicior* Hartert, *Nov. Zool.* xxviii. p. 109 (1921—Zinder and Damergu, between Kano and Air).

Type: ♂ ad., Zinder, 26.i.1920. Angus Buchanan leg. No. 244.

1137. **Caprimulgus europaeus meridionalis** Hart. = *Caprimulgus europaeus meridionalis*.

*Caprimulgus europaeus meridionalis* Hartert, *Ibis*, 1896, p. 370 (N.W. Africa—Algeria—and South Europe).

Type: ♂ ad., Mt. Parnassus, Greece, 10.vii.1895. Strimeneas Bros. leg.

1138. **Caprimulgus macrurus meeki** R. & H. = *Caprimulgus macrurus meeki*.

*Caprimulgus macrurus meeki* Rothschild & Hartert, *Nov. Zool.* xxv. p. 321 (1918—Sudest Island).

Type: ♂ ad., Sudest Island, Louisiade group, 4.v.1916. Eichhorn Bros. leg. A. S. Meek Coll. No. 7397.

1139. **Caprimulgus macrurus oberholseri** R. & H. = *Caprimulgus macrurus oberholseri*.

*Caprimulgus macrurus oberholseri* Rothschild & Hartert, *Nov. Zool.* xxv. p. 322 (1918—Lombok and Sumbawa).

Type: ♂ ad., Lombok Island, 1500 feet, June 1896. Alfred Everett leg.

1140. **Caprimulgus macrurus kuehni** R. & H. = *Caprimulgus macrurus kuehni*.

*Caprimulgus macrurus kuehni* Rothschild & Hartert, *Nov. Zool.* xxv. p. 322 (1918—Key Islands).

Type: ♂ ad., Tual, Little Key Island, 10.v.1898. H. Kühn leg. No. 761.

1141. *Caprimulgus macrurus albolaxatus* R. & H. = *Caprimulgus macrurus albolaxatus*.

*Caprimulgus macrurus albolaxatus* Rothschild & Hartert, *Nov. Zool.* xxv. pp. 323, 324 (1918—New Britain, Dampier, and Volcano Islands).

Type: ♂ ad., Volcano Island, 27.xi.1913. Eichhorn Bros. leg. A. S. Meek Coll. No. 6296.

**TROCHILI.**

(Since my review of the *Trochili* of 1900 our knowledge of these most beautiful little birds has of course also advanced and two complete lists of Humming Birds have appeared: C. B. Cory, *Cat. B. Americas*, part ii, No. 1, *Trochili*, 1918; and E. Simon, *Hist. Nat. des Trochilidae, Synopsis et Catalogue*, 1921. The last is, of course, the most up-to-date work and the best book on Humming Birds ever published. While Cory adopted my system (the artificial, faulty arrangement adopted by Salvin in the *Cat. B. Brit. Mus.*, cf. *Journ. f. Orn.* 1900, pp. 350, 351, 355, did not find favour with any specialist), Simon followed his own of 1897, with some alterations; that system of Simons of 1897 was undoubtedly the best natural system of *Trochilidae*, beginning with the apparently less specialised and ending with the most specialised forms. This system I adopted, finding, however, some alterations necessary, which in Simon's opinion were no improvements. About this, however, there may be different opinions, and I may repeat that in consequence of the great similarity in the anatomy of all *Trochilidae*, as far as we know (the anatomy of very few species having been studied), a linear arrangement must be to some extent arbitrary. For convenience—the Tring collections having just been re-arranged according to Cory's list, as I had no idea that Simon's work was to be expected—I have followed my arrangement, though in some points Simon's would be preferable. I do not, however, approve of the increased number of genera introduced by Simon. While Salvin (1892) used 127, Boucard (1892–1895) 156, Simon (1897) 124, and I (1900) only 118 genera, Simon now (1921) has as many as 189! My prediction that the number of 118 genera would still be more reduced has therefore not been prophetic, but in most cases the additional genera are not a progress, though in a few instances I may have "lumped" too much, on the other hand in one or two not enough! Many of the—in my opinion—unnecessary genera appear to be based on characters only developed in adult males. Not many more new species of *Trochilidae* are now likely to be discovered, but notwithstanding the wonderful work done by American collectors in Colombia, that wonderful country\* is not yet absolutely explored, as a number of Humming Birds found in the Bogotá collections of trade-skins have not yet been rediscovered, so that their exact habitat—some-where in Colombia—is still unknown.)

1142. *Phaethornis baroni* Hart. = *Phaethornis superciliosa baroni*.

*Phaethornis baroni* Hartert, *Ibis*, 1897, p. 426 (W. Ecuador).

Type: adult, Naranjal, near Rio Pescado, W. Ecuador, May. O. T. Baron leg.

(Also Esmeraldas, W. Ecuador, and other specimens found in Quito trade collections.)

\* See Chapman, *Distr. Bird-life Colombia*, 1917.

1143. *Phaëthornis mexicanus* Hart. = *Phoethornis longirostris mexicanus*.

*Phaëthornis mexicanus* Hartert, *Ibis*, 1897, p. 425 (Chilpancingo and Jalisco in Mexico).

Type: adult, dos Arroyos, Chilpancingo, Guerrero, Mexico. O. T. Baron leg.

1144. *Phoethornis affinis ochraceiventris* Hellm. = *Phoethornis bolivianus ochraceiventris*.

*Phoethornis affinis ochraceiventris* Hellmayr, *Bull. B.O. Club*, xix. p. 54 (February 1907—Humaytha, left bank of Rio Madeira, Brazil).

Type: adult, Humaytha, 23. viii. 1906. W. Hoffmanns leg. No. 1147.

(Hellmayr, *NOVITATES ZOOLOGICAE*, 1907, p. 393, corrected his mistake in adopting the name "*affinis*." Simon, *Trochil.* pp. 12, 254, makes this form a subspecies of *bolivianus*, and I adopt this course.)

1145. *Phoethornis rupurumii amazonicus* Hellm. = *Phoethornis rupurumii amazonicus*.

*Phoethornis rupurumii amazonicus* Hellmayr, *Bull. B.O. Club*, xvi. p. 82 (1906—Itaituba and Uracuritiba near Santarem, Lower Amazons River).

Type: ♀, Itaituba, near Santarem, 19. i. 1906. W. Hoffmanns leg. No. 468.

(Of *Trochilus squalidus* Natterer = *Phoethornis squalidus* we have one of the cotypes from Ypanema, exchanged from the Vienna Museum.)

1146. *Phaëthornis stuarti* Hart. = *Phoethornis stuarti*.

*Phaëthornis stuarti* Hartert, *Bull. B.O. Club*, vi. p. 39 (1897—Salinas, Beni River, eastern Bolivia).

Type: Salinas, Beni River, July 1895. A. Maxwell Stuart leg.

† 1147. *Eutoxeres baroni* E. & Cl. Hart. = *Eutoxeres aquila heterura*.

*Eutoxeres baroni* Ernst & Claudia Hartert, *Nov. Zool.* i. p. 54 and fig. (1894—W. Ecuador).

Type: ♀ ad., Rio Pescado, near Naranjal, W. Ecuador. O. T. Baron leg.

(The extent of the white tips to the rectrices varies and specimens with more or less white occur in the same places. *E. baroni* cannot any longer be considered a species nor a subspecies of *E. aquila*.)

1148. *Phaëthornis berlepschi* E. & Cl. Hart. = *Phoethornis syrmatophorus berlepschi*.

*Phaëthornis berlepschi* Ernst & Claudia Hartert, *Nov. Zool.* i. p. 56 (1894—Rio Pescado, western Ecuador).

Type: ♂ ad., Rio Pescado, W. Ecuador, January. O. T. Baron leg.

(Simon, Hellmayr, Cory, Chapman, and others are of opinion that we re-named Gould's *syrmatophorus*. I would very much like to agree with my brother ornithologists, but must, to my regret, be of the opposite opinion. In *P. s. berlepschi* the rump is like the back and only the upper tail-coverts are ferruginous, while in Gould's description it is said that "rump and upper tail-coverts" are rufous, and the figure in the *Humming Birds*, i, besides the rufous rump, has the deeper ferruginous colour of the East Ecuadorian form. I therefore think that the above-named authorities are wrong, and that our nomenclature of 1894 should be adopted, except that the two forms are of course subspecies of one species.)



1149. **Aphantochroa cuvieri saturator** Hart. = *Phaeochroa cuvieri saturator*  
*Aphantochroa cuvieri saturator* Hartert, *Bull. B.O. Club*, xii. p. 33 (December 1901—Coiba Island,  
 Bay of Panama).

Type: ♂ Coiba Island, 3. v. 1901. H. Batty leg.

(I agree that it is better to separate the genera *Phaeochroa*, with *Ph. cuvieri* and subspecies and *roberti*, and *Aphantochroa*, sole species *cirrhochloris* and subspecies, because of their slightly different bills and the more rounded tail of the former. On the other hand, while somewhat agreeing with Eugène Simon that "Les affinités des *Aphantochroa* sont obscures," I am not prepared to remove them far away from *Phaeochroa*, but would prefer to place them close together.)

1150. **Leucippus baeri** Simon = *Leucippus baeri*.

