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THE
BIRDS OF AFRICA,

COMPRISING ALL THE SPECIES WHICH OCCUR

IN THE

ETHIOPIAN REGION.

BY

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VOL. II.

LONDON:

PUBLISHED FOR THE AUTHOR BY

R. H. PORTER, 7, PRINCES STREET, CAVENDISH SQUARE, W.

1900.

598.208

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PREFACE.

WHEN I published the first volume of "The Birds of Africa" I had sketched out the classification down to the "Keys of the Species," and intended to bring this out as the second volume; but the number of known Ethiopian forms increases so rapidly that I recognised how imperfect these "keys" would be by the time I came to write the history of the species, so decided to work out each family in a monographic form.

The Classification is compiled mostly from Seeböhm's "Classification of Birds" (1890), and that proposed by Dr. R. B. Sharpe at the Ornithological Congress, Buda-Pest, 1891, and I have followed these authors in the use of the termination "formes" for the seventeen large divisions which I call Orders.

I begin with the *Passeriformes* and follow on with the *Piciformes*. The two families of these separate orders which appear to me to be most nearly allied are the Swallows and the Swifts, so as I end the Passeriformes with the *Hirundinidæ* it entails beginning the classification with the *Oligomyodæ*.

The *Oligomyodæ* lead most naturally into the *Oscines* through the Madagascar genera *Philepitta* and *Neodrepanis*; therefore I commence the *Oscines* with the *Nectariniidæ*.

With regard to the synonymy of the species: I begin with what I consider to be the most correct name; quote the



“Catalogue of the Birds of the British Museum,” where full synonymy is given in detail, and add only such references which have not appeared in that great work.

I follow on with a description of the plumage, taken, when possible, from the specimens in the British Museum, for these are the most available to the general public, and finish with all the details I can find regarding the distribution and habits of the species which I consider to be of interest.

My thanks are therefore due to all the ornithologists whose works I quote.

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A V E S .

KEY TO THE ORDERS.

- a.* Young born helpless, and not able to avail themselves of the instinct of self-preservation for, at least, the first twenty-four hours.
- a*¹. Young do not pass through a downy stage before acquiring feathers, unless the species is nocturnal as in the *Caprimulgidæ*.
- a*². Palate ægithognathous, and the deep plantar tendons free 1. PASSERIFORMES.
- b*². Palate never ægithognathous when the deep plantar tendons are free.
- a*³. Palate never schizognathous when the nasals are schizorhinal 2. PICIFORMES.
- b*³. Palate schizognathous, and the nasals schizorhinal 3. COLUMBIFORMES.
- b*¹. Young pass through a downy stage before acquiring feather.
- c*². Not web-footed.
- c*³. Dorsal vertebræ opistocœlous; feet always zygodactyle; young born naked 4. PSITTACIFORMES.
- d*³. Dorsal vertebræ heterocœlous.
- a*⁴. Feet generally zygodactyle; young born covered with down 5. ACCIPITRIFORMES.
- b*⁴. Feet never zygodactyle; young born nearly naked 6. ARDEIFORMES.
- d*². Web-footed.
- e*³. Palate desmognathous; all four toes connected by a web; young born nearly naked 7. PELECANIFORMES.
- f*³. Palate schizognathous; hind toe not connected to the other toes by a web; young born covered with down.

- e*⁴. Wing with true feathers and adapted for powerful flight.
- a*⁵. External nostrils ordinary . . . 8. LARIFORMES.
- b*⁵. External nostrils produced into tubes 9. PROCELLARIIFORMES.
- d*⁴. Wing with no true feathers and fin-like 10. SPHENICIFORMES.
- b*. Young not born helpless and able at once, or in a few hours, to avail themselves of the instinct of self-preservation.
- c*¹. Sternum with a keel.
- e*². Palate desmognathous; web-footed.
- g*³. Basipterygoid processes absent; end half of bill abruptly bent downwards 11. PHENICOPTERIFORMES
- h*³. Basipterygoid processes articulate with the pterygoids as near to the palatines as possible; end half of bill never abruptly bent downwards. 12. ANSERIFORMES.
- f*². Palate schizognathous.
- i*³. Posterior processes of the ilium approximated to such an extent that the sacrum is almost entirely concealed.
- e*⁴. Web-footed 13. COLYMBIFORMES.
- f*⁴. Toes lobed 14. PODICIPEDIDIFORMES.
- h*³. Posterior processes of the ilium never approximated to such an extent that the sacrum is almost entirely concealed.
- g*⁴. Dorsal vertebræ heterocœlous. . . 15. GALLIFORMES.
- h*⁴. Dorsal vertebræ opisthocœlous . . 16. CHARADRIIFORMES.
- d*¹. Sternum with no keel 17. STRUTHIONIFORMES.

Order I. PASSERIFORMES.

Young born helpless, and do not pass through a downy stage before acquiring feathers. Palate ægithognathous. Deep plantar tendons free; the *flexor perforans digitorum* serving the three front toes and the *flexor longus hallucis* the hind toe. Ambiens and accessory femoro-caudal muscles absent. Oil-glands present and nude. Spinal feather-tract well defined on the neck. Dorsal vertebræ heterocœlous. Only a left carotid artery.

This Order comprises about three-fifths of the known species of birds, and is represented in the Ethiopian Region by some 1500 of them.

KEY TO THE SUBORDERS.

- a.* Intrinsic muscles of the syrinx attached near
the middle of the bronchial semi-ring* . . . 1. OLIGOMYODÆ.
b. Intrinsic muscles of the syrinx attached to
the ends of the bronchial semi-rings . . . 2. OSCINES.

* Tail remarkably short in all Ethiopian species.

Suborder I. OLIGOMYODÆ.

The species belonging to this Suborder are mostly American, only the following three families being found in the Old World :

Xenicidæ. Three species confined to New Zealand.

Pittidæ. Contains some 45 species, only represented in the Ethiopian Region by *Pitta angolensis*.

Philepittidæ. Two species confined to Madagascar.

KEY.

- a.* Terrestrial; sexes similar; no wattle on head;
rump and portion of upper wing-coverts
bright pale blue; abdomen scarlet. *PITTA angolensis*.
b. Arboreal; sexes dissimilar; adult males with
bare wattles on the sides of the head; some
yellow and no blue or red on the feathers *PHILEPITTA*.
*a*¹. General plumage velvety black with
yellow at the bend of the wing.
*a*². With no yellow margins to the feathers *jala*, ♂ *ad*.
*b*². With yellow edges to many of the
feathers *jala*, ♂ *juv*.
*b*¹. Wings, lower back and tail olive.
*e*². Above olive; beneath yellowish buff
mottled with olive.
*a*³. Above more uniform; bill larger *jala*, ♀.
*b*³. Crown with yellow spots; bill smaller *schlegeli*, ♀.
*d*². Upper back and entire under parts
bright yellow *schlegeli*, ♂ *ad*.

Family I. PITTIDÆ.

Bill stout but somewhat Thrush-like. Temporal fossæ extend across the occipital region of the skull and nearly meet in the middle line behind,

—a character not known to occur in any other Passerine bird. Sternum with one extremely deep notch on each side. Wing of ten primaries, first reaching nearly to the tip of the wing. Tail of twelve feathers, very short. Tarsus elongated, the anterior covering entire and smooth.

Sexes similar in plumage in the single Ethiopian species.

Pitta angolensis.

Pitta angolensis, Vieill., Reichen. and Lühder, J. f. O. 1873, p. 214 *Accra*; Reichen. J. f. O. 1875, p. 20 *Camaroons*; Garrod, P. Z. S. 1876, p. 513, pl. 53, figs. 1, 2, 3; Sharpe and Bouvier, Bull. S. Z. France, 1876, p. 45 *Landana*; Reichen. J. f. O. 1877, p. 21 *Loango*; Büttik. Notes Leyd. Mus. 1885, p. 175; 1888, p. 75; 1889, p. 122 *Libcria*; Reichen. J. f. O. 1886, p. 396 *Upemba*; Matsch. J. f. O. 1887, p. 152 *Lufua R.*; Sclat. Cat. B. M. xiv. p. 422 (1888) *Wassaw*; Reichen. J. f. O. 1890, p. 117 *Camaroons*; Whitehead, Ibis, 1893, p. 496; Elliot, Monogr. Pitt. 2nd Ed. pl. — (1893); Reichen. J. f. O. 1896, p. 96 *Togoland*; Neumann. t. e. p. 250, *Usagara*; Shelley, B. Afr. I. No. 1 (1896); Reichen. J. f. O. 1897, p. 25 *Togoland*.

Adult Male. Crown and sides of head black, with a broad pale brown band from forehead to nape, fading beneath into a white eyebrow; mantle olive-shaded green; wings and tail black, the former washed with olive, and with broad glossy whitish blue ends to the coverts; rump and upper tail-coverts pale glossy verditer blue. Throat white, partially washed with carmine; chest buff washed on the flanks with olive; abdomen and under tail-coverts deep carmine red. "Bill horny brown, legs flesh colour, iris dark brown" (Falkenstein). Total length 7 inches, culmen 0·8, wing 4·3, tail 1·7, tarsus 1·5.

Adult Female. Like the male.

Young Birds. Less brightly coloured and have the abdomen rosy pink.

The Angola Pitta ranges from Sierra Leone to Angola and the Usagara Country nearly opposite to Zanzibar Island. The most northern range, at present known, for this species is Sierra Leone, from whence Fraser procured the type of his *Pitta puhil* and wrote: "Mr. Thomson who originally procured the bird, observes in a note, that the *Puhil* or mocking-bird, is only found in the Timneh country; that its note is exceedingly sweet, and when a Timneh would pay an

orator or poet the greatest compliment, they say, 'He is a perfect puhil.'" Mr. Büttikofer, however, informs us that he never heard their note, although he kept a pair for some weeks in confinement, feeding them on the larvæ of *Termes mordax*, which are very abundant in the Liberian forests. Here he found them close to the sea shore as well as in the hilly regions of the interior, and like Ussher on the Gold Coast, procured his specimens by snaring them, for they naturally frequent thick covert and rarely take to the wing even for a short flight.

In the British Museum there are specimens from Wassaw, Fantee, Ashantee and Old Calabar. Dr. Reichenow found it at Accra; Riis in Aguapim and Herr E. Baumann in Togoland at Misohöhe 7° N. lat.

In Camaroons Dr. Reichenow procured the species at Wuri, and met with it on several occasions in the highlands.

On the Loango coast specimens have been collected at Chinchonxo and Landana by Falkenstein and Petit.

The type of the species formed part of Perrin's collection from Angola. Böhm procured specimens at the Lufua River to the west of Lake Moero and at Upemba, and Captain Storms likewise met with it to the west of Lake Tanjanyika.

Mr. Neumann informs us of two specimens from the Usagara country, and further remarks, that in the Paris Museum there is also a specimen from East Africa.

Family II. PHILEPITTIDÆ.

Head, in males only, with large bare fleshy wattles round the eyes. Bill moderate, shorter than the head. Tongue bifurcated at the tip. Wing of ten primaries, the first only slightly shorter than the second. Tail of twelve feathers and very short, not more than half the length of the wing. Tarsus scaled both in front and behind. Toes moderate; claws curved and acute. Sexes dissimilar. Arboreal.

Philepitta jala.

Philepitta jala (Bodd.) Sclat. Cat. B. M. xiv. p. 410 (1888); Sibree, Ibis, 1891, p. 442; Shelley, B. Afr. I. No. 2 (1896).

Adult Male. Black with the bend of the wing yellow, and with fleshy caruncles about the eye green; bill and legs greyish black. Total length 6 inches; culmen 0.65, wing 3.2, tail 1.5, tarsus 0.9.

Adult Female. Above olive green with a yellowish shade on the rump; beneath pale yellowish, with broad olive green edges to the feathers. Total length 5.7 inches, culmen 0.65, wing 3.2, tail 1.5, tarsus 0.9.

Immature Male. Black, all the feathers margined with yellow, and with a bare patch round the eye.

The Black velvet Asity is said to be confined to the forest regions of the eastern side of Madagascar.

Here, according to M. Grandidier, they are to be met with generally in pairs running along or climbing up the branches in search of the buds and fruit on which they feed. They are graceful and active in their movements and are not shy. The flight is straight but not sustained for any great distance, and the males have a soft Thrush-like song. The eggs are pale bluish white and measure 1.2 inches by 0.85.

Owing to the numerous native dialects spoken in Madagascar, the present species is not only known as "Asity," but according to the Rev. J. Sibree as, "Variamanangana" in the Betsileo country, and as "Tsoitsoy" by the Betsimisaraka people.

Philepitta schlegeli.

Philepitta schlegeli, Schleg., Sclat. Cat. B. M. xiv. p. 411 (1888); Sibree, Ibis, 1891, p. 442; Shelley, B. Afr. I. No. 3 (1896).

Adult Male. Upper half of head and the nape black; upper back bright yellow passing into olive green on the remainder of the upper parts; beneath uniform bright yellow; a large bluish green eye-wattle. Bill black, feet slaty brown, iris pale brown. Total length 5 inches, culmen 0.5, wing 3, tail 1.5, tarsus 0.8.

Adult Female. Above yellowish olive green, mottled on the front and sides of the head with yellowish; beneath yellowish, with broad olive green edges to the feathers. Total length 5 inches, culmen 0·5, wing 3, tail 1·5, tarsus 0·8.

Immature Male. Very similar to the adult female, but with a large bluish green eye-wattle.

The Yellow-breasted "Asity" of the north Sakalava people is confined to the north-western portion of Madagascar. Here it replaces the last species, which appears to be much the commonest of the two, and in habits closely resembles that bird, but its note seems to differ as it is described, by M. Grandidier, as being a little cry of "chit-chit," but of course this may be only its alarm note and not its true song.

Suborder II. OSCINES.

The *Oscines* are well represented in the Ethiopian Region by nearly 1500 known species, or more than half the Avifauna of that region.

The difficulty of drilling the *Oscines* into a line does not arise, solely, from the large number of species, but also from the great affinities the species show to one another.

To divide this mass of birds into apparently natural groups, I select a few of the characters of the Song Thrush, *Turdus musicus*, thus:

1. Does not swallow food during flight:—excludes *Hirundinidæ* and *Artami*.

2. Runs and feeds on the ground:—excludes *Nectariniidæ*, *Promeropidæ*, *Zosteropidæ*, *Paridæ*, *Certhiidæ* and *Muscicapidæ*.

3. Feeds both on the ground and in trees:—excludes *Motacillidæ* and *Alaudidæ*.

4. Bill not conical or Finch-like:—excludes *Fringillidæ* and *Ploceidæ*.

The style of plumage of the nestlings is the character upon which I have divided the great central mass of the *Oscines* into four divisions: *Corvi*, *Lanii*, *Sylviæ* and *Turdi*.

KEY TO THE SECTIONS.

- a. Do not feed entirely during flight, the wings being shorter and less powerful, the tarsi and feet generally stronger and the gape less wide.

- a*¹. Often feed with their backs downwards owing to the tarsi being rather short than long; the feet graceful and powerfully constructed with the claws sharp and curved, which does not adapt them for feeding on the ground. Bill neither Finch-like nor Thrush-like, and nearly always the tongue is split at the end and the young similar in plumage to the adult females 1. PARI.
- b*¹. Never feed with their backs downwards (excepting some of the *Fringillæ* and the *Buphaginæ*.) Tongue generally entire.
- a*². Either the inner secondaries are abnormally elongated and reach to the tip of the wing, or the back of the tarsus is scutellated. Terrestrial 2. ALAUDE.
- b*². Never with the secondaries reaching to the tip of the wing, nor with the back of the tarsus scutellated.
- a*³. Bill: Finch-like, stout and somewhat conical 3. FRINGILLÆ.
- b*³. Bill: never Finch-like, but often Thrush-like in form.
- a*⁴. Nestling: never with any pale sub-terminal spots to any of the feathers, unless they are present in the adult.
- a*⁵. Plumage of nestlings duller than that of the adults and may have streaks or blotches, but never transverse bars 4. CORVI.
- b*⁵. Plumage of nestlings generally cross-barred; but never with spots or blotches 5. LANII.
- c*⁵. Plumage of nestlings similar to that of the adults, but brighter. 6. SYLVIÆ.
- b*⁴. Nestlings often with pale sub-terminal spots on many of the feathers.
- d*⁵. Run, and feed quite as much on the ground as in trees; bill rarely broader than deep at the gape 7. TURDI.

- e*⁵. Never run, but watch from a bough for the passing insects which form their entire food. Bill: generally broader than deep at the nostrils, and furnished with well developed rictal bristles. Nestlings with fine hairs setting flat over the bill. Legs rather weak . . . 8. MUSCICAPÆ.
- b*. Feed entirely during flight. Wings powerful and long; legs weak.
- c*¹. Wing of only nine primaries. Bill, from gape to tip, viewed from above nearly an equilateral triangle 9. HIRUNDINES.
- d*¹. Wing of ten primaries 10. ARTAMI.

Section I. PARI.

Bill variable but neither Finch-like nor Thrush-like. Wing with ten primaries. Tail of twelve feathers. Tarsi scutellated and short, with the feet graceful but powerful and the claws sharp and curved; consequently they are not adapted for feeding on the ground, but probably all feed at times with their backs downwards.

The eggs vary from two to ten in a nest.

Generally but not always the members of this section have:—Tongue split at the end; young similar in colouring to the adult female.

KEY TO THE FAMILIES.

- a*. Tarsus decidedly longer than the hind toe with claw; foot not adapted for climbing up the trunks of trees.
- a*¹. Nostrils placed in a groove, covered by a membrane and opening in a slit.
- a*². Bill longer, narrower, and more slender, generally not shorter than the tarsus.
- a*³. Frontal feathers rounded; tongue extensile and split into two towards the end NECTARINIIDÆ.
- b*³. Frontal feathers lanceolate; tail of soft flexible feathers, very long and graduated PROMEROPIDÆ.

- b*². Bill shorter and stouter, much shorter than the tarsus; tongue not extensile; frontal feathers rounded.
- c*². Bastard primary absent or very small ZOSTEROPIDÆ.
- d*³. Bastard primary large, about half the length of the next one PARISOMIDÆ.
- b*¹. Nostrils not placed in a groove PARIDÆ.
- b*. Tarsus not longer than the hind toe with claw, and the foot adapted for climbing up the trunks of trees CERTHIIDÆ.

Family I. NECTARINIIDÆ.

Tongue: long, extensile, with the end bifurcated. Bill long, slender, and sharply pointed. Nostril, placed in an oval groove, covered by a membrane and opens in a slit. Wing moderate, with the third and fourth primaries longest. Tail of twelve feathers. Tarsi scutellated. Toes armed with curved and acute claws. Feathers of the head short and rounded.

This family is peculiar to the Old World and most of its members possess bright metallic colours which has caused them to be known as Sunbirds. They rival the Humming-birds, their representatives in the new world, in the brilliancy of their plumage, and like them are admirably adapted by nature to assist in the fertilisation of plants by diving their long slender bills into the calices of flowers in search of the honey and small insects on which they feed, and it is a curious fact that some members of both these families have the cutting edges of their mandibles very finely serrated.

Unlike the Humming-birds their wings are too short for poising in the air before the flowers to feed, but with their strong feet they cling on to the clustered blossoms and dip their long extensile tongues into the nectar; hanging often with their backs downwards, when feeding, like the Tits (*Paridæ*).

The Sunbirds are strongly represented throughout the Ethiopian Region, but none of the species found there extend into Asia beyond the shores of the Red Sea.

They are all active and graceful birds with sweet little voices, are not strictly speaking migratory nor gregarious, yet frequently shift their quarters for more flowery localities according to the season, and consequently often assemble in considerable numbers of many species together.

The males are rather pugnacious during the nuptial season, at which time they are adorned in their most brilliant colours. After the breeding season the metallic colours are generally discarded for a plainer garb much resembling that of the female, but that is not the case with all the species.

All the members of this family appear to construct very similar nests which they suspend from twigs or leaves, generally on the outside of bushes near the ground, and rarely at any great distance from water. The nest is of an oval form with a hole at the side towards the upper end, and is often overhung by a hood or portico. It is a neat structure generally composed of grass and root-fibres, often intermixed with dry leaves, lichen, shreds of bark and seed-down or feathers, and thickly lined with the softer materials. Spiders' webs are often much used in the structure, and frequently gives it the appearance of a mass of *débris* drifted together by the wind. They lay from two to five eggs in a nest.

KEY TO THE SUBFAMILIES.

- a.* Wing with the first long primary sulcated; tail short, rounded, less than half the length of the wing and not longer than the culmen; bill long, slender, much curved and not serrated. Adult males have a large bare wattle round the eye NEODREPANINÆ.
- b.* Wing with the first long primary entire; tail more than half the length of the wing, and longer than the culmen; bill finely serrated along the cutting edges. No bare wattles on the head. NECTARINIINÆ.

Subfamily. NEODREPANINÆ.

This subfamily is only represented by a single known species. It resembles the *Nectariniidæ* in the very peculiar structure of the tongue; in adult males the upper surface is adorned with rich metallic colours, and the form of the wind-pipe may be similar.

It differs from the *Nectariniidæ* in the cutting edges of the bill not being serrated, the sides of the head wattled in adult males, and in the tail being abnormally short and less than half the length of the wing, in all of which characters it resembles the *Philepittidæ*, as well as in the style of plumage of the females and all being confined to the island of Madagascar.

These are reasons for my ending the Suborder *Oligomyodæ* with the family *Philepittidæ* and beginning the *Oscines* with the family *Nectariniidæ*.

Neodrepanis coruscans.

Neodrepanis coruscans, Sharpe; Shelley, Mon. Nect. p. 1, pl. 1 (1876)
Madagascar; Hartl. Vög. Madag. p. 94 (1877); Milne Edw. and
 Grand. Hist. Madag. Ois. I., p. 289, pls. 106^a, 107^b, 108^a (1882);
 Gadow, Cat. B. M. ix., p. 2 (1884); Shelley, B. Afr. I. No. 4 (1896).

Adult Male. Above steel blue; wings and tail black, the feathers of the former partially edged with yellow, those of the latter with steel blue. A large bare greyish blue eye wattle. Beneath yellow. Total length 4.1 inches, culmen 1.15, wing 2, tail 1, tarsus 0.6. Ampasmanhave (Crossley).

Adult Female. Above olive with a green gloss; wings dark brown, the feathers broadly edged with yellowish olive. Beneath pale yellow passing into pale ashy olive on the throat. Total length 4 inches, culmen 1, wing 1.95, tail 1, tarsus 0.55. Ampasmanhave (Crossley).

The Wattled Sunbird is a native of Madagascar. It is apparently nowhere common, for the natives seem to have no name for this species. The type was procured by Crossley in 1874 near Antananarivo where Deans Cowan also collected specimens.

According to M. Grandidier it inhabits the western and most elevated portion of the band of forest which extends over the eastern slope of the highland plateau, where he found it, in parties of three or four, round the flowers of the

Impaticus humblotiana, which grows there in abundance, and for which their long curved bills are so well adapted. They prefer the deep forest to the less thickly wooded hill where *Cinnyris notata* is found, or the coast line and open country frequented by *C. souimanga*.

Subfamily II. NECTARINIINÆ.

Bill less curved and less flexible towards the end than in *Neodrepanina*; terminal third of the cutting edges of both mandibles very finely serrated; never any wattles on the sides of the head; first long primary entire; tail more than half the length of the wing and considerably longer than the culmen.

This subfamily is represented in the Ethiopian Region by about 86 species, of which only two or three range as far eastward as Arabia.

These Ethiopian species may be conveniently placed in seven genera, the characters of which are mostly based on the style of colouring of the males in full plumage.

KEY TO THE GENERA.

- a. Tail of full plumaged males differs from that of the females in having the centre pair of feathers much elongated and narrower throughout their length than the next pair.
 - a¹. Culmen considerably shorter than the tarsus; adult males with the centre tail-feathers rounded and widened at their tips HEDYDIPNA. 157
 - b¹. Culmen not shorter than tarsus; adult males with the centre tail-feathers rather pointed and not widened at their tips NECTARINIA. 158
- b. Tail nearly similar in form in both sexes.
 - c¹. Keel of lower mandible never perfectly straight.
 - a². Head, neck, and mantle of metallic colours in full plumaged males; no metallic colours on the females. . . CINNYRIS.
 - b². General colouring brown, with metallic colours (only in the males) confined to the crown, wing-coverts, rump and throat CHALCOMITRA. 159

- c*². Metallic colours confined to the edges of the feathers of the upper parts, throat and front of breast, giving only a partial metallic appearance; sexes sometimes similar ELÆOCERTHIA. 113
- d*². General colouring olive or brown and white; metallic colours, when present, confined to the head and neck; females sometimes with metallic colours CYANOMITRA. 118
- d*¹. Keel of lower mandible perfectly straight; bill straighter with the culmen often not quite as long as the tarsus; adult females of all the Ethiopian species have some metallic colours when they are present in their adult males. ANTHOTHREPES. 130

Genus I. HEDYDIPNA.

Bill comparatively short, about two-thirds of the length of the tarsus. Adult males with the entire head, neck, and back of metallic colours—mostly green; tail with the two centre feathers narrow, much lengthened, with their ends rounded and widened; breast bright yellow. Total length about 6·8 inches, culmen 0·4, wing 2·2, tail 4·3, tarsus 0·6.

Adult females without metallic colours, ashy brown above, and white shaded with yellow beneath. Total length about 3·7 inches, tail 1·5, the other measurements are similar to those of the male. Young very similar in plumage to the adult females.

The only two known species of this genus inhabit North Tropical Africa. One, *H. metallica*, ranges eastward from the Nile Valley into Southern Arabia, and the other, *H. platura*, westward from the Nile Valley to the Atlantic coast.

KEY TO THE SPECIES.

- a*. Throat metallic green, terminating in a steel-blue collar. Ranges east from the Nile . . . *metallica*, ♂ ad.
- b*. Throat metallic green, not terminating in a steel-blue collar. Ranges west of the Nile . . . *platura*, ♂ ad.
- c*. Above ashy brown; beneath white shaded with yellow; culmen 0·4, tarsus, 0·6 *females*.

Hedydipna metallica.

- Hedydipna metallica (Licht.) Shelley, Mon. Nect. p. 3, pl. 2 (1878);
 id. B. Afr. I. No. 5 (1896); Lort Phillips, Ibis, 1898, p. 404 *Somali*;
 Elliot, Field Columb. Mus. Orn. i. No. 2, p. 41 (1897) *Somali*.
 Nectarinia metallica, Heugl. Orn. N. O. Afr. p. 224, pl. 43, fig. 3 (*egg*);
 Oust. in Revoil, Faun et Flor. Somalis Ois. p. 8 (1882); Gadow,
 Cat. B. M. ix. p. 8 (1884); Yerbury, Ibis, 1886, p. 15; 1896, p. 25
Aden; Barnes, Ibis, 1893, p. 73 *Aden*; Kuschal, J. f. O. 1895,
 p. 346 (*egg*).

Adult Male. Head, neck, mantle and lesser wing-coverts deep metallic green; lower back, upper tail-coverts and a somewhat broad collar at the base of the throat steel blue glossed with violet; remainder of the wings and the tail blackish, the feathers of the latter edged with violet-shaded steel blue. Breast bright yellow. Total length 6·8 inches, culmen 0·4, wing 2·2, tail 4·3, tarsus 0·6. Korosko, ♂ 10. 4. 70 (Shelley).

Adult Female. Above ashy brown, with a broad buff eyebrow. Wings and tail dark brown with pale edges to the feathers; tail narrowly tipped with white. Beneath white shaded with pale yellow on the centre of the breast. Total length 3·7 inches, culmen 0·4, wing 2·1, tail 1·5, tarsus 0·6. Korosko, ♀ 10. 4. 70 (Shelley).

The Eastern Yellow-breasted Long-tailed Sunbird ranges from the Nile and Kordofan into Southern Arabia, and northward of the Equator to the First Cataract of the Nile.

The occurrence of this species in Somaliland was first recorded by Revoil. Mr. E. Lort Phillips writes: "This little Sunbird was very plentiful on the foot-hills of the Goolis and out on the Gooban towards the end of March. I think it must have been migrating northwards, as I had never previously noticed it in Somaliland."

I do not find the species mentioned from Shoa, but it is apparently plentiful near Aden in Southern Arabia, and according to von Heuglin is a resident in Abyssinia, Takah, Sennaar and Kordofan, where it meets with its near ally *H. platura*, which otherwise appears entirely to replace this species to the west of the Nile Valley.

In spring the present species wanders down the Nile to Philæ, the beautiful island which overlooks the First Cataract. Between this island and Korosko I met with the species daily towards the latter end of April, at which season they were in full breeding plumage. I frequently watched them as they flitted within a few yards of me round the sparsely scattered flowering plants which decorate the river banks, or as they perched, in pairs, on the mimosa bushes twittering in a sweet little duet apparently consulting as to the most suitable spot for the construction of their nest. The males apparently assume their full breeding plumage in March and lose it again in August, for near Koomalee, a small village not far from Anseba Bay, Jesse procured a male in breeding plumage in March, and on his return journey to the coast met with them in bad plumage. Mr. Blanford writes: "I saw one nest of cocoons, tree-cotton and fine grass. It was suspended from an acacia, and had the usual form, with an entrance at the side; there were no eggs in it in the commencement of June. After the breeding season this bird probably loses its long tail-feathers, as they were wanting in a specimen I shot in the beginning of August. I also met with *N. metallica* in Samhar, the Libka valley, and very rarely on the Anseba."

They are said to lay from two to four eggs in a nest, which eggs, according to von Heuglin, are much elongated, white with a rosy blush, a few pale rufous spots and some larger dark grey or violet-brown marks. Antinori and Beccari found the colour of the eggs to vary considerably.

Hedydipna platura.

- Hedydipna platura (Vieill.) Shelley, Monogr. Nect. p. 7, pl. 3 (1879);
 id. B. Afr. i. No. 6 (1896).
 Nectarinia platura, Heugl. Orn. N. O. Afr. p. 225 (1870) *Djur and Kasanga rivers*; Hartl. Abhand. Nat. Ver. Brem. 1881, p. 109,

Lado; Pelz. Verhandl. Wien. xxxi. p. 144 (1881) *Kiri*; Gadow, Cat. B. M. ix. p. 10 (1884); Sharpe, Linn. Soc. Journ. Zool. xvii. p. 427 (1884) *Nyam-nyam*; Rendall, Ibis, 1892, p. 219, *Gambia*.

Adult Male. Similar to *H. metallica* but readily distinguished by the violet-shaded steel-blue of the upper tail-coverts not extending on to the back, and in its having no well-marked collar of that colour. Total length 6 inches, culmen 0.4, wing 2.15, tail 3.5, tarsus 0.55.

The Western Yellow-breasted Long-tailed Sunbird ranges over Africa to the west, from the Nile Valley, and south, from Kordofan and Senegambia into the Nyam-nyam country.

This species is the western representative of *H. metallica* and is closely allied to that bird both in colouring and habits. It is apparently common on the West Coast from St. Louis at the mouth of the Senegal River to Sierra Leone; but although I find no record of it from further south along this coast, specimens have been collected in the Nyam-nyam country by Bohndorff at Dem Suleiman and Monderich; by Emin at Lado and Kiri and down the Nile Valley to Kordofan, where Petherick procured a specimen which is now in the Cambridge Museum.

Antinori and Von Heuglin only met with this species in the Upper White Nile district between Djur and Kosango, where it was in breeding plumage from April to October.

Genus II. NECTARINIA.

Bill long; culmen not shorter, but about equal in length to the tarsus. Full plumaged males have the two centre tail-feathers narrow, much elongated, with their ends pointed and not widened; entire head, neck and back of metallic colours, mostly green or bronze; abdomen metallic green or black. The metallic colours and the elongated tail-feathers generally, if not always, disappear by a moult on the approach of the colder season. Females and nestlings are above uniform brown of an ashy or olive shade, and paler beneath.

The genus is confined to the African continent, south of the Tropic of Cancer, and comprises nine known species.

KEY TO THE SPECIES.

- a.* Head, neck and back of metallic colours;
two centre tail-feathers elongated *full plumaged males.*
- b.* No metallic colours and no elongated tail-
feathers; otherwise very similar in form
and measurement to their males *females.*
- c.* No yellow fringe to any feather of the wings
or tail.
- a*¹. Metallic colouring green.
- a*². Centre of chest metallic green like the
remainder of the body. Larger.
- a*³. Pectoral tufts yellow.
- a*⁴. Larger; total length about 10·5
inches; culmen 1·3; bill longer and
decidedly straighter. (South of
Zambesi) *fumosa, ♂ ad.*
- b*⁴. Smaller; total length about 8 inches,
culmen 1·2; bill shorter and de-
cidedly more arched. (North of
Zambesi) *cupreonitens, ♂ ad. 21*
- b*³. Pectoral tufts scarlet *johnstoni, ♂ ad. 22*
- b*². Centre of chest scarlet. Smaller; culmen
0·6, wing 2·2 or nearly so.
- c*³. Abdomen metallic green. (North of
Equator) *pulchella, ♂ ad. 23*
- d*³. Abdomen black. (South of Equator).
melanogastra, ♂ ad. 24
- b*¹. Metallic colours bronze; breast blackish.
- c*². Metallic colouring mostly greenish blue . *bocagii, ♂ ad. 25*
- d*². Metallic colouring more coppery.
- c*³. Head and neck coppery bronze; re-
mainder of metallic colours lilac . . . *tacazze, ♂ ad. 26*
- f*³. Head and neck greenish; glossed with
copper on the back, scapulars and
upper tail-coverts, and with no lilac
reflections *kilimensis, ♂ ad. 27*
- d.* Quills and tail-feathers broadly edged with
chrome yellow.
- c*¹. Head, neck and back fiery copper; breast
black *reichenowi, ♂ ad. 28*
- d*¹. No metallic colours *reichenowi, ♀.*

Nectarinia famosa.

Nectarinia famosa (Linn.), Shelley, Mon. Nect. p. 13, pl. 5 (1876); Sharpe in Oates' Matabele, p. 310 (1881); Butler, Feilden and Reid, Zool. 1882, p. 246 *Natal*; Gadow, Cat. B. M. ix. p. 5 (1884, pt. S. Afr.); Symonds, Ibis, 1887, p. 330 *Orange Free State*; Distant, Naturalist in Transvaal, p. 167 (1892); Kuschel, J. f. O. 1895, p. 346 (*egg*); Shelley, B. Afr. I. No. 7 (1896); Woodward, Ibis, 1897, p. 409 *Zululand*; Sharpe, t. c. p. 506 *Zululand*.

Adult Male. Metallic green, with bright yellow pectoral tufts; wings and tail black. Total length 9·2 inches, culmen 1·3, wing 3·15, tail 5, tarsus 0·7. Drakensberg, ♂ 19. 12. 73 (T. E. Buckley).

Adult Female. Above olive shaded brown, wings darker, tail black with narrow white ends to the feathers; a broad eyebrow and cheek-band buff. Beneath very pale ashy brown slightly washed with yellow and whitish towards the abdomen. Total length 5·5 inches, culmen 1·2, wing 2·75, tail 2·05, tarsus 0·65. Cape Town, ♀ 13. 2. 74 (Shelley).

The Southern Malachite Sunbird ranges over the southern portion of the African continent to as far north as Namaqualand and the Limpopo River.

Throughout its range it is generally, but not evenly, distributed, for it prefers the more open ground to the forest districts.

Andersson found the species abundant in Little Namaqualand, but rare to the north of the Orange River, in Great Namaqualand. "It is," he informs us, "usually found permanently established where it has once taken up its abode."

Layard calls it common throughout Cape Colony, and during the month of February I had frequent opportunities of watching these bold and active birds, at Cape Town, Mossel Bay, and Port Elizabeth; but all the males at that season had to some extent lost their breeding plumage, which apparently only lasts from about September to January.

Messrs. Butler, Feilden and Reid found them by far the commonest species of Sunbirds in the Newcastle district,

and met with them wintering in the Drakensberg kloofs in July, and scattered in pairs all over the country from October to November.

Mr. T. Ayres writes from Natal: "This species is found more in the inland parts of the colony, frequenting the open country." He found it to be exceedingly scarce near Potchefstroom; but Mr. Barratt calls it common at the Leydenburg Gold-fields and at Macamac, frequenting the aloes on the sides of the hills near Rustenberg, and Mr. Distant records it from Pretoria. It has also been procured in Zululand by Messrs. R. B. and J. D. S. Woodward, at Eschowe. Here it "frequents the localities where sugar-bushes (*Protea mellifera*) grow, in the large flowers of which they find their favourite food. They make a whistling cry as they chase one another from bush to bush, and the male has a short song."

Mr. Layard informs us that it builds a domed nest of cobwebs, lichen, dry leaves and odds and ends of all kinds, which is usually suspended on the outside of a bush or from the branches of a tree. The eggs, generally only two in number, are of a dull greyish-brown colour, minutely mottled all over, 0.9 by 0.5 inch. It has, he remarks, a shrill, not unpleasant, but short song.

The males gradually lose their metallic colours after the breeding season for a plumage resembling that of the females.

While I was in Cape Colony, in February, scarcely a day passed without my seeing these lovely birds, clinging on to the large flowers, generally of the aloes, fluttering and twittering with pleasure as they sucked the sweet nectar, or captured the small insects imbedded in the blossoms.

Although frequently assembled around the more attractive plants, they are not gregarious, but only meet from their

mutual wauts drawing them to the same flowers, and being naturally pugnacious tussles often ensue, one bird chasing another with shrill cries from the flowering plant where they have met; the pursued and pursuer fly swiftly and low, darting rapidly round the bushes, disappearing for a moment, then appearing again on the topmost shoots of two neighbouring shrubs, when after a brief rest they dart off again in their lively play, the rich green plumage flashing in the sunshine as they glance over the dull sandy soil.

Nectarinia cupreonitens.

Nectarinia cupreonitens, Shelley, Mon. Nect. p. 17, pl. 6, fig. 1 (1876);
Gadow, Cat. B. M. ix. p. 6 (1884); Shelley, B. Afr. I. No. 8 (1896);
id. Ibis, 1897, p. 523 *Nyasa*.

Nectarinia famosa (nec Linn.), Kirk, Ibis, 1864, p. 320 *Shiré R.*; Hartl.
and Finsch, Vög. O. Afr. p. 213, pt. *Zambesi, Abyssinia, Senegal*;
Salvad. Ann. Mus. Genova, 1884, p. 138 *Shoa*; Shelley, P. Z. S.
1885, p. 227 *Kilimanjaro*; Reichen. Vög. Deutsch O. Afr. p. 212
(1894).

Nectarinia subfamosa, Salvad. Ann. Mus. Genova, 1884, p. 138 *Shoa*.

Nectarinia æneigularis, Sharpe, Ibis, 1891, pp. 444, 590 *Sotik, Lumbwa*;
Neum. J. f. O. 1898, pp. 241, 289.

Adult Male. Very similar to *N. famosa* but smaller, the bill being distinctly shorter and more curved, and with a rather well marked boundary between the more golden shade of the throat and the bluer green of the breast. Total length 7·9 inches, culmen 1·1, wing 3, tail 4·5, tarsus 0·65. *Lumbwa*, ♂ 6. 10. 89 (F. J. Jackson).

Adult Female. Similar to *N. famosa* but distinguishable by its shorter and more curved bill. Total length 4·5 inches, culmen 0·95, wing 2·6, tail 1·6, tarsus 0·65. *Kilimanjaro* (H. H. Johnston).

The Northern Malachite Sunbird ranges over Eastern Africa from north of the Zambesi into Abyssinia and has apparently been procured in Senegambia, for in the Bremen Museum, we are informed by Drs. Hartlaub and Finsch, there is a specimen labelled "Casamanse (Schneider)" which in size agrees well with this species. To this species evidently

belongs the bird referred to by Sir John Kirk thus (Ibis, 1864, p. 320): "*Nectarinia formosa*. In Dr. Dickinson's collection. I have seen this bird but once, in a thick clump of trees near the river Shiré, during the rainy season. It is rare in the region." In the same district Mr. Alexander Whyte has collected three full plumaged males in June and July on the Nyika Plateau and the Masuku Range, between 6,000 and 7,000 feet.