*Leucippus baeri* Simon, *Ornis*, ix. p. 202 (1901—Tumbez, N.E. Peru).

Cotype: ad., Grao de Tumbez. G. A. Baer leg.

(We have three skins, all three marked "type" by the late G. A. Baer. In the original description no specimen has been designated as the type, so evidently all, i.e. the three we have and the two in Mons. Simon's collection, should be looked upon as cotypes.)

("Doleromyia" and *Leucippus* should in my opinion not be separated, as they differ only in colour!)

1151. **Agyrtria leucogaster bahiae** Hart. = *Agyrtria leucogaster bahiae*.

*Agyrtria leucogaster bahiae* Hartert, *Orn. Monatsber.* 1899, p. 140 (ex Berlepsch MS.—Bahia).

Type: a Bahia trade-skin of the typical Bahia preparation.

(Attention must be called to a stupid mistake in the original description! There the Cayenne form, which is smaller and has a less dark tail, generally less green on the middle rectrices, is described as the Bahia race! The error is, however, put right in *Tierreich*, 9. Lief., p. 43, 1900.)

1152. **Agyrtria fluviatilis laeta** Hart. = *Agyrtria fluviatilis laeta*.

*Agyrtria fluviatilis laeta* Hartert, *Journ. f. Orn.* 1900, p. 360 (Nauta in N.E. Peru).

Type: ♂, Nauta, Peru. J. Hauxwell leg. (Purchased from H. Whitely, sen.)

1153. **Saucerottea erythronotos caurensis** Berl. & Hart. = *Saucerotia tobaci caurensis*.

*Saucerottea erythronotos caurensis* Berlepsch & Hartert, *Nov. Zool.* 1902, p. 84 ("In regione orientali fluminis Orinoco dicti medii: Suapure ad fl. Caura dictum, Ciudad Bolivar").

Type: ♂, Mts. west of Suapure, 10. v. 1900. S. M. Klages leg.

1154. **Hylocharis ruficollis maxwelli** Hart. = *Hylocharis ruficollis maxwelli*.

*Hylocharis ruficollis maxwelli* Hartert, *Nov. Zool.* 1898, p. 519 (Reyes, Rio Beni, eastern Bolivia).

Type: ad., Reyes, Rio Beni, August 1895. A. Maxwell Stuart leg.

(According to Simon, 1912, Jhering, and Hellmayr *in litt.*, this form inhabits also Matto Grasso and Minas Geraes. In 1921 Simon does not recognise this subspecies, but it is quite well founded.)

? † 1155. *Chrysuronia oenone intermedia* Hart. = ? *Chrysuronia oenone josephinae*.

*Chrysuronia oenone intermedia* Hartert, *Nov. Zool.* 1898, p. 519 ("Upper Amazons").

Type: ♂ ad., "Peru," apparently from Pebas, Upper Amazons. Purchased from H. Whitely.

(On the Upper Amazons in Peru specimens are found with a blue chin, while *C. oenone oenone* has the whole throat blue, *C. oenone josephinae* no blue on chin and throat. Simon is, perhaps rightly, of opinion that the difference of *intermedia* is individual rather than limited geographically, but this question requires further investigation.)

1156. *Chlorostilbon caribaeus nanus* Berl. & Hart. = *Chlorostilbon caribaeus nanus Chlorostilbon caribaeus nanus* Berlepsch & Hartert, *Nov. Zool.* 1902, p. 86 ("In regione media fluminis Orinoco, Caicara, Altagracia, etc.").

Type: ♂ ad., Caicara, 19.ii.1898. Geo. K. and Stella M. Cherrie leg. No. 10157.

(I fail to understand the treatment of this group by Simon in 1921. He places *C. c. nanus* as a synonym of *C. daphne subfurcata* Berl. and redescribes, on p. 63, the Orinoco subspecies as a form of *caribaeus* under the name of *Prasitis caribaea orinocensis*, from Ciudad Bolivar and S. Fernando de Apure. He thus recognises two species occurring together in the basin of the Orinoco, *P. caribaea (orinocensis)* and *P. daphne (subfurcata)*. If this was as Simon believes, Berlepsch would have redescribed his *subfurcatus* as *nanus*; that is, however, not the case; Berlepsch had his *subfurcatus* and our *nanus* before him and I had topotypical specimens of the former for comparison, and the two are quite distinct, *subfurcatus* having a much less emarginated, almost square tail and a more blue throat, than *nanus*. I would not without hesitation place *subfurcatus* and *nanus* as subspecies of one species, and probably would unite five or six forms as subspecies of one species, the oldest name of which I cannot at present decide. If Simon is right, that two species inhabit the Orinoco valley, then one of them is not known to me, in any case the bird which Berlepsch and I described as a subspecies of *caribaeus* is the same bird which Simon redescribed as *orinocensis* in 1921. Simon on p. 63 united his and Dalmas' *lessoni* with *caribaea*; on p. 291, however, he says that he was in error, and that it must be separated. I have purposely united the two, i.e. the form from Curaçao, Aruba and Bonaire (true *caribaeus*), and the one from the Venezuelan littoral, and the islands of Margarita and Trinidad (*lessoni*), and if they should after all be separable they are certainly "tres légèrement" different, as evidenced by the wavering of an authority like Simon himself.)

† 1157. *Agyrtia tenebrosa* Hart. = *Thalurania lerchi*.

*Agyrtia tenebrosa* Hartert, *Bull. B.O. Club*, x. p. 15 (1899—from a specimen of the usual Bogotá preparation).

Type: A Bogota trade skin.

(While there is no doubt that I redescribed—and in a wrong genus too—the species known as *Thalurania* or *Timolia lerchi* Mulsant & Verreaux, *Ann. Soc. Lyon*, 1872, p. 108, also from a Bogotá skin, I cannot admit that it is separable from the genus *Thalurania*. Both in Brabourne & Chubb's *List of the B. of S.*

America and in Chapman's admirable *Distrib. Bird-life Colombia* this species is left out! Chapman left several undoubtedly Colombian species unmentioned, if only known from Bogotá skins. It would, however, have been most useful to call attention to them!)

1158. *Thalurania furcata fissilis* Berl. & Hart. = *Thalurania furcata fissilis*.

*Thalurania furcata fissilis* Berlepsch & Hartert, *Nov. Zool.* ix. p. 87 (1902—"In regione fluminis Caura dicti").

Type: ♂ ad., Suapure, Caura River, Venezuela, 15. xii. 1899. S. M. Klages leg. (Simon, *Hist. Nat. des Trochilidae*, p. 303, 1921, calls this form *Thalurania refulgens forficata*. I cannot agree to this. First of all, if subspecies are recognised, *refulgens* cannot be anything but a subspecies of *Th. furcata*, and the name *forficata* cannot be used for the form from the Caura River. It is true that I had overlooked it, or at least omitted to quote it in the *Tierreich*, Lief. 9, but it is somewhat experimental to accept it at all. Berlepsch had examined the type of *Th. forficata* and believed it to be the Cayenne form. That the locality Pará is wrong is beyond doubt. In any case most certainly Heine had no specimens from the Caura River; he might possibly have had one from British Guiana, though in 1860 skins from there were very rare, but I doubt that the British Guiana bird is quite the same as the Caura one; as Berlepsch and I said in 1902, "the bills of *fissilis* are mostly longer" than in birds from British Guiana. In fact they are rather stronger, stouter; the wings measure as follows:

Caura River: ♂ ad.: 53, 54, 54, 55, 55, 56, 56 mm.

British Guiana: ♂ ad.: 52, 53, 53, 53, 54, 55, 55, 56 mm.

There is therefore no constant difference in the wings, nor is there one in colour. Nevertheless it is doubtful if the two forms can be united, and it is not wise to replace the name *fissilis* by *forficata*; the type of the latter is in the Heine Museum.)

1159. *Thalurania balzani* Simon = *Thalurania eriphile balzani*.

*Thalurania balzani* Simon, *Nov. Zool.* iii. p. 259 (1896—Yungas in Bolivia).

Cotype (mentioned l.c.): ♂ ad., Yungas. Dr. Balzan leg.

1160. *Thalurania eriphile baeri* Hellm. = *Thalurania eriphile baeri*.

*Thalurania eriphile baeri* Hellmayr, *Bull. B.O. Club*, xxi. p. 27 (1907—Goyaz, Brazil).

Type: ♂ ad., State of Goyaz, 650 m., April 1906. No. 2073 Baer Coll. G. A. Baer leg.

I quite agree with Hellmayr that this is a subspecies of *eriphile*, though Simon treats it as a species. I go even further and consider *balzani* a subspecies of *eriphile*, as the presence of the few glittering feathers on the forehead—moreover, as they are not strongly glittering, but more glossy—does not seem to me a specific character in a geographically representative form. Doubtless several other forms of *Thalurania* hitherto looked upon as species must be subspecifically related to others, but I cannot at present discuss them all, especially as the distribution of some of them is not in all cases sufficiently known.

1161. *Thalurania simoni* Hellm. = *Thalurania simoni*.

*Thalurania simoni* Hellmayr, *Bull. B.O. Club*, xix. p. 8 (1906—Teffé on the Rio Solimões, Brazil).