The next most southern locality, I find for this species, is Kilimanjaro where Sir Harry Johnston found it very abundant, between 5,000 and 7,000 feet.

Mr. Jackson collected in October a full plumaged male at Sotik (0°35' S. lat., 35° 25' E. long.) which is the type of *N. æneigularis*, and other specimens on the same day at Lumbwa. In Shoa Antinori procured a full plumaged male at Antotto in December, 1881, for which bird Count Salvadori proposed the name of *N. subfumosa*. In the Abyssinian district Lefebvre obtained specimens at Adoa, and according to Rüppell it is plentiful in the province of Semien at an elevation of 12,000 feet. Von Heuglin also met with it here and in the province of Bergemedder at 10,000 to 14,000 feet, and heard it singing in the shrubs up to the line of perpetual snow. He found it generally in pairs or small parties in company with *N. tacuzze*, and assumed that it acquired its breeding plumage a month or two later in May and June.

The type of the species was killed in Abyssinia in August, 1856.

***Nectarinia johnstoni*.**

Nectarinia johnstoni, Shelley, P. Z. S. 1885, p. 227, pl. 14 *Kilimanjaro*; Reichen. Vög. Deutsch O. Afr. p. 213; Sharpe, Ibis, 1894, p. 121 *Mt. Kenia*; Sclat. t. c. p. 452 *Mt. Kenia*; Shelley, B. Afr. I. No. 9 (1896); Neum. J. f. o. 1898, pp. 241, 288.

Nectarinia deckeni, v. Höhnel in Teleki's Exped. Lake Rudolph (English ed.) I. p. 374 *Mt. Kenia*.

Very similar in plumage to *N. famosa*, but with the pectoral tufts scarlet and the tail longer, in full plumaged males. Total length 10·6 inches, culmen 1·25, wing 3·3, tail 6·6, tarsus 0·7. *Kilimanjaro* (Johnston).

The Scarlet-tufted Malachite Sunbird inhabits the mountains of Kilimanjaro and Kenia. In the former locality Sir Harry Johnston discovered the type at an elevation of 11,000 feet, and remarks: "Very abundant. Not seen lower than 5,000 or 6,000 feet, but reaches higher up the mountain than any other bird with the exception of *Corvultur albicollis* and *Pinarochroa hypospodia*. Found very much round a curious teazle-like lobelia (*Lobelia deckeni*). Also at lower levels it affects the tall aloe flower-shoots."

Specimens have since been procured on Mount Kenia, which lies to the north of Masailand, by Count Teleki during his expedition to Lake Rudolph, and by Mr. Gregory, whose specimens, two adult males and a young bird, collected at an elevation of 14,000 feet, are now in the British Museum.

Nectarinia pulchella.

Nectarinia pulchella, Bouvier, Cat. Ois. Marche, &c., p. 14 (1875) *Senegambia*; id. Bull. S. Z. France, 1877, p. 451; Shelley, Mon. Nect. p. 9, pl. 4 (1878); Hartl. Abhandh. Nat. Ver. Brem. 1881, p. 107 *Kiri*; Pelz. Verh. Wien. xxxi. p. 609 (1881); xxxii. p. 501 (1882) *Lado*; Shelley, Ibis, 1883, p. 547 *Niger*; Gadow, Cat. B. M. ix. p. 7 (1884); Sharpe, Linn. Soc. Journ. Zool. xvii. p. 427 (1884) *Nyamnyam*; Salvad. Ann. Mus. Genov. 1884, p. 137; 1888, p. 244 *Shoa*; Hartert, J. f. O. 1886, p. 579 *Niger*; Shelley, P. Z. S. 1888, p. 38 *Lado*; Sharpe, Ibis, 1891, p. 592 *Lake Baringo*; Rendall, Ibis, 1892, p. 219 *Gambia*; Shelley, B. Afr. I. No. 10 (1896).

Adult Male. Metallic green, with the wings and tail black. Centre of the chest bright scarlet with some yellow at the sides. Total length 6·5 inches, culmen 0·6, wing 2·2, tail 4, tarsus 0·55.

Adult Female. Above, ashy brown slightly shaded with olive; a partial buff eyebrow; tail blackish with white ends to the feathers. Beneath, buff. Total length 4 inches, culmen 0·6, wing 2·1, tail 1·8, tarsus 0·6.

Young Male. Similar in plumage to the female, excepting that the throat is dusky black, on which part the metallic colours first appear.

The Northern Beautiful Sunbird is confined to North Tropical Africa from the Equator north to about 16° N. lat. This is the commonest species of the genus in collections.

In Senegambia specimens have been collected by Marche at Dakar, Hann, Ponte, Daranka, Ruffisque and Bathurst. Near the latter place Dr. P. Rendall found it: "Common in the gardens. One nest with two eggs, which were like Black-headed Bunting's in miniature, was in a lime-tree."

Beaudouin collected specimens at Casamance and Bissao and Fergusson at Sierra Leone, yet I do not find it recorded from Liberia although it is not uncommon on the Gold Coast, where I met with it in February in the thick bush, near a small brook, at Abrobonko some six miles from Cape Coast Castle, and saw several flitting around the flowering plants at the edge of the native plantations and clearing, but they did not appear to mix with the other Sunbirds which were then so abundant on the flowering trees.

In the Niger district Forbes procured specimens in August at Lokoja and Rabba, in full plumage, and on the Benin River, at Loko, Mr. Hartert met with it in April, May and June, and found the species very plentiful in the latter month.

It has apparently not been procured from further south along the West Coast.

Eastward we find that Mr. Bohndorff, on his journey through the Nyam-nyam country, collected specimens at Dem Suleiman, Piaggia in Mtesa's country to the north of Victoria Nyanza, and on the east side of that lake Mr. Jackson, while near Lake Baringo, found it "very plentiful among the 'red hot poker' plants."

In the Upper White Nile district Emin procured the species at Lado, Redjaf, Labore and Mbero.

Von Heuglin found it near Bongo and Wau on the Gazal River and remarks that in Nubia it occurs as a straggler as

far north as 16° N. lat. He found the species not uncommon in Bogos, in the lowlands of Abyssinia, in Taka, Sennaar and Kordofan where they remain in pairs throughout the year, frequenting the gardens, cotton fields and brushwood, but are rarely met with far from water. The males, he states, assume their full plumage in May and June and retain it until December.

Antinori and Beccari collected specimens in Bogos on the Anseba River in May and at Keren in June and found it equally distributed from Sambar to Barker but most abundant during the flowering season of the tamarind.

Jesse and Mr. Blanford met with it on the banks of the Anseba River at Waliko and Bejook during July and August, and according to the latter naturalist it has a fine song.

Petherick obtained the species near Khartoum, and Antinori and Ragazzi have collected specimens in March, April, May, June and July in Shoa.

Nectarinia melanogastra. (Pl. 1, fig. 2.)

Nectarinia melanogastra, Fisch. and Reichen. J. f. O. 1884, p. 181 *Masailand*; Fisch. Zeitsch. ges Orn. 1884, p. 337; Fisch. J. f. O. 1885, p. 139 *Nguruman*; Shelley, P. Z. S. 1889, p. 364 *Teita Country*; Sharpe, Ibis, 1891, p. 592 *Ukambani*; Emin, J. f. O. 1891, p. 340 *S. of Victoria Nyanza*; Reichen. Vög. Deutsch O. Afr. p. 212 (1894); Kuschel, J. f. O. 1895, p. 346 (*egg*); Shelley, B. Afr. I. No. 11 (1896).

Similar to *N. pulchella*, but the full plumaged male differs in having the abdomen black. Total length: ♂ ad. 6·0 inches; ♀, culmen 0·7, wing 2·3, tail (♂ ad. 3·7, ♀ 1·8), tarsus 0·65. *Nguruman*, ♂ ad. (Fischer).

The Black-bellied Beautiful Sunbird inhabits the countries which surround the Victoria Nyanza to the east and south, and replaces *N. pulchella* to the south of the Equator.

The type of the species, a full plumaged male, was discovered by Fischer in April at Nguruman (2° S. lat., 26° 10'

E. long.) feeding from the flowers of the *Leonotis*, and he considered the species to be not rare in Masailand. He describes the nest as like that of the generality of Sunbirds, and the eggs as being of a pale greyish colour freckled with violet-grey and with S-shaped streaks mostly towards the thick end and measuring 0·65 inch by 0·45 inch. At Ndara, east of Kilimanjaro in the Teita country, Mr. Hunter procured three males on August 25th, all of which were in the moult. On January 7th, Mr. Jackson shot a male in full plumage at Ulu in Ukambani.

Emin has recorded its presence in the country just south of Victoria Nyanza. From the above it would appear that the breeding plumage of the males is assumed in the beginning of the year and discarded again in August.

Nectarinia bocagii.

Nectarinia bocagii, Shelley, Mon. Nect. pp. 21, xviii. pl. 6, fig. 2 (1879); Bocage, Orn. Angola, p. 545 (1881); Shelley, B. Afr. I. No. 12 (1896).

Nectarinia tacazze (nec Stanley) Bocage, Journ. Lisb. 1878, pp. 196, 269 *Caconda*; Gadow, Cat. B. M. ix. p. 4 (1884, pt. Angola).

Adult Male. Black; head, back and lesser wing-coverts steel blue with lilac and green reflections; entire throat steel blue with a strong green shade. Total length 8 inches, culmen 1, wing 3·1, tail 4·2, tarsus 0·7. *Caconda* (Anchieta).

Bocage's Bronze Sunbird is a native of Benguela, and has only been recorded from *Caconda* where Anchieta procured several specimens, but considered it a very rare species.

Nectarinia tacazze.

Nectarinia tacazze (Stanley), Shelley, Mon. Nect., p. 19, pl. 7 (1877); Bouvier, Bull. S. Z. France, 1877, p. 451 *Uganda*; Gadow, Cat. B. M. ix. p. 4 (1884, pt. N. E. Africa); Salvad. Arm. Mus. Genov. 1884, p. 138, 1888, p. 244; Gigl. l. c. p. 40 *Shoa*; Sharpe, Ibis, 1891, p. 591 *Kikuyu*; Neumann, J. f. O. 1896, p. 250 *Masai*; Shelley, B. Afr. I. No. 13 (1896), Neumann; J. f. O. 1898, p. 240.

Nectarinia jacksoni, Neumann, Orn. Monatsb. 1899, p. 24, *Manu, Kikuyu*.

Adult Male. Head, neck, back and lesser wing-coverts metallic lilac, shaded with coppery bronze towards the head; remainder of the plumage black. Total length 8.5 inches, culmen 1.15, wing 3.1, tail 4, tarsus 0.75. Facado, ♂ 8. 5. 68 (Jesse).

Adult Female. Brownish olive, darker above than below; sides of the head dark brown with a broad eyebrow and sides of the throat whitish, tail black edged and tipped with white. Total length 6 inches, culmen 1.1, wing 2.75, tail 2.2, tarsus 0.75. Adigrat, ♀ 3. 4. 68 (Blanford).

The Tacazze Sunbird ranges over Masailand, Uganda, Shoa, and Abyssinia.

Mr. Neumann records it from Masailand. Mr. Jackson collected a fine series of this species, in full plumage, at Manu and Kikuyu in August, which Mr. Neumann has proposed to separate from *N. tacazze* (Stanley) under the title of *N. jacksoni*. The species has been met with further west, in Uganda, by Piaggia, in what was in his time known as Mtesa's country.

In Shoa the Tacazze Sunbird is apparently very common, for Antinori and Ragazzi have collected in that country a very fine series, which proves that the adult males only retain their full breeding plumage from April to November, and that the young males resemble the females in plumage.

According to Von Heuglin the species is resident in East, Central, and South Abyssinia, up to 13,000 feet in Semien and Bergemeder, and is to be found in the highlands in preference to the low country. It frequents wooded districts and lives in pairs, selecting the most flowery situations, where they congregate round the fresh blossoms.

Mr. Blanford writes: "It was common about Senafé and Adigrat, and was still abundant at 10,500 feet on the Wandaj pass. The non-breeding plumage is dull; it is only in the breeding season that the males acquire their rich purple colour. In May they were apparently breeding about Senafé."

Jesse records the species from Rayrayguddy, Goongoona, Facado and Senafé; Rüppell from the Taranta mountains;

Antinori from Keren; and Salt procured the type of the species in Tigré at the Tacazze river, a tributary of the Atbara.

Nectarinia kilimensis. (Pl. 1, fig. 1.)

Nectarinia kilimensis, Shelley, P. Z. S. 1884, p. 555, 1885, p. 227 1889, p. 365 *Kilimanjaro*; Sharpe, Ibis, 1891, p. 591 *Masai, Mt. Elyon*; Reichen J. f. O. 1892, p. 55 *Bukoba Uganda*; id. Vög. Deutsch O. Afr. p. 212 (1894); Bocage, Journ. Lisb. 1893, p. 159; Scott Elliot, P. Z. S. 1895, p. 342 *Ruwenzori*; Shelley, B. Afr. I. No. 14 (1896); id. Ibis, 1897, p. 523 *Nyasa*.

Nectarinia filiola, Hartl. J. f. O. 1890, p. 154 *Njangalo*; id. Abhandl. nat. Ver. Brem. xii. p. 27 (1891); Emin J. f. O. 1891, p. 346.

Nectarinia gadowi, Bocage Journ. Lisb. 1893, p. 256 *Galanga*.

Adult male. Similar to *N. tacazze* but differs in the head and neck being more metallic green, glossed with copper and shading into fiery copper on the back; scapulars and upper tail-coverts with a greenish shade and no lilac reflections; wings and tail with no shade of blue; metallic edges of the tail-feathers lilac bronze. Chin and throat metallic coppery green not passing into lilac on the front of the chest, which with the remainder of the under parts is dull black. Total length 8·7 inches, culmen 1·15, wing 2·9, tail 5·6, tarsus 0·75. Kilimanjaro (H. H. Johnston).

Adult female. Similar to that of *N. tacazze* but with the throat less olive. Total length 5 inches, culmen 0·95, wing 2·65, tail 2·15, tarsus 0·75. Kilimanjaro (H. H. Johnston).

The Kilimanjaro Bronze Sunbird ranges over Central Africa from north of the Cunene and Zambesi rivers to about one degree north of the Equator.

The extreme south-western range, yet known, for this species is Galanga, where Anchieta procured the specimen which is the type of *N. gadowi*, and its extreme south-eastern range is the Nyika Plateau in Nyasaland where Mr. Alexander Whyte collected three specimens in June.

Dr. Hartlaub records specimens sent by Emin from Njangaba, Beguera, and Ruganda, and proposed to call these *N. filiola*, but Dr. R. B. Sharpe informs us that they are not distinct from *N. kilimensis*, he having compared a typical

specimen in the Berlin Museum with one of Mr. Jackson's birds. Emin has also procured specimens at Bukoba on the west shore of Victoria Nyanza, and Dr. Stuhlmann at Kahengere and at Mengo in Uganda. Sir Harry Johnston brought home seven adult males and a female, including the types of this species, from Kilimanjaro, and writes: "Found mostly near base of mountain, very common. Rarely if ever seen above 5,600 feet." Mr. Hunter also procured the species on this mountain in August.

Mr. Jackson's collections contained specimens from Machako's in Ukamba, March; Sotik ($0^{\circ} 35'$ S. lat., $35^{\circ} 25'$ E. long.), October, and to the north-east of Victoria Nyanza at Save on Mount Elgon (1° N. lat., $34^{\circ} 20'$ E. long.) up to 6,000 feet.

The species has also been obtained by Mr. Scott Elliot in the valleys along the mountain range of Ruwenzori from 5,500 to 6,000 feet, feeding from the banana flowers. This meeting of two very nearly allied species in the country bordering their respective ranges is not less interesting because it is of common occurrence; but we have not always the chance of determining this fact as plainly as in the case of *N. tacaze* and *N. kilimensis*, which are both found abundantly in the country from Uganda to Masailand.

Nectarinia reichenowi.

- Nectarinia reichenowi* (Fischer), Shelley, P. Z. S. 1884, p. 556, pl. 51
1885, p. 227, 1889, p. 365 *Kilimanjaro*; id. B. Afr. I. No. 15 (1896).
Drepanorhynchus reichenowi, Fischer, J. f. O. 1884, p. 56, id. Zeitschr.
1884, p. 338, pl. 20, fig. 2 *Naiwasha*; Gadow, Cat. B. M. ix. p. 291
(1884); Sharpe, Ibis, 1891, p. 590 *Kikuyu*; Reichen. Vög. Deutsch
O. Afr. p. 213 (1894) *Kilimanjaro*; Neumann, J. f. O. 1898, p. 241
Mau.

Adult Male. Head, neck, back and lesser wing-coverts fiery copper, glossed with reflections of lilac and green; remainder of the plumage black with broad chrome yellow edges to the quills and tail-feathers. Total

length 8·2 inches, culmen 1·2, wing 3·1, tail 5·4, tarsus 0·75. Kikuyu, ♂ 28. 8. 89 (Jackson).

Adult Female. Like that of *N. tacazze* but with broad chrome yellow edges to all the quills and tail-feathers. Total length 3·1 inches, culmen 1·1, wing 2·6, tail 5·4, tarsus, 0·75. Kilimanjaro (H. H. Johnston).

The Yellow-fringed Sunbird inhabits the Masai District, from Kilimanjaro to the Kikuyu country.

Fischer, who first discovered this species, found it, only on the eastern side of Lake Naiwasha, feeding among the acacia blossoms where the specimens were mostly in the moult in June. Mr. Jackson also found it near Naiwasha in the Kikuyu country on August 28th, and procured a full-plumaged male.

To the south-east on Kilimanjaro, Sir Harry Johnston collected a male in full plumage and two females at 4,000 and 5,000 feet and writes: "Never seen above 5,000 feet. Abundant in native plantations, being, in common with most of the Sunbirds, attracted there by the flowers of the sweet potato and various beans and peas." Mr. Hunter likewise met with it on this mountain at 5,000 feet in full plumage in August.

The only character I can find for the genus *Drepanorhynchus* is the yellow edges to the quills and tail-feathers, so I have united it to *Nectarinia*.

Genus III. CINNYRIS.

The members of this genus resemble those of *Nectarinia* in the full-plumaged males having the entire head, neck and mantle of metallic colours, and there being an entire absence of metallic colours on the females and nestling, but differ in the tail being similar in form in both sexes at all seasons, generally square but sometimes graduated. Tail considerably more than half the length of the wing. Culmen about as long as the tarsus, and the keel of the lower mandible slightly curved.

KEY TO THE SPECIES.

- A. Entire head, neck and mantle of metallic colours *full plumaged males.*
- a. Abdomen black, or very dark brown.
- a¹. Pectoral-tufts uniform, never mixed red and yellow.
- a². Back coppery-bronze.
- a³. Smaller: wing 22 inches; no purple gloss on the breast *cupreus.* ♂ ♀
- b³. Larger: wing 2·65; breast glossed with purple. *purpureiventris.* ♂ ♀
- b². Back golden green; chin and middle of throat of one colour.
- c³. No red pectoral-band; larger: culmen not less than 1 inch.
- a⁴. Chest black.
- a⁵. Back and throat greener; culmen 1·15; wing 2·7 *notatus.* ♂ ♀
- b⁵. Back and throat bluer; culmen 1·35; wing 2·9 *nesophilus.* ♂ ♀
- b⁴. Chest red.
- c⁵. Entire throat violet; no yellow pectoral-tufts *superbus.* ♂ ♀
- d⁵. Upper half of throat green; pectoral-tufts yellow *johannæ.* ♂ ♀
- d³. A red pectoral-band; smaller.
- c⁴. Forehead violet; pectoral-tufts sulphur yellow.
- c⁵. Entire head and neck violet *splendidus.* ♂ ♀
- f⁵. Head and neck green with the front half of the crown violet *habessinicus.* ♂ ♀
- d⁴. Entire head and neck green.
- g⁵. Tail graduated; pectoral-band scarlet.
- a⁶. Distinct pectoral-tufts. *nectarinioides.* ♂ ♀
- b⁶. No marked pectoral-tufts *erythrocerius.* ♂ ♀
- h⁵. Tail square.
- c⁶. No marked pectoral-tufts.
- a⁷. Pectoral-band scarlet; abdomen blackish-brown *shelleyi.* ♂ ♀
- b⁷. Pectoral-band crimson; abdomen black.

- a*⁸. Wing more than 2·5;
 throat more golden.
*a*⁹. Wing 2·7; forehead
 more golden. . . . *mariquensis*. 5
*b*⁹. Wing 2·6; forehead
 more emerald green . . . *osiris*. 5
*b*⁸. Wing less than 2·5;
 throat greener.
*c*⁹. Wing 2·4; culmen 0·75
 (W. Africa) *bifasciatus*. 5
*d*⁹. Wing 2·1; culmen 0·6
 (E. Africa) *microrhynchus*. 5
*d*⁶. Pectoral-tufts uniform scarlet *comorensis*. 5
*b*¹. Pectoral-tufts mixed red and yellow;
 chin blue; middle of throat green;
 abdomen blackish-brown *bouvieri*. 5
b. Abdomen paler.
*c*¹. Tail square.
*c*². No broad scarlet pectoral-band.
*c*³. Breast and under tail-coverts white.
*e*⁴. Pectoral-tufts uniform pale yellow;
 a narrow black collar. . . . *leucogaster*. 5
*f*⁴. Pectoral-tufts scarlet and yellow.
*i*⁵. No trace of black or red collar . . . *albiventris*. 6
*k*⁵. A partial narrow red collar . . . *oustaleti*. 6
*f*³. Breast and under tail-coverts mostly
 buff or yellow.
*g*⁴. Head and neck not entirely green.
*l*⁵. Slightly smaller, and paler be-
 neath; thighs mostly buff . . . *venustus*. 6
*m*⁵. Slightly larger, and yellower
 beneath; thighs mostly dark
 brown.
*e*⁶. Mantle greener; green on
 sides of neck distinctly meets
 across the middle of throat . . . *affinis*. 6
*f*⁶. Mantle bluer; throat nearly
 uniform violet, with a very
 faint green shade across the
 middle *falkensteini*. 6
*h*⁴. Head and neck entirely green.
*n*⁵. Breast bright yellow with a
 large scarlet patch down the
 chest *coquerelli*. 6

- o⁵. Breast buff; a double pectoral-band of maroon brown and black.
- g⁶. Black pectoral-band confined to front half of chest (Madagascar). *souimanga*. 68
- h⁶. "Sooty breast-patch much more extensive, reaching medially, to middle of belly" (Aldabra Is.) *aldabranus*. 70
- i⁶. "Under parts posterior to maroon-bay pectoral-band almost entirely sooty black" (Assumption Is. and Gloriosa Is.) *abbotti*. 72
- d². A broad scarlet pectoral-band.
- g³. Upper tail-coverts and a narrow metallic collar, blue.
- i⁴. Abdomen ashy stone-colour.
- p⁵. Larger; wing 2.5; scarlet pectoral-band slightly paler and broader.
- k⁶. Culmen 1.1; metallic pectoral-band more violet *afer*. 72
- l⁶. Culmen 0.65; metallic pectoral-band bluer *ludovicensis*. 70
- q⁵. Smaller; wing 2.25; scarlet pectoral-band darker and narrower; culmen 0.9 *chalybeus*. 76
- k⁴. Abdomen not ashy stone-colour, either browner or yellower.
- r⁵. Abdomen shaded with yellow.
- m⁶. Quills with no yellow edges.
- c⁷. Smaller; wing 2.1; upper tail-coverts steel blue *mediocris*. 70
- d⁷. "Larger; wing 2.5; upper tail-coverts lilac blue" *stuhmanni*. 70
- n⁶. Quills edged with yellow *fuelleborni*. 70
- s⁵. Abdomen brown with no yellow shade.
- o⁶. Quills edged with yellow; culmen 0.8 *preussi*. 70
- p⁶. Quills with no yellow edges; culmen shorter *reichenowi*. 72

- h*³. Upper tail-coverts green like the back; no metallic blue collar; culmen 0·65; wing not more than two inches *chloropygius*. 83
- d*¹. Tail graduated.
- e*². Throat uniform metallic green ending in a narrow blue collar; breast scarlet fading into yellow on the sides; upper tail-coverts violet blue *regia*. 76
- f*². Lower half of throat shading into bluish-lilac; breast yellow washed with orange on front of chest and under tail-coverts; upper tail-coverts olive yellow *violaceus*. 86
- B. No metallic colours *adult females and nestlings*.

KEY TO THE FEMALES.

- a*. Beneath uniform, with no dark markings.
- a*¹. Tail square.
- a*². Above more olive.
- a*³. Larger; culmen 1·15 inches; under tail-coverts orange yellow *superbus*. 40
- b*³. Smaller; culmen not more than 0·8; no orange yellow under tail-coverts.
- a*⁴. Smaller; culmen 0·6; wing 2 *cupreus*. 26
- b*⁴. Larger *purpureiventris*. 27
- b*². Above less olive, but with an olive yellow shade.
- c*³. Larger.
- c*⁴. Paler; culmen 0·75 *mediocris*. 77
- d*⁴. Darker; culmen 0·85.
- a*⁵. Camarous *preussi*. 81
- b*⁵. E. Africa. { *stuhmanni*. 80
fuelleborni. 81
reichenowi. 82
chloropygius. 83
venustus. 62
affinis. 64
falkensteini. 66
- d*³. Smaller; culmen about 0·6

- c*². Above more ashy brown, beneath more ashy white.
- c*³. More ashy above and below (S. Africa).
- e*⁴. Culmen 1·1; wing 2·5 *afar*. 72
- f*⁴. Culmen 0·75; wing 2·4 *ludovicensis*. 74
- g*⁴. Culmen 0·7; wing 2·1 *chalybeus*. 76
- f*³. Above browner; beneath whiter.
- h*⁴. S. Africa, culmen 0·75; wing 2·1 { *leucogaster*. 58
oustaleti. 62
- k*⁴. E. Africa, culmen 0·6; wing 1·95 *albiventris*. 60
- b*¹. Tail graduated.
- d*². More ashy (E. Africa). *regia*. 86
- e*². More olive (Cape Colony). *violaceus*. 86
- b*. Under parts less uniform; either striped or mottled with the dark bases to the feathers.
- c*¹. Tail graduated; culmen about 0·65 { *erythrocerius*. 40
nectarinoides. 42
- d*¹. Tail square.
- f*². Culmen not 1 inch; beneath more mottled than striped.
- g*³. No eyebrow; above dark olive, beneath olive buff with very slight dark mottlings; wing 2 inches.
- l*⁴. Anjuan Is. *comorensis*. 59
- m*⁴. Madagascar *souimanga*. 61
- n*⁴. Assumption Is. *abbotti*. 72
- o*⁴. Aldabra Is. *aldabranus*. 50
- h*³. A whitish eyebrow, above more ashy brown.
- p*⁴. W. Africa.
- c*⁵. Larger; wing 2·5; culmen 0·85 *splendidus*. 57
- d*⁵. Smaller; wing 2·0; culmen 0·7 { *bifasciatus*. 56
bouvieri. 57
- q*⁴. S. Africa; wing 2·5; culmen 0·8 *mariquensis*. 51
- r*⁴. Eastern Africa.
- e*⁵. Larger; wing about 2·4; culmen about 0·7 { *habessinicus*. 46
osiris. 52
- f*⁵. Smaller; wing 2·1; culmen 0·6 *microrhynchus*. 55
- g*². Culmen more than 1 inch. Beneath strongly striped.
- i*³. A partial white eyebrow.
- s*⁴. Madagascar *notatus*. 30
- t*⁴. Great Comoro Is. *nesophilus*. 40
- k*³. Eyebrow well marked (W. Africa) *johannæ*. 43

Cinnyris cupreus.

- Cinnyris cupreus* (Shaw), Shelley, Mon. Nect. p. 191, pl. 58 (1879); id. Ibis, 1883, p. 547 *Niger*; Gadow, Cat. B. M. ix. p. 55 (1884); Sharpe, Linn. Soc. Journ. Zool. xvii. p. 428 (1884) *Nyam-nyam*; Dubois, Mus. R. Belg. 1886, p. 148 *Tanjanyika*; Hartert, J. f. O. 1886, p. 580 *Niger*; Reichen. J. f. O. 1887, p. 306 *Leopoldsville*; Shelley, P. S. Z. 1888, p. 38 *Mundri*; Sharpe, Ibis, 1891, p. 593 *Kitosh*; Reichen. J. f. O. 1891, p. 391 *Togoland*; id. Vög. Deutsch O. Afr., p. 212 (1893); Shelley, Ibis, 1893, p. 17, 1894, p. 14 *Nyasa*; Reichen. J. f. O. 1894, p. 41 *Camaroons*; Kuschel, J. f. O. 1895, p. 347 (*egg*); Shelley, B. Afr. I. No. 16 (1896); Reichen. J. f. O. 1896, p. 37 *Camaroons*; 1897, p. 47 *Togoland, Dahomey*; Neum. J. f. O. 1898, p. 237 *Bukoba*; Hartert, in Ansorge's "Under Afr. Sun," App. p. 350 (1899) *Unyoro*.
- Nectarinia cuprea*, Bouvier, Bull. S. Z. France, 1877, p. 450 *Uganda*; Bocage, Oru. Angola, p. 173 (1877) *Congo*; Pelz. Verh. Wien. xxxi. p. 609 (1881); Hartl. Abhandl. Brem. 1881, p. 108, 1882, p. 205, 1891, p. 28 *Upper White Nile*.
- Nectarinia chalcea*, Hartl., Sousa, Journ. Lisb. 1887, p. 94 *Quissange*; 1889, p. 45 *Quindumbo*.
- Cinnyris chalceus*, Büttik. Notes Leyd. Mus. 1888, p. 231 *Mossamedes*.

Adult Male. Entire head, neck, back and lesser wing-coverts copper colour with greenish gold and lilac reflections; remainder of the plumage black. Total length 4 inches, culmen 0·6, wing 2·2, tail 1·85, tarsus 0·6.

Adult Female. Above olive, wings and tail dark brown with olive edges to the feathers and with pale ends to a few of the outer tail-feathers; cheeks and entire under parts pale olive shaded buff. Total length 4·25 inches, culmen 0·6, wing 2, tail 1·6, tarsus 0·6.

The Common Copper - coloured Sunbird ranges over Tropical Africa generally, from Senegal and Abyssinia south to the Cunene and Zambesi rivers.

This species is evidently abundant in Senegambia, from whence Swainson received the type of his *Cinnyris erythronotus*. Major Bulger procured the species on Bulama Island, one of the Bissagos group; but it has not yet been recorded from Sierra Leone, and Mr. Büttikofer never met with it in Liberia.

This is essentially a bird of the open country as is shown by its geographical distribution. On the Gold Coast specimens have been collected by Mr. Blissitt at Elmena, by Pel in Ashantee, and by Ussher at the Volta river. During my visit to this country with Mr. T. E. Buckley we frequently saw these Sunbirds perched on the leaves of the cocoanut-trees by the road-side near Cape Coast Castle. We never met with them in the forests of Abrobonko and Aguapim, but Drs. Reichenow and Lühder procured a specimen at Abouri. We found the species, however, very abundant, at the same season, on the open plains of Accra which stretch from the base of the Aguapim mountains to the sea. Here in March the males had just attained their full plumage and were conspicuous objects, as they perched on the topmost twigs of a bush sparkling like jet ornaments, their rich metallic colouring not being distinguishable unless the sun was at our backs, when their bright fiery copper gloss at once flashed in the light. In Togoland specimens have been procured by Dr. Büttner in March, and by Mr. Baumann at Kratji in December, and the latter naturalist also met with it at Topli in Dahomey on August 3rd. In the Niger district the species inhabits the country inland of the forest district of the delta; here the late Mr. W. B. Forbes collected specimens at Lokoja and Shonga, at which latter station he died on January 14th, 1883. Mr. Hartert took a nest of *C. cupreus* at Loko, it was suspended from a bough not two feet from the ground, was stronger built, and contained two eggs of a greenish grey colour shaded and freckled with brown at the thick end. Dr. Reichenow describes a nest he found in Camaroons as of the usual oval form constructed of grass and fine roots, lined with seed-down, and contained two glossy brown eggs. Mr. Zenker has procured the species at Jaunde in Camaroons.

It is evidently plentiful in Gaboon, for Du Chaillu

obtained many specimens on the Moonda and Camma rivers, and also at Cape Lopez, while Marche met with it at Lopé, on the River Ogowé.

In the early days of the century, Perrein obtained the original examples of the Copper-coloured Sunbird at Malimbe, in the Congo district, and it has been more recently obtained there by Falkenstein near Chinchonxo, Petit at Landana, and by the late Captain Sperling at Kabinda. Mr. Bohndorff has also procured the species at Leopoldville on the Lower Congo.

In Angola it has been met with by Monteiro at Cabambe, and by Welwitsch at Galungo Alto, and it is one of the few truly West-African species which cross the Quanza River, for Anchieta has found it at Quissange and Quindumbo, and the Leyden Museum has received specimens collected by Mr. Van der Kellen at Humpata on the Cunene river.

In an account of a collection made by Captain Storms during his journey to Lake Tanjanyika, Dr. Dubois records the present species.

At Chia, where the Shiré river runs into the Zambesi, Mr. Boyd Alexander collected four males, all in moult, in July, and writes: "This Sunbird is very partial to localities near the river where patches of flowering weed grow, from which it is hard to drive away, always returning to the same spot after a short circuitous flight which is even more jerky and erratic than in *Chalcomitra gutturalis*, the latter bird being often found in its company. It was close to the mouth of the Shiré river, where we landed on July 21st for our mid-day meal, that we observed this species, frequenting a strip of red flowering plants, close to a cluster of native huts. After chasing the birds backward and forward for some time, they got to know our tactics and became very cunning, dropping down at our approach into the bottom of the weed where they crept about like mice. Towards evening they resorted to a

belt of fish-cane through which they threaded their way like so many little *Estreldas*. Our four specimens were on the moult and two of these were young males in the plumage of the adult female."

Mr. Alexander Whyte has met with the species at Zomba, in the Shiré highlands in January and September. It is apparently not generally distributed over East Africa, for Dr. Reichenow (*Vög. Deutsch O. Afr.* p. 212) only records it from Ugalla and Bukoba, and Mr. Jackson obtained the species only at Kitosh ($0^{\circ} 30' N.$ lat., $34^{\circ} 40' E.$ long.). It must, however, be fairly abundant in the more open country to the north of Victoria Nyanza, for Piaggia met with the species in Uganda, Mr. Ansorge calls it common in Unyoro, and Emin collected specimens at many places in the Upper White Nile district; but it apparently becomes rarer again as we descend the river, for Von Heuglin informs us that Paul of Würtemberg obtained a specimen in South Fasokl, and that he himself considered it scarce on the Upper White Nile and Sobat rivers, but believed he saw the species in August near Keren in Bogos.

Cinnyris purpureiventris.

Cinnyris purpureiventris, Reichen. Orn. Monatsb. 1893; id. J. f. O. 1894, p. 102, pl. 1, fig. 2; Shelley, B. Afr. I. No. 17 (1896).

Adult Male. Similar to *C. cupreus* but larger and with a purple gloss on the breast. Total length 5.2, culmen 0.8, wing 2.65, tail 2.2, tarsus 0.6.

The Purple-breasted Copper Sunbird is known to me only by the description and figure of the type which formed part of Emin and Stuhlman's collection from Migere in West Mporora.

Cinnyris notatus.

Cinnyris notatus (P. L. S. Mull.), Shelley, Mon. Nect. p. 195, pl. 59 (1876); Gadow, Cat. B. M. ix. p. 54 (1884); Shelley, B. Afr. I. No. 18 (1896).

Nectarinia notata, Milne Edw. and Grand. Hist. Madag. Ois. i., p. 283, pls. 106, 106^a, 107, 107^a (1882); Sibree, Ibis, 1891, pp. 428, 441.

Adult Male. Entire head, neck, back and lesser wing-coverts metallic green, with a narrow steel blue collar at the base of the green throat and with a steel blue edge to the bend of the wing; remainder of the plumage black. Total length 5·6 inches, culmen 1·2, wing 2·75, tail 1·9, tarsus 0·7. Madagascar (Crossley).

Adult Female. Above brown, wing and tail darker; a partial whitish eyebrow; beneath buff with large triangular dusky black centres to most of the feathers. Total length 5·5 inches, culmen 1·1, wing 2·6, tail 1·9, tarsus 0·7. Madagascar (Bewsher).

The Madagascar Superb Sunbird is confined to the island of Madagascar.

According to M. Grandidier this species is found along the northern and eastern coasts of Madagascar, where it is generally met with in pairs or parties of four or five frequenting the large forests or their outskirts in preference to the scattered trees in the more open country, which is the home of *C. souimanga*, and is much shyer than that species. In searching the flowers they show a predilection for the spiders they find there, and often hunt for them suspended beneath the blossoms after the manner of Tits. They have a rapid irregular flight, and often betray their presence in the forest by their little cry, "dchip-dchip." Messrs. Roch and E. Newton remark: "Its chirp is exactly like a Tree-sparrow's, and when first heard it was taken for a bird of that genus; its song is moderate." The nest is of the usual form, oval and pendent, with an entrance at the side, and is constructed of fine rootlets, dry leaves, grass and lichen, bound together with spiders'-web, and is generally placed close to some mountain stream, which is their favourite resort, and differs from the nest of *C. souimanga* in being thickly lined with vegetable down. Their eggs vary, being sometimes pale greenish and sometimes darker and browner, and measure 0·75 inch by 0·5.

This is a well-known bird to the native of Madagascar,

where according to Dr. C. Miller it is called "Sushné." M. Grandidier gives "Soimangaladia" as its Malagasy, and "Soiangala" as its North Betsinisaraka names. To these Dr. Sibree adds "Soy" as the North Sakalava, "Dandiaua" as the Betsileo, and "Ramanjeona" as the Tanala names.

Cinnyris nesophilus. (Pl. 2, fig. 2.)

Cinnyris nesophilus, Shelley, Bull. B. O. C. i. p. 5 (1892); id. Ibis, 1893, p. 118; id. B. Afr. I. No. 19 (1896) *Great Comoro Is.*

Cinnyris notatus (nec Müll.), Shelley, P. Z. S. 1879, p. 676; Milne Edw. and Oust. N. Arch. Mus. (2) x. p. 243 (1887).

Adult Male. Similar to *C. notatus* but larger and with the back and throat strongly washed with bluish violet. Total length 6 inches, culmen 1·35, wing 2·9, tail 2·1, tarsus 0·8. Great Comoro Is. (Kirk).

The Great Comoro Superb Sunbird is restricted to the island of Angazia, better known as Great Comoro.

Sir John Kirk kindly presented me with two adult males of this species, which are now in the British Museum, one being the type of the species. In 1879 I referred them to the Madagascar *C. notatus* under the impression that the blue shade on the back and throat might be due to chemical causes. More recently Mr. Büttikofer showed me a third specimen from Great Comoro Island which agreed perfectly, so I described the species, when MM. Milne Edwards and Oustalet likewise remarked on these differences between the Great Comoro and Madagascar forms as constant in a fine series collected by M. Humblot on this island, where it is said to be very abundant.

Cinnyris superbus.

Cinnyris superbus (Shaw), Shelley, Mon. Nect. p. 197, pl. 60 (1876); Sharpe and Bouvier, Bull. S. Z. France, 1876, p. 41 *Loango*; Gadow, Cat. B. M. ix. p. 48 (1884); Sharpe, Linn. Soc. Journ. Zool.

xvii. p. 428 (1884) *Nyam-nyam*; Reichen. J. f. O. 1887, p. 306 *Leopoldsville*; Shelley, P. Z. S. 1888, p. 38 *Bellima*; id. Ibis, 1890, p. 162 *Yambuya*; Reichen. J. f. O. 1890, p. 126, 1892, p. 190, 1896, p. 38 *Camaroons*; Sjöst. Mitt. d. Schutzg. viii. 1895, p. 33; id. Sv. Vet. Ak. Handl. 1895, p. 103 *Camaroons*; Shelley, B. Afr. I. No. 20 (1896); Reichen. J. f. O. 1896, 38, *Camaroons*, 1897, p. 47, *Togoland*.

Nectarinia superba, Reichen. J. f. O. 1877, p. 25 *Loango*; Hartl. Abhandl. Nat. Brem. 1891, p. 27 *Njangabo*.

Chromatophora superba, Oust. N. Arch. Mus. (2) ii. Bull. p. 85 (1878) *Gaboon*.

Adult Male. Crown metallic emerald green; back of neck, back and lesser wing-coverts metallic golden green; remainder of wings and tail black; a black patch in front of the eye; cheeks and ear-coverts bronzy green with copper and violet reflections; throat violet shaded steel blue; breast dark glossy red, abdomen and under tail-coverts black. Total length 5.5 inches, culmen 1.2, wing 2.8, tail 2.0, tarsus 0.75. Abouri, 19. 2. 72 (Shelley).

Adult Female. Above deep olive; eye-brows, cheeks and under parts pale olive shaded yellow; under tail-coverts orange yellow. Total length 5.5 inches, culmen 1.15, wing 2.8, tail 2.0, tarsus 0.75. Abouri, 21. 2. 72 (Shelley).

The Superb Sunbird ranges from the Gold Coast to Angola and eastward throughout the Congo district nearly to the sources of the Nile.

Of its occurrence north of the Gold Coast the only mention I find is in M. Bouvier's Catalogue of Messrs. Marche and De Compiègne's collection, which was partly made in Senegambia and partly in Gaboon, so that the specimen registered "Cape Verde" possibly, if not probably, came from the Gaboon.

The species is abundant on the Gold Coast. There is a specimen in the British Museum labelled "Ashantee." Blissett collected several at Wassaw and Enimil, and the greater number of Ussher's specimens came from the forests of Denkera and Abrobonko, the latter place about six miles from Cape Coast Castle. Mr. T. E. Buckley and myself met with the species only at Abouri in the Aguapim mountains where it

was abundant, but rarely in full plumage during the month of February when we were there.

It specially frequents the large flowering trees of the real forest, and, I fancy, rarely comes actually to the coast, though it has been recorded by Dr. Reichenow from Accra.

I do not find the species mentioned from the Niger, nor from any of the islands along the coast, but in Camaroons both Crossley and Dr. Reichenow met with it, Dr. Preuss has procured specimens at Buea in the mountains, and Mr. Sjösted at Bibundi.

In Gaboon these Sunbirds have been found by Du Chaillu at the Moonda and Muni rivers, by Marche at Lopé in the Ogowé district, where he informs us it is known to the natives as "Tschodi." According to Verreaux it occurs in Gaboon apparently during its migration, arriving early in Spring and leaving again in the Autumn, after the breeding season. Both sexes, he observes, have a sweet little song which may be heard in concert, morning and evening.

On the Loango Coast it has been procured by Falkenstein and Petit near Chinchonxo, and in Angola, which is the most southern known range for this species, by Mr. Hamilton.

This Sunbird ranges inland through the Congo district, having been procured at Yambuya on the Aruwimi river by Jameson, while waiting there with the rear guard of the Stanley Expedition; by Bohndorff at Leopoldsville on the Congo and at Semmio in the Nyam-nyam country, and further still to the eastward Emin collected specimens at Bellima, Tangasi and Njamgabo.

Cinnyris johannæ.

Cinnyris johannæ, Verr.; Shelley, Mon. Nect. p. 199, pl. 61 (1876); Sharpe and Bouvier, Bull. S. Z. France, 1876, p. 305 *Loango*; Oust. N. Arch. Mus. (2) II. Bull. 1879, p. 84 *Gaboon*; Gadow, Cat. B. M. ix. p. 49 (1884); Büttik. Notes Leyd. Mus. 1886, p. 249, 1889, p. 130, 1892, p. 22 *Liberia*; Shelley, B. Afr. I. No. 21 (1896).

Nectarinia johannæ, Bocage Orn. Angola, p. 166 (1877) *Loango*.

Adult Male. Head, neck, back and lesser wing-coverts metallic green; wings and tail black; a broad violet-shaded steel blue collar separates the green of the throat from the bright red breast; abdomen and under tail-coverts black; pectoral-tufts bright yellow. Total length 5·3 inches, culmen 1·2, wing 2·5, tail 1·6, tarsus 0·65. Landana (Petit).

Adult Female. Above deep olive brown; a distinct buff eyebrow; and pale ends to some of the outer tail-feathers; beneath buff, with broadish dark central stripes to many of the feathers. Total length 4·5 inches, culmen 1·1, wing 2·5, tail 1·4, tarsus 0·65. Abouri, 21. 2. 72 (Shelley).

The Scarlet-breasted Sunbird is confined to West Africa, where it ranges from Sierra Leone to the Congo.

Specimens have been collected by Boucier at Sierra Leone, by the late Mr. A. T. Demery at the Sulamah river, and by Mr. Büttikofer on the Junk river in Liberia. In Fantee, Ussher considered these Sunbirds to be very rare, as all his specimens came from the forest of Denkera in the interior. In the Agnapim mountains, during my short stay at Abouri with Mr. T. E. Buckley, we shot six specimens out of the tall flowering trees of the forest; this was towards the end of February, and like most of the Sunbirds they had not assumed their full breeding plumage, and were at that season on friendly terms with each other, assembling in large numbers around the same clusters of flowers.

The type of *Nectarinia fasciata*, Jard., was procured by Fraser at Abomey in Dahomey, and Verreaux's type came from Gaboon, where specimens have since been collected by Du Chaillu near the Moonda river, and by Marche at Doumé in the Ogowé district. Petit procured specimens at Landana on the Loango Coast, which is the most southern known limit for the range of this species.

It is a scarce bird in collections, probably owing to its frequenting the forests, and rarely met with actually on the coast.

Cinnyris splendidus.

- Cinnyris splendidus* (Shaw), Shelley, Mon. Nect. p. 201, pl. 62 (1878); Nicholson, P. Z. S. 1878, p. 129 *Abeokuta*; Oust. N. Arch. Mus. (2) II. Bull. p. 84 (1879) *Gaboon*; Shelley, Ibis, 1883, p. 548 *Niger*; Gadow, Cat. B. M. ix. p. 50 (1884); Sharpe, Linn. S. Journ. Zool. xvii. p. 428 (1884) *Nyam-nyam*; Hartert, J. f. O. 1886, p. 580 *Niger*; Reichen. 1891, p. 392 *Togoland*; Shelley, B. Afr. I. No. 22 (1896); Reichen. J. f. O. 1897, p. 47 *Togoland*.
- Nectarinia splendida*, Gordou, Contr. Orn. 1849, p. 6 *Gold Coast*; Bocage, Orn. Angola, p. 167 (1877) ? *Congo*.

Adult Male. Head and neck metallic violet, shading into green on the back and lesser wing-coverts; wings and tail black; the feathers at the base of the throat are metallic-violet edged with scarlet and form a broad collar; pectoral-tufts pale yellow, remainder of the under parts black. Total length 5 inches, culmen 0·95, wing 2·7, tail 1·7, tarsus 0·65. Accra, 12. 2. 72 (Shelley).

Adult Female. Above ashy olive with an ill-defined broad buff eyebrow; outer tail-feathers with whitish ends. Beneath yellowish buff, palest towards the chin; front and sides of the chest obscurely mottled by the olive brown centres of the feathers. Total length 4·9 inches, culmen 0·85, wing 2·55, tail 1·7, tarsus 0·65. Cape Coast, 30. 1. 72 (Shelley).

The West African Splendid Sunbird ranges from Senegal into the Gaboon and Nyam-nyam countries.

This species is the type of the genus *Cinnyris*. It appears to be far more plentiful from the north than the south of the Equator, and frequents equally the wooded or more open country both near the coast and inland.

In Senegambia it is a common bird; Laglaise procured specimens on Cape Verde and Marche at many places between that cape and the Gambia river. Sir A. Moloney met with it at Bathurst, Beaudouin at Casamance and Bissao, and Fergusson, Fraser and Marche at Sierra Leone. It is curious, therefore, not to find it recorded by Mr. Büttikofer from Liberia, especially as it is a very abundant bird on the Gold Coast, where Mr. T. E. Buckley and I looked upon it as the

commonest Sunbird at Cape Coast Castle, Accra, and in the Aguapim Mountains.

There are specimens in the British Museum from Elmina, Ashantee, and Volta river. Dr. Büttner procured specimens in Togoland; Robins at Abeokuta; Forbes at Lokoja and Shonga, on the Niger, and Mr. Hartert found it common near Loko, and observes that it has a very fine song.

I find no record of the occurrence of this species in Camaroons, and according to Dohrn it has never been procured on Princes Island. It however occurs, though apparently in no great numbers, in Gaboon, where it has been met with by both Du Chaillu and Marche, and at present the Ogowé river is the furthest known southern limit for the range of this Sunbird, for Prof. Barboza du Bocage informs us, that a specimen he once believed to have come from Loanda, is really from a doubtful locality.

Of the eastern range of this species, all that I know is that Bohndorff collected several specimens at Semmio in the Nyamnyam country, all in full plumage in February, and that the species has not been recorded in any of the large collections made by Emin Pasha.

Apparently the full breeding plumage lasts from February to August.

Cinnyris habessinicus.

Cinnyris habessinicus (Hempr. & Ehr.) Shelley, Mon. Nect. p. 205, pl. 63 (1878); Gadow, Cat. B. M. ix. p. 52 (1884); Salvad. Ann. Mus. Genov. 1884, p. 139, 1888, pp. 245, 533 *Shoa*; Shelley, Ibis, 1885, p. 406 *Somali*; Salvad. R. Acad. S. Torino, 1894, p. 556 *Somali*; Sharpe, P. Z. S. 1895, p. 474 *Somali*; Shelley, B. Afr. I. No. 23 (1896); Cholmley, Ibis, 1897, pp. 200, 206 *Red Sea*; Lort Phillips, Ibis, 1896, p. 81; 1898, p. 402, 403 fig. *Somali*; Hawker, Ibis, 1899, p. 67 *Somali*.

Adult Male. Similar to *C. splendidus*; but differs in the head and neck being metallic green with only the forehead and crown metallic violet.

Total length 5 inches, culmen 0·85, wing 2·5, tail 1·9, tarsus 0·65. Ailet (Esler).

Adult Female. Similar to *C. splendidus*; but with the upper parts ashy-brown, and the under parts whiter with no yellow shade on the plumage. Total length 4·7 inches, culmen 0·8, wing 2·3, tail 1·7, tarsus 0·6. Ailet (Esler).

The Abyssinian Splendid Sunbird is confined to North-east Africa ranging from Somaliland into Abyssinia and Kordofan. In Somali it has been met with apparently by every ornithologist who has visited that country. Mr. Lort Phillips writes: "This is the common Sunbird of Northern Somaliland, and is to be met with from the Maritime Plain to the top of the Wagga Mountain, the highest peak of the Goolis range, where I found it breeding early in March. Its nest (see fig., p. 403) is hung from the extreme end of a branch, and is composed entirely of spiders' webs, decorated all over with minute cocoons. A little 'penthouse' projects over the entrance, which must be a great protection from the rain in its exposed position."

In Shoa it is likewise a common bird, and specimens have been collected there in full plumage from March to October.

Mr. Blanford writes: "Very common," in Abyssinia, "near the coast, and, up to 4,000 feet above the sea, in the passes leading to the highlands. In January and February many birds were in the plumage described by Rüppell as *N. gularis*. Others, however, were in full plumage, and it is not clear whether the *gularis* plumage is assumed by all males after the breeding season, or whether it is only the livery of the first year. I am strongly inclined to the latter opinion."

Mr. A. J. Cholmley writes: "This was the only Sunbird met with on the western coast of the Red Sea, and it was common everywhere." Von Heuglin found the species distributed along the coast from Somaliland to Suakin, its most northern known range. Antinori believed that it shifts its quarters to the higher ground in July and August.

The type of the species came from the neighbourhood of Masowa, and the type of *Nectarinia gularis*, Kupp., a bird in the moult, from Kordofan, which is the most western known locality for this species.

Cinnyris nectarinioides.

Cinnyris nectarinioides, Richmond, Auk, xiv. p. 158 (1897) *Kilimanjaro*.

“Entire head, neck, back, rump, and lesser wing-coverts metallic brassy green; upper tail-coverts metallic steel-blue; lower throat narrowly edged with metallic deep blue; breast with a broad band of orange vermilion; yellow pectoral-tufts present; abdomen, under tail-coverts, wings and wing-coverts (except least), under wing-coverts, and tail, black, the latter with the feathers (central ones particularly) edged with purple basally, and with green on terminal half. Bill, feet and tarsi black in dried skin. Wing 2·03 inches; tail 1·47; narrow centre feathers 2·25; tarsus, ·60, culmen, ·70. Another adult male, obtained October 22, 1888, at Aruscha-wa-chini, south west of Kilimanjaro, measures: wing 2·07 inches; tail 1·47 (central pair of feathers narrow but not fully grown) culmen ·72. This specimen agrees very closely with the type, but the greater wing-coverts are narrowly edged with metallic green” (Richmond).

Richmond's Wedge-tailed Bifasciated Sunbird inhabits the Kilimanjaro district.

The species is, I believe, only known by the two specimens collected by Dr. W. L. Abbott on the plains to the east of Mount Kilimanjaro, October 1, 1888, and now in the United States' National Museum, so I have quoted Mr. Richmond's original description, to which he adds: “This species seems to be related to *C. mariquensis*, or to one of its subspecies, but differs from all of them in the possession of moderate yellow pectoral-tufts, and in the very narrow long central tail-feathers, which project three quarters of an inch beyond the rest of the tail.”

Cinnyris erythrocerius.

Cinnyris erythrocerius (Heugl.) Shelley, Mon. Nect. p. 209, pl. 64, fig. 2 (1878); Gadow, Cat. B. M. ix. p. 44 (1884); Shelley, P. Z. S. 1888, p. 38 *Wadelai*; Emin, J. f. O. 1891, p. 340; Reichen. J. f. O. 1892, p. 55, id. Vög. Deutsch O. Afr. p. 211 (1894) *Kagehi, Bokoba*; Shelley, B. Afr. I. No. 24 (1896); Neumann, J. f. O. 1898, p. 235 *Raschuonjo*.

Nectarinia erythroceria, Reichen. J. f. O. 1887, p. 75 *Victoria Nyanza*; Hartl. Abhandl. Bremen, 1881, p. 108; Pelz. Verh. Wien. xxxi. p. 144 (1881) *Upper White Nile*.

Adult male. Head, neck, back and lesser wing-coverts metallic green, slightly glossed with blue on the back; upper tail-coverts steel blue; wings and tail black. At the base of the metallic green throat is a narrow metallic violet collar followed by a broad scarlet pectoral-band, the feathers of which have narrow subterminal metallic violet bars; remainder of the under parts black. Total length 5·2 inches, culmen 0·65, wing 2·4, tail 2, tarsus 0·6. Magungo, 26. 11. 79 (Emin).

Adult female. Upper parts and sides of head ashy, with a faint olive shade on the scapulars and lower back; tail blackish and graduated with partial whitish margins to the feathers. Beneath yellowish buff, throat blackish with narrow buff edges to the feathers, and a buff mustachial band; chest and flanks mottled with olive. Total length 4·2 inches, culmen 0·7, wing 2·1, tail 1·7, tarsus 0·6. Magungo, 20. 11. 79 (Emin).

Heuglin's Wedge-tailed Sunbird inhabits the Victoria Nyanza and Upper White Nile districts, and possibly ranges further south; but the correctness of the following two references may be fairly doubted:

Nectarinia gonzenbachii, Antin. Bianconi, Spec. Zool. Mosamb. p. 320 (1867).

N. erythrocerca, Heugl. (?) Böhm. J. f. O. 1883, p. 193.

The most southern positively known locality for this species is Kagehi in Usukuma at the south end of Victoria Nyanza. Mr. Neumann records it from Raschuonjo and Emin has collected specimens at Bukoba, Wadelai and, in that latter district, also at Redjaf, Kiri, Muggi and Magungo.

Towards its most northern range the first known specimens of this species were collected by Von Heuglin and Antinori in the Rek country, which is watered by the Gazal river, and the former naturalist informs us that it is generally distributed over this part of the country to the west of the Bahr-el-Jebel, frequenting the flowering trees in the damper parts of the highland forests, and in March was beginning to assume its breeding plumage.

Cinnyris shelleyi.

Cinnyris shelleyi, Boyd Alexander, Bull. B. O. C. viii. p. 54 (1899); id. Ibis, 1899, p. 556, pl. 11, *North Zambesia*.

Adult male. Entire head, neck, back and lesser wing-coverts metallic green with a golden gloss on back of head, neck and mantle; wings and tail black. At the base of the metallic green throat is a narrow steel blue collar followed by a broad bright scarlet pectoral-band, the feathers of which are partially barred with steel blue, remainder of the under parts blackish brown. "Bill and legs black; iris dark brown" (Boyd Alexander). Total length 4.65 inches, culmen 0.85, wing 2.5, tail 1.7, tarsus 0.65.

Adult female. Similar in plumage to that of *C. mariquensis*. Above pale brown with a slight wash of olive yellow on the back and upper tail-coverts; wings and tail darker brown with partial pale margins to the feathers; an incomplete buff eyebrow. Beneath yellowish buff inclining to white on the chin; chest slightly mottled with the dusky centres of the feathers. Total length 4.65 inches, culmen 0.85, wing 2.5, tail 1.7, tarsus 0.65.

Shelley's Bifasciated Sunbird inhabits North Zambesia. My friend, Mr. Boyd Alexander, has done me the honour of naming this beautiful Sunbird after me. He discovered the species about sixty miles below where the Kafue river falls into the Zambesi, close to 31° E. long. The pair, both adults in full breeding plumage, were shot the latter end of December, being at the time in company with a number of *Chalcomitra gutturalis*, and like that species were busy in extracting the nectar from the acacia blossoms. The note of the male was a small flute-like whistle.

This species is nearly allied to *C. bifasciatus* in size and measurements, but differs in having the bastard primary smaller and more pointed, in which character it resembles *C. mariquensis*, and is intermediate between these two species in the golden shade being confined to the back of the head, the neck and mantle.

The most marked specific characters for *C. shelleyi* are: the scaling-wax scarlet pectoral-band which is similar to that of *C. erythrocerius*, and the blackish brown breast which resembles that of *C. bouvieri*.

Cinnyris mariquensis.

Cinnyris mariquensis, Smith; Shelley, Mon. Nect. p. 211, pl. 65 (1876); Sharpe in Oates' Matabeleland, p. 310 (1881); Shelley, Ibis, 1882, p. 256 *Bamangwato*; Gadow, Cat. B. M. ix. p. 44, pt. A. (1884); Ayres, Ibis, 1884, p. 226, 1886, p. 286, *Transvaal*; Fleck, J. f. O. 1894, pp. 346, 362, 412 *S. W. Africa*; Shelley, B. Afr. I. No. 25 (1896); Sharpe, Ibis, 1897, p. 507 *Zululand*.

Nectarinia bifasciata (nec Shaw) Buckley, Ibis, 1874, p. 374 *Matabele*.

Adult male. Entire head, neck, back and lesser wing-coverts metallic green, with a strong coppery gloss; wings and tail black. At the base of the metallic green throat is a narrow steel blue collar followed by a broad deep red pectoral-band, the feathers of which are partially edged with steel blue or green; remainder of the under parts black. Total length 5.1 inches, culmen 0.85, wing 2.7, tail 2.1, tarsus 0.7. *Bamangwato*, 23. 11. 73 (T. E. Buckley).

Adult female. Above ashy brown; tail with white tips to the outer feathers; a whitish eyebrow. Beneath whitish, washed with pale yellow down the centre of the breast and with large triangular dusky centres to the feathers of the lower throat, front of chest and under tail-coverts. Total length 4.8 inches, culmen 0.8, wing 2.5, tail 2, tarsus 0.7. *Bamangwato*, 23. 11. 73 (T. E. Buckley).

The Southern Bifasciated Sunbird is confined to South Africa, south of the Cunene and Zambesi rivers, and has not been recorded from south of 29° S. lat. According to Andersson: "This species is very common in Ondonga, and

is not uncommon in Damaraland; it is also found at Lake Ngami. It is usually seen in pairs, and frequents the banks of periodical streams."

The type of the species was discovered by Smith at Kurrichaine. The most southern districts known for the species is Zululand, where the Messrs. Woodwards collected six specimens at Ulundi and Eschowe.

Mr. T. E. Buckley writes: "Quite the commonest Sunbird from north of Pretoria into the Matabele country. They were generally to be seen in pairs, or perhaps two cocks chasing a hen. Like all the dark-coloured Sunbirds, the beautiful plumage of the male is only to be seen on a near approach. From the specimens I have in my collection it would appear that the male changes from the sober colours of the female into his own lovely lues in October." He further remarks: "The males are much shyer than the females. I did not observe this species in Natal." Mr. Buckley brought home specimens from the Towani river in Bamangwato, and from Tati in Matabele. Mr. Barratt procured it at Macamac in the Transvaal. Mr. Ayres tells us that they are rare near the Limpopo during the South African winter months, feeding amongst the aloes, which grow plentifully on the dry stony ridges, and that even at that season the males fight. He also found them at a similar time of the year hunting for small insects among the dry seed-tops of high grass, flowers at that season being exceedingly scarce. While in company with Mr. Jameson they collected specimens at Matje Umschlope, in Matabele in November, at Mangwato in December, and at Palatswie Pan in Bamangwato in June; at this last place meeting with the species and *C. leucogaster* in tolerable abundance assembled round a very pretty parasitic plant, the blossoms of which resemble the honeysuckle.

Mr. Oates procured it in Matabele at the Makalapsie river

near Shoshong, and there is a specimen in the British Museum labelled "Zambesi," but without any collector's name.

Cinnyris osiris.

- Cinnyris osiris* (Finsch), Shelley, Mon. Nect. p. 215, pl. 64, fig. 1 (1876); Gadow, Cat. B. M. ix. p. 44 (1884); Salvad. Ann. Mus. Genov. 1884, p. 140, 1888, 245 *Shoa*; Reichen. J. f. O. 1887, p. 75 *Simiu R.*; Sharpe, Ibis, 1891, p. 593 *Machako's*; id. P. Z. S. 1895, p. 474 *Somali*; Shelley, B. Afr. I. No. 26 (1896); Lort Phillips, Ibis, 1896, p. 81 *Somali*; Elliot, Field Columb. Mus. Orn. I. No. 2, p. 40 (1897); Hawker, Ibis, 1899, p. 66 *Somali*.
Nectarinia mariquensis (nec Smith), Hartl. Abhandl. Bremen, 1891, p. 30.
Cinnyris jardinei (nec Verr.) Emin, J. f. O. 1891, p. 60 *Unianiembe*.
Cinnyris suahelica, Reichen. J. f. O. 1891, p. 161 *Unianiembe*; id. Vög. Deutsch O. Afr. p. 210 (1894).
Cinnyris mariquensis hawkeri, Neumann, Orn. Monatsb. 1899, p. 24 *Somali*.
Cinnyris osiris suahelicus, Hartert in Ansorge's "Under Afr. Sun," App. p. 350 *Uganda*.

Adult male. Similar to *C. mariquensis* but with the forehead and crown slightly more emerald green and contrasting more strongly with the coppery shade of the throat. Total length 5.1 inches, culmen 0.65, wing 2.6, tail 2, tarsus 0.65. Gasciané, Shoa, 29. 8. 78 (Antinori).

The Abyssinian Bifasciated Sunbird ranges over Eastern Africa from Kakoma 5° S. lat. to Ailet 16° N. lat.

Böhn procured the species as far south as Kakoma and Emin collected specimens at Karague, Kassni and Taboro. The specimens from the latter localities include the type of *C. suahelica*, Reichen. Fischer has procured the species at the Simiu river, Jackson at Machako's in Ukambani in March, and Mr. Ansorge at Kampala in Uganda. This species is apparently not uncommon in Somaliland, for Mr. Lort Phillips met with it in the Goolis Mountains, in company with *C. habessinicus*; Dr. Donaldson Smith collected specimens at Milmil in July and at Sheik Husein in September, and Mr.

Hawker a fine series, in full plumage, in January at Jifa Medir and Ujawaji; these latter have been named *C. mariquensis hawkeri* by Mr. Neumann.

In Shoa, Antinori procured the species at Ambo-Karra in July, and at Gasiané in August, all in full plumage, and Dr. Ragazzi a specimen at the Gerba torrent.

In Abyssinia Jesse obtained specimens at Undel Wells and Senafé, including the type of the species, and specimens have also been received from Mr. Esler, who chiefly collected near Ailet. Neither Von Heuglin nor Mr. Blanford appear to have met with this species during their travels, but Mr. Blanford mentions one that was shot by Captain Sturt at an elevation of 5,000 to 6,000 feet, just below Senafé.

Cinnyris bifasciatus.

- Cinnyris bifasciatus* (Shaw), Shelley, Mon. Nect. p. 217, pl. 66 (1876); Sharpe and Bouvier, Bull. S. Z. France, 1876, p. 41 *Loango*; Oust. N. Arch. Mus. (2) ii. Bull. 1879, p. 131 *Gaboon*; Gadow, Cat. B. M. ix. p. 47 (1884); Büttik. Notes Leyd. Mus., 1888, p. 211 *Congo*, 1889, p. 231 *Mossamedes*; Shelley, B. Afr. I. No. 27 (1896).
Nectarinia bifasciata, Sousa, Journ. Lish. 1886, p. 160 *Benguela*, 1887, p. 94 *Quissange*.

Adult male. Similar to *C. mariquensis* but smaller; the bill slightly less arched, and the plumage generally not so strongly shaded with the copper gloss. Total length 4·6 inches, culmen 0·75, wing 2·4, tail 1·65, tarsus 0·65. Landana, 19. 1. 76 (Petit).

Adult female. Similar to *C. mariquensis* but washed on the upper parts with olive and on the chest with yellow; lower throat and chest more striped but with less distinct dusky mottling. Total length 4 inches, culmen 0·7, wing 2·2, tail 1·4, tarsus 0·65. Landana, 6. 76 (Petit).

Nestling. Similar to adult female but with the throat dusky with a band of buff down each side, and the chest feathers with broad black subterminal bars. Total length 3·5 inches, culmen 0·55, wing 2, tail 1, tarsus 0·6. Chinchonxo, 5. 4. 76 (Petit).

The Western Bifasciated Sunbird is the West African representative of the closely allied Bifasciated Sunbirds, and

is only known to range from the Gaboon to the Cunene river. Verreaux's type of *N. jardinei* came from the Gaboon, and the real type of this species was collected by Perrein at Malimbe. Falkenstein and Petit have since found it on the Loango Coast and Captain Sperling on the Lower Congo.

Monteiro collected specimens at Ambriz in March and at Colombo, on the Quanza, in November, and writes: "Very abundant about Benguela even in comparatively barren places, where, I have observed, they eat little insects, particularly small spiders."

Mr. Anchieta procured it at Dombe, Benguela and Quis-sange, and Mr. Van der Kellen in Mosamedes at Banana and Anjo-Anjo, so that the Cunene river appears to be the boundary between this species and its ally in South Africa.

Cinnyris microrhynchus.

- Cinnyris microrhynchus*, Shelley, Mon. Nect. p. 219, pl. 67 (1876); Nicholson, P. Z. S. 1878, p. 355 *Dar-es-Salaam*; Gurney, Ibis, 1881, p. 125 *Mombasa*; Shelley, P. Z. S. 1881, p. 570 *Dar-es-Salaam*, *Usambara*; 1882, p. 302 *Rovuma R.*; Schal. J. f. O. 1883, p. 360 *Kakoma*, *Zanzibar*; Gadow, Cat. B. M. ix. p. 47 (1884); Fisch. Zeitschr. 1884, p. 339 *Pangani*; id. J. f. O. 1885, p. 139; Shelley, P. Z. S. 1889, p. 365 *Teita*; Reichen. J. f. O. 1889, p. 285 *Usegua*; Sharpe, Ibis, 1891, p. 593 *Masai*; Kuschel. J. f. O. 1895, p. 347 (*egg*); Shelley, B. Afr. I. No. 28 (1896); id. Ibis, 1897, p. 524 *Nyasa*.
Nectarinia microrhyncha, Hartl. Abhandl. Bremen, 1891, p. 30 *Usegua*.
Nectarinia jardinei (nec Verr.), Sharpe, P. Z. S. 1873, p. 173 *Mombasa*; Fisch. J. f. O. 1878, p. 280.
Cinnyris jardinei, Cab. J. f. O. 1878, p. 227 *Teita*; Fisch. and Reichen. J. f. O. 1879, 347 *Malindi*.

Adult male. Similar to *C. mariquensis*, but very much smaller. Bill not so strongly arched, and with scarcely any copper gloss. Total length 4.2 inches, culmen 0.6, wing 2.1, tail 1.6, tarsus 0.55. Lamu (Kirk).

Adult female. Similar to *C. mariquensis* but more olive above and yellower beneath without the dusky motiling. Total length 4 inches, culmen 0.6, wing 1.9, tail 1.4, tarsus 0.55. Lamu (Kirk).

The Least Bifasciated Sunbird ranges over Eastern Africa from the Zambesi to the Equator.

The most southern locality known for this species is the left bank of the Zambesi, where Mr. Boyd Alexander collected seven specimens between the Shiré and Kufue rivers, and writes: "During our stay at Zumbo, on the Zambesi, considerable numbers of these Sunbirds suddenly appeared on December 13, amongst the acacia growth, which was then in full blossom." The six males he procured were at that season passing out of the breeding plumage into the dull dress. They were certainly adults, for according to his note book, "the sexual organs were too much developed to be those of immature birds." This species apparently breeds towards June, for in that month Mr. Alexander Whyte obtained a male in full breeding plumage at Songue.

In about the same latitude on the Mozambique coast, Serpo Pinto found the species at Port Bocage and Ibo in 12° 21' S. lat.

Further north specimens have been collected by Thomson at the Rovuma river, by Böhn at Kakoma, and it is apparently also very common along the Zanzibar coast, at least as far north as Malindi, 3° 20' S. lat., where it was found by Fischer, and inland has been met with still further north by Mr. Jackson during his journey from the coast to Ukambani, so we may fairly take the Equator as the northern boundary of its known range.

With regard to these last four species, they very closely resemble each other in plumage, but with a little care they can be always recognised and they have each a well marked range thus:

C. mariquensis, south of the Cunene and Zambesi rivers.

C. osiris, Eastern Africa from 5° S. lat. to 16° N. lat.

C. bifasciatus, Western Africa north of the Cunene into Gaboon.

C. microrhynchus, Eastern Africa from Zambesi to Equator.

Cinnyris comorensis.

Cinnyris comorensis, Peters; Shelley, Mon. Nect. p. 221, pl. 68 (1879); id. P. Z. S. 1879, p. 676; Cat. B. M. ix. p. 48 (1884); Milne Edw. & Oust. N. Arch. Mus. (2) x. p. 244 (1888); Shelley, B. Afr. I. No. 29 (1896).

Adult male. Head, neck, back and lesser wing-coverts metallic green; wing and tail black, a broad reddish brown pectoral-band dividing the uniform green throat from the black of the remainder of the under parts, which contrasts strongly with the bright scarlet pectoral-tufts. Total length 4·4 inches, culmen 0·75, wing 2·2, tail 1·65, tarsus, 0·65. Johanna Is (Kirk).

Adult female. Upper parts olive, as also the sides of the head; tail with white tips to the feathers. Beneath, pale olive-shaded yellow, fading almost into white on the throat and under tail-coverts. Total length 4·1 inches, culmen 0·65, wing 2, tail 1·3, tarsus 0·65. Johanna Is. (Kirk).

The Johanna Sunbird is confined to the small island of Johanna or Hinzouan, also sometimes called Anjuan, which is situated in the Mosambique Channel about half way between the African coast and the northern extremity of Madagascar.

The species was discovered by Dr. Peters during a short visit to the Comoro Islands. More recently Mr. C. E. Bewsher collected six specimens on the island of Johanna, where it is, according to his notes, very common, and bears the native name of "Shetozee. "The nest," he states, "is similar to those of others of the genus. The egg is greyish white, spotted and blotched, especially at the larger end, with ashy brown."

Cinnyris bouvieri.

Cinnyris bouvieri, Shelley, Monogr. Nect. p. 227, pl. 70 (1877); Sharpe & Bouvier, Bull. S. Z. France, 1877, p. 475; Gadow, Cat. B. M. ix. p. 53 (1884); Shelley, B. Afr. I. No. 30 (1896).

Adult male. Head, neck, back and lesser wing-coverts metallic green, with a slight coppery gloss, strongest on the ear-coverts; forehead, front half of the crown and the lores steel blue shaded with violet towards the

bill; wings dark brown, tail black. Chin dull black, remainder of the throat golden green margined towards the chest by a narrow belt of steel blue, followed by a rather broad one of metallic ruby violet mixed with deep maroon red; remainder of the under parts dark brown, with bright yellow and scarlet pectoral-tufts. Total length 4.1 inches, culmen 0.8, wing 2.05, tail 1.35, tarsus 0.65. Landana, 3. 6. 76 (Petit).

Adult female. Above, ashy brown slightly tinted with olive; with a partial buff eyebrow; a few of the outer tail-feathers tipped with white; beneath, pale buff; lower throat and sides of chest with very indistinct dusky central streaks to the feathers. Total length 4.15 inches, culmen 0.7, wing 2, tail 1.35, tarsus 0.6. Landana, 31. 1. 76 (Petit).

Bouvier's Sunbird is only known from the Loango coast, which extends north from the mouth of the Congo; here the type was collected by Petit at Landana as well as a female which I presume to belong to this species. The same collection also contained a female probably of this species from Chinchonxo.

It differs from the Bifasciated Sunbirds and approaches the Palestine *C. osea* in having flame-coloured axillary-tufts and some steel blue colouring on the head, and differs from them all excepting *C. shelleyi* in having the abdomen brown.

Cinnyris leucogaster.

Cinnyris leucogaster, Vieill. Shelley, Mon. Nect. p. xxxix. (1880); Gadow, Cat. B. M. ix. p. 40 (1884); Büttik. Notes, Leyd. Mus. 1889, p. 71 *Upper Cunene*; Shelley, B. Afr. I. No. 31 (1896).

Cinnyris talatala, Smith, Rep. Exp. Centr. Afr. p. 53 (1836); Shelley, Mon. Nect. p. 229, pl. 71 (1876); Sharpe, ed. Layard's B. S. Afr. pp. 318, 832, pl. 7 (1876-84); Ayres, 1879, p. 294 *Rustenburg*; Shelley, Ibis, 1882, p. 256, *Bamangwato*; Ayres, Ibis, 1887, p. 56 *Matabele, Transvaal*; Rendall, Ibis, 1896, p. 171 *Transvaal*; Sharpe, Ibis, 1897, p. 506 *Zululand*.

Nectarinia talatala, Buckley, Ibis, 1874, p. 375 *Bamangwato*; Bocage, Orn. Angola, p. 172 (1877) *Benguela*; Sousa, Journ. Lisb. 1887, p. 94 *Quissange*.

Adult male. Head, neck, back and lesser wing-coverts metallic green shaded with steel blue on the forehead, upper tail-coverts and throat; wings brown; tail black. Base of the throat edged with a narrow black collar;

pectoral-tufts pale yellow; remainder of the under parts white. Total length 4.4 inches, culmen 0.8, wing 2.3, tail 1.8, tarsus 0.65.

Adult female. Upper parts and sides of head uniform brown; tail blackish, with the tips of the outer feathers white. Beneath white, faintly shaded with ashy brown. Total length 4.15 inches, culmen 0.75, wing 2.1, tail 1.5, tarsus 0.65.

The Southern White-breasted Sunbird ranges from the Quanza and Zambesi rivers into Damaraland and Natal.

In Benguela and Mossamedes, according to Anchieta, it is rare near Capangombe, common at Humbe, and is called by the natives at Quissange "Mariapindo," but this name appears not to be restricted to one species of Sunbird, but to be rather a generic than a specific name.

South of the Cunene Andersson found the species to be abundant in the neighbourhood of the Okavango river during the rainy season. He also found it very common, though exceedingly shy, on the edge of the bush in Ondongo, where he obtained a nest on February 19: "the nest was very large and strongly built, and resembled in form and material that of *C. fuscus*; it contained five small, obtuse, and pure white eggs. Another nest taken on March 27 also contained five eggs. This Sunbird is exceedingly lively in its habits, and at the approach of the pairing season it becomes inspired with the most lovely and exquisite melodies."

Sir Andrew Smith met with these birds in the country between the Orange river and Kurrichaine.

The most southern range known for the species is Port Natal, where it has been procured by Verreaux, and in Natal, according to Captain Harford, "they keep company very often with the White-eyes (*Zosterops*) and utter a note similar to theirs." Two eggs of this species sent by him to Mr. Layard are described as resembling those of *Nectarinia famosa* but were paler and less densely speckled, 0.75 inch by 0.5 and rather obtuse.

In Zululand the Messrs. Woodwards procured a fine series at Eschowe.

In the Transvaal Mr. T. Ayres found the species common near Rustenburg in August where they were frequenting the same localities as *C. afer*, and during his journey up country with the late Mr. Jameson collected specimens at Palatswie Pan and Bamangwato in June, where they found them in company with *C. mariquensis*. Mr. T. E. Buckley while in Swaziland procured a male in imperfect plumage in June and another in full plumage in July.

From the Zambesi, the most northern known locality for this species in East Africa, there is one of Sir John Kirk's specimens, now in the British Museum, and according to Mr. Boyd Alexander: "With the exception of *Chalcomitra gutturalis*, this species was the most abundant of all the Sunbirds along the river, but at the same time its distribution was local. Wherever the thick woods gave way to open spots interspersed with acacia bushes, these little Sunbirds mustered in considerable numbers, full of activity, hardly heeding one's approach, but devoting all their attention to the acacia blossoms. After emerging from a forest silent and gloomy, it was a pleasant relief to come to such a spot, looking like a glimpse of fairy-land itself: the bright light playing upon the tender green of the acacias starred with innumerable yellow feathery blossoms, amongst which the Sunbirds were revelling, the sunlight catching the peacock blue of their backs as they travelled with jerky dancing flight from one bush to another, and at times burst forth into a chattering little song resembling that of our Siskin (*Chrysomitris spinus*), which now and again would suddenly give place to the call note, a small plaintive whistle."

Cinnyris albiventris.

Cinnyris albiventris (Strickl.) Shelley, Mon. Neet. p. 233, pl. 73 (1876);
Gadow, Cat. B. M. ix. p. 40 (1884); Shelley, Ibis, 1888, p. 300

Manda Is.; Salvad. R. Acad. Sc. Torino, 1894, p. 556 *Somali*; Sharpe, P. Z. S. 1895, p. 474 *Somali*; Shelley, B. Afr. I. No. 32 (1896); Lort Phillips, Ibis, 1896, p. 82; 1898, p. 403 *Somali*; Elliot Field Columb. Mus. Orn. I. No. 2, p. 41 (1897) *Somali*; Hawker, Ibis, 1899, p. 67, *Somali*.

Adult male. Similar to *C. leucogaster* but with the throat violet shaded steel blue not separated by any pectoral-band from the white of the breast; front half of the pectoral-tufts orange. Total length 3·6 inches, culmen 0·65, wing 2·1, tail 1·5, tarsus 0·65.

Adult female. Similar to *C. leucogaster* but whiter beneath and with no pale ends to any of the tail feathers.

The Somali White-breasted Sunbird inhabits Manda Island just north of Formosa Bay and Somaliland.

Mr. F. J. Jackson collected specimens on Manda Island, and remarks: "Very common all over the island, especially in the dense bush on the sides of the sand-hills along the shore. I found several nests with eggs in May. The song is very much like the first few notes of our Common Wren."

In Somaliland the type was obtained by Daubeny at Medudu, better known as Ras Hafoon, the extreme eastern promontory of Africa.

It appears to be a common species in Somaliland, and frequently to be met with around the flowering shrubs in company with *C. habessinicus*; for according to Mr. Hawker: "This bird is common on the plains of Berbera," and Mr. Lort Phillips calls it "common both on the hills and on the plains, where it may be seen in company with its dowdy little mate wherever the mimosa is in blossom, or the aloe hangs its crimson and yellow bells. It is very fearless, and does not seem to mind being watched in the least;" and later he remarks: "Fairly common from the Berbera Plain to the top of the Goolis Mountains." Mr. Elliot also collected specimens in Somaliland.