Type: ♂ ad., Teffé, 19. v. 1906. W. Hoffmanns leg. No. 664.

1162. *Thalurania furcata orenocensis* Hellm. = *Thalurania furcata orenocensis*.

*Thalurania furcata orenocensis* Hellmayr, *Anzeiger Orn. Ges. Bayern*, i. No. 4, p. 32 (1921—"Oberer Orinoko").

Type: ♂ ad., Nericagua, Upper Orinoco, Venezuela, 13.iv.1899. Geo. K. & Stella M. Cherrie leg. No. 12515.

(I think *tschudii* should also be looked upon as a subspecies of *furcata* !)

1163. *Chalybura intermedia* E. & C. Hartert = *Chalybura intermedia*.

*Chalybura intermedia* Ernst & Claudia Hartert, *Nov. Zool.* i. p. 44 (1894—Western Ecuador).

Type: ♂ ad., between Pogia and Santa Rosa on the road from Guayaquil to Loja in S.W. Ecuador. O. T. Baron leg.

(I cannot see any advantage in splitting up the genus *Chalybura* into *Chalybura* and *Chlorurisca* [comprising *C. intermedia*, *melanorrhoea*, *isaurae*, and *urochrysea*], the characters—shorter or longer under tail-coverts and more or less defined white patch on side of abdomen—being trifling.)

† 1164. *Aithurus taylori* Rothsch. = *Aithurus polytmus*.

*Aithurus taylori* Rothschild, *Bull. Orn. Club*, iii. p. xlvii (1894—District of St. Andrew, Jamaica).

Type: ♂ ad., St. Andrew, Jamaica, 24.iii.1894. C. B. Taylor leg.

(There can be no doubt that the specimens with golden-red patch on throat from St. Andrew are only aberrant, in fact some almost look as if they were artificially produced, but C. B. Taylor was a creditable man. It is strange that the black-billed *A. scitulus*, of which Mr. J. E. Sherlock sent us a number from Portland, Jamaica, was not discovered before 1900 !)

† 1165. *Eriocnemis evelinae* E. & Cl. Hart. = *Eriocnemis vestita vestita* juv.

*Eriocnemis evelinae* Ernst & Claudia Hartert, *Nov. Zool.* i. p. 59 (1894—Rio Pastassa, E. Ecuador).

Type: ♀ juv., Rio Pastassa. O. T. Baron leg.

There is no doubt that this bird is a young *E. vestita*, but whether the "typical" *E. v. vestitae* or *smaragdinipectus*, is impossible to say; if, however, the former inhabits *E. Ecuador*, it would be that form.

I agree with Simon that the names of "Races" employed by Lesson in *l'Echo du Monde savant*, 1843—mostly in vernacular—were not introduced as genera, and that the name "*Vestipedes*" has erroneously been used by American authors as a substitute for *Eriocnemis*.

† 1166. *Eriocnemis berlepschi* Hart. = *Eriocnemis vestita vestita* aberr.

*Eriocnemis berlepschi* Hartert, *Nov. Zool.* iv. p. 531 (1897—found in a Bogotá collection, therefore Colombia).

Type: ♂, found in a Bogotá collection of trade skins.

I quite agree with Mr. Simon, that this peculiar specimen, in colour so much resembling *E. nigrivestis*, is a melanistic aberration of *E. vestita*. Such melanistic varieties were not very seldom found in Bogotá collections, and I have erred in good company (Elliot, Salvin, and others), and even in provisional agreement with the late Count Berlepsch, in describing such melanisms as supposed new forms. Monsieur Simon has a specimen intermediate between a typical *vestita* and my *berlepschi*.

1167. *Eriocnemis mosquera bogotensis* Hart. = *Eriocnemis mosquera bogotensis*.

*Eriocnemis mosquera bogotensis* Hartert, *Nov. Zool.* iv. p. 531 (1897—Colombia).

Type: ♂ ad., from a Bogotá collection, bought in London.

1168. *Eriocnemis derbyi longirostris* Hart. = *Eriocnemis derbyi longirostris*.

*Eriocnemis derbyi longirostris* Hartert, *Nov. Zool.* ii. p. 69 (1895—Bogotá collections).

Type: ♂ ad., found in a Bogotá collection. (Cf. Simon, *Hist. Nat. des Trochilidae*, p. 371, 1921.)

† 1169. *Spathura underwoodi bricenoi* Hart. = *Ocreatus underwoodi discifer*.

*Steganurus discifer* Heine, *Journ. f. Orn.* 1863, p. 210 (Merida, Venezuela, ex Mus. Hein. iii. p. 66).  
*Spathura underwoodi bricenoi* Hartert, *Nov. Zool.* vi. p. 72 (1899—Merida, Venezuela).

Type: ♀ ad., Andes of Merida, 2,500 m., 12.i.1897. Salomon Briceño Gabaldon & Sons leg.

The Merida form is well separable from the Colombian one, but when describing it I had overlooked Heine's earlier name *discifer*.

† 1170. *Heliangelus dubius* Hart. = *Heliangelus clarissae* aberr.

*Heliangelus dubius* Hartert, *Nov. Zool.* iv. p. 532 (1897—found in a Bogotá collection).

Type: ♂, Bogotá collection, bought in London.

I have little doubt now that Simon correctly places my name *dubius* in the list of synonyms of *H. clarissae*, but the throat is dark glittering violet-blue, not rosy-red with a purplish tinge. Therefore *H. dubius* can hardly be called a melanism of *clarissae*; the different shape of the glittering throat patch is, I am now convinced, due to incomplete moult.

† 1171. *Heliangelus simoni* Boucard = *Heliangelus barrali* aberr.

*Heliangelus simoni* Boucard, *Humming Bird*, ii. p. 76 (1892—Colombia).

Cotype: ♂ ad., found in a Bogotá collection by Boucard. Bought from Boucard. Marked in Boucard's handwriting: "*Heliotrypha simoni* n.sp. typical specimen. *H. Bird*, ii. p. 76. Colombia." A similarly marked cotype was sold to the Field Museum of Natural History in Chicago, cf. Cory, *Cat. B. Americas*, ii. 1, p. 266.

I have no doubt that *H. speciosa* Salv. (of which *simoni* is absolutely a synonym) is nothing but an aberration of *H. barrali*, from which it only differs in having the throat-patch green instead of glittering silvery leaden or greenish lead-grey, especially since two of our specimens are quite intermediate!

(In Chapman's wonderful work on the *Distrib. Bird-life Colombia* no mention is made of these birds, because his collections did not contain them. As, however, exact localities of *H. barrali* were known, and thus Mr. Chapman left out over 60 remarkable Humming Birds known to have come from Colombia, his list gives an insufficient impression of the richness of the Colombian avifauna).

? † 1172. *Heliangelus claudia* Hart. = ? *Heliangelus clarissae* aberr.

*Heliangelus claudia* Hartert, *Nov. Zool.* ii. p. 484 (1895—"Colombia"). (See also *Nov. Zool.* 1897, p. 532.)

Type: ♂, found in a Bogotá collection by Monsieur Gounelle, of Paris.

I am now inclined to think that *H. claudia* (not "*Claudiae*" as quoted by Simon) is a melanistic variety of *H. clarissae*; the uniform black upperside and tail, with faint purplish gloss, and the blackish, glossless abdomen, suggest melanism, and the colour of the throat, which is dark violet-blue instead of glittering rosy-red (as in *clarissae*) may also be due to melanism. It is, however, peculiar, if Simon (p. 367 of his book) says of *H. dubius* that it is "Mélanisme," and of *claudia* "peut-être un premier degré de Mélanisme (?)." Certainly the other way round would be more correct. Of this melanistic form we have now 2 ♂ and 1 apparent ♀, which is like the ♂ on the upperside, while the throat is dull black with whitish edges to the feathers.

(I am convinced that *H. violicollis*, Salv., is an aberrant *H. strophianus*—in fact this is sure to be the case, if my *dubius* is only *clarissae*.)

1173. *Metallura theresiae* Simon = *Metallura theresiae*.

*Metallura theresiae* Simon, *Nov. Zool.* ix. p. 181 (1902—Tayabamba, province of Patataz in Peru).

Cotype: ad., Tayabamba, 2,500 m., January 1901. G. A. Baer leg.

1174. *Metallura atrigularis* Salv. = *Metallura atrigularis*.

*Metallura atrigularis* Salvin, *Bull. B.O. Club*, i. p. xlix. (1893—"Hills near Sigsig, not far from Cuenca, Ecuador, alt. 12,000 feet").

Type: ♂ fere ad., hills near Sigsig, 12,000 feet. O. T. Baron leg.

1175. *Metallura baroni* Salv. = *Metallura baroni*.

*Metallura baroni* Salvin, *Bull. B.O. Club*, i. p. xlix. (1893—"Hills near Cuenca, alt. 12,000 feet").

Type: ♂ ad., Mts. near Cuenca, 12,000 feet. O. T. Baron leg.

1176. *Metallura smaragdinicollis septentrionalis* Hart. = *Metallura tyrianthina septentrionalis*.

*Metallura smaragdinicollis septentrionalis* Hartert, *Nov. Zool.* vi. p. 73 (1899—North Peru: Cajabamba, Cajamarca, Huamachuco, Levanto, Celendin).