Cinnyris oustaleti.

Cinnyris oustaleti (Bocage), Shelley, Mon. Nect. p. 231, pl. 72, fig. 1 (1880); Cat. B. M. ix. p. 43 (1884); Sharpe, ed. Layard's B. S. Afr. p. 832 (1884); Büttik. Notes Leyd. Mus. 1889, p. 231 *Humpata*; Bocage, Journ. Lisb. 1893, p. 159; Shelley, B. Afr. I. No. 33 (1896).
Nectarinia oustaleti, Bocage; Orn. Angola, p. 545 (1881) *Caconda*.

Adult male. Similar to *C. leucogaster*, but differs in the metallic throat ending in a broadish metallic violet pectoral-band with the ends of the feathers maroon red, and the front half of the pectoral-tufts being orange red. Total length 4·5 inches, culmen 0·75, wing 2·2, tail 1·7, tarsus 0·6. *Caconda* (Anchieta).

Oustalet's White-breasted Sunbird is only known to occur in Benguela and Mossamedes.

Anchieta discovered the species at *Caconda*, where he informs us that it is common. On one of his labels, attached to a specimen in the British Museum, is written "Xinjonjo" as its native name.

Mr. Büttikofer refers to this species, a nearly full plumaged male, procured by Van der Kellen at *Humpata* on the Upper Cunene river in July.

This is another instance of very closely allied species of Sunbirds occurring in the same district, *C. leucogaster* having been recorded from *Capangombe*, *Humbe* and *Quissange*.

Cinnyris venustus.

Cinnyris venustus (Shaw), Mon. Nect. p. 235, pl. 74, figs. 1, 3 (1879); id. *Ibis*, 1883, p. 548 *Niger*; Gadow, Cat. B. M. ix. p. 39 (1884); Büttik. Notes Leyd. Mus. 1885, p. 169; 1886, p. 250; 1888, p. 72; 1889, p. 130 *Liberia*; Reichen, J. f. O. 1891, p. 391, 1897, p. 45 *Togoland*; Shelley, B. Afr. I. No. 34 (1896); Reichen, J. f. O. 1897, p. 45 *Togoland*.
Nectarinia venusta, Bocage, Orn. Ongola, p. 173 (1877) *Biballa*.

Adult male. Head, neck, back and lesser wing-coverts golden green, with the forehead and front half of crown and upper throat violet shaded

steel blue, the latter separated from the more violet lower throat by a few golden green feathers encroaching from the sides of the neck; chin and a narrow pectoral-band black; remainder of the under parts buff or pale yellow with bright yellow and orange red pectoral-tufts. Total length 3·6 inches, culmen 0·65, wing 1·95, tail 1·45, tarsus 0·55. W. Africa (Verreaux).

Adult female. Above ashy brown, wings, upper tail-coverts and tail darker; cheeks and under parts buffish white slightly yellower down the centre of the body. Total length 3·8 inches, culmen 0·6, wing 1·85, tail 1·2, tarsus 0·55.

The Western Buff-breasted Sunbird ranges over Western Africa from the Senegal to the Cunene and Zambesi rivers. The types of *Certhia quinticolor*, Bechst., *Cinnyris pusillus*, Swains., and *Nectarinia parvula*, Jard., all came from Senegambia.

Marche and De Compiègne have collected specimens at Dakar, Hann and Joal. Dr. Hartlaub records it from Galam and Casamance on the authority of Verreaux; Beaudouin procured the species at Bissao, and Shaw's type of the species came from Sierra Leone. In Liberia Mr. Büttikofer found these Sunbirds abundant, at Monrovia and Schieffelinville and along the banks of the Marfa, Junk and Du Qual rivers, generally in manioc plantations.

In the Gold Coast district the species is apparently rare, for I only find it recorded as having been procured there by Drs. Reichenow and Büttner from Aguapim and Togoland. An egg from the latter locality is described as of a pale greyish shade with freckles of darker grey and brown forming a zone at the thicker end, and measured 0·6 inch by 0·5.

Robins collected specimens at Abeokuta, and at the Niger the species has been obtained by Thomson at Aboh and by Forbes at Lokoja and Shonga.

C. venustus has not, to my knowledge, been recorded from Camaroons; its occurrence in Gaboon rests on a specimen formerly in Verreaux's collection and one of Gujon's (Hartl. Orn. W. Afr. p. 48; id. J. f. O. 1861, p. 109).

Prof. Barboza du Bocage refers two specimens from Biballa in Benguela to this species, so it is extremely interesting to find this Sunbird occurring at Zumbo on the Zambesi.

Here Mr. Boyd Alexander has procured two specimens which agree with typical *C. venustus* both in measurements and colouration of plumage. Culmen 0·6 inches, wing 1·85 to 1·9, tail 1·3.

Specimens of this species differ considerably in the shade of colouring of the breast, the abdomen being generally of a pale buff, and the axillaries occasionally not shaded with orange red; while in others the breast is of a bright pale yellow with fiery red and yellow pectoral-tufts. Forbes's specimens from the Niger are in the last-mentioned plumage, and I presume one of Marche's from Hann in Cape Verde to have been likewise a brightly coloured specimen, as M. Bouvier separated it from the others in his catalogue under the name of *N. affinis*.

The characters by which this species may be most readily distinguished from its near allies, are: thighs buff, not dark brown as in *C. affinis* and *C. falkensteini*; the under wing-coverts are whiter, not shaded with ash as in *C. affinis* or entirely brown as in *C. falkensteini*.

Cinnyris affinis.

Cinnyris affinis, Rüpp. Shelley, Mon. Nect. p. 239, pl. 74, fig. 2 (1879);
Gadow, Cat. B. M. ix. p. 40 (1884); Salvad. Ann. Mus. Genov.
1884, p. 140; 1888, pp. 246, 534 *Shoa*; Shelley, B. Afr. I. No 35
(1896).

Adult male. Similar to *C. venustus*. Above with less coppery gloss; breast brighter yellow, often shaded with chrome yellow; thighs dark brown; under wing-coverts ashy grey. Total length 4·2 inches, culmen 0·65, wing 2·15, tail 1·6, tarsus 0·6. Rayrayguddy, 27. 5. 68 (Jesse).

The Abyssinian Buff-breasted Sunbird represents *C. venustus* in Shoa, Abyssinia and Kordofan.

In Shoa the species must be fairly abundant. Harris found it there and Antinori and Ragazzi collected eleven specimens; of these, five of the males obtained in June and August were in full plumage, and the three males collected in November and December were in imperfect plumage.

In Abyssinia, Mr. Blanford writes: "This replaces *N. habessinica* above 3,500 to 4,000 feet and extends upwards into the temperate region. It breeds about May, and I saw young birds with the parents in July. The extent of blue on the neck appears to vary slightly."

Jesse found the species plentiful about Rayrayguddy and procured specimens on his journey from Undal Wells to Facado in May, but did not meet with it on his return journey, although Lefebvre found it common throughout the year in Tigré.

Von Heuglin met with this Sunbird at Takah and in Southern Kordofan where it appeared to be a resident, and was in full plumage during the rainy season. According to his observations, it does not appear to be very generally distributed, for he found it on the eastern side of the Abyssinian highland at no greater elevation than 6,000 or 7,000 feet, only among the mountain valley and apparently it never descended actually to the coast. This may account for Mr. A. J. Cholmley not having met with the species along the west coast of the Red Sea. According to Rüppell it is to be found plentifully in small parties along the road from Masowa to the Taranta Pass.

With regard to its habits, it appears to breed in April and May, and Brehm informs us that a pair, although not in full plumage, had their nest almost completed. The latter was placed not more than three feet from the ground, between

the leaves of a bush and a creeping plant; both were partly interwoven in the structure, which consisted of scraps of bark and fibre, fine grass and down, lined inside with hair and wool. The nest was of an oval form with an entrance near the top, and was partially hidden by a large leaf. The birds were engaged eight days in constructing this edifice.

Cinnyris falkensteini. (Pl. 3, fig. 1.)

- Cinnyris falkensteini*, Fisch. and Reichen. J. f. O. 1884, p. 56 *Masai*; Fisch. Zeitschr, 1884, p. 339; id. J. f. O. 1885, p. 139 *Naiwasha*; Sharpe, Ibis, 1891, p. 594 *Sotik*; Reichen, J. f. O. 1891, p. 161; id. Vög. Deutsch. S. Afr. p. 212 (1893) *Karagwe, Mpapwa, Taboro*; Shelley, Ibis, 1893, p. 16; 1894, p. 13; 1896, pp. 180, 233; 1897, p. 524 *Nyasa*; id. B. Afr. I. No. 36 (1896); Hinde, Ibis, 1898, p. 580 *Machako's*; Neumann, J. f. O. 1898, pp. 233, 234, 237.
- Nectarinia affinis* (nec Rüpp.) Bouv. Bull. S. Z. France, 1877, p. 450 *Uganda*; Hartl. Abhandl. Nat. Ver. Brem. 1891, p. 29 *Baguera*.
- Cinnyris affinis*, Cab. J. f. O. 1878, p. 227 *Teita*; Shelley, P. Z. S. 1835, p. 228; 1889, p. 365, *Kilimanjaro*; Emin, J. f. O. 1890, p. 60.

Adult male. Similar to *C. venustus*, but differs in having a shade of blue over the upper parts generally, and the throat more uniform violet and not divided in the middle by the green of the sides of the neck; breast deep yellow tinged with orange; under wing-covert brown. Total length 3·8 inches, culmen 0·75, wing 2·1, tail 1·65, tarsus 0·65.

Falkenstein's Buff-breasted Sunbird ranges from the Zambesi to about 1° N. lat. in Central and East Africa.

Mr. Alexander Whyte has collected specimens in Nyasaland in June, July, August and September at Zomba, the Nyika Plateau and Kombi between 6,000 and 7,000 feet, one of which is a nestling procured in June.

In German East Africa specimens have been procured by Emin at Taboro in the Unyamwesi country, at Mpapwa, Karagwe, and Baguera.

On Kilimanjaro Sir Harry Johnston met with it at 4,000

and 5,000 feet and found the species abundant at low levels, and Mr. Hunter also procured others on this mountain in August.

The type was discovered by the late Dr. Fischer at Nai-washa Lake, and the species has been collected at Machako's in Ukambani by both Mr. Hinde in May and September and Mr. Jackson in March; the latter traveller also met with it at Sotik in October.

There can, I think, be no doubt that the *Nectarinia affinis* of Bouvier's list of Piaggia's collection from Mtesa's country in Uganda refers to this species.

There is possibly a fourth species of this group of Sunbirds to be found in the little known country between the Blue Nile and Victoria Nyanza, with the following synonyms: *Nectarinia souimanga* (nec Gm.) Heugl. J. f. O. 1867, p. 300; *Nectarinia* sp. (?), Heugl. Orn. N. O. Afr. p. 233 (1871); *Nectarinia fazoglensis*, Finsch in Heugl. Orn. N. O. Afr. p. lxx. (1873); *Cinnyris heuglini*, Shelley, Mon. Nect. p. 241 (1879).

Cinnyris coquereli.

Cinnyris coquereli (Verr.) Shelley, Mon. Nect. p. 243, pl. 75 (1879);
Gadow, Cat. B. M. ix. p. 39 (1884); Milne Edw. and Oust. N.
Arch. Mus. (2) x. p. 245 (1888); Shelley, B. Afr. I. No. 37 (1896).

Adult Male. Head, neck, back and lesser wing-coverts metallic green; wings and tail black. A partial black collar consisting of a few feathers at the base of the green throat; breast bright yellow fading into buff on the under tail-coverts, with a broad patch of scarlet down the centre of the chest. Total length 3·8 inches, culmen 0·75, wing 1·95, tail 1·4, tarsus 0·6.

The Mayotte Island Sunbird is confined to the island of Mayotte, one of the Comoro group, and has been named after its discoverer, Dr. Coquerel.

Pollen and Van Dam found these birds perched on the fronds of the cocoanut trees or flitting actively around the

acacias in search of the honey and small insects on which they feed, often hiding themselves in the chalice of the larger flowers. They were very active in their habits and constantly uttered a short song which resembled that of the Blue Tit but more feeble. They were generally seen singly or in company with *Zosterops mayottensis*. It is well known to the French colonists as the "Colibri."

Cinnyris souimanga.

- Cinnyris souimanga* (Gm.), Shelley, Mon. Nect. p. 245, pl. 76 (1876);
 Gadow, Cat. B. M. ix. p. 43 (1884); Ridgway, Proc. U. S. Nat.
 Mus. 1895, p. 526 *Gloriosa Is.*; Shelley, B. Afr. I. No. 38 (1896).
Nectarinia souimanga, Milne Edw. and Grand. Hist. Mad. Ois. i. p.
 277, pls. 105, 106^a, 107, 107^a; Scott Elliot, Ann. Botany, 1890, p.
 261; Sibree, Ibis, 1891, pp. 429, 440.

Adult Male.—Head, neck, mantle and lesser wing-coverts deep metallic green with lilac bronze reflections, lower back and upper tail-coverts olive, wings and tail blackish. The metallic green throat shades off into a narrow steel blue collar next to which is an irregular maroon brown chest-band, followed by a broader one of brownish black flanked by bright yellow pectoral-tufts; remainder of under parts buff shaded with yellow down the centre of the body. Total length 4.5 inches, culmen 0.7, wing 2.2, tail 1.6, tarsus 0.6. Madagascar (Verreaux).

Adult Female.—Upper parts and sides of the head olive with a slight indication of a buff eyebrow. Cheeks and under parts olive-shaded buff, with the dusky bases of the feathers showing as partial bars on the throat. Total length 4 inches, culmen 0.7, wing 2, tail 1.4, tarsus 0.6. Madagascar (Crossley).

The Madagascar Buff-breasted Sunbird is confined to the islands of Madagascar and Gloriosa.

These Sunbirds are bold, active and gregarious, generally to be met with in parties of fifteen to twenty together, in the bushy plains and along the slopes of the hills, constantly on the move, now diving their bill into the flowers to sip the honey, then capturing some tiny insect in its flight, and follow up

their pursuit of food into the village gardens. Their flight is rapid and irregular, but is only sustained for a short distance.

M. Grandidier states that the males are most numerous, but this may be owing to the bright colours of the male catching the eye more readily than the dull plumage of the females. He further tells us that their little short cry of "tsonhi-tsonhi" is mostly to be heard in the morning. Mr. E. Newton calls "the song strong, loud, and very like a Willow Wren's." He found on October 1, while paddling up the Hivondrona river, "a nest of this bird, containing two eggs, on the bank, almost overhanging the water; it was a domed one, and was very prettily placed in some tall grass, the blue flowers of a *Lobelia bicolor* almost closing the entrance. It is composed outwardly of broad leaves of grass, decayed, and a little moss; over the entrance it has a sort of projecting pouch of a finer grass, and inside it is lined with down of some plant. The eggs, which were hard-set, are greyish white thickly freckled with light hair brown, so as to show but little of the ground colour. They are .59 inch in length by .44 inch in breadth."

M. Grandidier describes the nest as small and oval, suspended from a bush, generally on the bank of a stream. It is composed of fine grass, leaves and moss, sometimes bound together with spiders' web; in the interior there is little or no down; the entrance is at the side. They lay three to four eggs of a dull greenish white, spotted and streaked with rufous and brown, mostly so towards the thicker end, where these markings often form a zone. They vary in size, but average 0.6 by 0.44 inch.

With regard to the great utility of this and all species of Sunbirds, I cannot do better than quote Mr. G. F. Scott Elliot: "The flowers are often visited by Sunbirds; *Nectarinia souimanga* was the commonest near Fort Dauphin. The

correct position of the bird is to sit on the highest bract, and then to bend forwards and downwards to suck the sugary liquid by introducing its beak below the odd petal. In doing this it will explode a virgin flower, dusting its breast with pollen, while in older flowers it will touch the stigmatic surface, and so effect cross-fertilization. Sometimes it hops into the middle of a flower, however, and tries to reach the honey from the same bract by bending round the petals. Beetles and hymenoptera often visit the flowers to suck the sugary liquid which exudes over the edges of the bract. They will only produce fertilization by accident, however, while the narrow curved beak of the bird is excellently adapted to pass between the edges of the rigid bracts and suck the honey."

Referring to the Sunbirds of Madagascar, the Rev. J. Sibree writes: "The native names for these little birds all consist wholly or in part of the word *Sòy*, the meaning of which is at present unknown; but we find *Sòikèly*, "Little Soy;" *Sòimànga*, "Beautiful Soy;" *Sòiangàly*, "Capricious Sòy;" and also *Dandiana*, possibly meaning "Stepper." The word Soy is also reduplicated in another name, "*Sòisòy*." He further tells us that the Hova or general names for *C. souimanga* are *Sòisòy* and *Sòikèly*, and the provincial names *Anatsòy*, *Soy* and *Anjòy*.

The name Soy is derived from the note of the bird, as has already been remarked by M. Grandidier.

Dr. Abbott during his visit to Gloriosa Island, from January 18 to 29, collected four specimens, and remarks: "Common in Gloriosa. A very few were nesting at the time of our visit."

Cinnyris aldabrensis.

Cinnyris aldabrensis, Ridgway, Proc. U. S. Nat. Mus. 1894, p. 372;
1895, p. 536 *Aldabra Is.*

Adult Male.—"Similar to *C. souimanga*, but pectoral-band much broader and bright maroon bay instead of chestnut; sooty breast-patch much more extensive, reaching, medially, to middle of belly; sides and flanks light yellowish grey, the lower belly very pale sulphur yellow (whole belly canary yellow in *C. souimanga*). Total length 4.36 inches, exposed culmen 0.70, wing 2.10, tail 1.50, tarsus 0.65" (Ridgway). "Bill and feet black" (Abbott).

Adult Female.—"Much greyer above and darker below, anteriorly, than that of *C. souimanga*" (Ridgway).

The Aldabra Sunbird is confined to the island of Aldabra, which is situated in the Indian Ocean 9° 30' S. lat., 36° 30' E. long.

The species was discovered by Dr. W. L. Abbott, and is known to me only by Mr. Ridgway's description, and the following notes by Dr. Abbott: "This, the commonest bird in Aldabra, is found in all localities. Like all other birds of the islands, it is extremely tame and unsuspecting, even alighting on one's arm. It breeds from September to January, possibly longer and at other seasons. More than one brood is raised, but I do not know how many. The female alone performs the labour of nest building and incubation; the males, however, assist in feeding the young. The nest is suspended from a branch of a mangrove or of a 'buluchi' bush near the shore; a favourite situation being to fasten it to a stalk of grass or euphorbia hanging in one of the great pits or chasms so numerous in the coral rock of Aldabra. The nest is neatly constructed of fibres of bark, generally mangrove. The female selects a suitable hanging leaf or branch and attaches some fibres of bark firmly to it; other fibres are then attached to this until an oval mass is formed; this is then opened out by the bird entering her head and then her body into the mass. More material is now added to the outside, the bird occasionally entering the cavity and enlarging it by kicking and fluttering; finally the inside is lined with feathers. The

construction of the nest occupies about eight days. Two eggs are laid and the period of incubation is thirteen days. The young are born blind, but open their eyes on the seventh day. The male has a very sweet song, reminding one of the American house wren, *Troglodytes aëdon*."

Cinnyris abbotti.

Cinnyris abbotti, Ridgway, Proc. U. S. Nat. Mus. 1894, p. 372; 1895, p. 523 *Assumption Is.*

Adult Male.—"Similar to *C. aldabrensis*, but with under parts posterior to maroon bay pectoral-band almost entirely sooty black, with flanks more or less extensively light yellowish grey; upper tail-coverts glossy violet black tipped with metallic greenish blue. Total length 3 inches, culmen 0.70, wing 2.22, tail 1.62, tarsus 0.67." Type. Assumption Is., 18. 9. 92 (W. L. Abbott).

Adult Female.—"Similar to that of *C. aldabrensis*" (Ridgway).

Abbott's Sunbird is apparently confined to the small island of Assumption in the Indian Ocean, about twenty miles south of Aldabra Island.

Here four specimens, including the type, were collected September 18, by Dr. W. L. Abbott.

Cinnyris afer.

Cinnyris afer (Linn.), Shelley, Mou. Nect. p. 249, pl. 77 (1876); Ayres, Ibis, 1879, p. 294 *Rustenburg*; Sharpe, in Oates' Matabele, p. 310 (1881); Butler, Feilden and Reid, Zool. 1882, p. 246 *Natal*; Gadow, Cat. B. M. ix. p. 35 (1884); Rendall, Ibis, 1896, p. 170 *Transvaal*; Shelley, B. Afr. I. No. 39 (1896).

Adult Male.—Head, neck, back and lesser wing-coverts golden green; upper tail-coverts and a narrow collar at the base of the green throat violet shaded steel blue; wing brown; tail black with a narrow white edge to the outermost feather; a broad bright scarlet pectoral-band and yellow pectoral-tufts; remainder of the under parts pale ashy brown. Total length

5·5 inches, culmen 1·1, wing 2·6, tail 2·3, tarsus 0·75. Drakensberg, 27. 7. 81 (A. E. Butler).

Adult Female.—Above ashy brown; tail brownish black; an obscure pale eyebrow; cheeks and under parts very pale ashy brown. Total length 5 inches, culmen 1·1, wing 2·5, tail 2·25, tarsus 0·75. Drakensberg, 27. 7. 81 (A. E. Butler).

The Greater Double-collared Sunbird is apparently confined to Africa south of the Orange river and the Limpopo.

In Cape Colony the species has been recorded only from the southern portion, and is apparently local, for according to Mr. Layard it never visits the neighbourhood of Cape Town, yet it occurs at Stellenbosch, Swellendam and the Knysna. Frank Oates procured it at Mossel Bay; Atmore found the species breeding in the Long Kloof in the George district in October. Captain Bulger collected specimens at Windvogelberg, Mr. Richard at Port Elizabeth and East London, and Atmore at Eland's Post. Mr. T. L. Ayres told me that around Durban in Natal the species was to be met with during the breeding season, from July to August, and gave me several specimens he had collected at Pinetown, some twelve miles inland. Messrs. Butler, Feilden and Reid considered it a resident in the Drakensberg kloofs, where they found it in the cold months of May and June and met with a nest there, near Newcastle, on August 21. It was "a pear-shaped ball of dry grass, vegetable fibres, cobwebs, &c., very neatly constructed, and suspended by the small end from the top of a good-sized green shrub about ten feet from the ground. The entrance was at one side, with a portico over it; it was warmly lined with feathers. Unfortunately this nest was blown down in a snow-storm before the eggs were laid. One can hardly realise the fact of birds of this genus building with two feet of snow lying on the ground, but it is nevertheless a fact (B.)."

In the Transvaal Mr. T. Ayres considered it to be a

common bird in the Rustenburg district. Mr. Barratt collected specimens at Lydenburg and Macamac, and Mr. T. E. Buckley in Swaziland. There is a specimen in the British Museum labelled "Zambesi (Meller)"; it was formerly in Dr. R. B. Sharpe's collection, and was purchased from a dealer, and this evidence is not, I consider, sufficiently conclusive of its occurrence to the north of the Limpopo river, and I may add that in Bradshaw's collection there was no specimen of *C. afer*.

Mr. Chapman is said to have brought down with him a specimen from the Lake Ngami district, but he does not mention the species himself, and if the specimen really came from that country, it most probably belonged to the allied form, *C. ludovicensis*.

Mr. Atmore found *C. afer* breeding in October. The nests, he writes, "Were well woven with the fibres of *Asclepias*, grass-bents, snake skins, and all sorts of odd things, and then filled up with feathers. My boys have taken three or four nests each with but two eggs, and I believe that to be the orthodox number." The eggs, according to Mr. Layard, "are similar in colour (clouded greyish brown) and size to those of the western species, *C. chalybeus*."

Cinnyris ludovicensis.

Cinnyris ludovicensis (Bocage), Sharpe ed. Layard's B. S. Afr. p. 830 (1884); Shelley, B. Afr. I. No. 40 (1896); id. Ibis, 1897, p. 524 *Nyasa*.

Nectarinia ludovicensis, Bocage, Journ. Lisb. 1868, p. 41; id. Orn. Angola, p. 169 (1877) *Biballa*.

Nectarinia intermedia, Bocage, Journ. Lisb. 1880, p. 236; 1881, p. 65; id. Orn. Angola, p. 544 (1881) *Caeonda*.

Cinnyris erikssoni, Trimen, P. Z. S. 1882, p. 451, pl. 32, *Mossamedes*; Gadow, Cat. B. M. ix. p. 38 (1884).

Adult Male. Similar to *C. afer*, but differs in measurements and has no violet shade on the narrow steel blue pectoral-band. Total length 4·7

inches, culmen 0·7, wing 2·5, tail 2, tarsus 0·7. Caconda, 1878 (Anchieta).
Adult Female. Similar in plumage to *C. afer*.

The Benguela Double-collared Sunbird inhabits Benguela and North Zambesia.

Anchieta discovered the type of the species at Biballa, where, he informs us, it is called by the natives "Kanjoi," and at Caconda he obtained the type of *Nectarinia intermedia*. This species has been well figured from a very finely plumaged specimen and renamed *C. erikssoni* by my friend Mr. Trimen, who writes: "This handsome species was found by Mr. Eriksson to be not uncommon in the wooded ravines of the mountain-range called Shella ('Serra de Chella' of Keith Johnston's Library Map of Africa), rather over a hundred miles inland from the Port of Mossamedes at Little Fish Bay. He describes its habits to be precisely those of *C. chalybeus* and *C. afer*, both of which he had observed some years ago at Knysna in the Cape Colony, but which neither he nor the late Mr. Andersson ever met with to the north of the Orange river. Since seeing Mr. Eriksson's bird here described, it has occurred to me that the specimens of *C. afer* stated by Captain Shelley and Mr. Sharpe to be recorded by Prof. Barboza du Bocage from Biballa may possibly prove to be *C. erikssoni*, as the latter locality is only a few miles distant from the Shella range."

Mr. Trimen is certainly right in his last surmise, and this species must stand as *C. ludovicensis*.

In the British Museum there is a typical specimen of *Nectarinia intermedia*, Bocage, from Caconda, which also belongs to this species. It is not in full plumage, and its scarlet breast-band is not fully developed, but it may be distinguished from *C. chalybeus* by the scarlet of the breast-band being paler, of the same shade as in *C. afer*, and the narrow metallic belt above being bluer; but its strongest specific character lies in the small size of the bill in proportion to the wing.

On referring to *C. chalybeus*, Sharpe's ed. Layard's B. S. Afr. p. 315, will be found printed: "We also believe that we have rightly identified this species as occurring in Mr. Chapman's collection from Lake Ngami."

This reference and the one in the same work, to *C. afer* having been collected in the Lake Ngami district by Mr. Chapman, must be both incorrect. As to their referring to *C. ludovicensis*, it is improbable, as there is no reference made to the specimens by Mr. Chapman, although he gave a good list of the birds he collected in his "Travels, Interior, S. Afr. 1868;" but it is highly probable that he added these Sunbirds to his collection while he was in Cape Colony.

That *C. ludovicensis* may occur in the Lake Ngami district is not improbable, for Mr. Alexander Whyte has collected in Nyasaland, on the Nyika Plateau in June, four specimens in full adult male plumage.

Cinnyris chalybeus.

Cinnyris chalybeus (Linn.), Shelley, Mon. Nect. p. 253, pl. 78 (1876); Ayres, Ibis, 1876, p. 425; Butler, Feilden & Reid, Zool. 1882, p. 247 *Natal*; Shelley, Ibis, 1882, p. 256 *Rustenburg, Umvuli R.*; Gadow, Cat. B. M. ix. p. 37 (1884); Kuschel, J. f. O. 1895 (*egg*); Rendall, Ibis, 1896, p. 171 *Transvaal*; Marshall, t. c. p. 243 *Salisbury*; Shelley, B. Afr. I. No. 41 (1896); Sharpe, Ibis, 1897, p. 506 *Zulu*; Sowerby, Ibis, 1898, p. 569 *Mashona*.

Adult Male. Similar to *C. afer*, but smaller and with the scarlet pectoral-band narrower and slightly darker. Total length 5 inches, culmen 0·8, wing 2·25, tail 1·9, tarsus 0·65. Durban (Gordge).

Adult Female. Similar in plumage to *C. afer*. Ceres, Cape Colony, 28. 1. 74 (Shelley).

The culmen varies in length from 0·75 to 1·0. From Capetown 0·75 to 0·85; Natal 0·8 to 1·0; Mashonaland 0·85.

The Cape Lesser Double-Collared Sunbird is confined to South Africa, south of the Orange river and the Zambesi.

It is the commonest and most generally distributed of the South African Sunbirds, yet it is in a manner local, being in certain spots partially replaced by *C. afer*, from which it differs somewhat in its habits, preferring the open country, where the low scattered bushes and tufts of grass afford a shelter more congenial to its tastes than the woodland country.

Of its occurrence in the western districts Mr. Andersson writes: "I do not recollect having observed this bird north of the Orange river; but I have not unfrequently met with it in Little Namaqua Land, and I am informed by Mr. Layard that it was brought by Mr. Chapman from the Lake-regions." It is improbable that Mr. Chapman really procured it in the Lake Ngami districts, as he does not mention it in his book of "Travels in South Africa," and any specimen in his collection not recorded in that work was more probably obtained near Cape Town.

I found it very abundant at Cape Town, Ceres and Mossel Bay, Mr. Atmore has sent it from George, and in the Knysna district both Victorin and Andersson have procured it. Mr. Rickards collected specimens at Port Elizabeth and East London.

To the eastward of Cape Colony in Natal I found it fairly plentiful, both at Durban and Pinetown. Messrs. Butler, Feilden and Reid write: "Very common in the Drakensberg near Newcastle, where we obtained examples in mid winter (May and June) and where it breeds. Seen in small flocks, or rather assemblies, on flowering trees in the 'Town Bush' at Maritzburg on August 31."

Mr. Ayres observed them most abundant in Natal in July and August, when the peach-trees were in full blossom. He says their song is very sweet though not loud. In the Leydenburg district he found them "plentiful in the spring and early autumn, when they congregate on the blossoming

trees and shrubs; they are also found in winter, but not commonly." On his journey with Mr. Jameson, they collected specimens at Rustenburg in May and at the Umvuli river, in Matabele, in September. At the latter place they were scarce, and had probably just arrived, for none were seen in August. Mr. Barratt procured this species at Macomac, Lydenberg, Pretoria, Bloemfontein and in British Kaffraria where they were very abundant.

I do not find any reference to this bird having been met with so far north as the Zambesi river; but in Mashonaland Mr. Guy Marshall informs me: "This is the commonest of our Sunbirds; like the others it is most abundant towards the close of the dry season, when the yet leafless Kaferbooms (*Erythrina*) are ablaze with their scarlet flowers, which seem to afford a special attraction to these birds. It is a familiar and fearless little bird, and is capable of singing very sweetly. The nests, although often suspended, are more often supported by twigs."

With regard to its habits, Mr. Layard writes: "It is one of the boldest and most familiar of all our Sunbirds, frequenting the flower-gardens in the midst of Cape Town, and even venturing into open windows to visit potted plants. Nests, reported to be of this species, have been brought to me, pendent, domed, and porticoed structures, like those of others of the family that I have seen. Eggs minutely mottled greyish brown;" 0.65 by 0.5 inches. "I can confirm the statements of my correspondents, having myself taken nests of this species containing eggs and young birds. They are not, however, always pendent, being sometimes supported by twigs, interwoven with the structure. They are composed of cobwebs, stuck over with bits of dead leaves or chips of bark, and always placed on the *outside* of a bush, never among the branches. I have, however, seen one placed on the side of a

bush close to a rock, so that the bird had to fly round the bush to get to it. In appearance they exactly resemble the masses made and collected by one of our commonest (South African) spiders; and I have more than once seen an inhabited spider's web forming part and parcel of the nest. Whether the nest was built in the spider's web, or whether the spider found it a convenient place and selected it herself, or was brought with a bit of web by the bird, and then took up her abode and enlarged it, I cannot tell; but there the incongruous allies lived; and each brought up her brood, or would have done so, had not I harried them both."

Cinnyris mediocris. (Pl. 3, fig. 2.)

Cinnyris mediocris, Shelley, P. Z. S. 1885, p. 223 *Kilimanjaro*; 1889, p. 365 *Useri R.*; Sharpe, Ibis, 1891, p. 593 *Kikuyu, Sotik*; Reichen. Vög. Deutsch O. Afr. p. 212 (1893); Shelley, B. Afr. I. No. 43 (1896); Neumann, J. f. O. 1898, p. 241 *Mau*; Hartert in Ansorge's "Under Afr. Sun," App. p. 250 (1899) *Uganda*.

Adult Male. Similar to *C. chalybeus*, but differs in the bill being slightly more curved, and the abdomen pale olive shaded with yellow. It resembles *C. chalybeus* in having the head, neck, back and lesser wing-coverts golden green, but the upper tail-coverts and the narrow metallic collar are of a greenish rather than a violet shaded steel blue followed by a deep scarlet chest band flanked by yellow axillary tufts. Total length 4·6 inches, culmen 0·7, wing 2·1, tail 2, tarsus 0·7.

Adult Female. Above and sides of the head olive green. Beneath olive yellow, showing the dusky olive centres to the feathers, except on the centre of the abdomen which inclines to sulphur yellow; axillaries sulphur yellow; under wing-coverts white partially washed with yellow. Total length 3·9 inches, culmen 0·65, wing 2, tail 1·7, tarsus 0·65.

The Masai Double-collared Sunbird ranges from Kilimanjaro in Masai Land to Sotik (0° 35' S. lat., 35° 25', E. long.).

The type of the species was discovered by Sir Harry Johnston on the Kilimanjaro Mountain at an elevation of 12,000 feet, who writes: "Fairly abundant. Only remarked

in upper regions." Mr. H. C. V. Hunter likewise met with the species on Kilimanjaro between 5,000 and 6,000 feet, and procured a specimen in imperfect plumage at the Useri river in July. Mr. Neumann met with the species in the Mau forest, Mr. J. F. Jackson collected two full plumaged males in Kikuyu in September, and at Sotik in October, and Mr. Ansorge shot an adult male in December at the Subugo forest in the Uganda Protectorate.

Cinnyris stuhlmanni.

Cinnyris stuhlmanni, Reichen. Orn. Monatsb. 1893, p. 61 *Centr. Afr.*
? *Cinnyris erikssoni* (nec Trim.), Emin. J. f. O. 1891, p. 346 *Monbuttu*.

Stuhlmann's Double-collared Sunbird inhabits Central Africa. This rather vague locality is the only one given for the type which was forwarded to Berlin in Emin and Stuhlmann's collection. I presume this species, if not the type, is referred to from the Monbuttu country by Emin as *C. erikssoni*.

Nothing further is known, I believe, of this species, and as it was not entered in Dr. Reichenow's work on the avifauna of German East Africa, I omitted it in my "List of African Birds" presuming that it was not a good species, but at my request Dr. Reichenow has very kindly sent the character I have used for it in my key to the species of the genus *Cinnyris*. The original description of the type is as follows: "*Cinnyris afra* simillima, sed rostro brevior, fasciæ pectoralis colore rubro obscuriore, abdomine olivacenti-brunneo distinguenda. A *Cinnyris erikssoni* rostro longiore et fascia pectorali rubro angustiore diversa. L. t. ca. 130-140; a. im. 64; c. 60; r. 24; t. 19 mm."

Cinnyris fülleborni.

Cinnyris fülleborni, Reichen. Orn. Monatsb. 1899, p. 7 *Kalinga*.
Cinnyris preussi (nec Reichen.) Shelley, Ibis, 1897, p. 524 *Kombi*.

Adult Male. Similar to *C. chalybeus*, but with the abdomen uniform dark yellowish brown; blue collar and upper tail-coverts of a violet shade; quills with dark yellow on the outer edges, as in *C. preussi*; under wing-coverts mostly white. Total length 4·7 inches, culmen 0·85, wing 2·2, tail 1·8, tarsus 0·75. Kombe on Masuku range, Nyasaland, July (A. Whyte).

Fülleborn's Double-collared Sunbird inhabits the Nyasa Lake district.

At Kombi on the Maruku Range Mr. Alexander Whyte procured a specimen in full plumage at an elevation of 7,000 feet in July, and Dr. F. Fülleborn discovered the type at Kalinga in the southern part of German East Africa.

Cinnyris preussi.

Cinnyris preussi, Reichen. J. f. O. 1892, p. 190 *Camaroons*; Sjöstedt, Mitt. d. Schutzg. viii. 1895, p. 33; id. Sv. Vet. Ak. Haudl. 1895, p. 102; Reichen. J. f. O. 1896, pp. 38, 64; Shelley, B. Afr. I. No. 44 (1896). *Cinnyris chalybeus* (nec Linn.), Shelley, P. Z. S. 1887, p. 125 *Camaroons*.

Adult Male. Very similar to *C. fülleborni*, but with the dark brown breast only slightly tinted with yellow on the abdomen and under tail-coverts, under wing-coverts dusky ash with no white. Total length 4·2 inches, culmen 0·85, wing 2·25, tail 1·65, tarsus 0·75. *Camaroons* Sept. (H. H. Johnston).

Adult Female. Very similar to the hen of *C. mediocris*. Total length 4 inches, culmen 0·8, wing 2, tail 1·7, tarsus 0·65.

The *Camaroons* Double-collared Sunbird is only known to occur in *Camaroons*.

The type was procured by Dr. Preuss at Buea in the highlands; Sir Harry Johnston collected two full plumaged males and a female in the same district at 7,000 to 8,000 feet in September. According to Mr. Sjöstedt they have a fine piping note which they pour forth from the top of a bush, and are often to be met with in company with *Elminia longicauda*.

Cinnyris reichenowi.

Cinnyris reichenowi, Sharpe, *Ibis*, 1891, pp. 444, 593, pl. 12, fig. 1
Sotik; Shelley, *B. Afr. I.* No. 45 (1896); Hartert in Angorge's
 "Under Afr. Sun," App. p. 350 *Uganda*.

Nectarinia erickssoni (nec Trim.), Hartl. *Abhandl. nat. Ver. Brem.*,
 1891, p. 28 *Baguera*.

Cinnyris ansorgii, Hartert in Angorge's "Under the African Sun," App.
 1891 p. 350, pl. 2, fig. 1, *Mandi*. "Mandi Station" Hartert

Adult Male. Similar to *C. preussi*, but smaller and slightly bluer above and with scarcely any trace of yellow on the wings. Total length 4.4 inches, culmen 0.63, wing 2.1, tail 1.55, tarsus 0.65. *Sotik*, Oct. (Jackson).

The blue shade on the upper parts, and the shade of red of the breast-band are not very constant characters, but the short bill and violet blue colouring of the collar and upper tail-coverts readily distinguishes the species.

Reichenow's Double-collared Sunbird inhabits the Victoria Nyanza district.

The type of the species was discovered by Mr. Jackson at *Sotik*, near the north-east end of Victoria Nyanza. He has, further, procured at *Nandi*, at an elevation of 6,500 feet, an adult male with a rather pale breast-band, and a male in moult in May, and in the same locality a female, on July 8, 1898. Six days later he obtained an adult male in the ravine of *Mau*. All these specimens, as well as the type of *C. ansorgii*, I have carefully examined and consider to belong to one species. Of the latter Mr. Hartert writes: "An adult male, shot at *Mandi Station* in the *Uganda Protectorate* on March 16, 1898, differs from *C. reichenowi*, Sharpe, in the great extension of the somewhat deeper red colour of the breast, which occupies an area of about 23 mm. in length, while in *C. reichenowi* it extends for about 17 mm., tarsus 20 mm., culmen (from end of feathers of forehead) 18.3 mm., against 20 mm. in *C. reichenowi*. The belly and abdomen seem to be a little darker than in

C. reichenowi. It is not without hesitation that I describe a third form in addition to *C. mediocris* and *C. reichenowi* from almost the same localities; yet, on the other hand, it seems to be as distinct from *C. reichenowi* as the latter is from *C. mediocris*; and Prof. Reichenow and Mr. Neumann, both authorities in East African ornithology, pronounced it to be an undescribed species when they saw it at Tring."