Type: ♂, Huamachuco, 10,400 feet, March 1894. O. T. Baron leg.

My *M. s. septentrionalis* (not "*meridionalis*" as quoted by Simon, p. 381!) is in my opinion certainly different from the specimens collected in Peru by Whitely in 1873, having longer wings and darker coloration. If Boucard and Simon (*l.c.*) are right in separating the latter from Bolivian examples, then there seem to be three forms.

There can be no doubt that *Met. smaragdinicollis* is a subspecies of *M. tyrianthina*.

1177. *Chalcostigma purpureicauda* Hart. = *Metallura purpureicauda*.

*Chalcostigma purpureicauda* Hartert, *Bull. Brit. Orn. Club*, vii. p. 28 (1898—Colombia).

Type: ♂, found in a Bogotá collection in London.

I follow Monsieur Simon in placing this peculiar species, which seems to be unique in the Tring Museum, in the genus *Metallura*, but if this is done I cannot see how *Chalcostigma* and *Selatopogon* Sim. can be separated from *Metallura*.

I do not think that Simon's suggestion that *Zodalia thaumasta* Oberh. is a synonym of *C. purpureicauda* can be correct. Granted that the type of the latter is not fully adult, how could its wing measure 71 mm. and that of *Z. thaumasta* only 62, while the tail measures 77 and that of *purpureicauda* only 55 mm. The tail is certainly full grown and there is evidently no intermediate stage of any Humming Bird with a longer wing and shorter tail than in adult birds.

The type is undoubtedly a Bogotá skin and must have been collected in some part of Colombia. Bogotá collectors never went beyond the boundaries of Colombia, as shown by the species which occurred in these collections, with which, however, Chapman and other modern ornithologists are not familiar, though they were of great importance before the systematic exploration of Colombia by the American Museum of Natural History, as almost the only source whence we in Europe learned anything about the Colombian avifauna, and because out of these collections—without exact locality, dates, and all other notes as they were—the majority of species known from Colombia were described. In fact, we know for certain that most of these collections were made on the savanna of Bogotá, but the collectors also entered the Magdalena and Cauca valleys, and descended into the eastern plains of the Rio Meta and probably other rivers. The type of *Zodalia thaumasta* came from the slopes of the Volcano Cotopaxi in Ecuador, and if that bird is (as Goodfellow was told and believed) confined to the one valley of Chillo near the Cotopaxi, Colombian collectors could not have shot it, for if they had been to the Cotopaxi the collection in which the type of *M. purpureicauda* was found would have contained many other Ecuadorian forms, which was not the case. This is of course not a proof, but another reason for which I doubt if *Zodalia thaumasta* can be the same as *Metallura purpureicauda*, but why I do not accept it is the discrepancy in the descriptions, and not the theory of the restricted area of *Z. thaumasta*, which may be correct or incorrect.

1178. *Chalcostigma ruficeps aureofastigatum* Hart. = *Metallura ruficeps aureofastigatum*.

*Chalcostigma ruficeps aureofastigatum* Hartert, *Nov. Zool.* vi. p. 74 (1899—Loja, E. Ecuador).

Type: ♂ ad., Loja. O. T. Baron leg.

1179. *Cyanolesbia berlepschi* Hart. = *Cyanolesbia kingi berlepschi*.

*Cyanolesbia berlepschi* Hartert, *Bull. Orn. Club*, viii. p. 16 (1898—State of Cumana, N.E. Venezuela).

Types: ♂♀ ad., Forest of Los Palmales, State of Cumana, 25.ii.1898. Caracciolo leg. for André. No. 542.

I think all forms of the genus *Cyanolesbia* (or *Lesbia* according to Simon) should be looked upon as subspecies of *C. kingi* (which name must be used instead of *cyanura*, the latter being preoccupied), as it seems that only one occurs in any given locality.

I am amused at the remark of Chapman, *Distrib. Bird-life Colombia*, p. 307, that I treated *C. caudata* as a subspecies of *C. kingi*, though among a hundred adult males not one showed "even an indication of a blue spot on the throat."

Does Dr. Chapman not know my views of subspecies, and that the fact whether intergradation exists or not is an impossible criterion to prove that a form is a subspecies or a species? Whether intergradation *exists* or not cannot be known, unless enormous series from exact localities are at hand, and it entirely depends on the material available whether such cases are *known* or not. In the case of *C. caudata* it is interesting to know that I now have received a male from Merida from Briceño, which actually has several blue feathers on the throat. According to Chapman, I should not have treated *caudata* as a subspecies of *kingi*, but now I suppose I am entitled to do so!

1180. *Psalidoprymna juliae* Hart. = *Psalidoprymna victoriae juliae*.

*Psalidoprymna juliae* Hartert (ex *Lesbia juliae* Berl. & Stolzm., nomen nudum!), *Nov. Zool.* vi. p. 75 (1899—"Northern Peru").

Type: ♂ ad., Cajabamba, N. Peru, 9,000 feet, January 1894. O. T. Baron leg.

Though the differences from *P. victoriae victoriae* and *aequatorialis* are very striking, I believe that it is most reasonable to treat *P. juliae* as a subspecies of *P. victoriae*.

† 1181. *Heliomaster veraguensis* Boucard = *Anthoscenus longirostris stuartae*.

*Heliomaster veraguensis* Boucard, *Gen. Humming B.* p. 304 (1895—Veragua).

Cotype: ♂ ad., Veragua, Arcé leg. (Marked "type" by Boucard.)

The throats of Boucard's three males appear to be stained or the colour altered in some other way. They belong to *stuartae* if that subspecies is recognised, and it is certainly different from typical *longirostris*, which does not occur in Colombia.

1182. *Lophornis verreauxi klagesi* Berl. & Hart. = *Lophornis verreauxi klagesi*.

*Lophornis verreauxi klagesi* Berlepsch & Hartert, *Nov. Zool.* ix. p. 89 (1902—"In regione fluminis Caura: Suapure, La Pricion").

Type: ♂ ad., Suapure, Caura River, affluent of Orinoco, l. i. 1900. S. M. Klages leg.

(The genus *Lophornis* might easily be split up into several genera from male characters, but I do not approve of this. As in other families of Birds, among mammals and insects, extreme splitting of genera does not in any way advance our knowledge, but makes study more difficult, besides adding to nomenclatorial alterations and difficulties.)

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## ON THE EMERALD AND GOLDEN CUCKOOS OF AFRICA

BY DAVID A. BANNERMAN, M.B.E., B.A., M.B.O.U.

THE following article is written in the hope that it may help to settle the vexed questions associated with the African Emerald and Golden Cuckoos and to straighten out the confusion into which they have fallen.

## I. NOMENCLATURE.

In almost every paper in which reference is made to either the white-bellied Didric Cuckoo or to the yellow-breasted Emerald Cuckoo, their specific names have—with one notable exception—been sadly confused. The exception was the paper by Mr. Claude Grant, when, in the *Ibis*, 1915, pp. 417–19 he attempted to place the nomenclature of these two cuckoos on a sound footing. That Mr. Grant succeeded has been generally acknowledged by those systematic workers who have taken the trouble to check his work. The matter, we vainly hoped, was cleared up satisfactorily, at any rate as regards the specific names to be employed.

Mr. Grant showed that the white-bellied Didric (or Golden) Cuckoo must bear the name *Chrysococcyx caprius* Bodd., and that the yellow-bellied Emerald Cuckoo should bear the name *Chrysococcyx cupreus* Shaw. His reasons are given in detail in the *Ibis* (*loc.cit.*). Grant showed that the name “*cupreus*” of Boddacrt (which had been commonly used by authors until 1915 to designate the white-bellied Didric (or Golden) Cuckoo) was non-existent, and that *Cuculus auratus* Gmel. (1788) which had also been used for the white-bellied Didric (or Golden) Cuckoo was antedated by *C. caprius* Bodd. (1783). Moreover, this name *auratus* is preoccupied by Linné (1758) for the American Flicker, and cannot therefore be used for any cuckoo whatever!

Grant further showed that the name *Chrysococcyx smaragdineus* Swainson (1837) (commonly used by authors until 1915 to designate the yellow-bellied Emerald Cuckoo) was antedated by *Cuculus cupreus* of Shaw (1792). It must therefore sink into the synonymy of *C. cupreus* Shaw.

So far, so good! Unfortunately Messrs. Selater and Praed in their “Birds of the Anglo-Egyptian Sudan” (*Ibis*, 1919, pp. 644–5) confused the names again, inadvertently writing (p. 644) *C. caprius* Bodd. when they meant *C. cupreus* of Shaw, and *C. auratus* Gmel. when they intended *C. caprius* of Boddacrt. They discovered their mistake, but not until their article had appeared in print and the harm was done. In an appendix to their paper (*Ibis*, 1920, p. 853) they make their correction and clearly set out in a little table the Latin and English names of the two species over which the confusion has existed. This I reproduce here, as it is important to bear it in mind, and as it appeared in an Appendix it probably passed unnoticed by many.

*Cuckoo with yellow underparts.*

English :

Emerald Cuckoo.