The group to which I have applied the name of Double-collared Sunbirds presents several extremely nearly allied forms. These are most readily distinguished by the brown, yellow or ashy shade of the breast below the red collar, and the steel or purple blue shade of the metallic collar and upper tail-coverts; these characters, coupled with the measurements of the bill and wing, suffice to distinguish each species; and the females may be generally recognised by the shade of plumage being somewhat similar to that of the abdomen of the full plumaged males.

Cinnyris chloropygius.

- Cinnyris chloropygius* (Jard.) Shelley, Mon. Nect. p. 257, pl. 79 (1876); Sharpe and Bouvier, Bull. S. Z. France, 1876, p. 41 *Loango*; Gadow, Cat. B. M. ix. p. 34 (1884); Büttik. Notes Leyd. Mus. 1885, p. 169; 1886, p. 250; 1888, p. 72; 1889, p. 118 *Liberia*; Reichen. J. f. O. 1887, p. 306 *Leopoldsville*; Shelley, P. Z. S. 1888, p. 38 *Tingasi*; id. Ibis, 1890, p. 162 *Aruwimi*; Reichen. J. f. O. 1890, p. 126 *Camaroons*; Sharpe, Ibis, 1891, p. 593 *Sotik*; Reichen. J. f. O. 1892, pp. 55 *Uganda*, 190 *Camaroons*; 1896, p. 38; Sjöstedt, Sv. Vet. Ak. Handl. 1895, p. 101 *Camaroons*; Shelley, B. Afr. I. No. 46 (1896); Reichen. J. f. O. 1897, p. 46 *Togoland*.
- Nectarinia chloropygia*, Hartl. J. f. O. 1861, p. 109 *Bissao, Gaboon*; Shelley and Buckley, Ibis, 1872 p. 287 *Gold Coast*; Hartl. Abhandl. nat. Ver. Brem. 1891, p. 29 *Djanda, Uvamba*.

Adult Male. Head, neck, back and lesser wing-coverts metallic golden green, with no portion steel blue; a scarlet breast-band joins the green throat; axillary-tufts bright yellow; remainder of the under parts olive

shaded brown. Total length 3·6 inches, culmen 0·65, wing 1·9, tail 1·4, tarsus 0·6. Abouri, 20. 2. 70 (T. E. Buckley).

Adult Female. Above olive, as well as the cheeks and sides of the head; tail black with pale tips broadest on the outer feathers. Under surface of body and a partial eyebrow pale yellow fading into white towards the chin. Total length 3·5 inches, culmen 0·6, wing 1·75, tail 1·1, tarsus 0·55. Abrobonko, 30. 1. 72 (Shelley).

The little Scarlet-collared Sunbird ranges throughout West Africa from Senegal to Angola, and over Central Africa to the eastern shores of Victoria Nyanza.

Dr. Hartlaub records a specimen, in the Berlin Museum, from Senegal; Verreaux's collectors sent others from Casamance. Mr. Büttikofer calls it the commonest Sunbird in Liberia, and in the British Museum there is an adult male from Cape Palmas.

On the Gold Coast the species is abundant: Mr. Blissett collected specimens at Elmina, the late Governor Ussher in Fantee, in the neighbourhood of Cape Coast Castle and the inland forest of Denkera. He also met with it further along the coast at the Volta river and Lagos.

Mr. T. E. Buckley and myself found these birds at Abrobonko, near Cape Coast Castle, and at Abouri in the Aguapim mountains, but never saw them in the open country round Accra. In Togoland Herr Baumann procured a specimen at Leglebi in July.

The type of the species is in the British Museum; it is an adult male from the Niger. Marche and De Compiègne collected specimens at Old Calabar and on the Island of Fernando Po, where, according to Fraser, these Sunbirds are to be met with in flocks of from twenty to fifty individuals near the houses, perched on the long grass and low shrubs, and they have a short but sweet note. "A female procured breeding; the nest, made of grass, was pendent from the branches of a small bush; she alone was the architect, both

carrying and weaving the materials ; the male was not observed to assist in any way."

In Camaroons the species is said to be common throughout the country and is apparently equally abundant in Gaboon, for there are fifteen skins from that country in the British Museum.

Marche collected specimens at Lambaréné, Lopé, and Doumé in the Ogowé district, and Du Chaillu at the Moonda, Muni and Camma rivers. Petit procured specimens on the Loango Coast, at Landana and Chinchonxo, and it wanders as far south as the Lucale river in Angola, from whence there is one of Hamilton's collecting in the British Museum.

The species evidently ranges over the whole northern half of the Congo district, for specimens have been collected by Bohndorff at Leopoldville, by Jameson at the Aruwimi, by Emin at Tingasi, Djanda, Uvamba and Bukoba. Along the northern portion of Victoria Nyanza the species has been procured by Dr. Stuhlmann on the islands of Sesse and Soweh, off the Uganda coast, and as far east, by Mr. Jackson, as Sotik, ($0^{\circ} 34' S. lat., 35^{\circ} 25' E. long.$). He has also collected two full plumaged males at Ntebi in March and September.

With regard to the breeding of this species Mr. Büttikofer writes: "Its nest hangs at the end of a twig about three feet above the ground, generally in old farms, where grass and brushwood are growing up again. It is of a pouch-like, somewhat oval shape, felted together with the soft fibres of plantain leaves and cotton, with which latter material it is very thickly lined, and outside decorated with interwoven pieces of lichen, which gives it a grey and white speckled appearance. The entrance, a round hole in the side near the top, is covered by a kind of jetty, built from the same material as the nest. Each nest contains commonly two, very seldom three, eggs of an oval form" (0.6 inch by 0.44); "colour, greyish white

with concentric dirty streaks at the thicker pole. Collected November 14."

Cinnyris regius.

Cinnyris regius, Reichen. Orn. Monatsb. 1893, p. 32; id. J. f. O. 1894, pl. 1, fig. 1; Shelley, B. Afr. I. No. 42 (1896).

Adult Male. Head, neck, back, lesser and median wing-coverts metallic green; upper tail-coverts violet blue; a narrow steel blue collar at the base of the throat; centre of breast and under tail-coverts scarlet shading into bright yellow on the sides of the body and into olive yellow on the vent; quills and greater coverts blackish brown with olive edges, the former with white inner margins; tail graduated and blue black; under wing-coverts yellowish white. Bill black; iris and legs dark brown. Total length 5 inches, culmen 0·7, wing 2·15, tail 2·1, tarsus 0·6.

The Red-brested Wedge-tailed Sunbird has been recorded only as a native of Central Africa.

Probably to this species should be referred the specimens of Mr. Layard's *Nectarinia violacea*, B. S. Afr. pp, 78, 79, of which he writes: "I saw a fine pair building a pendent, domed nest, with a projecting portico over the entrance, at Cape Delgado, on the East Coast of Africa. The nest was hung at the extreme end of a drooping branch of a *Casuarina*, close to the sea-beach; not far off was the nest of *N. senegalensis*." The latter mentioned species was no doubt *Chalcomitra gutturalis*.

Cinnyris violaceus.

Anthobaphes violacea (Linn.), Shelley Mon. Nect. p. 23, pl. 8 (1876); Gadow, Cat. B. M. ix. p. 11 (1884); Shelley, B. Afr. I. No. 72 (1896).

Adult Male. Head, neck, upper half of the back and least wing-coverts deep metallic green partially glossed with lilac; lower back and upper tail-coverts olive yellow; remainder of the wings and the tail dark brown; the

green of the throat passes into lilac and then into steel blue towards its base. Breast yellow, strongly washed with orange on the front of the chest and tail-coverts, and shades into olive yellow on the flanks; pectoral-tufts bright yellow. Total length 6·5 inches, culmen 0·9, wing 2·3, tarsus 0·7. Cape (Brit. Mus.).

Adult Female. Olive, with an ashy shade beneath, and washed with yellow down the centre of the breast and on the under tail-coverts. Total length 5 inches, culmen 0·85, wing 2, tail 2·2, tarsus 0·65. Cape (Brit. Mus.).

The Cape Wedge-tailed Sunbird is probably confined to the western portion of Cape Colony south of the Orange river and west of the Gauritz river, which separates the provinces of Swellendam from George.

It is equally improbable that Mr. Layard ever saw this species at Cape Delgado, as that the specimens said to have been in Mr. Chapman's collection came from the Lake Ngami district.

Mr. Andersson writes: "I have found this species pretty abundant in Little Namaqualand; but to the best of my knowledge it is not an inhabitant of Great Namaqua or Damara-land, though Mr. Layard informs us that Mr. Chapman brought specimens from the Lake country. It is found singly and in pairs, often also in flocks, frequenting the slopes of hills and mountains, whence it descends to the low grounds, but only during the flowering-season of the garden plants and trees, amongst which it is especially fond of the sweet-scented orange blossom. With the exception of such excursions, it is not migratory. The male bird has a brisk pleasant song."

Mr. Layard found these Sunbirds plentiful on the top and about the sides of Table Mountain, and also abundant in the Knysna district among the uncultivated hill sides, away from timber.

Mr. A. C. Stark has kindly sent me the following note: "Breeds in western Cape Colony in June and July—mid-winter—even on the higher mountains, sometimes a second

time in September and October. Very common on Table Mountain. The nests are domed, but, unlike those of any other South African Sunbird, are never pendent, nor have they any projecting porch over the entrance. All I have seen (seven or eight) have been built in thick tufts of heath from a foot to eighteen inches off the ground, the sides of the nest attached to the twigs of heath. Nest constructed of small flexible twigs of heath, dry grass and narrow downy leaves, thickly lined with the soft white petals of a protea (usually).

“Eggs two, white, dotted all over, but most thickly round the greater diameter with small spots and streaks of greyish brown. They measure 0.65×0.48 .”

Genus IV. CHALCOMITRA.

Form very similar to that of *Cinnyris*; tail always square, and the entire mantle brown, sometimes inclining to velvety black in adult males.

Full plumaged males always have metallic colours on the forehead; the other metallic coloured portions of the plumage are confined to the crown, wing-coverts, upper tail-coverts and throat.

Females and young birds have no metallic colours, and sometimes the species to which specimens of these belong can only be determined by their measurements and habitat.

The genus is confined to tropical and South Africa, and comprises about twelve known species.

KEY TO THE SPECIES.

- a.* Entire forehead of metallic colours . . . *males in full plumage.*
*a*¹. A broad scarlet chest-band.
*a*². Upper throat metallic green.
*a*³. No metallic colours on the wing.
*a*⁴. Metallic green mustachial-band
much broader; wings and tail
paler, cinnamon brown . . . *senegalensis.*
*b*⁴. Metallic green mustachial-band
much narrower; wings and
tail bronzy brown . . . *acik.* ?

- b*³. Least series of wing-coverts metallic violet. *gutturalis*.
- b*². Chin and upper throat black.
- c*³. No metallic colours on back or upper tail-coverts *eruentata*.
- d*³. Lower back and upper tail-coverts metallic lilac *hunteri*.
- b*¹. No broad red chest-band.
- c*². Throat metallic lilac.
- c*³. Forehead and crown green.
- c*⁴. Upper tail-coverts metallic lilac.
- a*⁵. Larger : culmen 1·15; wing 2·9 *amethystina*.
- b*⁵. Smaller : culmen 0·9; wing 2·8 *deminuta*.
- d*⁴. No metallic coloured upper tail-coverts *kirki*. —
- f*³. Forehead metallic lilac *fuliginosa*
- d*². Throat metallic green *angolensis*. —
- e*². Lower throat buff *adelberti*.
- g*³. With bright chestnut on plumage . *adelbert*.
- h*³. No bright chestnut on plumage . . *castaneiventris*.
- b*. Forehead brown like the upper parts.
- e*¹. Mottled with some bright colours . . . *males in imperfect plumage*.
- d*¹. No bright colours *females*.

Females and young males are similar in plumage and size in *C. senegalensis*, *C. acik*, and *C. gutturalis*, but may be distinguished from all the other members of this genus in having the primary coverts distinctly marked with white, instead of being uniform brown.

Chalcomitra senegalensis.

Chalcomitra senegalensis (Linn.), Shelley, B. Afr. I. No. 47 (1896).
Cinnyris senegalensis, Shelley, Mon. Nect. p. 267, pl. 83 (1878); Gadow, Cat. B. M. ix. p. 94 (1884); Rendall, Ibis, 1892, p. 219 *Gambia*; Reichen, J. f. O. 1897, p. 46 *Togoland*.
Nectarinia senegalensis, Bocage, J. f. O. 1876, p. 435 *Senegambia*.

Adult Male. Dark brown fading into cinnamon brown on the quills, greater wing-coverts, upper tail-coverts and tail; crown and a broad mustachial-band golden-green; chin and upper throat metallic olive green; remainder of throat and front of chest bright vermilion with a narrow subterminal metallic bluish green bar to each feather. Total length 5 inches, culmen 0·9, wing 2·6, tail 1·9, tarsus 0·6. W. Africa (Brit. Mus.).

Adult Female. Above brown; some white on the outermost wing-coverts, especially the primary coverts; outer tail-feathers with narrow pale

ends. Beneath buff, strongly mottled by the brown centres of the feathers on the throat and chest, and washed with brown on the flanks. Total length 4·6 inches, culmen 0·85, wing 2·45, tail 1·7, tarsus 0·65.

The Senegal Scarlet-chested Sunbird is confined to the northern portion of West Africa and is only known for certain from the coast-land between 10° and 15° N. lat.

Swainson writes: "It is probably one of the most common birds of Senegal, as scarcely any collection imported from that country does not contain several specimens;" and Dr. P. Rendall in his recent notes on the ornithology of the Gambia remarks: "Scarcely a flowering shrub in my garden yielded any flowers the corollas of which had not been pierced by individuals of this species or of *Cinnyris cupreus*."

It has been recorded by Prof. Barboza du Bocage from Goree, a small island off Cape Verde. Marche collected specimens in Senegambia, at Hann, Daranka and Sedhion, and in the British Museum there are examples from the Gambia, Cassamanse and Bissao. Dr. Hartlaub records a specimen in the Bremen Museum from the Gold Coast, which locality I feel sure must be incorrect, as it has never since been procured from south of Bissao, and for the same reason I agree with Dohrn that it does not occur in Princes Island.

Many erroneous localities have been given to species, owing to naturalists who have not labelled their specimens with the date and the name of the place where they were actually procured having often had their collections referred to one locality although they probably added to them during the whole time of their travels.

Chalcomitra acik.

Chalcomitra acik (Antin.), Shelley, B. Afr. I. No. 48 (1896).

Cinnyris acik, Shelley, Mon. Nect. p. 265, pl. 82 (1878); Gadow, Cat.

- B. M. ix. p. 94 (1884); Sharpe, Linn. Soc. Journ. Zool. xvii. p. 428 (1884) *Nyam-nyam*; Shelley, P. Z. S. 1888, p. 38, *Tingasi*; Sharpe, Ibis, 1891, p. 592 *Kikuyu*, *Busoga*; Reichen. J. f. O. 1892, p. 55, *Bukoba*, *Sesse Is.*; id. Vög. Deutsch O. Afr. p. 210 (1894); Neum. J. f. O. 1898, pp. 233, 234 *Victoria Nyanza*; Hartert in Ansorge's "Under Afr. Sun" App. p. 351 (1899) *Unyoro*.
- Nectarinia acik, Pelz. Verh. Wien. xxxi., pp. 143, 609 (1881); Hartl. Abhandl. nat. Ver. Brem. 1881, p. 108; 1882, p. 206; 1891, p. 30 *Upper White Nile*.
- Cinnyris senegalensis lamperti*, Reichen. J. f. O. 1897, p. 196 *Kilimanjaro*; Hartert in Ansorge's "Under Afr. Sun" App. p. 351 (1899) *Mtoto Ndei*.

Adult Male. Similar to *C. senegalensis*; but differs in the darker brown colouring of the wings and tail, in the green mustachial-band being much narrower and in the bluer shade of the metallic bars on the scarlet feathers. Total length 5 inches, culmen 0.85, wing 2.6, tail 2, tarsus 0.65. N. E. Afr. (Antinori, in Brit. Mus.).

Adult female and males in moult are similar to those of *C. senegalensis*.

The Acik Scarlet-chested Sunbird ranges over the Victoria Nyanza, Upper White Nile and Shoa districts, between about 6° S. lat. and 10° N. lat., and from 25° to 40° E. long.

This species, as I understand it, varies in size to the same extent as *C. gutturalis*, thus: total length 5.0 to 5.7 inches, culmen 0.85 to 1.1, wing 2.6 to 3.0, tail 1.7 to 2.1, tarsus 0.65 to 0.7. The specific characters are: entire absence of metallic colours on the wing-coverts, which allies it to *C. senegalensis* only, from which latter species it may be always distinguished by the much narrower metallic green mustachial-band, and perhaps most readily by the darker colour of the wings and tail. The metallic bars on the scarlet feathers of the crop are less green, but vary in certain lights from steel blue to bluish green.

The most southern known range for the species is Moshi on the Kilimanjaro mountain, where Mr. Widemann procured a rather large pale specimen, the type of *Cinnyris senegalensis lamperti*, Reichen., which is described as similar in plumage to

C. senegalensis, but larger: bill 1·12 inches, wing 3·0, tail 2·08, and differs from *C. gutturalis* in having no metallic coloured patch on the wing-coverts, the wings and tail paler, and the scarlet on the lower throat and crop lighter, and with green instead of blue metallic subterminal bars to these feathers.

Mr. Hartert, in his list of the collection of birds made by Mr. Ansorge, writes:—

“*Cinnyris acik*. A good series from Masindi in Unyora.

“*Cinnyris senegalensis lamperti* (see J. f. O. 1897, p. 186). A male from Mtoto Ndei in British East Africa belongs to this form, described as a subspecies of *senegalensis*, from which it differs in being much larger (wing 77 mm.) and more brownish on the back.”

I have examined Mr. Jackson's fine series of specimens from Machako's, Ntebi, Elgeyu, Bosoga and Kikuyu, and find they only differ in being slightly larger than the typical specimen I have described and those in the British Museum from Nyam-nyam and Shoa. Emin and Dr. Stuhlmann have met with the species at Victoria Nyanza on the island of Sesse and at Bukoba. The former explorer also collected specimens at Langomeri, Redjaf, Magungo, Kiri, Mambero, Njangaba and as far west as Tingasi, in which latter neighbourhood Bohndorff procured specimens while in the Nyam-nyam country at Dem Suleiman and at Dem Bakir (6° 30' N. lat., 27° E. long).

Antinori, who discovered the type of *C. acik* in the Djur country, believed that the species arrived there from the Equator about the beginning of February, when he first saw a few pairs, and migrated again towards the middle of April, as he did not meet with it later than the 15th of that month. He further tells us that the natives call it “Acik” and look upon its arrival as a good omen, foretelling the approach of the rainy season.

The most northern known range for this species is the Gazal river, in the neighbourhood of which von Henglin found these Sunbirds plentiful, and records them from Wau, Bongo and the Kosanga river, meeting with them generally in pairs in the high trees around the blossoming creepers, and, with the exception of July and August, he found them there during the whole year. He believed he saw them throughout his journey from the Nile across the Belenia mountains.

Chalcomitra gutturalis.

- Chalcomitra gutturalis* (Linn.) Cab. J. f. O. 1878, p. 227 *Zanzibar Is., Teita*; Shelley, *Ibis*, 1893, p. 17; 1894, p. 14; 1897, p. 525; 1898, p. 553; 1899, p. 282 *Nyasa*; id. *B. Afr. I.* No. 49 (1896).
- Cinnyris gutturalis*, Shelley, *Mon. Nect.* p. 261, pl. 81 (1876); Nicholson *P. Z. S.* 1878, p. 355 *Dar-es-Salaam*; Fisch. and Reichen. *J. f. O.* 1879, p. 348 *Zanzibar*; Sharpe in Oates's *Matabele*, p. 310 (1881); Gurney, *Ibis*, 1881, p. 125 *Mombasa*; Shelley, *P. Z. S.* 1881, p. 570 *Pangani R.*; 1882, p. 202 *Rovuma R.*; id. *Ibis*, 1882, p. 256 *Matabele*; Butler, Feilden and Reid, *Zool.* 1882, p. 247 *Natal*; Schal. *J. f. O.* 1883, p. 359 *Kakoma*; Sharpe, ed. *Layard's B. S. Afr.* pp. 311, 830 (1884); Gadow, *Cat. B. M.* ix. p. 91 (1884); Fisch. *Zeitschr.* 1884, p. 338 *Gt. Arusha*; id. *J. f. O.* 1885, p. 138 *Wapokomoland, Barawa*; Ayres, *Ibis*, 1887, p. 55 *Transvaal*; Reichen. *J. f. O.* 1887, p. 75 *Kagehi*; Matsch. t. c. p. 155 *Luvule R.*; Büttik. *Notes Leyd. Mus.* 1888, p. 230; 1889, p. 71 *Mossamedes*; Reichen. *J. f. O.* 1889, p. 285 *Quilimane, Rufu R.*; 1891, p. 160 *Mpapwa, Tabora*; id. *Vög. Deutsch. O. Afr.* p. 210 (1894); Kuschel, *J. f. O.* 1895, p. 347 (*egg*); Marshall, *Ibis*, 1896, p. 243 *Mashona*; Woodward, *Ibis*, 1897, pp. 401, 410 *Zulu*; Sharpe, t. c. p. 506 *Zulu*; Sowerby, *Ibis*, 1898, p. 569 *Mashona*; Neum. *J. f. O.* 1898, p. 229 *Zanzibar*.
- Nectarinia gutturalis*, Bocage, *Orn. Angola*, p. 164 (1877) *Benguela*; Fisch. *J. f. O.* 1877, pp. 178, 208; id. and Reichen. *J. f. O.* 1878, p. 260; Fisch, t. c. p. 280; 1879, p. 300; 1880, pp. 188, 191; Böhm, *J. f. O.* 1883, p. 191; 1885, pp. 46, 71 *E. Afr.*; Sousa, *Jorn. Lisb.* 1887, p. 93 *Quissange*.
- Cinnyris cruentata* (nec Rüpp.) Tristram, *Ibis*, 1889, p. 226 *Ugogo*.
- Cinnyris gutturalis incestimata*, Hartert in Ansorge's "Under Afr. Sun," *App.* p. 351 (1899) *E. Afr.*

Adult Male. Similar to *C. acik*, but of a more uniform darker velvety brown, and the least series of wing-coverts bright metallic violet, which latter character also readily distinguishes it from *C. senegalensis*. Total length 5·5 inches, culmen 1·1, wing 3, tail 2·2, tarsus 0·7. Pinetown, 30. 4. 75 (T. L. Ayres).

Adult Female. Similar to that of *C. senegalensis* and *C. acik*. Total length 5 inches, culmen 1, wing 2·75, tail 2, tarsus 0·7. Pinetown, 3. 4. 75 (T. L. Ayres).

The Southern Scarlet-chested Sunbird ranges from Angola into Damaraland and from thence throughout eastern Africa, from Natal to 1° N. lat. on the Somali coast.

In western Africa the species has been found by Welwitsch at Loanda, by Monteiro at Colombo on the Quanza, at Katombella and Benguela. Anchieta informs us that it is known to the natives of Rio Chimba and Capangombe as "Mariopinda," at Humbe and the Cunene as "Kanzola," and that it has a sweet and varied song. Mr. Chapman found the species common in the Okovango valley and in the Lake Ngami district, but did not see it in Damaraland proper, where, according to Andersson, they are not common, but in July, 1866, he met with it at Objimbinque and remarks: "They seem chiefly to seek their food amongst the 'tobacco' trees now growing so abundantly in the bed and on the banks of the Swakop. Can the increase of this tree of late years have brought more of these birds? I hardly remember to have seen them at Objimbinque previously."

Mr. T. L. Ayres has sent me several specimens collected by him at Durban and Pinetown, where he tells me it is migratory, only arriving in the summer season and is never very abundant there. According to Messrs. Butler, Feilden and Reid, it is said not to be uncommon in the hot months near Maritzburg. In Zululand Messrs. R. B. and J. D. S. Woodward collected specimens at Eschowe, Ulundi and Santa Lucia Lake, and found the species abundant amongst the aloe-blossoms. Mr.

T. Ayres writes, with regard to a specimen he shot in the Transvaal, July, 1885: "Whilst trying for a shot at Sea-cows one morning, along the Mahupan, I noticed several of these handsome little birds busily extracting honey from the flowers of a shrub in blossom; there was only a patch of it a few yards in circumference, but this was all alive with Sunbirds, and, besides the present species, I noticed *C. mariquensis* and *C. talatala*. The next day I went with my shot-gun and obtained the specimen now sent; I subsequently saw two others near Buffels, but was not able to secure them. This is the first time I have met with the Natal Sunbird since leaving the coast of Natal in 1870."

In the British Museum there are eight specimens from Swaziland, and twenty-two full plumaged males from various localities between the Limpopo and Zambesi, collected from February to October. In Matabeleland Messrs. Jameson and Ayres inform us that the species is called by the natives "Icomo mazadoona." They collected specimens at the Umvuli river, August 16, and Quae Quae river, October 25, and write: "This species suddenly made its appearance in great numbers about this time, and remained plentiful for somewhat less than a month, and then became scarce again, a pair here and there only remaining to breed. This was not for want of food, for the 'German-sausage trees,' on which they had been feeding, were still loaded with blossoms long after the Sunbirds had left; so I presume they must have been passing to some more favourite locality."

With regard to the species in Mashonaland, Mr. Sowerby writes: "Very common in bush-veldt and kopjes, but I never saw them before August 8. They are very pugnacious." From the same country Mr. Guy Marshall informs us: "This fine bird is not nearly so plentiful as *C. chalybeus* and *C. kirki*, and seems to absent itself from about January to June, though

perhaps it may be that the male loses his fine plumage during this period. The nest is generally supported among small twigs 10 or 15 feet from the ground, and is somewhat untidy in appearance, being almost identical with that of *C. chalybeus*; it is domed and porched, and is composed of grass and fibres intermixed with down and a few dead leaves, the whole being bound together with spiders' web, and the inside lined with fine grass and down. The eggs (0.75 by 0.55 inch) are two in number, of a pale olive ground colour, spotted, streaked and pencilled with dark vandyke brown and with underlying splashes and blotches, some of the marking being collected in an irregular zone round the larger end, and occasionally a good deal suffused. I do not recollect hearing this species sing, but it possesses a very loud chirp, which is often uttered with almost monotonous iteration."

Along the Zambesi Mr. Boyd Alexander "first met with this species near a little village called Chia. A narrow strip of tall orange red flowering plants, not far from the river, attracted a great number of these birds as well as large flocks of Weavers. We found it easy to obtain our specimens, in fact, it was difficult to drive the birds away from this clump of flowering weed, while from time to time they took refuge in a neighbouring thick-leaved tree. The flight is jerky and erratic, and the note, often uttered on the wing, loud for the size of the bird, resembling a rapid rendering of the Greenfinch's call. We found these Sunbirds in colonies along the river; their distribution, however, depended to a great extent upon flowering plants and acacias, whose blossoms they are extremely fond of. The distribution was decidedly local, and from the time we left the locality of one colony till we came across another, hardly an individual was observed.

"Regarding their habits: they are rarely found very far away from water, in fact, more than once we observed a party

of these Sunbirds hovering to and fro over the river itself, catching insects. When not breeding, the males generally travel from one spot to another without the company of the females. During the heat of the day, when all other birds have hidden themselves in the depths of the wood, they are abroad, seeming to take a delight in the intense heat, always most active, while it is only in the early morning and evening that they take a rest from their labours and retire into the thick under-cover.

“As the pairing season approaches, the male never leaves the side of his mate, and when courting her has a quaint way of swaying his body from side to side as if it was on a pivot right in front of her gaze. Moreover, he is constantly singing to her, uttering his song from the topmost twig of some tall acacia tree, while the notes both in tone and rendering are by no means unpleasant, and closely resemble those of the Lesser Redpole (*Acanthis rufescens*). When feeding off the buds of a tree this Sunbird generally attacks the buds from some convenient branch above, to which it hangs all the time by its feet, or it will give a great stretch forward in order to bring a bud within its reach.

“Above Zumbo, near the river, we discovered a nest of this species on December 21. It was oval-shaped and attached to three slender branches of an acacia tree, and about twenty feet up. The structure was flimsy and untidy, made of fine grass interwoven with fragments of skeleton leaves, cobwebs and cocoons, and lined with the fluffy down of some weed. The depth of the nest was three inches, the circular entrance being about an inch from the top, the hole running perpendicularly down. Not a yard away from this nest was a nest of bees. We noticed that the pair of our birds constantly made use of these bees as guides to some rich flower store in the vicinity; the male frequently followed the course of the bees, and more

than once he attacked a bee returning, and carried it off. After we obtained the female the male bird became very shy, only to appear now and again above the high trees in the vicinity. The last locality where we found this bird in any great numbers was some sixty miles below the mouth of the Kafue river, which we reached on December 31. The land was low-lying and covered with groves of tall acacia trees. The birds were simply revelling amongst the freshly opened blossoms.

“About the middle of December, the commencement of the rainy season in the Zambesi region, they begin to breed, and by the time the young are hatched the store of insect and flower life is abundant. At other times of the year partial migrations of this species occur, the birds following in the wake of rain clouds, and twice we observed after a local shower the locality was invaded soon by companies of these Sunbirds.

“All the male specimens, six in number, we obtained at Chia on July 31 were in full breeding dress. Further up the river, at Acuaza, the bird was again common. At Zumbo on November 10 and 13, and again on December 16, we collected for the first time five immature males which had only assumed the plumage of the adult as far as the chin, throat, foreneck and chest. A few metallic green feathers on the forehead were also visible.

“On examining our series, and the dates on which the specimens were obtained, it would appear that the full plumage of the adult is not assumed till the second year.”

In North Zambesia the species is abundant; Sir John Kirk procured a specimen at Shupanga, and Mr. Alexander Whyte at Zomba in September and January, and on the Milanji plain in October at an elevation of 4,000 feet. Captain Sperling found these Sunbirds not at all rare at Mozambique and breeding there. Specimens have been collected by Dr. F. Stuhlmann

at Quilimane in January, at the Rufu river and in Usegua in September and on Zanzibar island in October and November. I have been given specimens by the late Mr. Joseph Thomson from the Rovuma river and by Sir John Kirk from Dar-es-Salam and the Usambara country.

That the species ranges right across the Continent there can be no doubt, for Dr. Böhm met with them throughout his travels in about 6° S. lat. from Zanzibar to the banks of the Lualaba to the west of Lake Tanjanyika, and collected specimens at the Luvule river, just north of Lake Moero, in October and at Qua Mpara in March, when he observed the young birds just able to fly.

To the east of Lake Tanjanyika he increased his collection of this species at Kakoma, Ugalla river, Gondar close to Tabora, at Simbaveni in August and at Konko in Ugogo in September. Dr. Fischer also found the species abundant in the coast district and in Masailand, often frequenting the orange and banana groves planted by the natives near their huts, and adds the following localities to its range: Maurui on the Pangani, Arusha, Kagehi, Larnu, Wapokomoland on the left bank of the Tana river and Barawa on the Somali coast (1° N. lat.), the furthest northern limit yet known for this Sunbird.

With regard to the breeding of this species, the nests found by Mr. Ayres were generally hung "on the outermost twigs of trees, at no great height from the earth and very frequently over water."

Captain Sperling describes the nest as "hanging from a twig about six feet from the ground; it was kidney-shaped, with the two lobes downwards and the circular entrance opening from the bottom of one lobe; the material of which it was built was dry, hay-like fibres and grass intricately interwoven."

The nests found by Dr. Fischer were hung from the outer boughs of the shrubs at from twelve to fourteen feet from the ground and composed of grass, roots, &c., and well lined with feathers.

He informs us that this species is known to the Zanzibaris as "Tschosi katembo." The name *Tschosi* is apparently the generic name of the natives for all Sunbirds, as other travellers have applied it to *C. microrhynchus* and *A. longuemarii*, and it is curious to find apparently the same name, spelt "Tschodi" by Marche, applied by the natives of the Gaboon to *C. superbus*.

The name of *Cinnyris gutturalis inæstimata* is proposed by Mr. Hartert for the birds of this form from the East African sub-region, and he writes: "Specimens of *C. gutturalis* from East Africa differ considerably from those of South Africa in being much smaller and must be separated subspecifically."

In 1884 Dr. Gadow (Cat. B. M. ix. p. 92) wrote: "The smallest specimens of *C. gutturalis* occur in the Zanzibar district, the largest in Natal." *C. gutturalis* varies in size: culmen 0·9 to 1·15; wing 2·6 to 3·0. On comparing two fine specimens collected by Bradshaw in South Zambesia with two equally well-preserved specimens from Altoni (Emin) the result is that these specimens scarcely differ at all in size.

South Zambesia: culmen 0·9, wing 2·85 to 2·9.

Altoni: culmen 0·95, wing 2·8.

Chalcomitra cruentata.

Chalcomitra cruentata (Rüpp.), Salvad. Ann. Mus. Genov. 1884, p. 141

Shoa; Shelley B. Afr. I. No. 50 (1896).

Cinnyris cruentatus, Shelley, Mon. Nect. p. 259, pl. 80 (1878); Gadow,

Cat. B. M. ix. p. 93 (1884).

Nectarinia cruentata, Bouvier, Bull. S. Z. France, 1877, p. 449 *Uganda*.

Chalcomitra scioana, Salvad. Ann. Mus. Genov. 1888, p. 247 *Shoa*.

Adult Male. Blackish brown; wings and tail coppery brown, with the least series of wing-coverts metallic violet; crown and mustachial-band metallic emerald green; chin and upper throat black, often with a few metallic green feathers at the base next to the broad breast-plate of bright vermilion feathers, each of which has a narrow subterminal steel blue bar. Total length 5.7 inches, culmen 0.95, wing 2.85, tail 2.2, tarsus 0.7. Bogos (Esler).

Adult females and young males very similar to those of *C. gutturalis*, but with less white on the outer wing-coverts, the primary-coverts being uniform brown.

The Abyssinian Scarlet-chested Sunbird inhabits Shoa and Abyssinia.

I do not admit *C. scioana*, Salvad., the Shoa bird, to be distinct from the Abyssinia *C. cruentata*, Rüpp.

Monsieur Bouvier records the species as occurring in Piaggia's collection from Uganda, but as this is the only indication of the species having been found south of Shoa, it is quite possible that the specimen referred to was procured by Piaggia during his journey to or from Uganda and not in that country.

An immature specimen of *C. gutturalis*, collected by Sir John Kirk at Tete on the Zambesi, was referred by accident to this species (Cat. ix. p. 94).

C. cruentata is evidently plentiful in Shoa, for Antinori and Ragazzi procured twelve specimens there in May, June, July and September.

Von Heuglin knew of the species from Fasokl, Abyssinia and Bogos, generally to be met with along the water courses, and describes it as active but with a weak flight like that of a Chaffinch, and a pleasing but rather insignificant song. Mr. Blanford found these Sunbirds about Senafé in the higher parts of the pass and along the hill-side of the Anseba valley, but nowhere common. However the species appear to have been met with by all the naturalists who have explored this country.

According to Antinori it arrives in Bogos in May and was most abundant at Keren from May to the end of July, but Brehm met with specimens in the same country during March and April.

The males probably cast off their bright plumage about October, to assume it again in February or March, as I find no record of full plumaged males having been collected during the winter months.

The only character which Count Salvadori proposes for his *C. scioana* is the appearance of a few metallic green feathers on the base of the black throat. I am, however, convinced that this is only an accidental occurrence, for I have seen specimens in the British Museum procured by Blanford and Jesse at Senafé, and again at Bogos by the same gentlemen, and others by Mr. Esler. They were found in each instance along with the true *C. cruentata*.

Chalcomitra hunteri.

- Chalcomitra hunteri* (Shelley), Sharpe, P. Z. S. 1895, p. 475 *Somali*; Shelley. B. Afr. I. No. 51 (1896); Elliot, Field Colomb. Mus. Orn. I. No. 2 (1897) *Somali*.
Cinnyris hunteri, Shelley, P. Z. S. 1889, p. 365, pl. 41, fig. 2, *Useri R*; Sharpe, Ibis, 1891, p. 592, *Teita*; Reichen. Vög. Deutsch. O. Afr. p. 210 (1894); Salvad. R. Acad. Torin. 1894, p. 556 *Somali*; Hawker, Ibis, 1899, p. 67 *Somali*; Hartert in Ansorge's "Under Afr. Sun," App. p. 351 (1899) *Kinani and Tsavo R.*

Adult Male. Velvety brownish black, the anterior three quarters of the crown metallic green, the hinder feathers glossed with violet; least wing-coverts, rump and upper tail-coverts metallic violet; a metallic green mustachial-band; chin and upper throat black; lower throat vermilion with a few metallic violet bands to the feathers, most numerous towards its junction with the black of the upper throat. Total length 5·6 inches, culmen 1·1, wing 2·85, tail 2·1, tarsus 0·7. *Useri R.* 7. 89 (H. C. V. Hunter).

Adult females and young males are similar to those of *C. cruentata*.

Hunter's Scarlet-chested Sunbird ranges from the Teita country into Somaliland.

The types, a male and female in full plumage, were discovered by Mr. H. C. V. Hunter, in July, at the Useri river, which rises from the north-east flank of the Kilimanjaro mountain.

Mr. Jackson has also procured the species in the Teita country at the Voi river, and Mr. Ansorge at the Kinani and Tsavo rivers. This Sunbird has not been, yet, recorded from German East Africa, but ranges northward into Somaliland, where Mr. Ruspoli has procured a specimen at Mandera in the Golis mountains; Mr. Elliot at Hullier, where he found it not uncommon; and Mr. Hawker shot the only specimen he saw at Ujawaji in January.

Chalcomitra amethystina.

Chalcomitra amethystina (Shaw), Shelley, B. Afr. I. No. 52 (1896).

Cinnerys amethystinus, Shelley, Mon. Nect. p. 269, pl. 84 (1878); Ayres, Ibis, 1879, p. 294 *Transvaal*; Butler, Fielden and Reid, Zool. 1882, p. 247 *Natal*; Gadow, Cat. B. M. ix. p. 96 (1884); Ayres, Ibis, 1884, p. 226 *Transvaal*; Kuschel. J. f. O. 1895, p. 346 (*egg*); Rendall, Ibis, 1896, p. 171 *Transvaal*; Sharpe, Ibis, 1897, p. 506 *Zululand*.

Adult Male. Velvety black with a lilac bronze gloss, wings and tail of a more coppery shade; crown metallic green; least series of wing-coverts violet shaded steel blue; upper tail-coverts and throat metallic lilac. Total length 5·3 inches, culmen 1·15, wing 2·9, tail 2, tarsus 0·7. Pinetown, 15. 5. 75 (T. L. Ayres).

Adult Female. Above ashy olive, wings and tail darker and browner, with the outer feathers of the latter tipped with white; eyebrows and under parts buff, with the throat dusky black and the chest and under tail-coverts mottled by the dark centres of the feathers. Total length 4·9 inches, culmen 1·1, wing 2·6, tail 1·9, tarsus 0·7. Pinetown, 2. 2. 75 (T. L. Ayres).

Adult Male in moult and Young. Similar to adult female, but with the throat jet black. Pinetown, 3. 5. 75 (T. L. Ayres).

The Greater Amethyst Sunbird inhabits South Zambesia, ranging south from the Limpopo, 22° S. lat., and east from the Swellendam district of Cape Colony, 22° E. long.

According to Mr. Layard the species, although abundant in the eastern provinces of Cape Colony, has never been seen near Capetown. He received specimens from Swellendam and considered it to be not very uncommon in the forest districts. Mr. Atmore writes: "I have not seen this species west of the Gouritz river; on the other side they are plentiful, especially when the 'Wild dagga' is in flower." Mr. Atmore also collected examples at Eland's Post and Grahamstown. Levallant discovered the type at the Gamtoos river. Mr. Ricket found these Sunbirds near Port Elizabeth frequenting the flowers of the aloes, but not in the same abundance here as at East London during the flowering season of the *Tecoma* or Cape Honeysuckle. At Kingwilliamstown it has been met with by Lieut. Anstey. Mr. T. L. Ayres, who was living at Pinetown when I visited Natal, informed me that these Sunbirds remained there throughout the year, frequenting the more bushy country. Captain Harford found them breeding in November, and Messrs. Butler, Feilden and Reid remark: "Not uncommon from Durban as far up country as Ladysmith; at Colenso it was common in November, and at Durban in August and December." In Zululand, the Messrs. Woodwards collected a series at Eschowe, and one full plumaged male in June at Santa Lucia Lake, and write: "Is very partial to the mistletoes and other flowering parasites that grow on the mimosa-trees. It is of a very pugnacious disposition. We have found several of their nests hanging from the low trees; these are domed and loosely put together, composed of grass, dead leaves, and cobwebs; the eggs are yellowish white."

From the Transvaal Mr. T. Ayres writes: "This Sunbird is very plentiful in some localities, notably about 'Oliphants

Nek,' a pass in the Magaliesbergen, about twelve miles from Rustenburg, where there is a good deal of bush and much parasite plant," and further remarks: "This species is common amongst the Magaliesbergen, especially during the winter months, June, July and August, when it is in its brightest plumage."

Mr. Barratt met with the species between Potchefstroom and Rustenburg, and saw a few in the bush near Pretoria; he also obtained it at East London in company with *C. chalybeus*, and found it to be much shyer than that bird. In the Barberton district Dr. P. Rendall procured a specimen in April in the Bonanza Valley. Mr. T. E. Buckley found the species to be abundant in Swaziland, but doubted its crossing the Limpopo into Matabele. Dr. Bradshaw, who made a large collection from north of the Limpopo, never, I believe, procured this species during his journey.

With regard to the breeding of this Sunbird, Mr. Atmore writes: "The nest is a curious structure, hanging on the branch of an apple-tree, very rough outside, composed of short bits of stick, grass, and spiders'-web, arched, as are the nests of all the tribe. The number of eggs appears to be two, as we did not take these till they were incubated; before they were blown they were of a soft, creamy yellow colour."

Chalcomitra deminuta.

- Chalcomitra deminuta*, Cab. J. f. O. 1880, p. 419 *Angola*; Shelley, B. Afr. I. No. 53 (l.c. *dimidiata*, err. 1896).
Nectarinia amethystina (nec Shaw), Bocage, Orn. Angola, p. 163 (1877) *Caconda*; Sousa, Jorn. Lisb. 1888, p. 221 *Quindumbo*.
Cinnyris amethystina, Gadow, Cat. B. ix. p. 96 (pt. Zambesi and Angola); Dubois, Bull. Mus. R. Belg. 1886, p. 148 *Tanjanyika*; Matsch. J. f. O. 1887, p. 155 *Lufuka R.*, *Luvule R.*
Cinnyris bradshawi, Sharpe, Ibis, 1898, p. 137 *Witu*; *S. of Zambesi* (Bradshaw).

Adults. Similar to *C. amethystina* but smaller, browner and with a much shorter bill. Total length 5.6 inches, culmen 0.9, wing 2.8, tail 2.2, tarsus 0.65. Caconda (Anchieta).

Adult females and young males are similar in plumage to those of *C. amethystina*.

The Little Amethyst Sunbird inhabits South Tropical Africa between about 2° to 20° S. lat., ranging from north of the Limpopo or Orange rivers through Benguela, Angola and Central Africa to Witu near the mouth of the Tana river.

The late Dr. Bradshaw during his collecting tour between the Orange river and Mashonaland procured a full plumaged male which I refer to the present species, the type of which was discovered by Schütt in Angola. Anchieta collected specimens in Benguela at Caconda and Quindimbo, and to this species, no doubt, belong the specimens referred to *C. amethystina* which were brought to Europe by Captain Storms from his journey to Lake Tanjanyika, and those by Böhm from the Lufuka and Luvule rivers to the west of that lake.

It is curious not to find the species recorded from German East Africa, for the type of *Cinnyris bradshawi*, which I do not consider should be separated from *C. deminuta*, was obtained by Mr. Jackson at Witu on June 16, 1891, and it is worthy of notice that he also procured a full plumaged male of *C. kirki* at the same place a few days previously, on March 4.

The two specimens referred to *C. bradshawi* by Dr. R. B. Sharpe are too widely separated geographically to belong to a species distinct from both *C. deminuta* and *C. kirki*, the ranges of which would closely flank on each side that of *C. bradshawi*.

If I am wrong in referring *C. bradshawi* to *C. deminuta*, the only other alternative would be to consider the two specimens referred to *C. bradshawi* as abnormal varieties of *C. kirki*, tending to revert to the *C. amethystina* form.

Chalcomitra kirki.

Chalcomitra kirki (Shelley), id. B. Afr. I. No. 54 (1896).

Cinnyris kirki, Shelley, Mon. Nect. p. 273, pl. 85 (1876); id. P. Z. S. 1881, p. 571 *Usambara*; Gurney, Ibis, 1881, p. 125 *Mombasa*; Gadow, Cat. B. M. ix. p. 97 (1884); Fisch. J. f. O. 1885, p. 139 *Mambrui*, *Gt. Arusha*; Shelley, P. Z. S. 1885, p. 228 *Kilimanjaro*; id. Ibis, 1888, p. 300, *Manda Is.*; id. P. Z. S. 1889, p. 366 *Kilimanjaro*; Sharpe, Ibis, 1891, p. 592 *Machako's*; Reichen. J. f. O. 1891, p. 161, *Taboro*; id. Vög. Deutsch O. Afr. p. 210 (1894); Kuschel, J. f. O. 1895, p. 346 (*egg*); Jackson, Ibis, 1898, p. 137 *Witu*; Sowerby, t. c. p. 569 *Mashona*; Hinde, t. c. p. 579 *Machako's*.

Nectarinia kirki, Hartl. Abhandl. Brem. 1891, p. 27 *Bagamoyo*.

Chalcomitra kalkkreuthi, Cab. J. f. O. 1878, pp. 205, 227 *Ndi, Kitui*; Schal. J. f. O. 1883, p. 359 *Kakoma*.

Nectarinia kalkkreuthi, Fisch. J. f. O. 1878, p. 280 *Mombasa*.

Cinnyris kalkkreuthi, Fisch. and Reichen. J. f. O. 1879, p. 343 *Tshava, Mambrui*.

Adult Male. Similar to *C. amethystina*, but smaller, with no metallic colour on the upper tail-coverts and with the lesser wing-coverts more lilac. Total length 4·8 inches, culmen 0·95, wing 2·55, tail 1·85, tarsus 0·65. S. Zambesia (Bradshaw).

Adult Female. Similar in plumage to *C. cruentata*. Total length 4·8 inches, culmen 0·8, wing 2·45, tail 1·65, tarsus 0·65. Pangani (Kirk).

Kirk's Amethyst Sunbird ranges over Eastern Africa between the Limpopo river and the Equator, eastward of about 30° E. long. The most southern known limit for this species is the Umfuli river, a tributary of the Limpopo: here Messrs. Jameson and Ayres collected specimens in full plumage in September, and write: "These birds made their appearance much about the same time as *C. gutturalis*, but by no means so plentifully, feeding together with them on the flowers of the 'German sausage tree.'" In Mashonaland Mr. Sowerby considered it to be uncommon, as he only saw three or four of them; but according to Mr. Guy Marshall's observation in the same country, this little species is about as

plentiful as *C. chalybeus*, and "the nest, which is usually suspended from a twig, is made of much the same material but is neater, more compact and with less spiders' web interwoven in the structure. The eggs, 0·7 by 0·5 inch, are pale greenish grey, clouded streakily with very pale olive so as to almost obscure the ground colour."

Dr. Bradshaw's collection contained several unlabelled specimens. To the north of the Zambesi Sir John Kirk procured the type of the species, an adult male, at Shupanga near where the Shiré river joins the Zambesi. He informs us that it is there known to the natives as "Sungwe" and adds: "The Sunbirds are abundant in open ground covered with flower-bearing bushes, such as Poivreas, Dalbergias, Acacias, &c., and they frequent especially such plants as the Leonitis, searching inside the corolla for insects, and probably sucking the saccharine juices. Before the rains they lose the fine plumage, and become of a dull mixed colour. December is the breeding season; nests have been observed among the grass, attached to its stalks, and in the bush. The young birds may be kept for some time on honey or sugar and water, which they lick up greedily from a straw or the corolla of a plant; but the absence of insect food probably causes them to die."

Mr. Boyd Alexander, during his travels up the Zambesi, remarks: "By no means abundant. We never met with any fully adult birds, obtaining our two immature males, having the metallic coloured throat of the adult, on November 12, at Zumbo, and then, later on, two females as we journeyed up the river."

The late Dr. Böhm met with this species only to the east of Lake Tanjanyika at Kakoma, 32° 19' E. long., its furthest known western range, the species being replaced to the west of that lake by the bird he called *C. amethystina* which no

doubt refers to *C. deminuta* Cab., a small race of the former species. Specimens have been collected by Emin at Tabora and Bagamoyo; by Sir John Kirk on Zanzibar island and in the Usambara country; by Fischer at Mambrui, Arusha, Tshara and Mombasa; by Hildebrandt at Ndi, Kitui and on Mombasa island.

On Kilimanjaro both Sir Harry Johnston and Mr. Hunter collected many specimens between 3,000 and 7,000 feet. Mr. Jackson procured several on Manda island in May, and nests from Merereni and writes: "Common, especially among the mango trees at Tangani. The nest was found suspended on the extreme end of a small branch of a mangrove bush, along the edge of a creek in July 1866." He also obtained an adult male, in March, at Machako's (1° 28' S. lat., 37° 7' E. long.), and in the same latitude, at Witu on the coast, an adult male in May.

Chalcomitra fuliginosa.

Chalcomitra fuliginosa (Shaw), Shelley, B. Afr. I. No. 55 (1896).

Cinnyris fuliginosus, Shelley, Mon. Nect. p. 275, pl. 86 (1878); Nicholson, P. Z. S. 1878, p. 129 *Abeokuta*; Gadow, Cat. B. M. ix. p. 95 (1884); Büttik. Notes Leyd. Mus. 1885, p. 168; 1886, p. 251; 1888, p. 72; 1889, p. 118 *Liberia*; Shelley, P. Z. S. 1887, p. 125 *Camaroons*; Reichen. J. f. O. 1887, p. 306 *Leopoldsville*; 1890, p. 126 *Camaroons*.

Nectarinia fuliginosa, Bouvier, Cat. Ois. Marche, &c., p. 14 (1875) *Gaboon*; Reichen. J. f. O. 1877, p. 25 *Loango*.

Cinnyris scapulatus, Rochebrune, Bull. Soc. Phil. Paris, 1885, p. 89 *Gaboon*.

Adult Male. Chocolate brown, palest on the head, neck and mantle; front half of crown steel blue shaded with violet; upper tail-coverts and throat metallic lilac; pectoral-tufts pale yellow. Total length 5.4 inches, culmen 0.95, wing 2.7, tail 1.9, tarsus 0.63. Chinchonxo, 22. 4. 76 (Petit).

Adult Female. Very much paler than the male and with no metallic colours, tail-feathers with narrow whitish ends; throat dusky brown; a

broad loreal band, centre of breast and under tail-coverts buff. Total length 4·8 inches, culmen 0·85, wing 2·5, tail 1·6, tarsus 0·65.

The Carmelite Sunbird is confined to West Africa, where it ranges from Senegambia to the Congo.

I have seen specimens from Senegambia, but it appears to be far more plentiful towards the Equator.

In Liberia, according to Mr. Büttikofer, it is not common, although he procured specimens at Robertsport, Monrovia, Junk river and Schieffelinsville, and the type of *C. aureus*, Less., was a Liberian specimen in the Württemberg collection. On the Gold Coast, according to Ussher, it is moderately common, possibly appearing only at certain seasons, for Mr. T. E. Buckley and myself never met with it there in February and March.

In the British Museum there are specimens from the Volta river, Abeokuta and Lagos.

I find no mention of the species from the Niger, but in Camaroons it is abundant, according to Dr. Reichenow, and Crossley and Sir Harry Johnston both collected specimens there.

Gaboon is possibly the metropolis of this species, for here specimens have been collected by Du Chaillu near the Moonda and Camma river, by Marche in the Ogowé district, and by Mr. Skertchley at Kavimba. Along the Loango coast at Malimba, Perrein procured the type of the species, and, close by, specimens have been collected by Falkenstein and Petit at Chinchonxo and Landana, and by Captain Sperling at Kabenda.

Ascending the Congo river, Bohndorff collected specimens at Leopoldsville, just below Stanley Pool, which is the most eastern known range for this species.

C. fuliginosa has apparently only one actual moult in the year, when the male passes out of the dull female-like plumage and abruptly assumes the dark brown feathers and metallic

colours, and later the rich colours simply fade and get worn away, causing specimens to show great variation in colour. One of these adult males in faded plumage, from Gaboon, is the type of *Cinnyris scapulatus*, Rochebrune.

The name "Carmelite" for this bird was first used by Vieillot as its French name in 1802, and Latham twenty years later called it the "Carmelite Creeper," and in 1854 Reichenbach made it the type of his genus *Carmelita*.

Chalcomitra angolensis.

Chalcomitra angolensis (Less.), Shelley, B. Afr. I. No. 56 (1896).

Cinnyris angolensis, Sharpe and Bouvier, Bull. S. Z. France, 1876, p. 304

Loango; Shelley, Mon. Nect. p. 279, pl. 87 (1879); Gadow, Cat. B.

M. ix. p. 98 (1884); Sharpe, Linn. Soc. Journ. Zool. xvii. p. 428

(1884) *Semnio*; Reichen. J. f. O. 1887, p. 306 *Leopoldsville*; 1890,

p. 126 *Camaroons*; Shelley, Ibis, 1890, p. 162 *Yambuya*; Reichen.

J. f. O. 1892, pp. 55, 189 *Camaroons*; id. Vög. Deutsch O. Afr. p.

210 *Bukoba*; Neum. J. f. O. 1898, p. 237 *Bukoba*.

Nectarinia angolensis, Hartl. Abhandl. Brem. 1891, p. 28 *Msukali*,

Uvambo-Lager.

Adult Male. Dark brown with a slight bronzy gloss; forehead, feathers in front of the eyes and chin black; front half of the crown and the throat metallic green, edged on the occiput and breast with metallic violet. Total length 4·8 inches, culmen 0·75, wing 2·6, tail 1·7, tarsus 0·6. W. Africa (McLeannan).

Adult Female. Above brown, with a partial buff eyebrow; outer tail-feathers with narrow pale ends. Beneath buff, mottled on the throat and sides of the breast with the brown centres of the feathers. Total length 4·2 inches, culmen 0·7, wing 2·4, tail 1·6, tarsus 0·6.

The Green-throated Brown Sunbird ranges from Camaroons and Fernando Po into Angola, eastward to the shores of Victoria Nyanza and into the Upper White Nile district. A specimen of this species obtained on Fernando Po during the Allen and Thomson expedition to that island is the type of

Nectarinia strangeri, Jard., named after the doctor who accompanied the party. This Sunbird ranges throughout Camaroons, for specimens have been collected by Crossley in the mountains and the Victoria forest, by Dr. Preuss at Buea, and by Dr. Reichenow near the coast.

In Gaboon it is apparently equally abundant, and according to Verreaux frequents the forests. Du Chaillu collected specimens at the Muni, Moonda and Camma rivers, and Marche in the Ogowé district.

On the Loango coast Petit met with the species at Landana, and from Malimba, some ten miles further south, Perrein procured the type of the species and also the type of *C. rubescens*, which latter was formerly in the Paris Museum, but has been lost, and it is now impossible, from the description alone, to determine the species for which the name was intended. On the Congo river specimens have been collected by Bohndorff at Leopoldville, and by Jameson at Yambuya.

In Angola Monteiro procured this Sunbird at Bembe, the furthest southern range known for the species, and in the Paris Museum there is another specimen from Angola.

In Central Africa specimens have been collected in the Nyam-nyam country, at Semmio by Bohndorff, and by Emin at Msukali, Uvambo-lager, Bukoba and Njonjo. Mr. Neumann likewise met with this species at Bukoba on June 8th.

Chalcomitra adelberti.

Chalcomitra adelberti (Gerv.), Shelley, B. Afr. I. No. 57 (1896).
Cinnyris adelberti, Shelley, Mon. Nect. p. 231, pl. 88 (1878); Gadow, Cat. B. M. ix. p. 99 (1884); Büttik. Notes Leyd. Mus. 1886, p. 251; 1889, p. 118 *Liberia*; Reichen. J. f. O. 1897, p. 46 *Togoland*.

Adult Male. Above brownish black; crown and mustachial-band metallic green; chin and upper throat black; lower throat buff margined

by a black collar which shades off into the rich chestnut of the remainder of the body. Total length 4 inches, culmen 0·7, wing 2·3, tail 1·5, tarsus 0·55. Abouri, 23. 2. 72 (Shelley).

Adult Female. Above, olive; wings and tail dark bronzy brown; beneath, buff shaded with olive on the lower throat and flanks, and partially striped with the indistinct olive brown centres of the feathers. Total length 4 inches, culmen 0·7, wing 2·25, tail 1·4, tarsus 0·55. Abouri, 23. 2. 72 (Shelley).

The Senegal Buff-throated Sunbird is confined to the northern half of the West African Subregion, where it ranges from Senegambia to the Gold Coast.

The type of the species was procured by Adelbert in Senegambia. Mr. Büttikofer collected three specimens in Liberia, near the Junk river. The species appear to be rare everywhere excepting in the forest region of the Gold Coast. Here Mr. Blissett found it at Elmina, and in the British Museum there is a specimen from "Ashantee." According to the late Governor Ussher: "This pretty Sunbird is not very common in Fantee, except at certain seasons of the year, when it frequents the large flowering-trees of the forest in company with many other species." I presume the "certain season" alluded to is the early springtime, for in February and March, while I was on the Gold Coast with Mr. T. E. Buckley, we found them plentiful in the wooded districts around the blossoms of the gigantic flowering forest trees at Abrobonko near Cape Coast Castle, and at Abouri in the Aguapim mountains, and they were at that season passing by a complete moult into the breeding dress, which none of the many specimens I saw had entirely assumed, there being always an odd feather or more of the winter plumage still to be shed. Drs. Reichenow and Lühder who visited Abouri in the autumn only met with a single specimen in that locality. In the neighbouring Togoland Dr. Büttner procured this species at Misahöhe in March, September and October.

Chalcomitra castaneiventris.

Cinnyris castaneiventris, Madarasz, Ornith. 1889, p. 149, pl. 3 *Yoruba*.

Adult Male. Similar to *C. adelberti*, but darker and duller, with no bright chestnut on the back or breast. Total length 4·7 inches, culmen 0·75, wing 2·4, tail 1·5, tarsus 0·55. Niger (Thomson, Brit. Mus.).

The Niger Buff-throated Sunbird inhabits the Niger district. The type of the species was obtained in the Yoruba country between Dahomey and the Niger, probably not one hundred miles from Ebo, where Thomson procured an adult male which is now in the British Museum. That the present form is entitled to be regarded as a distinct species from its northern ally is proved by the Tring Museum having recently received a fine series from Warri, which agree in all details with Thomson's specimen from the Niger, and not with those from further north.

Genus V. **ELÆOCERTHIA.**

Form very similar to that of *Cinnyris*. Crown, hind neck, and mantle glossed with metallic colours which are confined to the extreme ends only of the feathers.

Sexes often similar in plumage, in which case the bright pectoral-tufts which are always present in the males are likewise present in the females. Two out of the three species I refer to this genus have the tail square and are confined to the African continent south of the Equator; the third, *E. thomensis*, has a graduated tail and inhabits the island of St. Thomas.

KEY TO THE SPECIES.

- a.* Head, neck, and mantle very dark brown
glossed with bronze. Abdomen white.
Pectoral-tufts orange *fusca*, ♂.
- b.* Upper parts olive, glossed with metallic green.
No metallic gloss on the under parts, which
are pale ashy. Pectoral-tufts scarlet. . . . *verreauxi*, ♂, ♀.

- c. Tail strongly graduated. General plumage black, with metallic steel blue gloss. Under tail-coverts pale greenish yellow *thomensis*, ♂, ♀.
- d. Upper surface and sides of head earthy brown with a whitish eyebrow; under surface white shaded with ashy brown on the front and sides of the body. Culmen 0·7, wing 2·1, tail 1·7, tarsus 0·65 *fusca*, ♀.

Elæocerthia fusca.

Elæocerthia fusca (Vieill.), Shelley, B. Afr. I. No. 58 (1896).

Cinnyris fuscus, Shelley, Mon. Nect. p. 285, pl. 89 (1877); Sharpe, ed.

Layard's B. S. Afr. pp. 317, 332 (1884); Gadow, Cat. B. M. ix. p. 75 (1884).

Adult Male. Head, neck, breast, back and lesser wing-coverts brownish black with metallic violet, green, or coppery bronze edges to the feathers; wing and tail blackish; pectoral-tufts bright orange; abdomen and under tail-coverts white. Total length 4·4 inches, culmen 0·85, wing 2·3, tail 1·65, tarsus 0·7. Damara (Andersson).

Adult Female. Upper surface and sides of head light brown, with a pale eyebrow; wings and tail darker brown, the outer feathers of the latter edged with white. Beneath, ashy white. Total length 4·3 inches, culmen 0·7, wing 2·1, tail 1·7, tarsus 0·65.

The White-vented Black Sunbird inhabits the western portion of South Africa, south of 20° S. lat. and west of 25° E. long.

This species was discovered by Levaillant in Great Namaqualand, and Mr. Chapman calls it the common species of Sunbird in that country and Damaraland, remaining there throughout the year. Mr. Andersson found it especially abundant towards the sea coast and observes: "The scantier and more dreary the vegetation the more common is this bird, and though unattractive in dress, it helps to enliven the monotonous solitudes which it frequents by its activity and pleasant, subdued warbling chirp. The male assumes a somewhat more attractive garb during the breeding season than

at other times of the year, when it resembles the female, whose colouring is of the most sombre description." He always found the nest suspended from the branch of some low acacia tree, and composed of soft grasses and the fine inner bark of trees and lined with a quantity of feathers, and he saw some young birds, just fledged, on April 3. The British Museum possesses a specimen labelled "Elephant river, Little Namaqualand (Andersson)."

The late Dr. Bradshaw found these Sunbirds very common at the Orange river, and Mr. Atmore procured specimens near Hopetown.

Mr. Layard informs us that, "Mr. Ortlopp found the species incubating near Colesberg in the usual domed nest suspended from a tree; it was composed of wool and fibres, lined with feathers and goats' hair. The eggs were of the abnormal number of three, white, spotted with intensely dark purplish brown and pale purple, chiefly forming a close-set ring near the obtuse end." Axis 0.55 inch by 0.35.

Prof. Barboza du Bocage enters this species in his "Orn. Angola" on the authority of Dr. Hartlaub that there is a specimen in the Paris Museum, labelled Angola, but remarks that the species has never been met with by Anchieta to the north of the Cunene river.

From the series of specimens in the British Museum it would appear that the males assume their breeding plumage in November and discard it again in the following June for a plumage similar to that of the female.

Elæocerthia verreauxi.

- Elæocerthia verreauxi* (Smith), Shelley, B. Afr. I. No. 59 (1896).
Cinnyris verreauxi, Shelley, Mon. Nect. p. 287, pl. 90 (1876); Butler, Feilden and Reid, Zool. 1882, p. 247 *Natal*; Gadow, Cat. B.M. ix. p. 74 (1884); Shelley, Ibis, 1888, p. 300 *Manda Is.*; Evans, Nature, li. p. 235; id. Ibis, 1895, p. 301 *Natal*; Sharpe, Ibis, 1897, p. 506 *Zulu*.

Cinnyris fischeri, Reichen. J. f. O. 1880, p. 142 *Mozambique*; *Fisch.*
J. f. O. 1885, p. 139 *Pangani*; Reichen. Vög. Deutsch O. Afr. p. 210
(1894).

Elæocerthia fischeri, B. Alexander, Ibis, 1899, p. 561 *Zambesi*.

Adult Male. Above, olive shaded brown with broad metallic olive green edges to the feathers of the head, back, and lesser wing-coverts; remainder of the wings and tail brown. Beneath, ashy white with scarlet axillary-tufts. Total length 5·2 inches, culmen 0·9, wing 2·45, tail 2, tarsus 0·7. Durban, 7. 4. 74 (Shelley).

Adult Female. Like the male. Durban, 1. 4. 74 (Shelley).

The Mouse-coloured Sunbird ranges over Eastern Africa south of the Equator.

Sir Andrew Smith wrote: "Only a very few specimens of these birds have yet been found in South Africa, and none, as far as I know, within the limits of Cape Colony; Kafirland and the country eastward of it, towards Port Natal, furnished the specimens we possess."

This Sunbird appears to be more abundant near the coast than inland. During my stay at Durban, in February and March, I had frequent opportunities of watching these birds, as, although rare, they were not shy and frequented the thick coverts which surround the town. In March a native informed me that he had just taken a nest of this species, which he called the Mouse-coloured Sunbird, by which name it appears to be best known to the colonists. The nest he told me was of the usual oval form and suspended from one of the outer twigs of a bush, and was similar in structure to that of *Anthothreptes collaris* which he brought me a few days later, that is, composed of dry grass and thickly lined with feathers and horse-hair. In its habit of frequenting the low thick bush it differed from *C. olivacea*, which I only met with in the large scattered trees of the more open country.

I will here quote from the "Ibis," 1895, p. 301: "It appears that the fecundation of *Loranthus kraussi* is entirely due to the labours of two species of Sunbirds, *Cinnyris olivacea*

and *C. verreauxi*, which frequent these flowers in great numbers. 'A little quiet watching' says Mr. Evans, 'will show the birds at these flowers, splitting open flower after flower, and getting head and bill covered with pollen in moving about, undoubtedly fertilising the capitate receptive stigmas of other and older flowers.' In order to ascertain whether the flowers of the *Loranthus* would be fertilised without the aid of the Sunbirds, Mr. Evans covered a small branch of them containing from eighty to one hundred blossoms with a net, and found that not one of the blossoms so covered set seed. After careful watching he came to the conclusion that the *Loranthus* is quite sterile without the external aid supplied by the birds. After the fruit is ripe another bird, a Barbet, *Barbatula pusilla*, further assists the propagation of the *Loranthus* by eating the covering of the berry and rejecting the seeds and the viscid matter round them. To clear away these the Barbet wipes its bill upon a branch, to which the seeds of the *Loranthus* adhere by the viscid matter and germinate."

In Zululand the Messrs. Woodward collected specimens at Santa Lucia Lake and Eschowe.

I find no record of the occurrence of this species between Natal and the Zambesi river, but in the latter district Mr. Boyd Alexander has obtained a specimen and writes :

"By no means common. Our only specimen was obtained on August 1, in a grove of tall trees at the little village of Umquasi on the left bank of the river and about sixty miles below Tete. The bird appeared extremely shy, flitting from one tall tree top to another and never once descending to the undergrowth of acacia bushes which were frequented by numbers of *Chalcomitra gutturalis*."

Possibly the shyness of this bird was due to Mr. Boyd Alexander having shot its mate unknown to him, for with

regard to *C. gutturalis* he writes: "After we obtained the female, the male bird became very shy, only to appear now and again above the high trees in the vicinity."

The type of *Cinnyris fischeri* was procured at Mozambique by the late Dr. Fischer, who also met with the species at Pangani. Mr. Jackson collected two males in May on Manda Island and one in Ukambani, which are the most northern localities known to me for this species, but it is said to be fairly plentiful in the acacia trees on Manda Island.

Cinnyris fischeri, Reichen., if, as it should be, referred to the specimens found from the Zambesi northward, may possibly be recognised by the slightly whiter under surface, the more constant bluer upper surface and small bill, but I have only four examples to compare with a fairly good series of *C. verreauxi*, Smith, from Natal. The Natal birds show that the measurements vary considerably: culmen 0·9 inch to 1·1, wing 2·35 to 2·45, and the shade of the metallic colours in Natal specimens from olive green to pale blue, so that the only character for separating *C. fischeri*, Reichen., from *C. verreauxi*, Smith, is the slightly paler shade of the under parts, and this appears to me such a poor character that I have here united the two forms as belonging to one species, believing that the intermediate links will be found to occur in the little-explored coast country between Zululand and the Zambesi. A specimen from the Zambesi and one from Manda Island have both: culmen 0·9, wing 2·4 inches.

Elæocerthia thomensis. (Pl. 5, fig. 2.)

Elæocerthia thomensis (Bocage), Shelley, B. Afr. I. No. 60 (1896).

Nectarinia thomensis, Bocage, Journ. Lisb. 1889, p. 143 *St. Thomas Is.*

Adult Male. Black, with broad metallic bronze blue edges to the feathers of the head, neck, back, lesser wing-coverts and breast; tail much graduated, with broad white ends to some of the outer feathers; quills with

partial narrow olive yellow edges. Abdomen strongly tinted with olive yellow; under tail-coverts olive shaded buff. Bill and legs black, iris brown. Total length 7·6 inches, culmen 1·55, wing 3·3, tail 3, tarsus 1·15. St. Thomas Is. (F. Newton.)

Adult Female. Like the male. Total length 7 inches, culmen 1·3, wing 3·25, tail 3·2, tarsus 1·05. St. Thomas Is. (F. Newton.)

The St. Thomas Island Sunbird is confined to the island of that name, which is situated almost on the Equator at a distance of some two hundred miles from the Gaboon coast.

The species was discovered at St. Miguel, a forest district on the western slope of the island, by Mr. F. Newton, and described by Prof. Barboza du Bocage, to whose generosity the British Museum is indebted for a fine male and female, the only ones I have seen.

I place the species in the genus *Elæocerthia*, of which *E. verreauxi* is the type, on account of the metallic colours being confined to the extreme ends of the feathers only. It further resembles *E. verreauxi* in the plumage of the sexes being alike, but differs in the graduated tail, the feathers of which have pale ends, and in this character it nearly approaches many of the members of the genus *Cyanomitra*.

Genus VI. CYANOMITRA.

Form very similar to that of *Cinnyris*. Mantle sometimes dull brown, else olive of a green or yellow shade. Metallic colours, when present, confined to the head and neck. Young birds are not always similar in colouring to the adult females, and apparently never have metallic colours nor bright pectoral-tufts.

This purely Ethiopian genus consists of about ten known species.

KEY TO THE SPECIES.

a. No metallic colours.

a¹. Above earthy brown; beneath white
mottled with black; pectoral-tufts yellow
in adult males only (Socotra Is.) . . . *balfouri*, ♂ ♀.

- b*¹. Above dark brown; beneath olive shaded ashy brown; tail with some broadish white ends to the feathers; culmen 0·9 inch, wing 2·4 (Seychelles). *dussumieri*, ♀.
- c*¹. Above olive.
- a*². Tail nearly square.
- a*³. Above greener; no white near the eye.
- a*⁴. Throat mottled with dark centres to the feathers; culmen 0·65, wing 1·9, tarsus 0·6 (Gt. Comoro Is.) . . . *humbloti*, ♀.
- b*⁴. Throat uniform.
- a*⁵. Darker; pectoral-tufts chrome yellow; beneath pale olive. . . *olivacea*, ♂ ♀.
- b*⁵. Paler; pectoral-tufts sulphur yellow in adults of both sexes, but absent in young birds; beneath olive shaded ashy white. . . *obscura*, ♂ ♀.
- b*³. Above browner; region of eye and throat whitish; breast whitish with dark centres to the feathers; culmen 0·8, wing 2·55. *cyanolæma*, ♀.
- b*². Tail graduated; outer feather falls short of tip of tail by not less than the length of the tarsus.
- c*³. Breast buff: throat mottled with the black bases of the feathers; culmen 0·55, wing 1·9 *newtoni*, ♀.
- d*³. Breast and under tail-coverts olive buff; culmen 0·7, wing 2·3 *hartlaubi*, ♀.
- e*³. Centre of breast and under tail-coverts yellow *reichenbachii*, young.
- b*. With metallic colours confined to the head and throat.
- d*¹. Tail nearly square.
- c*². Back yellower; entire upper half of the head metallic green.
- f*³. Throat green, like the entire head and neck. *verticalis*, ♂ ad.
- g*³. Throat white, slightly paler than the breast *verticalis*, ♀ ad.
- d*². Back browner; cheeks and ear-coverts brown.
- h*³. Larger; wing 2·7; pectoral-tufts very pale yellow *cyanolæma*, ♂ ad.
- i*³. Smaller; wing less than 2·5; pectoral-tufts yellow and orange red mixed.

- c*⁴. Chest ashy brown; throat deep metallic greenish blue; tail tipped with white (Seychelles). *dussumieri*, ♂ ad.
- d*⁴. Chest maroon-red; throat coppery bronze; tail with no white tip (Gt. Comoro Is.) *humbloti*, ♂ ad.
- e*¹. Tail graduated and with pale ends to all but centre pair of feathers.
- e*². Cheeks and ear-coverts with no metallic colours.
- k*^s. Breast yellow. *newtoni*, ♂ ad.
- l*^s. Breast olive *hartlaubi*, ♂ ad.
- f*². Cheeks and ear-coverts of metallic colours. *reichenbachi*, ♂ ♀ ad.

Cyanomitra balfouri.

Cyanomitra balfouri (Sclat. and Hartl.), Shelley, B. Afr. I. No. 61 (1896).
Cinnyris balfouri, Sclat. and Hartl. P. Z. S. 1881, p. 169, pl. 15, fig. 2
Socotra Is.; Gadow, Cat. B. M. ix. p. 76 (1884).

Adult Male. Above, dark brown with pale edges to the feathers of the crown, back of neck and back; upper tail-coverts, and tail uniform blackish brown, the feathers of the latter edged with white; the end half of the outer feather and a large terminal patch on the inner web of the next feather nearly white; wings dark brown with very narrow pale edges to the feathers. Beneath, white and black with yellow pectoral-tufts; lores, cheeks and lower portion of ear-coverts white; chin and upper half of throat uniform ashy black, remainder of throat and the crop dusky black scaled with broad white edges to the feathers; feathers of chest with the basal black centres more lanceolate and less exposed; flanks slightly washed with dusky ash; thighs mottled with dark centres to the feathers; under wing-coverts and partial inner margins to the quills white. Bill and legs entirely black; iris dark brown. Total length 5·2 inches, culmen 0·85, wing 2·6, tail 2·0, tarsus 0·8. Socotra, 5. 1. 99 (O. Grant).

Adult Female. Similar in plumage to the male, but without the yellow pectoral-tufts. Total length 4·7, culmen 0·8, wing 2·35, tail 1·9, tarsus 0·8. Socotra, 3. 1. 99 (O. Grant).

The Socotra Sunbird is confined to the island of Socotra, the extreme north-eastern limit of the Ethiopian Region.

Prof. J. B. Balfour, who discovered this species, writes:

“Common in the interior of the island, on the hill-slopes and higher plains, where there are plenty of shrubs. The female is difficult to get. The male clings to the topmost branches, when he gives out a very pretty note.”

Mr. W. R. Ogilvie Grant kindly informs me that during his visit to the island he met with these Sunbirds generally in pairs; they were noisy and sprightly in their habits, and fairly abundant from the sea level up to 4,000 feet. He found a nest, from which the young birds had flown, on February 10. It was suspended from a small branch, so hidden by the thick bush and creepers that it was difficult to find. He also met with a family party consisting of the two adults and their three young, which, though well grown and able to fly, were still closely attended by their parents, who showed great concern for the safety of their offspring, at once hurrying them into the thick covert, and then the male appeared at intervals on an elevated position and uttered a shrill, rather harsh alarm note.

The song of this species is loud, varied, and impressive, and is poured forth from the topmost twig of a bush in a flood of melodious notes. He is a capital mimic, imitating the calls of his neighbours with great accuracy, especially that of *Cisticola incana*.

Cyanomitra olivacea.

Cyanomitra olivacea (Smith), Shelley, B. Afr. I. No. 62 (1896); id. *Ibis*, 1896, p. 180 *Nyasa*.

Cinnyris olivaceus, Shelley, Mon. Nect. p. 289, p. 91 (1876); Butler, Feilden and Reid, Zool. 1882, p. 247; Gadow, Cat. B. M. ix. p. 78 (1884); Fisch. J. f. O. 1885, p. 139 *Lindi*; Matsch. J. f. O. 1887, p. 155 *Lualaba R.*; Evans, Nature, li. p. 235; id. *Ibis*, 1895, p. 301 *Natal*; Sharpe, *Ibis*, 1897, p. 506 *Zululand*; Neumann, J. f. O. 1898, p. 229 *Zanzibar*.

Nectarinia olivacea, Böhm, J. f. O. 1883, p. 192 *Zanzibar*; Schal. J. f. O. 1887, p. 243 *Tanjanyika*.

Cinnyris olivacina (Peters), Gadow. Cat. B. M. ix. p. 78 (1884).

Adult Male. Above, deep olive. Beneath, pale yellowish olive, with bright yellow pectoral-tufts. Total length 5·5 inches, culmen 1·1, wing 2·7, tail 2·5, tarsus 0·65. Pinetown, 19. 3. 74 (Shelley).

Adult Female. Like the male. Durban, 9. 4. 74 (Shelley).

The Dark Olive Sunbird ranges over Eastern Africa from Natal to Zanzibar and westward to the Lualaba branch of the Congo river.

Sir Andrew Smith procured the type of the species in the same country in which he discovered *E. verreauxi*, on his way to Port Natal. In February and March I found these birds much rarer at Durban than some twelve miles further inland, at Pinetown, where they were generally in pairs frequenting the taller trees along the banks of the water-courses in preference to the low tangled brushwood. Out of the many specimens I carefully sexed I can detect no difference whatever in the plumage.

From Natal Mr. T. Ayres writes: "These birds are common on the coast for some distance inland; they are particularly fond of shady banana groves, taking the nectar from the long drooping flowers of the plant, and chasing one another about with great pertinacity. The plumage of the females is not so bright as that of the males." Captain Reid procured the species at Durban in August, and according to Captain Harford it breeds there in November. Mr. Layard describes the eggs as being "light brown, so profusely mottled with purplish brown as almost to conceal the ground-colour." Messrs. R. B. and J. D. S. Woodward collected several specimens at Eschowe and Santa Lucia Lake in Zululand. The type of *Nectarinia olivacina*, Peters, from Inhambane was a rather small specimen of *C. olivacea*. This ends all I know regarding the species in South Zambesia.

To the north of the Zambesi, between that river and Lake Nyasa, Mr. Alexander Whyte collected two specimens on

Mount Chiradzulu in the Shiré highlands. Böhm met with the species in October at the Lualaba river, its most western known range, and informs us that it is not a rare bird to the west of Lake Tanganyika. He also procured the species on Zanzibar Island in May. Fischer collected specimens at Lindi as well as at Zanzibar, which is the most northern known range for the Dark Olive Sunbird.

Cyanomitra obscura.

Cyanomitra obscura (Jard.), Shelley, B. Afr. I. No. 63 (1896).

Cinnyris obscurus, Sharpe and Bouvier, Bull. S. Z. France, 1876, p. 304 *Loango*; Shelley, Mon. Nect. p. 291, pl. 92 (1879); Gadow, Cat. B. M. ix. p. 77 (1884); Büttik. Notes Leyd. Mus. 1886, p. 251; 1888, p. 72; 1889, p. 118 *Liberia*; Shelley, P. Z. S. 1888, p. 38 *Tingasi*; id. Ibis, 1890, p. 162 *Yambuya*; Büttik. Notes, Leyd. Mus. 1892, p. 22 *Sulymah R.*; Sjöstedt, Sv. Vet. Akad. Handl. 1895, p. 103 *Camaroons*; Reichen. J. f. O. 1896, p. 38 *Camaroons*; id. J. f. O. 1897, p. 46 *Togoland*; Oberholser, Pr. U.S. Nat. Mus., 1899, p. 17 *Cameroons*.

Adelinus obscurus, Oust. N. Arch. Mus. (2) ii. Bull. p. 88 (1879) *Gaboon*.
Elæocerthia ragazzii, Salvad. Ann. Mus. Genov. 1888, p. 247 *Shoa*.

Cyanomitra ragazzii, Shelley, B. Afr. I. No. 64 (1896).

Cinnyris ragazzii, Jackson, Ibis, 1898, p. 137 *Witu*; Sharpe, Ibis, 1899, p. 636 *Ntebi*.