Latin :

*Cuculus cupreus*, Shaw, *Mus. Lever.*, 1792, p. 157.

*Cuculus smaragdineus*, Swains., *Birds of West Africa*, ii. 1837, p. 191.

*Chrysococcyx intermedius* Hartl., *Syst. Orn. West Africas*, 1857, p. 191.

*Cuckoo with white underparts.*

Golden Cuckoo.

Copper Cuckoo.

Didric Cuckoo.

*Cuculus caprius* Boddaert, *Tabl. Pl. enlum.*, 1783, p. 40.

*Cuculus auratus* Gmelin, *Syst. Nat.*, i., pt. 1, 1788, p. 421.

These authors (Sclater and Praed) note that "if it is preferred to regard *C. caprius* Bodd. as a misprint for *C. cupreus*, then Shaw's name is invalid and disappears, and the Emerald Cuckoo becomes *C. smaragdineus* Swains."

Personally I do not think we can accept this suggestion. I suggest an alternative here.

In the last number of the *Novitates Zoologicae*, vol. xxix. 1922, p. 52, Dr. V. G. L. van Someren has opened up the question again by naming the South African yellow-breasted Emerald Cuckoo *Chrysococcyx auratus sharpei*, thus making confusion worse confounded, and goes on to explain in his text that *C. auratus auratus* Gmelin = *C. smaragdineus* and *C. cupreus* Shaw." This, of course, is incorrect. Has Dr. van Someren ever looked at Gmelin's original description of *C. auratus*? If so he would have seen that the bird there described has the underparts white—"subtus albo." Moreover, Gmelin gives a reference to the "Coucou vert du cap de bonne esperance, Buffon, *Pl. enlum.*, n. 657," and there is a good figure of the white-bellied Didric (or Golden) Cuckoo, *Chrysococcyx caprius* of Boddaert. *C. auratus* Gmelin has nothing whatever to do with the yellow-bellied Emerald Cuckoo (and never had!). It is, as has already been pointed out, a synonym of the white-bellied bird *C. caprius* Bodd.!

Van Someren worked at the Tring Museum, and could easily have verified these references (which were all given by Claude Grant) before reducing the nomenclature of these birds to almost inextricable chaos, and actually making his yellow-bellied Emerald Cuckoo a subspecies of the white-breasted Didric Cuckoo!

I have for long considered it advisable to separate generically these two cuckoos, and had Reichenow's proposed genus—*Metallococcyx*—for the yellow-bellied Emerald Cuckoo been valid, I should have made use of it. As long ago as 1912, I discussed this matter in the *Ibis* (p. 246), and then wrote: "Dr. Reichenow has introduced a new generic name, *Metallococcyx*, for this species [referring to the yellow-bellied Emerald Cuckoo—then known as *Chrysococcyx smaragdineus* Swains.], *Orn. Monatsb.*, 1896, p. 54. However, careful investigation shows that *C. smaragdineus* is absolutely the type of Boie's genus *Chrysococcyx*. Boie (*Isis*, 1826, p. 977) proposed *Chrysococcyx* for *Cuculus cupreus* Latham. By monotypy, therefore, this must be accepted absolutely as the type. In the *Cat. Birds Brit.*

*Mus.*, xix. p. 280, the type of *Chrysococcyx* is given as *C. cupreus*; but in this case *C. cupreus* of Boddaert is intended [a name since shown by C. Grant to be non-existent]. But Latham's *C. cupreus* (*Suppl. Index. Ornithol.*, ii. 1802, p. xxix.), is the same as Shaw's *C. cupreus* (*Mus. Lever.*, 1792, p. 157), which is the bird named *C. smaragdineus* by Swainson (*Birds W. Afr.*, ii. 1837, p. 191) and not Boddaert's species. . . . *C. cupreus* of Latham, and subsequently of Shaw, undoubtedly refers to the Emerald Cuckoo which was named *C. smaragdineus* by Swainson."

The genus *Chrysococcyx* Boie must therefore be retained for the yellow-bellied Emerald Cuckoo and the species must be called

*Chrysococcyx cupreus* (Shaw).

It is therefore the white-bellied Didric (or Golden) Cuckoo for which a new genus must be found. There are two generic names which have been applied to the African Golden Cuckoos—*Chalcites* Lesson (*Traité d'Orn.*, 1831, p. 152) and *Lampromorpha* Vigors (*Proc. Zool. Soc.*, 1831, p. 92).

The whole matter has been dealt with very carefully by Mr. G. M. Mathews in the *Austr. Av. Rec.*, vol. i. pp. 4-7, and I am glad to find that Mr. Mathews—who has traced the history of the generic names which have been applied to the "Shining Cuckoos" of Africa—reaches the same conclusions which I did, working independently, before his article came to my notice.

Mathews (*l.c.*) rejected the genus *Chalcites*, basing his rejection of the name on Article 2 of the Code, but later in his *Birds of Australia*, vol. vii. p. 348, he accepts Lesson's genus for the Bronze Cuckoos of Australia with *Chalcites basilis* as type of the genus.

We are left, then, with *Lampromorpha* Vigors. The type of this genus is, by monotypy, *L. chalcopepla*; the description given of this bird, which was obtained at Algoa Bay, leaves no doubt that it applies to the white-bellied Didric (or Golden) Cuckoo. This genus must be accepted, and the species will therefore be known as

*Lampromorpha caprius* (Bodd.).

The described races of this bird will be discussed hereafter. I would also include in this genus *Cuculus klaasi* Steph. and *Chrysococcyx flavigularis* Shelley.

## II. GEOGRAPHICAL RACES.

There seems to be almost as much divergence of opinion about the races of these birds as there is about their nomenclature—though with more excuse.

We will take the white-breasted Didric (or Golden) Cuckoo first: The point was first raised by Dr. Hartert, who in *Nov. Zool.*, xxviii. 1921, p. 100 contends that the Didric Cuckoo from North-West Africa (Senegal, Sierra Leone, etc.) can be easily distinguished from the South African bird (Cape Colony, Transvaal, etc.) on account of its smaller size. Hartert would call the Didric Cuckoo from North West Africa *Chrysococcyx caprius chrysochlorus* Heine (*Mus. Hein.*, iv. 1862, p. 11: Sennar errore, probably Senegal) and gives measurements in support of his claim. In the *Bulletin of the B.O.C.*, xlii. 1922, p. 119, Mr. W. L. Sclater discusses

this race and gives a series of measurements to prove that Dr. Hartert had hardly sufficient grounds on which to separate two forms of the Didric Cuckoo. Independently of this I had myself examined and measured the large series of skins in the British Museum collection with the following result :

N.W. Africa (Upper Guinea)	♂ 106-18, ♀ 114-15.
S. Africa	♂ 109-19, ♀ 111-22.

So that I must uphold Mr. Selater's opinion and reject Dr. Hartert's race. It is curious that the British Museum series should contradict the Tring series, and only emphasises the advisability of consulting both these collections, whenever possible.

I will deal now with the races of the yellow-bellied Emerald Cuckoo :

I first raised the question of two distinct races in the *Ibis*, 1912, pp. 244-7. I pointed out that there were two forms of the Emerald Cuckoo in Africa. At that time I adopted Swainson's name *smaragdineus* for the northern race with the much longer tail, and usually yellow undertail-coverts, sometimes pure yellow, sometimes banded with green. I gave tail measurements of specimens from the Gold Coast, Liberia, Sierra Leone, and Abyssinia as being typical examples of what we now call *Chrysococcyx cupreus* (Shaw).

For the Southern bird, which is distinguished by its much shorter tail and less-graduated rectrices, as well as by having the undertail-coverts white (never yellow in true S. African examples), I adopted Hartlaub's *Chrysococcyx intermedius* (*Orn. W. Afr.*, 1857, p. 191) which is founded on Verreaux's description of *C. smaragdineus* (part), *Rev. Mag. Zool.*, 1851, p. 260. I pointed out that Verreaux was the first to notice the fact that there were two races, as he remarks (*l.c.*) "La seule différence qui existe entre cet oiseau du Gabon et celui du Sénégal consiste dans la longueur de la queue, qui est plus courte dans le premier," *i.e.* the Gaboon bird. Verreaux's remarks are quoted by Hartlaub and on this was founded the name *intermedius*.

Swainson in his original description of *smaragdineus* (type loc. : Gambia) mentions that the undertail-coverts in the Gambian bird are yellow and unspotted, while in the Cape form they are white with two green bands on each feather.

I believed then and stated that *C. intermedius* "will probably be found to migrate on the east coast as far as Uganda, although many more data are necessary before its exact range can be determined." I accepted Hartlaub's name for the S. African bird, because the description referred to a shorter-tailed bird than *C. smaragdineus* auctorum and because the Gaboon specimens in the British Museum had green and white undertail-coverts like the S. African bird. Van Someren shows that this latter character is not constant.

In the *Novitates Zoologicae*, xxix. p. 52, Dr. van Someren rightly criticises me for applying Hartlaub's name to the South African cuckoo ; although, as I have shown, the description of *intermedius* is founded on Verreaux's description of the Gaboon bird, when he clearly mentions the short tail. The relative length of the tail I now believe to be a more important character than the colour of the undertail-coverts. Van Someren's article is so involved and contains so many misstatements, that it is almost impossible to make out what he means. If I have misinterpreted his remarks, I have not done so intentionally.