Adult Male. Above, olive; sides of the head more ashy olive, with small white centres to the feathers of the cheeks, ear-coverts and eyebrows; feathers in front of the eye buff. Beneath, buffy white, shaded with olive on the sides of the body and under tail-coverts. Bill brownish black fading on the basal half of the lower mandible into buff or flesh colour. Total length 5·5 inches, culmen 0·9, wing 2·5, tail 2, tarsus 0·65. Prince's Is., 2. 1. 76 (Petit).

Adult Female. Similar to the male but without the yellow pectoral-tufts. Bonny, 23. 10. 75 (Petit).

The Pale Olive Sunbird ranges from the Sulymah river near Sierra Leone into Angola, occurs on Fernando Po and Prince's Island, and crosses the continent to Witu near the coast, in about 3° 40' S. lat., and Shoa.

In West Africa the most northern known locality for this species is the Sulymah river, where it was obtained by the late Mr. Demery, and according to Mr. Büttikofer who collected specimens at Schieffelinsville on the Junk river in Liberia, it is "very frequently found on the tulip-shaped flowers of the cotton-tree, from December to February."

On the Gold Coast these birds are common, at least at some seasons, in the more wooded parts, as at Abrobonko and Denkera from whence Ussher collected numerous specimens, and there is one labelled "Ashantee" in the British Museum. I and Mr. T. E. Buckley only met with it in March at Abouri in the Aguapim mountains, always in company with other Sunbirds among the upper branches of the tall flowering forest trees, but they then appeared to be rare in comparison to the other species. In the German territory of Togoland specimens have been collected at Amedzoche in March and at Adame in July. There is a specimen from Bonny in the British Museum.

In Camaroons Mr. Sjöstedt mentions the species as not rare, and essentially a forest bird, and apparently breeding in August, and Mr. Zenker also collected specimens, adult birds in June and a young one in November. In the British Museum there are four specimens from Fernando Po and a similar number from Prince's Island, and six from Gaboon, in which latter country Du Chaillu collected specimens at the Muni and Camma rivers, and Marche at Lopé in the Ogowé province.

On the Loango coast Petit has obtained specimens at Landana, and the species extends south into Angola, where Verreaux and Hamilton both procured specimens.

This Sunbird probably ranges over the Congo district generally, for Jameson's collection, from Yambuya on the Aruwhimi tributary, contained an adult male, and Emin met with it in October at Tingasi.

The species apparently crosses the continent, for I cannot detect any character for separating from it *Elæocerthia ragazzi*, Salvad. The one example from Shoa in the British Museum does not differ in any of its measurements from some of the West African specimens. It has, however, the throat and breast slightly greener than the general run of specimens, but, to my eyes, the colouring is exactly matched by one of Hamilton's birds from Angola.

Therefore I think I am right in referring to *C. obscura* the male procured in May at Witu by Mr. Jackson and the Shoa specimens collected by Dr. Ragazzi in the forest of Fekerie-ghem which includes the type of *E. ragazzi*, Salvadori.

With regard to the habits of *C. obscura*, Mr. Keulemans writes: "When in Prince's Island I met with this species only in the dense forests, where, owing possibly to the thickness of the undergrowth and creepers, it was rarely to be seen. The high trees in the more retired parts of the forests are its favourite haunts; and it is seldom observed near the ground, excepting when the aroma of the ripening fruits attract it towards the plantations, where it may at such times be occasionally met with around the banana and papaya plants. Its song, which it constantly utters, is totally unlike that of *C. hartlaubi*, being a more guttural sound, like 'hoo-hoo-hoo' rapidly repeated; but its call-note is a soft 'foo-cet,' and can hardly be distinguished from that of *C. hartlaubi*. It is known in the island by the name of 'Siwie-barbeiro-grande.'"

Cyanomitra verticalis.

Cyanomitra verticalis (Lath.), Shelley, B. Afr. I. No. 65 (1896).
Cinnyris verticalis, Sharpe and Bouvier, Bull. S. Z. France, 1876, p. 304 *Loango*; Shelley, Mon. Nect. p. 301, pl. 97 (1879); Gadow, Cat. B. M. ix. p. 80 (1884); Büttik. Notes Leyd. Mus. 1885, p. 168; 1886, p. 251 *Liberia*; Reichen. J. f. O. 1887, p. 306 *Leopoldsville*;

- Shelley, P. Z. S. 1888, p. 38 *Tingasi*; Reichen. J. f. O. 1892, p. 190; 1894, p. 41; 1896, p. 38 *Camaroons*; 1897, p. 46 *Togoland*.
 Cyanomitra cyanocephala, Oust. N. Arch. Mus. (2) ii. Bull. p. 89 (1879) *Ogowè*.
 Nectarinia verticalis, Hartl. Abhand. Brem. 1891, p. 28 *Baguera*.
 Nectarinia cyanocephala (Shaw), Hartl. Abhand. Brem. 1882, p. 206 *Upper White Nile*.
 Cinnnyris cyanocephalus, Hartert, J. f. O. 1886, p. 581 *Niger*.
 Cinnnyris bohndorffi, Reichen. J. f. O. 1887, pp. 214, 301, 306 *Congo*.
 Cinnnyris viridisplendens, Reichen. J. f. O. 1892, pp. 54, 132 *Bukoba*; Hartert in Ansorge's "Under Afr. Sun" App. p. 350 *Unyoro*.

Adult Male. Head and neck deep metallic bluish green; back and lesser wing-coverts olive yellow; wings and tail dark brown; remainder of the under parts leaden grey with pale yellow pectoral-tufts. Total length 5.2 inches, culmen 0.95, wing 2.6, tail 1.8, tarsus 0.65. Cape Coast, 2. 2. 72 (Shelley).

Adult Female. Upper surface as well as the sides of the head similar to the male. Beneath, very pale ashy grey, almost white on the chin; pectoral-tufts white. Total length 4.9 inches, culmen 0.9, wing 2.3, tail 1.8, tarsus 0.65. Abrobonko, 30. 1. 72 (Shelley).

The Green-headed Olive Sunbird ranges from the Gambia river into Angola and through Equatorial Africa to Masailand.

From the Gambia and Casamance there are specimens of both sexes in the British Museum. Bulger met with the species on Bulama Island, one of the Bissagos group; Fergusson and Marche at Sierra Leone; and in Liberia Mr. Büttikofer collected specimens at Robertsport, Monrovia and Schieffelinsville on the Junk river.

From the Gold Coast there are more than thirty skins of this species in the British Museum, including specimens from Elmina, Ashantee, Fantee and the Volta river. They show conclusive evidence that *C. bohndorffi* and *C. viridisplendens* are only varieties of *C. verticalis*.

While at Cape Coast Castle with Mr. T. E. Buckley we found the species common at Abrobonko around the large scarlet flowers of the *Bombax* trees in company with many other Sunbirds, and at other times perched upon the fronds of

the cocoanut palms in the vicinity of Cape Coast. It is a woodland species, which may account for our not meeting with it at Accra, but it is curious that we did not see these Sunbirds during our short excursion into the forest of the Aguapim mountains. In the neighbouring German territory of Togoland Mr. Baumann collected two specimens in May at Podji, and in the Niger district the species has been met with by Strange and Mr. Hartert.

Dr. Reichenow procured a good series of carefully sexed specimens from Camaroons, and was the first to prove conclusively that *Certhia cyanocephala*, Shaw, is nothing but the male of *C. verticalis*, Lath.

In Gaboon Du Chaillu collected specimens on Cape Lopez and near the Muni, Moonda and Camma rivers, and Marche at Lopé in the Ogowé district. From the Loango coast Perrein procured the type of *Certhia cyanocephala*, Shaw, and in the same country Falkenstein collected specimens near Chinchonxo and Petit at Landana.

In the British Museum there are nine specimens from Gaboon, two from Landana and one of Monteiro's, an adult male, from Bembe in Angola, which is the extreme southern limit for the known range of the species, and Prof. Barboza du Bocage remarks that *C. verticalis* has never been procured from south of the Quanza river.

Following the range of the species eastward we find Dr. Reichenow records it as occurring in Bohndorff's collection from Leopoldsville, and makes another of his specimens, an adult male from the same locality, the type of his *Ciannyris bohndorffi*, and refers another from Manyango, some miles nearer to the coast, to the same form. To the north-east of the Congo district Emin has collected specimens at Tingasi, Tomaja, Foda, Baguera, Langomere, and Bukoba on the

western shore of Victoria Nyanza; from the latter locality came the types of *Cinnyris viridisplendens*, Reichenow.

To the east of Victoria Nyanza Mr. Ansorge found the species at Masindi in Unyoro during May and June, and Mr. Jackson collected a fine series, which agree perfectly with those from the Gold Coast, at Mandi in May, June and July, up to an elevation of 6,500 feet, and at Ntebi in March and September, so apparently the species is nowhere migratory.

In this species both sexes, when in full adult breeding plumage, have metallic colours on the head. In both sexes, immature birds appear to be very similar in plumage, and have no metallic colours. The full dress first begins to appear in the form of metallic feathers on the upper part of the head and neck, then the breast becomes mottled with clear ashy; next metallic plumes appear on the throat of the male and ashy white ones on that of the female. The last portion of the immature plumage to be discarded is the yellow on the collar and down the centre of the breast.

Cyanomitra cyanolæma.

- Cyanomitra cyanolæma* (Jard.), Shelley, B. Afr. I. No. 66 (1896).
Cinnyris cyanolæma, Shelley, Mon. Nect. p. 297, pl. 95 (1877); Gadow, Cat. B. M. ix. p. 78 (1884); Büttik. Notes Leyd. Mus. 1886, p. 251; 1888, p. 72; 1889, p. 118; 1892, p. 22 *Liberia*; Reichen. J. f. O. 1887, pp. 301, 306 *Congo*; Sjöstedt, Sv. Vet. Ak. Handl. 1895, p. 102 *Camaroons*; Sharpe, Ibis, 1899, p. 635 *Buganda*; Oberholser, Pr. U.S. Nat. Mus., 1899, p. 34 *Liberia*.
Nectarinia cyanolæma, Bouvier, Cat. Ois. Marche, &c. p. 13 (1875) *Sierra Leone*; Bocage, Orn. Angola, p. 176 (1877) *Angola*.
Adelinus cyanolæma, Oust. N. Arch. Mus. (2) ii. p. 132 (1879) *Gaboon*.

Adult Male. Upper surface, including the sides of the head, brown; crown and throat deep metallic green shaded with violet; remainder of the under parts paler brown than the back and with pale yellow pectoral-tufts. Total length 5·7 inches, culmen 0·9, wing 2·7, tail 2·5, tarsus 0·7. Fantee (Aubin).

Adult Female. Above, brown, the feathers broadly edged with olive yellow; outer tail-feathers with pale ends; sides of head brown with a white band above and below the eye. Beneath, white, the throat shaded with pale brown, the chest faintly mottled with brown; abdomen, sides of the body and under tail-coverts washed with olive yellow. Total length 5.5 inches, culmen 0.8, wing 2.55, tail 2.2, tarsus 0.7. Fantee (Aubin).

The Blue-throated Brown Sunbird ranges from Sierra Leone into Angola, the Island of Fernando Po and the Uganda Protectorate to as far east as Buganda.

Specimens have been collected at Sierra Leone by Marche, along the banks of the Sulymah river by Demery, and at Schieffelinville in Liberia by Mr. Büttikofer, who remarks that the first two specimens "differ somewhat from each other, one having chin and throat with a greenish, the other with an intense violet gloss." This variation in the shade of colouring of the metallic gloss is by no means confined to this species, and may be probably accounted for by the age and amount of exposure of the metallic coloured feathers since the last moult.

On the Gold Coast, according to the late Governor Ussher, it is rare, though occasionally found in the vicinity of Cape Coast, and there is one of his specimens from Abrobonko in the British Museum, and the pair I described were collected for him by Aubin, probably in the forest of Denkera. Neither I nor Mr. T. E. Buckley met with the species, nor do I find any mention of it from Togoland or the Niger.

The type of the species was discovered by Fraser on Fernando Po, and the only record I find of it in Camaroons is that Mr. Sjöstedt shot a male in January out of a flock, which he believed to be mostly young birds. In Gaboon these Sunbirds appear to be more plentiful, for Du Chaillu collected specimens at the Moonda and Camma rivers and Marche in the Ogowé district.

Along the Lower Congo, Bohndorff procured specimens

at Manyango and Leopoldsville. In Angola, at Bembe, Mr. Monteiro obtained an adult male, and further inland Hamilton found the species in the Kasongo country, but it is not known to range further south.

The full range of this species is very doubtful, for in one of Mr. Jackson's recent collections there is a female labelled "Buganda, 26. 11. 94," which is the first record of the species occurring in East Africa.

Cyanomitra dussumieri.

Cyanomitra dussumieri (Hartl.), Shelley, B. Afr. I. No. 67 (1896).

Cinnyris dussumieri, Shelley, Mon. Nect. p. 293, pl. 93 (1877); Gadow, Cat. B. M. ix., p. 79 (1884); Ridgway, Proc. U. S. Nat. Mus. 1895, p. 514 *Seychelles*.

Adult Male. Above, dark brown, the feathers edged with olive; tail tipped with white, broadest towards the outer feathers. Beneath, olive shaded ashy brown, with the entire throat deep metallic bottle green, and orange red and yellow pectoral-tufts. Total length 4·6 inches, culmen 0·9, wing 2·4, tail 1·8, tarsus 0·7. *Seychelles* (F. Newton).

Adult Female. Only differs from the male in the throat being of the same colour as the breast, and in having no bright pectoral-tufts.

Male in moult. Like the female, or with the throat metallic, but with no pectoral-tufts.

The *Seychelles* Blue-throated Sunbird is confined to the *Seychelles* Archipelago in the Indian Ocean about 800 miles from the African coast.

Mr. F. Newton writes: "The 'Colibri' (*Nectarinia dussumieri*) I found to be very common; I saw it at Mahé, Praslin, Ladigue, Félicité, Marianne, and Silhouette. When I first arrived, the males I shot did not show any yellow under the wing; but at Marianne on February 12th, I obtained two males which had the bright flame-coloured axillary-tufts fully developed. At first I thought these were of a different species;

but on my return to Praslin and Mahé, and shooting several specimens, I found that all the males had then assumed their full plumage, which they evidently had not done when I shot my first specimen on January 25th."

He further adds: "The male constantly sings from the top of a tree or from a dead and exposed branch. The song is hurried, but not unlike that of a Goldfinch. The ordinary call is one note quickly repeated three or four times. Mr. Nevill had two nests brought to him, one containing a young one almost fully fledged, the other an egg; the nests were exactly like others of the family which have been described ("Ibis" 1865, p. 76). The egg is greenish-white, freckled, suffused and blotched with umber-brown chiefly at the larger end. It is 0.75 inch in length, and 0.41 in breadth."

This species has been found by Professor Percival Wright on Aride and Fregates islands, and Dr. Abbott collected seven specimens in the same Archipelago at La Digne, Félicité, Ile Cousin and Mahé.

Cyanomitra humbloti.

Cyanomitra humbloti (Milne Edw. and Oust.), Shelley, B. Afr. I. No. 68 (1896).

Cinnyris humbloti, Milne Edw. and Oust. C. R. ci. p. 220 (1885); iid. Ann. Sc. Nat. Zool. 1887, p. 220; iid. N. Arch. Mus. (2) x. p. 245, pl. 4 (1888). *Gt. Comoro Is.*

Adult Male. Above, olive yellow, with the forehead and crown metallic coppery lilac; wing dark brown with olive-yellow edges to the feathers; tail blue-black with distinctly paler dusky grey ends to the feathers; head in front of the eyes, cheeks, chin and throat metallic coppery lilac; ear-coverts and back of head and neck slightly more ashy olive than the back; under surface of body olive yellow passing into a rich narrow red collar; pectoral-tufts yellow; under wing-coverts white partially washed with yellow; quills dusky blackish with partial white inner edges. Bill and legs black; iris dark brown. Total length 4 inches, culmen 0.75, wing 2.1, tail 1.5, tarsus 0.65. Great Comoro Is. (Humblot).

Adult Female. Differs from the full-plumaged male in having the sides and upper half of head ashy olive; chin, throat and under tail-coverts yellowish white, mottled with the dusky centres to the feathers; under surface of body pale yellow, shaded on the flanks with olive and partially striped on the sides of the chest by the dusky bases to the feathers. Total length 3.9 inches, culmen 0.7, wing 1.95, tail 1.3, tarsus 0.65. ♀ Great Comoro Is. (Humblot).

Humblot's Sunbird is confined to the island of Great Comoro.

Monsieur Humblot during his expedition to Great Comoro Island discovered this and several other species of birds hitherto unknown to science.

The Mascarene Archipelago, and the island of Socotra to the north, muster ten local forms of Sunbirds, none of which ever range on to the African continent, and are all referred by me to the two genera *Cinnyris* and *Cyanomitra*, and consist of the following species:—

Cinnyris notatus, Madagascar; replaced by *C. nesophilus* in Great Comoro.

C. comorensis, Johanna Island.

C. coquereli, Mayotte Island.

C. souimanga, Madagascar and Gloriosa Island; represented by *C. aldabranus* on Aldabra Island and by *C. abbotti* on the Island of Assumption.

The genus *Cyanomitra* is represented by:—

C. humbloti, in Great Comoro.

C. dussumieri, in the Seychelles Archipelago.

C. balfouri, in Socotra Island.

Cyanomitra newtoni. (Pl. 5, fig. 1.)

Cyanomitra newtoni (Bocage), Shelley, B. Afr. I. No. 69 (1896).

Cinnyris newtoni, Bocage, Journ. Lisb. 1887, p. 250; 1888, pp. 154, 157, 211 *St. Thomas Is.*

Adult Male. Above, dusky olive, wings dark brown, tail black, strongly graduated, with white ends to all but the centre pair of feathers. Entire throat deep metallic bluish green; chest bright sulphur yellow, fading into yellowish white on the remainder of the body. Total length 4·2 inches, culmen 0·65, wing 2·15, tail 1·7, tarsus 0·7. St. Thomas Is. (F. Newton).

Adult Female. Similar to the male, but differs in having the throat dusky black with the edges of the feathers yellowish buff, in the chest being buff like the abdomen, and in the base of the lower mandible being pale. Total length 3·5 inches, culmen 0·55, wing 1·9, tail 1·4, tarsus 0·65. St. Thomas Is. (F. Newton).

The Saint Thomas Yellow-breasted Sunbird is confined to the Island of St. Thomas, which is situated almost on the Equator at about 150 miles from the West African coast.

Mr. F. Newton who discovered the species informs us that it is known to the natives as "Xêle-Xêle," so we may infer that it is fairly abundant on the island.

I only know the species from the two specimens in the British Museum labelled male and female, so have described them as such, but in the latter specimen the basal portion of the lower mandible is pale as if from immaturity, and the dusky colouring of the throat suggests the possibility of its being a young male.

This is one of the three species which are probably confined to the islands off the coast of West Africa, comprising, besides the present species, *Elæocerthia thomensis*, from the same island, and *Cyanomitra hartlaubi* from Prince's Island.

Cyanomitra hartlaubi.

Cyanomitra hartlaubi (Verr.), Shelley, B. Afr. I. No. 70 (1896).

Cinnyris hartlaubi, Shelley, Mon. Nect. p. 295, pl. 94 (1879); Gadow, Cat. B. M. ix. p. 79 (1884).

Adult Male. Upper surface and sides of the head olive with a few feathers on the sides of the forehead tipped with metallic blue; tail with pale ends to the feathers broadest on the outer ones. Beneath olive yellow

fading almost into white on the sides of the body; entire throat deep metallic violet shaded blue. Total length 5·6 inches, culmen 0·8, wing 2·5, tail 2·3, tarsus 0·85. Prince's Is. (Ingall).

Adult Female. Similar to the male, only with no metallic colours, the throat being olive yellow like the breast. Total length 4·7 inches, culmen 0·7, wing 2·3, tail 2, tarsus 0·8.

The Prince's Island Sunbird is confined to the island of that name.

The only trustworthy information respecting this Sunbird is given by Mr. Keulemans and Dr. Dohrn. The former gentleman found it tolerably abundant throughout Prince's Island with the exception of the dense woods, where it is replaced by *C. obscura*. He found it very plentiful near plantations, usually in small groups of from four to six individuals, in which the males were by far the most numerous. "They have no special breeding season," he writes, "for I have found young birds in every month of the year; but I find in my journal, under the date of August 30th, that during that month I procured nineteen males but not a single female; so I suppose at that season all the hens were breeding. I collected three nests, all of which were very similar. They are of an oval form, and are suspended from one or more twigs at an elevation of from four to twelve feet from the ground and generally well concealed amongst the foliage. They were constructed of the hairy appendages that are found on the bark of palm trees, rather loosely woven together and lined with the soft filaments of flowers, cotton, and other fine materials, with the opening on the side most exposed to the light. I never found any of the eggs, but one was brought me by a native boy supposed to belong to this species; it was a nearly perfect oval, pure white, and with a very thin shell.

"It appears to me that there is only one in each brood, for I never saw the parents feed more than a single young bird. It takes a long time before the young bird becomes independent;

for I have seen the old birds feeding their offspring after it has been perfectly able to fly, and when it was already beginning to assume its adult male plumage.

“The song of the male resembles that of our Hedge-sparrow, added to which are some notes similar to those of the Wren; it is, in fact, somewhat between the two songs, a little fuller and in a lower key, while the call-note is like that of the Red-start. By imitating this note they can be brought very close, and can be easily captured, as they are naturally very tame.

“They feed chiefly upon insects, but will also eat small berries and fruit, and are very partial to sipping the juice emitted by the banana-flower before the fruit has set.

“I kept many alive, and fed them upon *Papaya*, *Banana*, and bread soaked in sugar and water, with occasionally ants' eggs. Two males which I tried to bring to Europe died from cold after having lived in confinement more than three months. The natives call them ‘Siwie-barbeiro’ or ‘Siwie baca-longe,’ and the Portuguese ‘Besha-flore’ (flower-kissers).”

The type of the species was in Verreaux's collection and supposed by him to have come from Angola, but I believe Dohrn to be more correct when he observes: “I doubt if this species has been found in Angola, mistakes in localities in these parts being very common; for cruisers and merchant vessels usually touch at several places of the coast and adjacent islands, and if special care be not taken, collections from different places are easily mixed up together.”

For the above reason I have discarded from the range of the present species Angola for Verreaux's type, and Gaboon for one of Gujon's specimens.

Cyanomitra reichenbachi.

Cyanomitra reichenbachi (Hartl.) Shelley, B. Afr. I. No. 71 (1896).

Cinnyris reichenbachi, Sharpe and Bouvier, Bull S. Z. France, 1876,

p. 304 *Loango*; Shelley, Mon. Nect. p. 299, pl. 96 (1877); Gadow, Cat. B. M. ix. p. 81 (1884); Reichen. J. f. O. 1887, pp. 301, 306 *Congo*; 1890, p. 126 *Camaroons*; Sjöstedt, Sv. Vet. Ak. Hand. p. 102 *Camaroons*.

Nectarinia reichenbachi, Reichen. J. f. O. 1875, p. 31 *Camaroons*.
? *Cinnyris oritis*, Reichen. J. f. O. 1892, pp. 190, 225 *Camaroons*.

Adult Male. Above, olive-yellow; head and entire throat metallic violet, shaded with indigo bronze; tail graduated, with pale ends to the feathers. Breast pale ash colour with bright yellow pectoral-tufts; abdomen and under tail-coverts yellow. Total length 4·7 inches, culmen 0·65, wing 2·35, tail 2·15, tarsus 0·7.

Adult Female. Similar in plumage to the male. Total length 4·6 inches, culmen 0·65, wing 2·2, tail 1·5, tarsus 0·7. Gaboon, 5. 1. 76 (Marche).

Young Male. Similar to the adult but with no metallic colours; head and neck deep olive brown inclining almost to black on the chin; remainder of the under parts bright yellow, washed with olive on the side of the breast. Landana (Petit).

Reichenbach's Sunbird ranges over West Africa from the Volta river to the Congo.

At the river Volta, which waters the eastern portion of the British Possession of the Gold Coast, two nearly full plumaged specimens, probably a pair, were collected by my friend the late Governor Ussher, who writes: "They frequented low shrubs near the river bank, and, I should fancy, were tolerably plentiful. The habits of most of these Sunbirds appear to be identical; and their flight and method of feeding offered nothing noteworthy to the collector." In Camaroons, according to Dr. Reichenow, the species is abundant, and he found from his own observations that the female assumed metallic colours similar to that of the male, and that in young birds the crown was olive like the back, and the throat greenish yellow. Mr. Sjöstedt procured a specimen in August at Bibundi.

From Gaboon Verreaux obtained the type of the species. Marche met with this Sunbird at Lopé in the Ogowé district, and Du Chaillu at the Camma river. Further south Petit

collected many specimens at Landana on the Loango coast, and Bohndorff up the Congo, at Manyango and Leopoldville.

Owing to Mr. Cassin's remark, that "the young male is like the female, but with the throat, abdomen and under tail-coverts yellow, the former with a few lustrous metallic green feathers," I expected to find that the female would be an olive-shaded bird with no metallic colours, so, in my Monograph of this family, I described as the female one of *C. cupreus* in Petit's collection from Landana. I have since seen one of Petit's specimens in a similar plumage to that of the male labelled "female," thus confirming the correctness of Dr. Reichenow's observation, that the plumages of the sexes in adult birds are alike.

With regard to *Cinnyris oritis*, Reichenow, I believe this species is only known by the type specimen, procured by Dr. Preuss in the highlands of Camaroons on June 16, 1891, and described as very similar to *C. reichenbachi*, but differing in having the entire abdomen yellowish olive, a slight tinge of violet on the throat, and the occiput greenish. The bill is recorded as more than an inch in length, but I presume "r. 27—28" is a misprint for r. 17—18. Otherwise the description of the type of *C. oritis* suggests to me a young specimen of *C. reichenbachi* which has nearly assumed the full breeding plumage. For that reason I intentionally omitted the name from my list of African species, and see no reason for altering that opinion now. Whether I am right or wrong in so doing can only be decided by further information on the subject.

Genus VII. ANTHOTHREPTES.

Form very similar to that of *Cinnyris*, but with the bill comparatively shorter and straighter with no downward curve to the keel of the lower mandible. Culmen often not quite so long as the tarsus; tail square; style of plumage very variable.

- f*¹. Throat, cheeks and eyebrows white ;
 remainder of under surface of body pale
 yellow *aurantia*, ♀.
- d*. Upper parts golden green.
- g*¹. Under parts yellow, with the throat golden
 green only in adult males.
- e*². With metallic edges to most of the quills. *collaris*.
- f*². With olive edges to the quills *hypodila*. —
- h*¹. Chest ashy with a double collar of golden
 green and orange
- g*². Chin and upper throat yellow *rectirostris*.
- h*². Chin and upper throat ashy grey *tephrolama*. —
- e*. Upper parts brown. Sexes alike in plumage.
- i*¹. Forehead and throat metallic blue ; breast
 yellow with the centre and the under tail-
 coverts scarlet *anchieta*.
- k*¹. Above ashy olive ; eyebrow and under
 parts whitish *gabonica*.

Anthothreptes fraseri.

Anthothreptes fraseri (Jard. and Selby), *Gadow*, *Cat. B. M.* ix. p. 113 (1884); *Shelley*, *B. Afr. I.* No. 73 (1896).
Anthreptes fraseri, *Shelley*, *Mon. Nect.* p. 307, pl. 99 (1879); *Oberholser*, *Pr. U. S. Nat. Mus.* 1899, p. 16 *Camaroons*.

Adult Male. Olive, paler beneath, wings and tail more golden olive; eyelids sulphur yellow; pectoral tufts orange red. Bill brown fading into olive yellow towards the base of the lower mandible; legs olive green; iris hazel. Total length 5·3 inches, culmen 0·65, wing 2·8, tail 2·4, tarsus 0·65.

Adult Female. Similar to the male, but with no bright pectoral-tufts.

Fraser's Scarlet-tufted Olive Sunbird inhabits Camaroons, Fernando Po and Gaboon.

Mr. G. L. Bates has recently met with the species in Camaroons. The type was procured on Fernando Po by Fraser, according to whose notes "two other specimens only were seen, but could not be obtained. They had a straight dart-like flight, appeared of a long slender form, and ran actively up the small branches in search of insects. Bill

olive-yellow at the base of the lower mandible, legs olive-green, irides hazel."

In Gaboon, Du Chaillu collected specimens on Cape Lopé and the banks of the Camma and Ogowé rivers, and Mr. Cassin writes: "The female is smaller than the male, but very similar in colours. The young male is like the female, but with the colours duller, and of a darker green in all the plumage, no axillary tufts."

This Sunbird is extremely rare in collections and the next two species are, I believe, known only by the type specimens.

Anthothreptes idia.

Anthreptes idius, Oberholser, Pr. U. S. Nat. Mus. xxii. p. 33 (1899)
Liberia.

Type.—"Upper parts dark olive green, rather duller on the head; wings fuscous, the lesser coverts, edgings of the others and of the quills, like the back; tail-feathers greenish olive, with broad olive green exterior margins. Sides of head and neck olive green; eye ring olive yellow; entire under surface deep olive yellow, almost uniform, but rather paler on chin, and shaded with olive green on sides and flanks; lining of wing olive yellow. Bill dark horn, paler beneath; feet olive green." Total length 4·88 inches, wing 2·16, tail 1·52, tarsus 0·56.

The Liberian Olive Sunbird inhabits Liberia.

Mr. R. P. Currie, who discovered the type, states that "this species was not uncommon in the bush about Mount Coffee, and that its Golah name is 'Zemeh.'"

Besides the above description of the species Mr. Harry C. Oberholser further writes: "Similar to *Anthreptes fraseri*, but decidedly smaller; the outermost primary scarcely more than half as long; rather darker, and much less yellowish green throughout. This most noticeable on wings and tail.

"In details of structure and in pattern of coloration this

new species is identical with *Anthreptes fraseri*, and does not need comparison with any of the other species of the genus. There is a possibility that *idius* may eventually turn out to be merely a geographical race of *fraseri*, but until such shall be proved to be the case it may stand as a species. The single specimen procured by Mr. Currie is sexed male, and if this be correct the absence of pectoral-tufts, notwithstanding the lack of any other evidence, would seem to indicate immaturity; for it is quite probable, though of course not certain, that the adult male would, like that of *fraseri*, possess these ornaments." With the following exceptions: "tail-feathers greenish olive; eye ring olive yellow; feet olive green," the description of *A. idia* agrees well in colouring and measurements with the females and young males of *Cinnyris cupreus*.

Anthothreptes axillaris.

Camaroptera axillaris, Reichen. Orn. Monatsb. 1893, p. 32 *Uvamba*; id. J. f. O. 1894, p. 102, pl. 1, fig. 3; Shelley, B. Afr. I. No. 964 (1896).

Very similar to *A. fraseri* but differs in having the upper half of the head grey shading into white on the chin and throat. Axillary tufts vermilion, but present only in adult males. Total length 5 inches, culmen 0.65, wing 2.7, tail 1.8, tarsus 0.6.

The Grey-crowned Scarlet-tufted Olive Sunbird inhabits Central Africa. I believe this species to be known only by the type, which was in the Emin and Stuhlmann's collection, from Uvamba, and that the description and figure of the type is all that has as yet appeared in print, but this was sufficient to raise my suspicions that it was an *Anthothreptes* with the cutting edges of the bill finely serrated, and not a *Camaroptera*, so I wrote to Dr. Reichenow who has kindly informed me that its nearest ally is *A. fraseri*.

Anthothreptes longuemarii.

- Anthothreptes longuemarii* (Less.), Gadow, Cat. B. M. ix. p. 115 (1884); Matsch. J. f. O. 1887, p. 155 *Lufuku R.*; Reichen. J. f. O. 1892, p. 236 *Togoland*; Shelley, Ibis, 1893, p. 17; 1894, p. 14; 1899, p. 282 *Nyasaland*; id. B. Afr. I. No. 74 (1896); Reichen. J. f. O. 1897, p. 45 *Togoland*.
- Anthreptes longuemarii*, Shelley, Mon. Nect. p. 335, pl. 108 (1879); Oust. N. Arch. Mus. (2) ii. Bull. p. 152 (1879) *Loss Is.*; Bocage, Orn. Angola, p. 545 (1881) *Caconda*; Shelley, P. Z. S. 1888, p. 39 *Bongerech*.
- Anthothreptes orientalis* (nec Hartl.) Sharpe, Linn. Soc. Journ. Zool. xvii. p. 429 (1884) *Nyam-nyam*.

Adult Male. Above, metallic violet; wings dark brown, with the least series of wing-coverts metallic violet, passing into green on the outermost feathers only; tail-feathers blackish with no trace of pale ends but washed and edged with metallic violet; sides of head and sides of neck dark brown; upper half of throat metallic violet; remainder of the under surface white with pale yellow pectoral-tufts. Bill dark brown; iris brown; legs black. Total length 4.9 inches, culmen 0.65, wing 2.9, tail 2.1, tarsus 0.7. Casamanse (Brit. Mus.).

Adult Female. Upper parts, as well as the sides of head, ashy brown with a broad white eyebrow; upper tail-coverts metallic violet; wings and tail dark brown, the latter with the feathers washed and edged with metallic violet. Beneath white, shaded with sulphur yellow on the abdomen and under tail-coverts. Total length 4.7 inches, culmen 0.6, wing 2.6, tail 2.1, tarsus 0.7. Casamanse (Brit. Mus.).

Immature Male. Similar to the adult female in having the white throat and eyebrow, but the crown, mantle and least series of wing-coverts are partially metallic violet, and the abdomen and under tail-coverts bright sulphur yellow. Sassa (Bohndorff).

The Western Violet-backed Sunbird ranges from Senegambia into Benguela, Nyasaland and the Nyam-nyam district.

The type of the species came from Senegal and that of *Anthreptes leucosoma*, Swainson, from the Gambia, and specimens have been collected by Marche at Ponté, by Beaudouin at Casamanse, and M. Oustalet records it from the Loss Islands.

Mr. Büttikofer did not procure the species in Liberia, nor

has it been recorded from our British possessions of the Gold Coast, yet in Togoland, our German neighbours, have collected specimens there in April, May and July. From the Niger district it has not been procured since Allen and Thomson's time, when the species was obtained at Abor, and from Camaroons, Gaboon and Congo it has not yet been recorded at all.

In Benguela, however, Anchieta has found the species as far south as Caconda, where it is probably not rare, for Prof. Barboza du Bocage gave me a fine full plumaged male out of his duplicates from that locality, which specimen is now in the British Museum, along with five full plumaged males and two females of this species collected by Mr. Alexander Whyte and Lieut.-Col. Manning at Zomba in the Shiré highlands in January, February, June, July and September, so it is evidently a resident there and not a rare straggler.

The range of this species eastward probably extends as far as the watersheds of the Congo and Zambesi rivers, so not having seen the specimens, I should refer those collected by Böhm only at the Lufuku river to the west of Tanjanyika to this species, and those procured by him, Fischer and Emin east of that line to *A. orientalis*, as the latter certainly replaces *A. longuemarii* at Altoni near Zanzibar and in the Nile watershed.

Close to the latter district Emiu obtained in July an immature male of *A. longuemarii* at Bongereh in Monbuttu, and Bohndorff an adult and young male at Sassa in the Nyam-nyam country in November, which specimens are now in the British Museum.

Anthothreptes orientalis. (Pl. 4, fig. 2.)

Anthothreptes orientalis, Hartl., Fisch. Zeitschr. 1884, p. 339; id.
J. f. O. 1885, p. 138 *Usegua, Maurui, Pare, Arusha, Wapokomoland,*

- Barawa*; Reichen. J. f. O. 1887, p. 75 *Loeru*, *Ussure*; 1889, p. 285 *Usegua*; 1891, p. 161 *Mpapwa*, *Ugogo*; Sharpe, P. Z. S. 1895, p. 475 *Somali*; Shelley, B. Afr. I. No. 75 (1896); Elliot, Field Columb. Mus. I. No. 2, p. 41 (1897); Lort Phillips, Ibis, 1898, p. 404; Hawker, Ibis, 1899, p. 67 *Somali*; Jackson, t. c. p. 636 *Njemps*.
- Anthreptes orientalis*, Hartl. J. f. O. 1880, p. 213 *Lado*; id. Abhand. Brem. 1881, p. 109; 1882, p. 205; Pelz. Verh. Wien. xxxi. p. 609 (1881); xxxii. p. 501 (1882); Emin, J. f. O. 1891, p. 60 *Upper White Nile*.
- Anthothreptes longuemarii* (nec Less.) Cab. J. f. O. 1878, p. 227 *Teita*; Sharpe, Ibis, 1891, p. 594 *Teita*, *Suk*; Reichen. Vög. Deutsch. O. Afr. p. 209 (1894).
- Anthreptes longuemarii*, Schal. J. f. O. 1883, p. 360 *Ugogo*; Shelley, P. Z. S. 1889, p. 366 *Useri R.*
- Cinnyris longuemarii*, Fisch. and Reichen. J. f. O. 1879, p. 347 *Massa*.
- Nectarinia longuemarii*, Antin. Cat. p. 34 (1864); Böhm J. f. O. 1883, p. 194 *Kakoma*; Schal. J. f. O. 1886, p. 417 *Ugalla*, *Gonda*; 1887, p. 242.

Adult Male. Similar to *A. longuemarii*, but differs in having a broad band across the lower back and the whole of the least series of wing-coverts metallic green; tail more glossed with blue, and with partial white margins to some of the outer feathers. Total length 4.9 inches, culmen 0.55, wing 2.55, tail 2.1, tarsus 0.7. Laga in Somaliland, 29. 11. 94 (F. Gillett).

Adult Female. Like that of *A. longuemarii*, but the metallic shade of the upper tail-coverts and tail is more blue than lilac; the whitish edges to the tail-feathers distinct, and the abdomen and under tail-coverts white like the chest. Total length 4.6 inches, culmen 0.55, wing 2.4, tail 1.75, tarsus 0.7. Lado, 18. 4. 79 (Emin).

Other adult males show that the green on the lower back is somewhat variable in amount, and a few have a slight trace of violet on the innermost least series of wing-coverts; the partial whitish edges to several of the outer tail-feathers is constant, regardless of sex or age, and is entirely absent in *A. longuemarii*.

The Eastern Violet-backed Sunbird probably ranges over German East Africa generally, northward into Somaliland and the Upper White Nile district.

The most southern locality from whence I have seen this species is Altoni, south-west of Zanzibar, where Emin procured an adult male which is now in the British Museum. To

this form should belong the specimens collected by Böhm at Kakoma, Ugalla, Gonda, and Ugogo, and those of Fischer's consignments from Usegua, Ussure, Maurui, Pare, Arusha, Masailand, Wapokomoland and Barawa in Somali.

In this latter country these Sunbirds are apparently common, for Mr. Elliot met with the species at Le Gud and Hullier, Mr. Lort Phillips at the Rugga Pass in March, Mr. Hawker at Laferu in November, when he saw several but did not notice them elsewhere. Mr. Donaldson Smith also obtained several specimens during September in Somaliland.

Mr. Hunter procured the species near the Useri river which flows eastward from the Kilimanjaro mountain. Dr. Hildebrandt met with these birds in the Teita country, where specimens have likewise been collected by Mr. Jackson in December and in January, at Ngoboto in the Suk country, about 100 miles to the north-east of Victoria Nyanza.

In the Upper White Nile district Emin discovered the type of the species at Lado, and collected additional specimens at Wadelai, Mabero and Wakala. Von Heuglin met with these Sunbirds during his journey through the Wau district, frequenting the underwood and forests in the neighbourhood of water. Antinori, likewise, found them near the Gazal river in the Djur and Dor provinces.

Anthothreptes aurantia.

- Anthothreptes aurantia*, Verr., Gadow, Cat. B. M. ix., p. 116 (1884);
 Richen. J. f. O. 1887, pp. 301 *Congo*; 1890, p. 127 *Camaroons*;
 Sjöstedt, Sv. Vet. Ak. Handl. 1895, p. 104 *Camaroons*; Shelley,
 B. Afr. I. No. 76 (1896).
Anthreptes aurantia, Oust. Bull. Soc. Philom. (7) I. p. 106 (1877); id.
 Nouv. Arch. Mus. (2) II. Bull. p. 94 (1879) *Gaboon*; Shelley, Mon.
 Nect., p. 337, pl. 109 (1879); id. Ibis, 1890, p. 163 *Yambuya*.