Van Someren starts off by saying: "Both Bannerman and Grant agree that there are two distinct species [of the Emerald Cuckoo]." We never agreed to anything of the kind, we used trinomials for the South African race to imply that we considered it but a subspecies, as the two forms were not then known to breed in the same area. He then notes that his series and the Tring series show that birds which are resident and breeding in British East Africa possess the characters of both the races we recognised and adds: "if Bannerman and Grant were correct, we should have a species and a subspecies inhabiting and breeding in the same districts!" Then having told us that "*C. auratus auratus* = *C. smaragdineus* and *C. cupreus* Shaw"—which is just what it does not [!]  
—we read that "the South African birds differ from northern specimens in the way Bannerman mentioned on p. 245 of *Ibis*, 1912." Dr. van Someren then names the South African bird (omitting to mention any type locality other than South Africa!) *Chrysococcyx auratus sharpei*, and gives the ranges of both birds in East Africa as:

*C. a. sharpei*: Mawakota, West Elgon, and Soronko River in Uganda.

*C. a. auratus*: Nairobi, Kyambu, and Kisumu in British East Africa.

This, Dr. Hartert tells me, is perhaps an editorial or printer's error, the MS. being not clear in this case, and it seems that all the Uganda and East African birds were meant by Dr. van Someren to be his "*C. a. auratus*."

But what about the birds mentioned by van Someren as having the characters of both forms and which he states are resident and breeding in British East Africa? Only one race is mentioned by him (when giving the local ranges of the two forms—the typical bird and *sharpei*) from B.E.A. If Dr. van Someren believes that two forms *do* occur and *breed* side by side, why does he not treat them both as *species*?

Out of this muddle we are faced with two alternatives: either to lump all the yellow-bellied Emerald Cuckoos under one name, or to accept *three* races.

I have now before me a large series of this cuckoo, including twenty birds from Gaboon (the Tring Museum series) which I have never examined before, and I agree with van Someren that the Gaboon birds—the type locality of *intermedius* Hartl.—are distinguishable from the South African birds by their longer tails, and by the females being more heavily barred on the undersurface, but I also maintain that they are equally separable from Upper Guinea birds by their *shorter* tails—in other words, that they constitute an intermediate race. Moreover, I believe that these Gaboon birds extend across Africa eastwards into Uganda and Kenya Colony; that the colour of the undertail-coverts is an unreliable character, as pointed out by van Someren, I now admit—the twenty skins from Gaboon prove this, but it is curious that in all our series from South Africa not one bird has the yellow undertail-feathers so commonly found in birds from the Guinea coast!

As I am now separating these races on the length of the tail, I give the following measurements, which speak for themselves:

#### TAIL MEASUREMENTS IN MM. OF *C. CUPREUS*.

*C. cupreus cupreus*.

Upper Guinea, Gambia to S. Nigeria (16 skins): tail, 101-31;  
average, 112.3.

Abyssinia (7 skins); tail, 99-136; average, 117.2.

*C. cupreus intermedius.*

Cameroon, Princes Isl., St. Thomas Isl. (7 skins): tail, 89-105; average, 97.1.

Gaboon (17 skins): tail, 90-107; average, 97.

Uganda, Kenya Col., Belgian Congo (24 skins): tail, 86-120; average, 100.

*C. cupreus sharpei.*

South Africa, S. Angola, Transvaal, Natal (15 skins): tail, 86-98; average, 91.

The great variation in the tail measurement of Uganda and Kenya Colony birds is perhaps an argument in favour of "lumping" all these Emerald Cuckoos under one name, but I do not consider that the evidence before me warrants this.

Dr. van Someren, in *Nov. Zool.*, xxix, 1922, p. 53, says: "I name the South African bird *Chrysococcyx auratus sharpei* subsp. nov. (type in the Tring Museum)." No type locality other than South Africa, which may include anywhere south of the Zambesi, is given, and no type is specified by number, date, or collector's name.

Though not stated so in print, Dr. Hartert informs me that a male from the Ifafa River, Natal, has been marked as the type.

## III. SUMMARY.

The various forms and their synonymy will be as follows:

GENUS—**LAMPROMORPHA.**

**Lampromorpha caprius.**—The white-bellied Didric (or Golden) Cuckoo.

*Cuculus caprius* Boddaert, *Tabl. Pl. enlum.*, 1783, p. 40. Founded on Pl. 657 of D'Aubenton. Type loc.: Cape of Good Hope.

## SYNONYMS:

*Cuculus auratus* Gmelin (1788—Cape of Good Hope). Founded on Pl. 657 of D'Aubenton.

*Lampromorpha chalcopepla* (Vigors—Algoa Bay).

*Chrysococcyx chrysochlorus* Heine (1862—Sennar, subst. Senegal (Hartert)).

## REFERENCES TO RECENT LITERATURE.

*Chrysococcyx cupreus* (Bodd.) Shelley, *Cat. Birds Brit. Mus.*, vol. xix, 1891, p. 285.

*Chrysococcyx cupreus* (Bodd.) Reichenow, *Vögel Afrikas*, vol. ii, 1902, p. 94.

*Chrysococcyx cupreus* (Bodd.) Bannerman, *Ibis*, 1912, p. 243.

*Chrysococcyx caprius* Bodd., C. Grant, *Ibis*, 1915, p. 417.

*Chrysococcyx auratus* Gm., Selater and Praed (in error), *Ibis*, 1919, p. 645.

*Chrysococcyx caprius* Bodd., Selater and Praed (correction), *Ibis*, 1920, p. 853.

*Chrysococcyx caprius chrysochlorus* Heine, Hartert, *Nov. Zool.*, vol. xxviii, 1921, p. 100.

*Chrysococcyx caprius* Selater, *Bull. B.O.C.*, vol. xlii, 1922, p. 118.

*Chrysococcyx caprius* Bodd., van Someren, *Nov. Zool.*, vol. xxix, 1922, p. 53.

*Range.*—The whole of the Ethiopian Region from Senegal, the Sudan, and Abyssinia, south to Cape Colony. Represented in the British Museum from almost every political district in this Region.

I would include in this genus two other species:

**Lampromorpha klaasi.**—Klaas's Golden Cuckoo.

*Cuculus klaasi* Stephens in Shaw's *Gen. Zool.*, vol. ix. 1815, p. 128. Type loc.: Cape Colony (ex Levaillant).

*Chrysococcyx klaasi* Steph. of author's.

*Chrysococcyx klassi* Steph. (errore), van Someren, *Nov. Zool.*, vol. xxix. 1922, p. 53.

This species, though fairly consistently placed in the genus *Chrysococcyx* and never so far as I know under the present genus, has been more fortunate as regards its specific name, which, as far as modern authors are concerned, has not been changed, apart from the misspelling of the name by van Someren!

For its English name most authors have called it Klaas's or the Golden Cuckoo. There is certainly no excuse for calling it the white-breasted *Emerald* Cuckoo as van Someren has done (*loc. cit.*)—a most confusing name.

**Lampromorpha flavigularis.**—The yellow-throated Golden Cuckoo.

*Chrysococcyx flavigularis* Shelley, *P.Z.S.* 1879, p. 679, pl. 50. Type locality: Elmina, Gold Coast.

*Chrysococcyx flavigularis* Shell., Shelley, *Cat. Birds Brit. Mus.*, vol. xix. 1891, p. 282; Reichenow, *Vögel Afrikas*, ii. 1902, p. 100; Sharpe, *Ibis*, 1907, p. 437; Bates, *Ibis*, 1911, p. 502; Bannerman, *Ibis*, 1921, p. 96.

GENUS—**CHRYSOCOCCYX.****Chrysococcyx cupreus cupreus.**—The long-tailed, yellow-bellied Emerald Cuckoo.

*Cuculus cupreus* Shaw, *Mus. Lever.* 1792, p. 157. Type loc.: Unknown (Gambia, cf. C. Grant, *Ibis*, 1915, p. 419).

## SYNONYMS:

*Chalcites smaragdineus* Swains (1837—Gambia).

*Cuculus splendidus* Gray (1847—Gambia), founded on *Cuculus cupreus* Shaw.

## REFERENCES TO RECENT LITERATURE.

*Chrysococcyx smaragdineus* (Swains.), Shelley, *Cat. Birds Brit. Mus.*, vol. xix. 1891, p. 280 (part).

*Metallocooccyx smaragdineus* (Swains.), Reichenow, *Vög. Afr.* vol. ii. 1902, p. 101 (part).

*Chrysococcyx smaragdineus* (Swains.), Bannerman, *Ibis*, 1912, p. 244.

*Chrysococcyx cupreus* (Shaw), C. Grant, *Ibis*, 1915, p. 418.

*Chrysococcyx caprius* (Bodd.), Sclater and Praed (errore), *Ibis*, 1919, p. 644.

*Chrysococcyx cupreus* (Shaw), Sclater and Praed (correction), *Ibis*, 1920, p. 853.

*Chrysococcyx auratus auratus* Gm., van Someron (errore), *Nov. Zool.* vol. xxix. 1922, p. 52.

*Range.*—Gambia, Sierra Leone, Liberia, Gold Coast, S. Nigeria, Abyssinia, ? Anglo-Egyptian Sudan.

*Distinguishing Characters.*—Tail longer (101-136 mm.) rectrices more graduated, undertail-coverts either white or yellow banded with green, sometimes pure yellow; belly darker yellow in freshly killed examples.

**Chrysococcyx cupreus intermedius.**—The intermediate yellow-bellied Emerald Cuckoo.

- Chrysococcyx intermedius* Hartl., *Syst. Orn. W. Afr.* 1857, p. 191. (Founded on Verreaux's description of *C. smaragdineus* (part), *Rev. Mag. Zool.* 1851, p. 260). Type loc.: Gaboon.  
*Chrysococcyx smaragdineus* (Sw.), Shelley, *Cat. Birds Brit. Mus.*, vol. xix. 1891, p. 280 (part).  
*Metallococcyx smaragdineus* (Sw.), Reichw., *Vög., Afr.*, vol. ii. 1902, p. 101 (part).  
*Chrysococcyx smaragdineus intermedius* Hartl., Bannerman, *Ibis*, 1912, p. 244 (part).  
*Chrysococcyx cupreus intermedius* Hartl., C. Grant, *Ibis*, 1915, p. 418 (part).

*Range.*—Cameroon, Gaboon, St. Thomas Island, Princes Island, Belgian Congo, Uganda, Kenya Colony.

*Distinguishing Characters.*—Similar to *C. cupreus cupreus* but tail shorter (97–100 mm.), intermediate between the typical and the Cape form. Females heavily banded on underparts.

**Chrysococcyx cupreus sharpei.**—The short-tailed, yellow-bellied Emerald Cuckoo.

- Chrysococcyx auratus sharpei*, van Someren, *Nov. Zool.*, vol. xxix. 1922, p. 53, "South Africa" [Ifafa River, Natal].

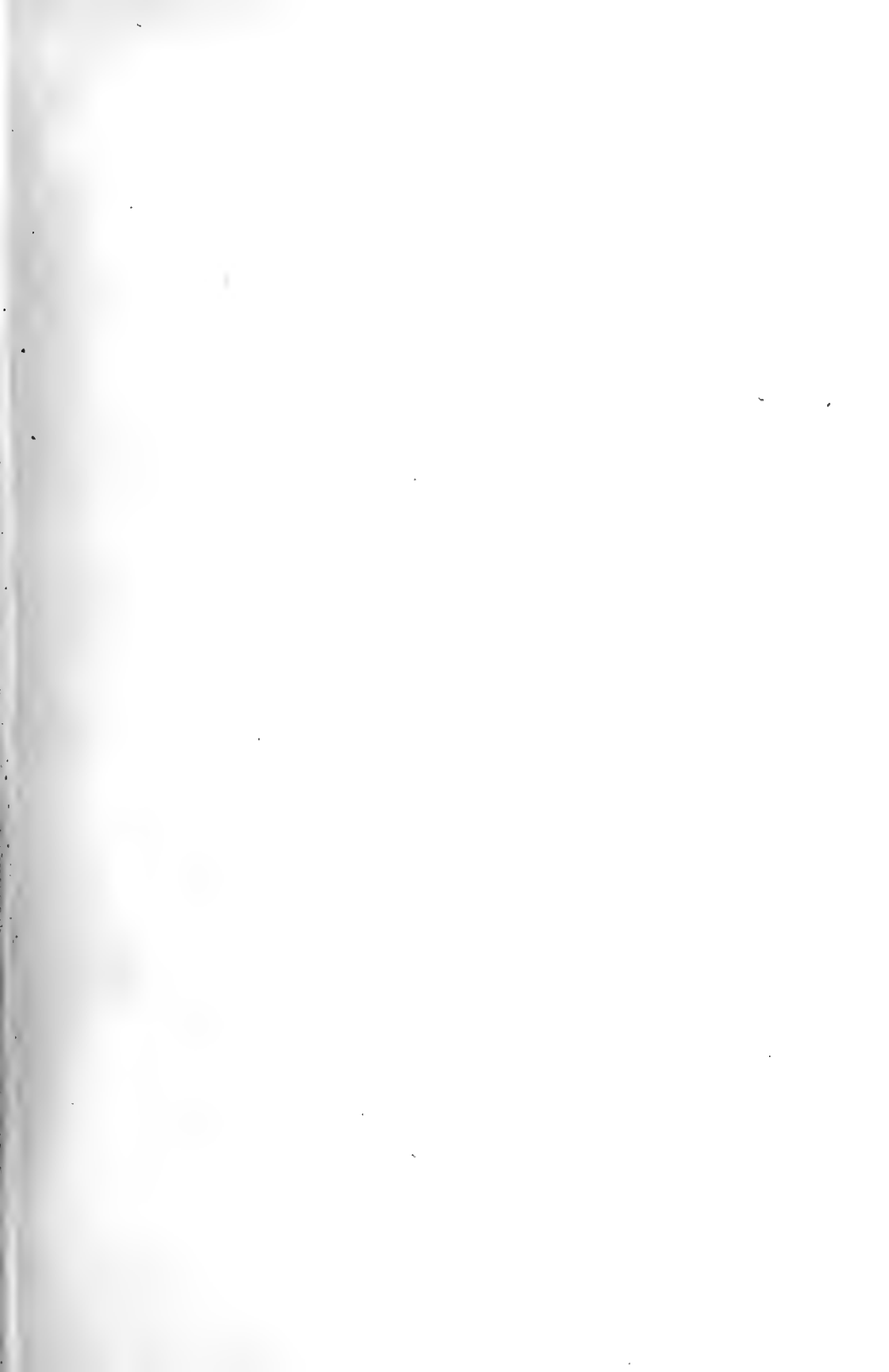
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- Chrysococcyx smaragdineus* (Swains.), Shelley, *Cat. Birds Brit. Mus.*, vol. xix. 1891, p. 280 (part).  
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*Chrysococcyx cupreus intermedius* Hartl., C. Grant, *Ibis*, 1915, p. 418.  
*Chrysococcyx auratus sharpei*, van Someren, *Nov. Zool.*, vol. xxix. 1922, p. 53.

*Range.*—Zambesi district, "S. Africa," Natal, Transvaal, Southern Angola.

*Distinguishing Characters.*—Tail very short, 86–98 mm. and more rounded, undertail-coverts white barred with green, never pure yellow. Yellow belly paler. Van Someren, *Nov. Zool.*, xxix. p. 52, gives in addition characters for the females of his *C. a. sharpei*.





EXPLANATION OF PLATES I AND II (Lep.).

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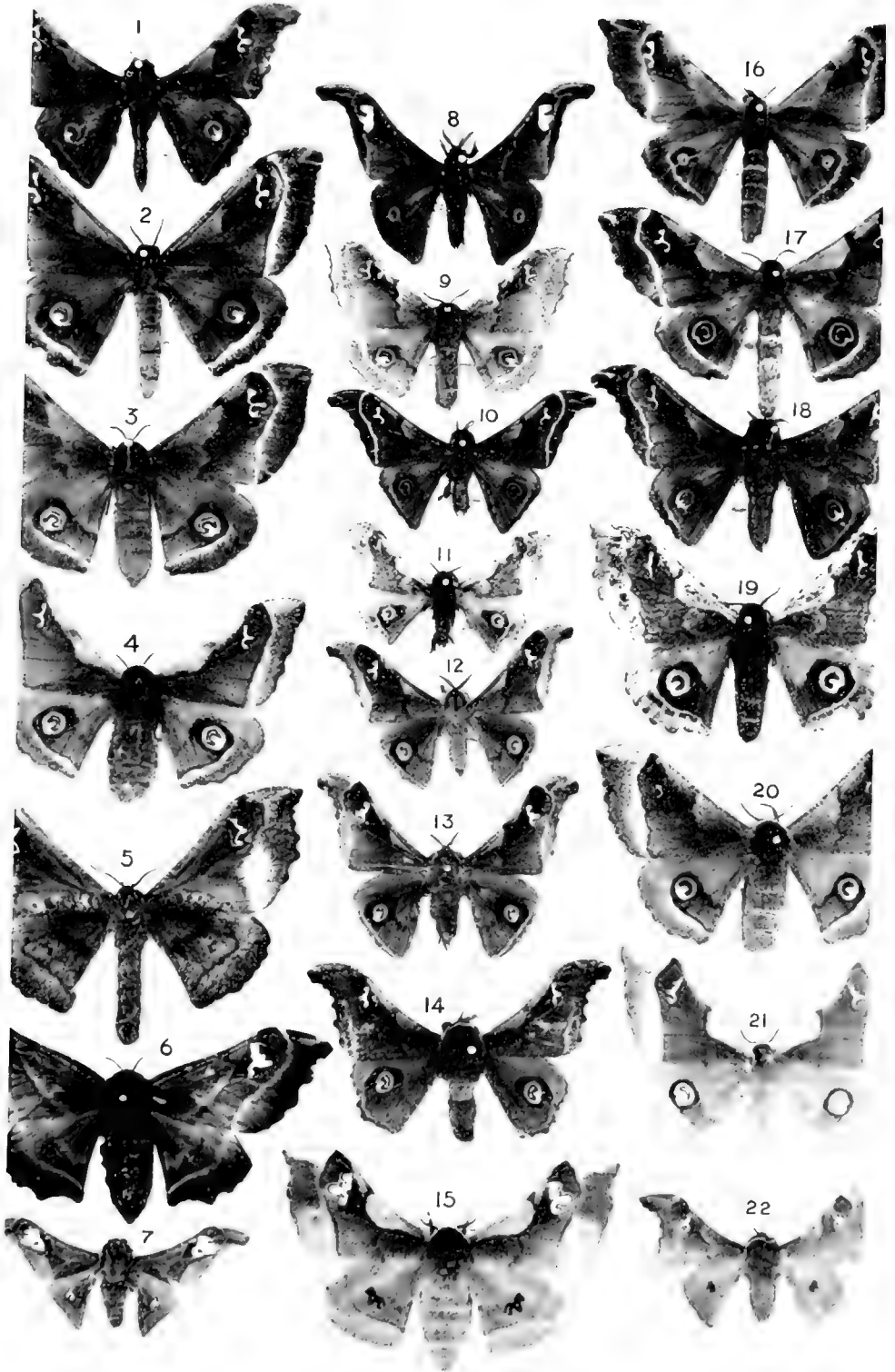
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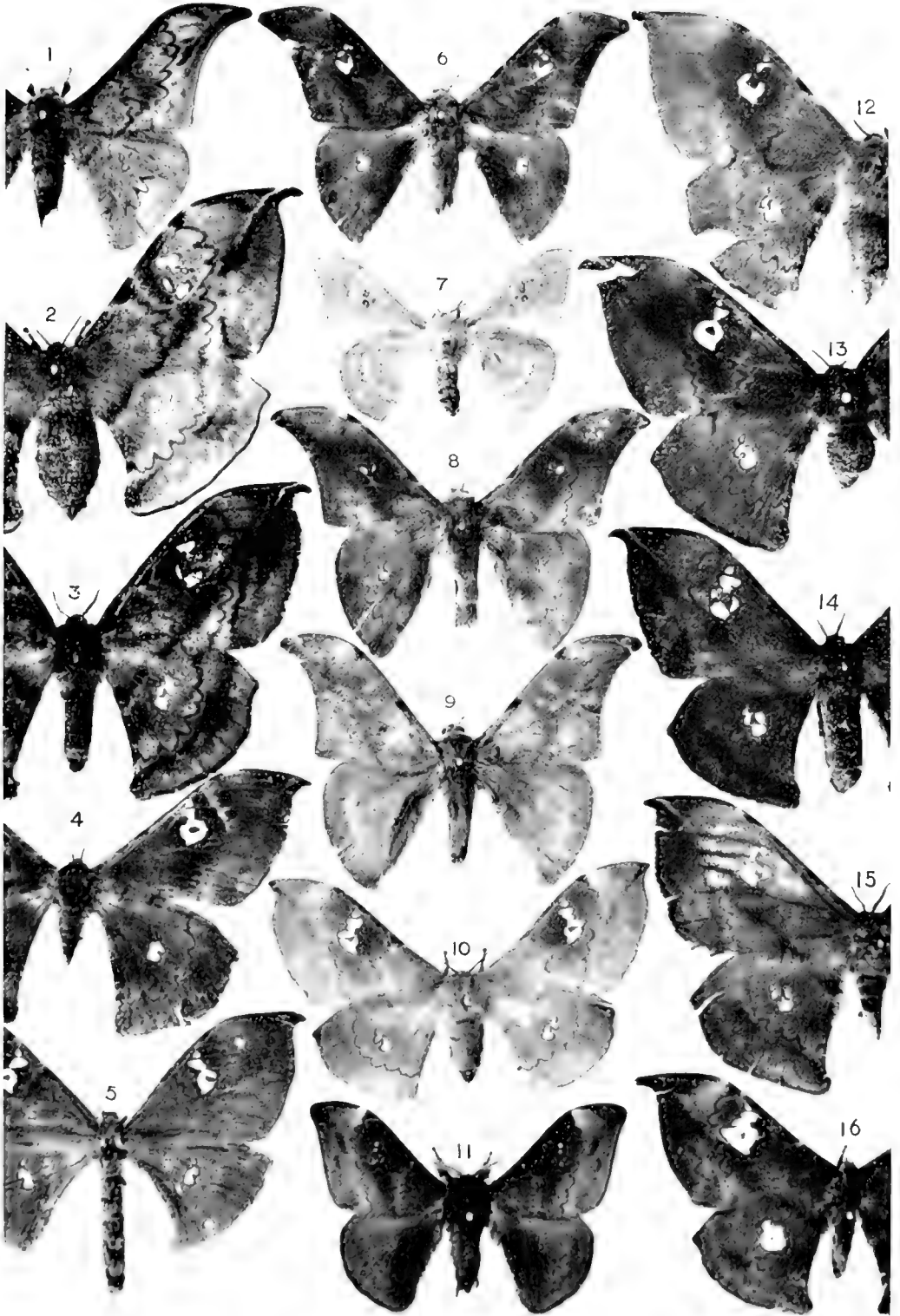
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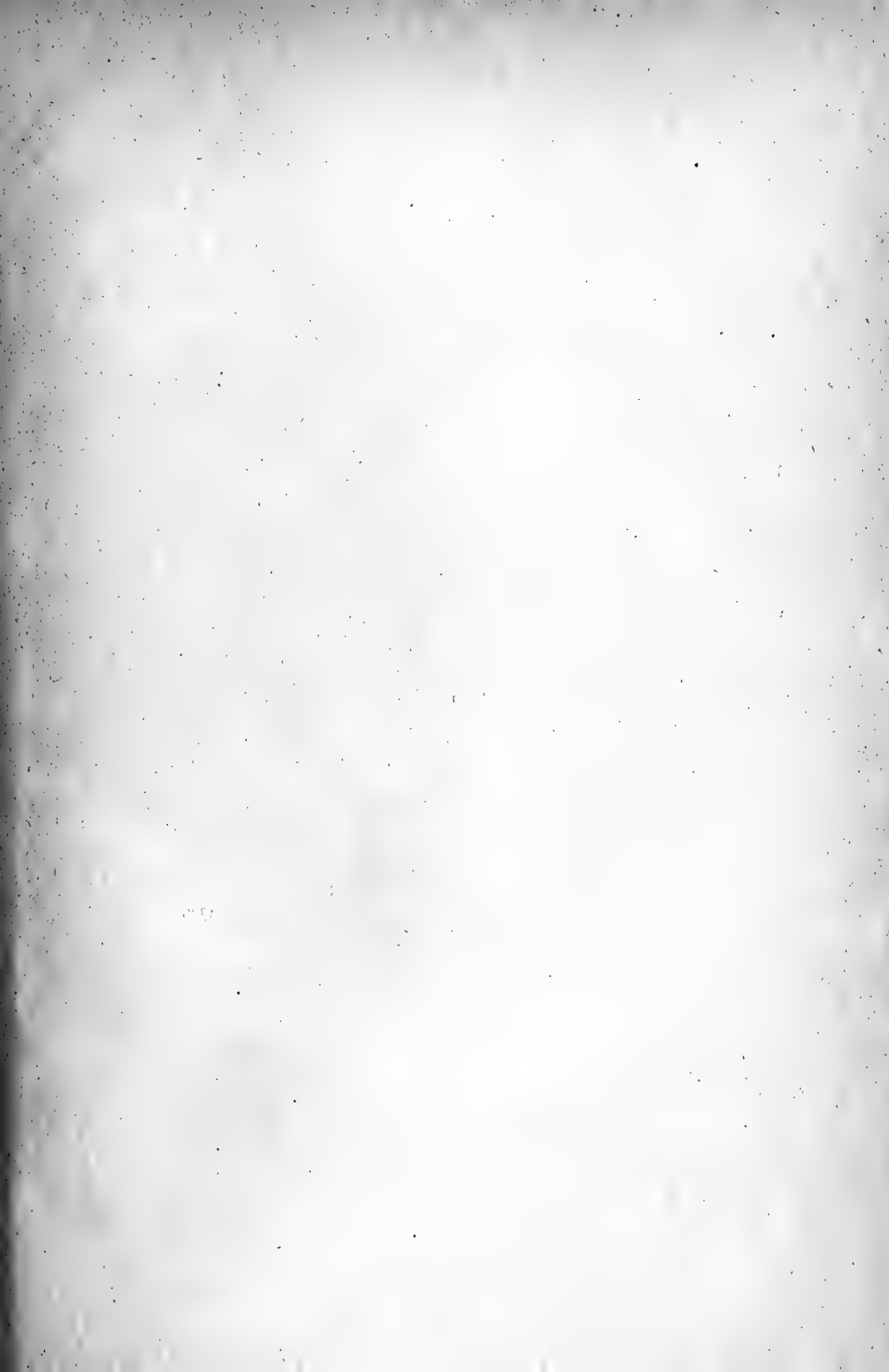












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# LEPIDOPTERA

COLLECTED BY THE

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