Adult Male. Upper surface as well as the sides of the head and the least series of wing-coverts metallic green glossed with steel-blue, mostly so on the neck, sides of the head, throat and upper tail-coverts; wings and tail dark brown, the latter washed with metallic violet, and the feathers edged with metallic bluish green; remainder of the under parts buffy white with reddish orange pectoral-tufts. Total length 4.6 inches, culmen 0.6, wing 2.65, tail 2.1, tarsus 0.7. Gaboon (Brit. Mus.).

Adult Female. Above, similar to the adult male, but with the forehead more golden and less blue shade on the back of the neck. Ear-coverts like the crown, from which they are separated by a broad white eyebrow extending forward to the nostril; cheeks and throat white; the remainder of the under surface of the body pale yellow. Total length 5 inches, culmen 0.65, wing 2.4, tail 1.8, tarsus 0.7. Gaboon (Brit. Mus.).

Immature. Above, brown, mottled on the hind neck, mantle and upper tail-coverts with metallic golden green; tail blackish glossed with greenish blue; a broad eyebrow and the cheek buffy white; feathers in front of the eye and the ear-coverts brown; chin and throat white; remainder of the under surface whitish yellow. Total length 4.2 inches, culmen 0.65, wing 2.4, tail 1.6, tarsus 0.65. Gaboon (Brit. Mus.).

The Violet-tailed Sunbird is apparently confined to the forest region of the Camaroons, Gaboon and Congo districts.

In Camaroons, Crossley met with the species at the Victoria Forest in January, and Mr. Sjöstedt found a nest toward the end of March with two eggs. It was at the edge of a canal through a mangrove marsh, and was suspended from a twig about five feet above the surface of the water.

The type of the species came from Gaboon, where Du Chaillu also collected specimens at the Camma and Ogowé rivers, in which latter district Marche found it at Silé Lake and Lambaréné in December, and procured a young bird in May at Lopé. In the Congo district Bohndorff obtained specimens at Manyango and Leopoldville, and the late Mr. Jameson found it at Yambuya on the Aruwhimi.

By following an error I made in 1879, an immature specimen of *A. fraseri* from Fernando Po has been by accident entered (in Cat. B. M. ix. p. 116) as belonging to this species, which is not a native of Fernando Po.

Anthothreptes collaris.

Anthothreptes collaris (Vieill.), Gadow, Cat. B. M. ix. p. 116 (1884, pt. A., S. Afr.) *Gamtoos R., Buffalo R., Grahamstown, Uitenhage, Kingwilliamstown, Natal*: Shelley, B. Afr. I. No. 77 (1896).

Anthodiæta collaris, Shelley, Mon. Nect. p. 339, pl. 110 (1876); Sharpe ed. Layard's B. S. Afr. p. 320 (1876); Ayres, Ibis, 1887, p. 56 *Transvaal*; Sharpe, Ibis, 1897, p. 507 *Zululand*.

Anthreptes collaris, Shelley, Mon. Nect. p. xlviii. (1880); Butler, Feilden and Reid, Zool. 1882, p. 247 *Natal*.

Adult Male. Head, neck, back and lesser wing-coverts metallic golden green; wings and tail dark brown, most of the feathers edged with metallic golden green. Beneath yellow, that colour separated from the green throat by a narrow collar of metallic violet. Total length 3·8 inches, culmen 0·5, wing 2·1, tail 1·5, tarsus 0·65. Durban, 11. 4. 74 (Shelley).

Adult Female. Similar to the male, only with the entire throat yellow like the breast. Total length 3·6 inches, culmen 0·5, wing 1·9, tail 1·5, tarsus 0·6. Durban (Gordge).

Nestling. Similar to the adult female, with the same parts metallic green. Durban, 28. 3. 74 (Shelley).

The Southern Collared-Sunbird inhabits South Zambesia to as far west as the Gamtoos river in about 24° E. long.; but in Tropical South Africa is known to me only by a specimen in the British Museum labelled "Zambesi (Meller)."

With regard to the species in Cape Colony Mr. Layard writes: "Entirely a bird of the Eastern districts, not approaching nearer than the province of Uitenhage, whence we have received specimens. Le Vaillant states that he procured it near the Gamtoos river, and although M. Atmore, who knows this locality thoroughly, informs us that he has never come across it, it is possible that the above-named river forms the western boundary of its range. The reported abundance of the species, of which Le Vaillant speaks, may well be doubted after Mr. Atmore's evidence. Mrs. Barber forwarded specimens to us from the 'New Year's River,' and

Dr. Edwin Atherstone from the mouth of the Kleinemont river (eight miles distant from the Kowie), where he shot three individuals; it has also been found near Grahamstown, and Mr. Rickard records it from Port Elizabeth." Captain Trevelyan procured the species at Kingwilliamstown.

In Natal, according to Mr. T. Ayres, "these birds are decidedly scarce, though found throughout Natal." I found them fairly abundant in March near Durban, and Captain Reid obtained specimens in the bush near the mouth of the Umgeni river in December. In Zululand the Messrs. Woodward collected three specimens at Eschowe.

All I can find regarding the occurrence of this species in the Transvaal is that Mr. T. Ayres procured an adult female in July and writes: "I met with a few of these tiny Sunbirds in the dense bush along the Mashupan, where they find flowering creepers to their taste." The occurrence of this species further north yet requires confirmation.

With regard to the habits of the species: during my short stay at Durban I frequently met with these birds in pairs or small parties among the low thick bushes, busily searching for insects between the twigs and leaves, and not, like most other Sunbirds, only frequenting the flowering plants for food. In their movements they reminded me of our Willow-warblers, as they climbed and hopped among the boughs; but as they flitted round the mimosa bushes or tangled creepers they dispelled this illusion by displaying, to the greatest advantage, their brilliant metallic colours. Mr. T. Ayres remarks: "They build a penduline nest, generally in some thick bush, hanging it from the leaves and outermost twigs. They are very fond of building in orange-trees and others of equally dense foliage." At Durban, March 28th, a portion of a nest of this Sunbird was brought to me; it was composed of fine grass, thickly lined with feathers and horsehair, and con-

tained two young birds, one of which is now in the British Museum.

The colours of the nestling are the same as those of the adult female, which shows that the metallic edges to the quills in this species are always present, and proves conclusively that it is specifically distinct from its nearest ally, *A. hypodila*, which no doubt has otherwise a perfectly similar nestling, for in the very large series of *A. hypodila* in the British Museum, although there is not a single nestling, all the specimens have the entire back metallic green. In this latter character they are readily distinguished from their near allies *A. rectirostris* and *A. tephrolæma*, in which, apparently, the nestlings have the upper parts entirely olive.

Anthothreptes hypodila.

- Anthothreptes hypodila* (Jard.), Gadow, Cat. B. M. ix. p. 117 (1884); Shelley, P. Z. S. 1889, p. 366 *Taveta*; Reichen. J. f. O. 1890, p. 126; 1892, p. 191 *Camaroons*; id. Vög. Deutsch O. Afr. p. 210 (1894) *Ugalla, Bukoba*; Shelley, Ibis, 1894, p. 14 *Nyasa*; Reichen. J. f. O. 1894, p. 41; 1896, p. 38 *Camaroons*; Sjöstedt, Sv. Vet. Ak. Handl. 1895, p. 103 *Camaroons*; Shelley, B. Afr. I. No. 78 (1896); Jackson, Ibis, 1898, p. 137 *Witu*; Neumann, J. f. O. 1898, p. 237 *Bukoba*; Hartert in Ansorge's Under Afr. Sun, p. 252 *Manburu, Masongoleni, Taru*; Boyd Alexander, Ibis, 1899, p. 561 *Zambesi*; Jackson; t.c.p. 636 *Nandi*.
- Anthreptes hypodila*, Shelley, Mon. Nect. p. xlvi. (1880); id. Ibis, 1883, p. 548 *Niger*; Büttik. Notes, Leyd. Mus. 1885, p. 170; 1886, p. 251; 1892, p. 22 *Liberia*; Shelley, P. Z. S. 1888, p. 39 *Lado, Tingasi*; id. Ibis, 1888, p. 300 *Manda Is.*; 1890, p. 162 *Yambuya*.
- Anthodiæta hypodila*, Shelley, Mon. Nect. p. 345, pl. 111 (1876); Oust. N. Arch. Mus. (2) II. p. 85 (1879) *Gaboon*.
- Nectarinia hypodila*, Bocage, Orn. Angola, p. 176 (1877) *Loanda*; Reichen. J. f. O. 1877, p. 25 *Loango*.
- Anthreptes collaris hypodilus*, Oberholser, Pr. U. S. Nat. Mus. 1899, p. 33 *Liberia*.
- Anthothreptes subcollaris* (Reichb.) Reichen. J. f. O. 1887, pp. 301, 306 *Congo*.
- Anthodiæta zambesiana*, Shelley, Mon. Nect. p. 343, pl. 111, fig. 3 (1876); Gurney, Ibis, 1881, p. 125 *Mombasa*; Fisch. Zeitschr. 1884,

- p. 339 *Arusha*; id. J. f. O. 1885, p. 138 *Zanzibar, Pangani, Maurui, Lamu, Wapokomoland*; Reichen. J. f. O. 1889, p. 285 *Zanzibar*.
- Anthreptes zambesiana*, Shelley, Mon. Nect. p. xlviii. (1880); id. P. Z. S. 1881, p. 571 *Dar-es-Salaam, Pangani*; Schal. J. f. O. 1883, p. 360 *Ugogo*.
- Anthothreptes zambesiana*, Reichen. J. f. O. 1891, p. 161 *Uniamwesi*.
- Nectarinia zambesiana*, Hartl. Abhand. Brem. 1891, p. 29 *Bagamoyo*.
- Nectarinia collaris* (nec V.) Fisch. J. f. O. 1877, p. 178; id. & Reichen. 1878, p. 260 *Zanzibar*; Fisch. J. f. O. 1879, p. 300; 1880, pp. 188, 191; Böhm, J. f. O. 1883, p. 192; 1885, pp. 46, 67; Schal. J. f. O. 1886, p. 417; 1887, p. 242 *E. Afr.*
- Anthodiæta collaris*, Cat. in Decken's Reis. III. p. 28 (1869); Matsch. J. f. O. 1887, p. 143 *Karema*; p. 155 *Lufuku, Lualaba, Likulwe*.

Adults. Similar to *A. collaris* but differing in the greater series of wing-coverts and the quills being edged with olive yellow instead of metallic greenish gold.

The Tropical Collared-Sunbird ranges from the Gambia to Loanda in Angola in West Africa, and from the Zambesi through Central and East Africa to Lado on the White Nile and the Equator on the coast.

The Bremen Museum contains specimens from the Gambia, the British Museum one from Casamanse. Lieut. Bulger found the species inhabiting Bulama Island, one of the Bessagos group. Specimens have been collected by Demery along the Sulymah river which runs into the ocean at Sierra Leone, and Büttikofer found the species abundant in Liberia.

From the Gold Coast there are two dozen specimens in the British Museum, including one labelled Ashantee and another Volta river, but I do not find the species recorded from Togoland, and from Lagos it is known to me by a single specimen in the Stuttgart Museum. Forbes collected specimens in the forest region of the lower Niger at Onitsa.

The type of the species was procured by Fraser on Fernando Po. In Camaroons these Sunbirds have been met with by Mr. Crossley, Dr. Reichenow, Dr. Preuss and Mr. Sjöstedt, and are well represented in that woodland district.

In Gaboon, Du Chaillu met with them at the Camma river, and Marche near the Ogowé.

It ranges over the whole area of the Congo Free State, having been found on the Loango Coast at Landana by Falkenstein and Petit, at the mouth of the Congo by Captain Sperling, at Manyango by Bohndorff, and by Jameson at Yambuya on the Arawhimi branch. Emin has procured specimens at Tingasi, Foda, Lado in 5° N. lat.—its most northern range known in this direction—and at Bukoba on Victoria Nyanza. Southward specimens have been collected on the Lualaba tributary of the Congo by Böhm, and in Angola by Toulson at Loanda, the extreme southern known range for the species in West Africa.

In the Zambesi district these Sunbirds range further south, for Mr. Boyd Alexander obtained, in the densely wooded country near Chiramba on the right bank of the Zambesi, an adult male, apparently breeding there, on July 30th. To the north of this grand river Sir John Kirk collected specimens, including the type of *Anthodieta zambesiana*, Shelley, at Shupanga, and writes:—"Found near Shupanga and Lena, but not very common. Its nest has been seen suspended to grass-stalks." Mr. Alexander Whyte obtained the species at Zomba in July, and in the British Museum there is a specimen from the Rovuma river.

The late Dr. Böhm records these birds as being abundant from Zanzibar to the Lualaba river. On his way inland from the coast he collected specimens at Seke in Ugogo, at Gonda near Taboro, and to the west of Lake Tanjanyika in the Kasongo country at Likulwe, also at the Lufuku and Lualaba rivers. He took a nest with two young ones on March 11th, near Tanjanyika lake.

Years ago, when I kept a collection, Sir John Kirk sent me specimens of this species from Mamboyo, Dar-es-Salaam,

Zanzibar Island and the Pangani river. The late Dr. Fischer informs us that the Zanzibari name for this bird is "Chosimhogo," and his collections contained specimens from Maurui, Arnsha, Mombasa Island, Lamu and Wapokomoland, which is on the left bank of the Tana river and the most northern known range for the species in this direction.

Dr. Hildebrandt remarks that in the Teita country these birds are to be found abundantly everywhere, frequenting the acacia blossoms. Mr. Jackson met with the species near the coast on Manda Island and at Tangani, Mr. Hunter at Taveta, and Mr. Ansorge at Manburu, Masongoleni and Taru desert in British East Africa.

With regard to their habits, while I was on the Gold Coast in company with my friend, Mr. T. E. Buckley, during February and March we had frequent opportunities of watching these Sunbirds as they threaded in and out through the tangled creepers, which hung down from the lofty forest trees, in their steady search for the small insects which form their principal food, and they rarely appeared to resort to the high trees for the bright red blossoms which were, at that season, such an attraction to hosts of various other species of Sunbirds. This modification of their habits agrees well with the shortness of their bills, which are more adapted for catching insects than for probing into the chalice of the flowers.

We first saw them flitting across the rippling brook which runs through the dense forest at Abrobonko, to perch on some more sunny bough, accompanied by their mates in almost every movement, and exhibiting none of that quarrelsome disposition which is rather characteristic of most species of Sunbirds, but often disturbing a bright butterfly, apparently of their own size, from the blossoms in which they wished to search for the smaller insects and honey.

While we were at Abouri in the Agnapim mountains the

natives used to bring us cages full of these charming little birds, showing how abundant and confiding they must be.

Although so plentiful in the wooded districts, some thirty miles from the coast we did not find them among the bushes which are scattered over the wide plains of Accra.

Anthothreptes rectirostris.

Anthothreptes rectirostris (Shaw), Gadow, Cat. B. M. ix., p. 119 (1884, nec ♀) *Gambia, Ashantee, Wasa, Fantee, Volta R.*; Shelley, B. Afr. No. 79 (1896).

Anthodiaeta rectirostris, Shelley, Mon. Nect. p. 331, pl. 107, figs. 2, 3, (1876).

Anthreptes rectirostris, Shelley, Mon. Nect. p. xlv. (1880); Büttik. Notes Leyd. Mus. 1886, p. 251; 1888, p. 73; 1889, p. 118 *Liberia*; Oberholser, Pr. U. S. Nat. Mus. 1899, p. 32 *Liberia*.

Adult Male. Upper parts metallic golden green, also the least and median wing-coverts; lower back, upper tail-coverts and edges of quills and tail-feathers olive yellow; remainder of wings and tail dark brown; sides of head and neck and a broad collar covering the lower throat green like the mantle; a black patch in front of eye; chin and upper throat yellow; an orange belt separates the green of the lower throat from the ashy breast which is shaded with yellow on the abdomen and under tail-coverts; pectoral-tufts sulphur yellow; under surface of wings brown, with the coverts and inner margins of quills white. "Iris brown, bill and feet black" (Büttikofer). Total length 4 inches, culmen 0·5, wing 2·2, tail 1·4, tarsus 0·6.

Adult Female. Probably similar to adult male in plumage.

Immature. Above olive mottled with a few metallic green feathers; beneath pale yellow slightly tinted with olive; a partial yellow eyebrow and a few yellow feathers beneath the eye; bill brown and pale towards the base of lower mandible.

The Yellow-chin Collared-Sunbird ranges from the Gambia to the Volta river.

The most northern locality I can assign to this Sunbird is the Gambia, from whence Dr. R. B. Sharpe received a specimen which is now in the British Museum. In Liberia

it appears to be fairly abundant, for Mr. Büttikofer collected specimens at Schieffelinsville on the Junk river, and at Hill Town.

From the Gold Coast there are, in the British Museum, nine full plumaged birds, none of which have been sexed by the collectors, so probably they represent adults of both sexes, although perfectly similar in plumage; they were procured in the Takwa district, in Ashantee, from whence came the type of *Nectarinia phæothorax*, Hartl., in Fantee, where the type of *Nectarinia fantensis*, Sharpe, was obtained, and from the Volta river. I met with the species on one occasion in the Aguapim mountains while returning to Abouri from a neighbouring village where the monkeys were held "fetish" or sacred.

In a flowering creeper which overhung the path, and caught the rays of the sun as it gleamed through the thick forest, I saw a tiny bird actively searching beneath the leaves; and from its habits, had I not shot the specimen, I should have mistaken it for *A. hypodila*.

I find no mention of the occurrence of this species further along the coast, and from the Niger district southward it is replaced by *A. tephrolæma*.

Anthothreptes tephrolæma.

Anthothreptes tephrolæma (Jard. and Fraser), Gardow, Cat. B. M. ix. p. 120 (1884, nec ♀) *Gaboon, Angola*; Reichen. J. f. O. 1887, p. 306 *Leopoldsville*; id. 1892, p. 191; 1896, p. 39 *Camaroons*; Shelley, B. Afr. I. No. 80 (1896).

Anthodiæta tephrolæma, Shelley, Mon. Nect. p. 333, pl. 72, fig 2 (1876).

Anthreptes tephrolæma, Shelley, Mon. Nect. p. xlvi. (1888); id. P. Z. S. 1888, p. 39 *Tingasi*; id. Ibis, 1890, p. 163 *Yambuya*.

Adults. Very similar to *A. rectirostris*, but readily distinguished by having the chin and upper throat ashy grey instead of yellow. Total length 3·3 inches, culmen 0·5, wing 2·2, tail 1·3, tarsus 0·6.

Immature. Above, olive with no trace of metallic colours; sides of head olive like the back with scarcely any trace of yellow; beneath, nearly uniform yellowish buff; bill dark brown with a large basal portion of the under mandible pale. Fernando Po (Fraser).

This latter specimen is very like the adult female of *Cinnyris chloropygius*, from which it chiefly differs in its slightly stouter, shorter and straighter bill, its stouter tarsi and feet, and in the smaller and more pointed bastard primary.

The Grey-chin Collared-Sunbird ranges from the Niger district and Fernando Po into Angola, and eastward to Tingasi, about 3° N. lat., 27° 40' E. long.

Fraser met with the species during his journey from Dahomey to Old Calabar, and procured the type at Fernando Po. In Camaroons Mr. Zenker obtained a specimen in December and Dr. Preuss one at Buea in September. About a thousand miles to the east Emin found this Sunbird at Tingasi. It appears to be more abundant further south, for it has been recorded in Du Chaillu's collections from the Moonda, Camma and Ogowé rivers, and in Marche's from the Lambaréné in the Ogowé province.

Along the course of the Congo it has been met with by Bohndoff at Leopoldsville and by Jameson at Yambuya. In the British Museum there is one of Monteiro's specimens from Angola, which is the most southern known locality for the species.

Anthothreptes anchietæ.

- Anthothreptes anchietæ (Bocage), *Gadow, Cat. B. M. ix.*, p. 115 (1884);
 Sharpe, ed. *Layard's B. S. Afr.* p. 832 (1884); Shelley, *B. Afr. I.*
 No. 81 (1896); id. *Ibis*, 1899, p. 365 *Tanjanyika plateau*.
 Anthreptes anchietæ, Shelley, *Mon. Nect.*, p. 329, pl. 106 (1879);
 Bocage, *Orn. Angola*, p. 545 (1881) *Caconda*.

Adult Male. Upper surface dusky brown as well as the sides of the head; front of the crown and the throat metallic steel blue with a greenish

shade; breast sulphur yellow with a broad band down the chest and the under tail-coverts scarlet. Total length 4·6 inches, culmen 0·5, wing 2·4, tail 1·6, tarsus 0·7. Caconda, 7. 77 (Anchieta).

Adult Female. Exactly like the male.

Anchieta's Red and Yellow-breasted Sunbird ranges from Benguela to Lake Nyasa.

This striking species has been named by Prof. Barboza du Bocage after the energetic naturalist, the late Mr. Anchieta, who discovered this Sunbird at Caconda, where, he informs us, it is common and known to the natives as "Xinjonjo," a name I also find on a label of *Cinnyris oustaleti*.

This is one of the few species of Sunbirds in which the sexes are identical in plumage, and in this instance both are adorned with metallic colours.

The most eastern known range for the species is Fort Hill, situated on the Songwe river which flows into the northern end of Lake Nyasa. Here a full plumaged specimen was shot by the hunters who accompanied the Commission for the Delimitation of the Anglo-German Boundary between the Nyasa and Tanjanyika lakes, and brought to England by Lieut.-Col. W. H. Manning. In recording this specimen in the "Ibis," I mentioned the supposed occurrence of the species in Mashonaland by Mr. Guy Marshall. That gentleman has kindly forwarded to me two of these specimens, which I find are young males of *Chalcomitra gutturalis*, with the lower throat red and a fair amount of yellowish buff on the breast and no metallic colours.

Anthothreptes gabonica.

Anthothreptes gabonica (Hartl.), Reichen. J. f. O. 1894, p. 42 *Camaroons*; Sjöstedt, Sv. Vet. Ak. Handl. 1895, p. 104 *Camaroons*; Shelley, B. Afr. I. No. 82 (1896).

- Anthreptes gabonica*, Büttik. Notes Leyd. Mus. 1889, p. 118 *Liberia* ; Kuschel, J. f. O. 1895, p. 347 (*egg*).
- Nectarinia gabonica*, Hartl. J. f. O. 1861, pp. 13, 109 *Gaboon* ; Sharpe, *Ibis*, 1872, p. 70 *Fantee, Volta R.*
- Stiphornis alboterminata*, Reichen. J. f. O. 1874, p. 103 ; 1875, p. 43 *Camaroons* ; 1877, p. 30 *Loango* ; Sharpe, J. f. O. 1882, p. 345 ; id. *Cat. B. M.* vii. p. 174 (1883) ; Reichen. J. f. O. 1890, p. 127 *Camaroons* ; 1891, p. 68.
- Anthreptes rectirostris* (nec Shaw), Shelley, *Mon. Nect.* p. xlv. pl. 107 upper fig. 1 (1880, pt. ♀) ; Büttik. Notes, Leyd. Mus. 1888, p. 212 *Liberia*.
- Anthreptes tephrolæma* (nec Jard. and Fras.) Shelley, t. c. p. xlvi. (1880 pt. ♀) ; Büttik. Notes, Leyd. Mus. 1888, p. 211 *Congo*.
- Cinnyris venustus* (nec Shaw) Büttik. Notes, Leyd. Mus. 1885, p. 170 (pt. ♀, *nest and eggs*.)

Adult. Upper surface, as well as a broad band through the eye, ear-coverts and sides of neck ashy brown, with a slight olive shade on the wings and tail ; remainder of the plumage, the ends of the tail-feathers, under wing-coverts and inner margins of quills white, with a faint ashy shade on the lower throat and sides of body. " Bill black, iris brownish red, feet sooty brown " (Büttikofer). Total length 4.1 inches, culmen 0.5, wing 2.3, tail 1.5, tarsus 0.6. *Fantee (Ussher)*.

The Little Brown and White Sunbird ranges from the Gambia to the Congo.

The most northern known locality for this species is Bathurst on the Gambia, where Marche procured a specimen which is now in the British Museum. In Liberia Mr. Büttikofer met with the species along the banks of the Marfa river and near Monrovia, and found a nest with two eggs, December 20. On the Gold Coast Ussher collected specimens in Fantee, at Accra and by the Volta river.

From Camaroons the species has been recorded, under the title of *Stiphornis alboterminata*, as abundant along the bushy banks of the streams which flow through the coast country. Dr. Preuss obtained a specimen in May in the Victoria district, and Mr. Sjöstedt found the species breeding in January

and February. From Fernando Po there is one of Fraser's specimens in the British Museum.

The type of the species, which was in Verreaux's collection, came from Gaboon. Here the species has since been met with by Marche at the Ogowé river. On the Loango coast specimens have been collected by Falkenstein at Chinchonxo and by Lucan and Petit at Landana. From Banana at the mouth of the Congo Mr. Büttikofer received from Mr. van der Kellen a nest, one egg, and a bird in spirits, dated September 28. By dissecting this specimen he proved from the form of the tongue that the *Stiphronis alboterminata*, Reichen., is an *Anthothreptes*. The nest and egg were, he informs us, exactly similar to those he found in Liberia, and by mistake referred to *Cinnyris venustus*, of which he wrote: "The nests of this species are found along rivers, fixed to the end of overhanging boughs. They are not different in size and structure from those of *C. chloropygia*, but have a grey appearance. The eggs, generally two in number, are ashy grey, slightly washed with violet, and irregularly varied with dark lines and spots." They measured 0.64 by 0.8. "Collected 20th of December." Mr. Sjöstedt found these birds frequenting the mangrove swamps in Camaroons, and the nests he met with were suspended by twigs close to the surface of the water. One of these nests contained a single young bird, which was similar in plumage to its parents but with the abdomen yellow, the base of the bill paler, feet black, and iris brown, not deep red or reddish brown as in adult birds.

When I published my Monograph of the *Nectariniidæ* I was struck with the similarity of the style of plumage of this bird and the females of *A. longuemarii*, and knowing of no specimen of this form sexed as male, I referred those from the north to *A. rectirostris* and the others from the south to *A. tephrolæma*, thinking it probable that the females of the two species would be very similar in plumage.

Since then Dr. Reichenow has compared specimens of this form collected by Mr. Büttikofer in Liberia, and found them to agree specifically with his *Stiphornis alboterminata* from Camaroons, of which he records the males and females as alike in plumage. From Mr. Büttikofer's examination of the tongue there can be no doubt that it is a Sunbird, and must stand as *Anthothreptes gabonica* (Hartl.).

I believe that the specimens described in Cat. B. M. ix. as females of *A. rectirostris* and *A. tephrolæma* do not belong to the genus *Anthothreptes*, but are females of *Cinnyris venustus* or *C. chloropygius*, as evidently the "Bill of *Anthothreptes rectirostris*," figured page 120, is taken from a specimen of one of the latter two species.

Family II. PROMEROPIDÆ.

Somewhat similar in form and habits to the *Nectariniinæ*; but, nostrils placed in a more elongated groove, bill not serrated, frontal feathers lanceolate, tail extremely long and graduated, of somewhat broad, soft, and lax feathers, no metallic colours, and construct a cup-shaped nest.

This family is represented by only two very closely allied species, both confined in their range to South Africa, south of the Tropics.

As the structure of the tongue and internal anatomy is unknown to me, I hesitate to refer the genus *Promerops* to either the *Nectariniidæ* or the *Meliphagidæ*, so place it in a family by itself.

KEY TO THE SPECIES.

- a.* Forehead, crown and front of chest not chestnut *cafer*.
b. Forehead, crown and front of chest chestnut *gurneyi*.

Promerops cafer.

Promerops cafer (Linn.), Shelley, Mon. Nect. p. 377, pl. 121 (1876);
 Gadow, Cat. B. M. ix. p. 283 (1884); Sharpe ed. Layard's B. S.
 Afr. p. 305 (1884); Kuschel, J. f. O. 1895, p. 345 (*egg*); Shelley,
 B. Afr. I. No. 83 (1896); Stark, Faun. S. Afr. i. p. 269, figs. (1900).

Adult Male. Above, brown, slightly more rufous on the lanceolate feathers of the crown, which are edged or tipped with brownish buff; lower back and upper tail-coverts washed with olive-yellow. Cheeks and upper throat white with a narrow blackish mustachial band extending halfway down the sides of the throat; lower throat and chest rufous brown with broad white tips to the feathers; abdomen paler, passing into bright yellow on the vent and under tail-coverts, the latter with large brown centres. Total length 19.5 inches, culmen 1.3, wing 4, tail 14, tarsus 0.95. Cape Town, 7. 2. 74 (Shelley).

Adult Female. Like the male. Total length 15.7 inches, culmen 1.25, wing 3.8, tail 11, tarsus 0.95. Cape Town, 7. 2. 74 (Shelley).

The Cape Promerops, as this species was first called by Latham in 1782, is confined to Cape Colony.

Dr. Arthur C. Stark, our best authority upon South African birds, remarks that this bird is most abundant towards the south-western extremity of the Colony, becoming rare to the east of Grahamstown, its range apparently coinciding with that of certain sugar bushes (*Proteas*).

During my short stay in the Colony I found the present species common in the gardens of Cape Town, and at Mossell Bay, generally in small parties, frequenting the scattered bushes, into which they quickly dived if alarmed, though at other times they preferred the outer twigs, especially those towards the summits of the bushes. In February the *Protea* bushes were out of bloom, and the most attractive flowers were those of the tall aloes, round which these birds clustered, often in company with *Nectarinia famosa*, their long silky tails fluttering like ribands to the slightest breeze, while they clung to the flowers and probed them with their long beaks in search of the sweet nectar and small insects. On my disturbing them they flew directly to the nearest covert to hide, in long regular undulations at a few feet from the ground, their long tails closed and appearing to consist of a single feather.

At this season, unlike the many Sunbirds I met with in

their company, they alone kept in small troops which "followed their leader" from bush to bush, after the manner of the Colies, or of our European Long-tailed Tits. At such times their note is frequently heard; this assembly call has nothing musical in it, but is quaint, if not actually pleasing.

Dr. Stark writes: "The Cape Long-tailed Sugar-bird is rarely found at any great distance from its favourite protea-bushes, but in districts where these shrubs grow luxuriantly these birds are frequently very numerous, and generally resident. When not resting they are usually met with in flocks of a dozen or more, busily engaged in hunting through a thicket of proteas in search of nectar and various small insects.

"When sucking up the nectar of one of the larger protea-blossoms, the bird perches on the edge of the flower, plunges its long bill and the greater part of its head downwards among the petals, and retains it in this position until satisfied. As a result the narrow, shaft-like feathers of the forehead frequently become saturated and stained with juice, and dusted over with pollen, and it is probable that this bird plays an important part in the cross-fertilisation of several species of Protea. At times these Sugar-birds feed on the saccharine juices of the aloe, the Cape honeysuckle, and several of the larger heaths, as well as on spiders, small beetles, and a variety of smaller insects. They are expert fly-catchers, darting upon passing insects from their perch, and rarely missing their mark.

"Towards the end of April, or beginning of May, the males, when not feeding, fighting, or chasing one another with shrill cries, may be usually seen perched on the summit of some prominent bush or young pine tree, their long, flexible, and curved central tail-feathers blowing about in the wind, often in a reversed curve over the bird's head. At intervals one of

them will mount twenty or thirty feet in the air, incline his body backwards, violently jerk his tail up and down, and at the same time rustle the feathers together, and bring his wings with sharp, resounding 'claps' against his sides, before returning to his perch to indulge in an outburst of song. Occasionally a male may be seen to throw the longer tail-feathers into a double curve.

"At the same season the hens amuse themselves by flying round and round in a small circle.

"This Sugar-bird breeds in winter, in May, June, and July, the flowering season of one of the larger white proteas. The nest, usually completed towards the end of May, is somewhat large, deeply cup-shaped, and strongly built of small sticks and twigs of heath, fibrous rootlets, dry grass, and the spines of pine trees, lined with pine leaves and the red downy seeds of a protea. It is carefully concealed, sometimes in a tuft of heath near the ground, at others in the crotch of a protea-bush four or five feet above it, but more generally, in the neighbourhood of Cape Town, in a thick young pine tree from four to ten feet above the ground. On one occasion I found a nest built on some broken-down sedge in a swampy hollow. Two eggs are laid, and these are incubated, as far as I have observed, by the female only. She sits very closely, with her long tail projecting at an angle over the edge of the nest. The eggs are hatched at the end of fifteen or sixteen days, and the young remain in the nest for about five weeks. The eggs, usually laid about the end of May or early in June, vary considerably in size, shape, and colour; some are much elongated, others rounded ovates. As a rule the ground colour varies from light buff to reddish-brown; this may be more or less covered with blotches, scrawls, and zig-zag markings of deep purplish black, or with finer spots and lines of brown. Many eggs resemble those of the European

Bunting (*Emberiza miliaria*); others, as far as colour goes, those of many of the Sunbirds (*Nectariniidæ*). They average 1·00 by 0·72.”

Promerops gurneyi.

Promerops gurneyi, J. Verr., Shelley, Mon. Nect. p. 381 (1876); Ayres, Ibis, 1876, p. 425 *Transvaal*; Gadow, Cat. B. M. ix. p. 284; Sharpe ed. Layard's B. S. Afr. p. 306 (1884); Shelley, B. Afr. I. No. 84 (1896); Sharpe, Ibis, 1897, p. 506 *Zululand*; Stark, Faun. S. Afr. i. p. 273 (1900).

Adult. Similar to *P. cafer*, but differs in having no mustachial streak, and in the crown, lower throat, and front of breast being chestnut. Total length 10·1 inches, culmen 1·1, wing 3·75, tail 6·6, tarsus 0·9. Lydenburg district (Barratt).

Gurney's *Promerops* is only known from Natal and the Transvaal. The type, labelled, "Natal," was procured by Mr. T. Ayres, who writes: "In habits this bird much resembles *Nectarinia natalensis*, its food also being the same, viz., nectar and small insects, especially spiders. It is very rare in this locality, and is besides more shy than most other species. I believe it is only to be found here during the winter months." At a later date he observed it in the Lydenburg district, and writes: "*Promerops gurneyi* is tolerably common, feeding on the nectar of the flowers of a scrubby tree common on the sides and summits of the mountains," and often in company with *N. famosa*.

Mr. Barratt also found it in the Transvaal between Lydenburg and Pretoria, and Messrs. R. B. and J. D. S. Woodward procured a specimen at Ulundi in Zululand.

No doubt the habits of this species are similar to those of its close ally, *P. cafer*.

Family III. ZOSTEROPIDÆ.

Bill shorter than the head, widened at the gape, and with a prominent, slightly arched culmen. Nostril placed in a short oval groove, which reaches halfway down the bill from the gape to the tip, is covered by a membrane, and opens in a slit. Tongue in *Zosterops* split near the end into two short filaments somewhat brush-like in appearance. Wing with the bastard primary excessively small or absent. Tail square, considerably shorter than the wing, of twelve feathers which have angular tips. Tarsi with a few scales in front.

They construct a neat cup-shaped nest, which is generally placed near the extremity of a branch and apparently more generally hung to, than supported by, the fork to which it is attached. The eggs are unspotted, apparently always of a pale bluish green colour and do not exceed five in a clutch.

This family ranges over the Ethiopian region eastward to New Guinea, Australia and New Zealand.

It is represented in the Ethiopian region by about thirty known species, all of which, with the exception of *Z. senegalensis*, are apparently confined to the sub-region in which the type was discovered. Twelve inhabit the African continent and island of Socotra, and the remaining eighteen are confined to the islands.

Z. senegalensis inhabits the west, east, and north-east sub-regions, for it ranges over Central and Eastern Africa from 7° S. lat. to 16° N. lat., and westward into the Senegambian district, as I find, in the British Museum, a typical example from Bathurst agrees exactly with one from Manda Island. Many ornithologists, however, still divide this species into three or four sub-species, but I am not aware that anyone can define their distinctive ranges, and there are no less than nine distinct names to be divided amongst them.

Z. anderssoni is only a large form representing *Z. senegalensis* in southern tropical Africa, south of about 10° S. lat.

North-east Africa between 5° and 16° N. lat. is inhabited by two nearly allied species, *Z. abyssinica* and *Z. poliogastra*, the former ranging eastward into Socotra Island.

In Equatorial Africa there is an olive group comprising *Z. eurycricota*, *Z. kikuyuensis*, *Z. jacksoni* and *Z. stenocricota*, the latter known only from Camaroons, which is also the home of *Speirops melanocephala*.

Z. vireus represents this olive group in eastern South Africa, south of 10° S. lat.

The white-breasted group, to which *Z. abyssinica* and *Z. poliogastra* belong, is represented in South Africa by *Z. capensis* south of 27° S. lat., and by *Z. pallida* from Swellendam to Rustenberg.

The remaining eighteen species are confined to the following islands:—

Prince's Is., *Z. ficedulina* and *Speirops leucophæa*.

St. Thomas Is., *Speirops lugubris*.

Annobon Is., *Z. griseovireseus*.

Mauritius Is., *Z. chloronota*, *Malacirops mauritiana*.

Réunion Is., *Z. olivacea*, and *Malacirops borbonica*, and *M. e-newtoni*.

Madagascar, including Gloriosa Is., *Z. madagascariensis* and *Z. hoarum*.

Mayotte Is., *Z. mayottensis*.

Johanna Is., *Z. anjuanensis*.

Great Comoro Is., *Z. kirki*, *Z. mouroniensis* and *Z. comorensis*.

Aldrabra Is., *Z. aldabrensis*.

Seychelles Archipelago, *Z. semiflava* and *Z. modesta*.

KEY TO THE GENERA AND SUBGENERA.

a. Upper tail-covert never white but nearly uniform with the back.

a¹. Lores never white; white on head

- almost or entirely confined to a well marked silky white ring round the eye . ZOSTEROPS.
- a*². Some green or yellow on the back or under parts.
- a*³. Throat and breast yellowish and never contrasting strongly . . . Subgen. ZOSTEROPISYLVIA.
- b*³. Breast whitish and often contrasting strongly with the throat . . . Subgen. ZOSTEROPS.
- b*². No green or yellow on the plumage . Subgen. CYCLOPTEROPS.
- b*¹. Lores, as well as the whole or portion of sides of head, white; bill uniform brown; no yellow on the plumage . . SPEIROPS.
- b*. Upper tail-coverts white; no white on sides of head; no yellow on the plumage . . . MALACIROPS.

Genus I. ZOSTEROPS.

All the members of the genus *Zosterops* may be most readily distinguished by their having a well marked ring of silky white feathers encircling the eye, which has suggested the English name of White-eye, given to them by Latham in 1783.

These active little birds are usually to be met with in groups of six to a dozen together frequenting the sunny edges of the glades or outskirts of the forests. They feed upon soft fruits, buds and insects, and much resemble the Tit in their call notes, their peculiar attitudes, and the apparent dislike they show to alighting on the ground.

It is curious that in the genus *Zosterops* there should be so many groups of very closely allied species, and that these groups are decidedly limited in their range. This leads me to fancy that some of supposed good species may be only local forms or mere varieties, the plumage possibly being very sensitive to atmospheric action, as it is known that spirits affect their colouring more than that of most other birds.

The British Museum contains a fine series of *Z. virens*, from which I make the following notes :

♂ ad. August 7, Newcastle. Wing 2·6, tail 2·0, tarsus 0·75.

♂ ad. July 30, Pinetown. Wing 2·35, tail 1·75, tarsus 0·65.

A male and female shot at Pinetown in July are slightly yellower than a male and female shot at Newcastle in August.

The yellow on the forehead is occasionally, though rarely, entirely confined to the sides. The breadth of the white eye-ring varies but slightly, excepting in one apparently immature bird which has this ring very narrow.

In the group of which *Z. madagascariensis* is the oldest name, there are many nearly allied species, if indeed they really deserve to be treated as such. Believing them all to have come from a fairly recent common stock, it would appear that their colonisation might have proceeded in the following manner, starting from Madagascar as the mother country.

A party took possession of Africa south of about 27° S. lat. and although scarcely differing in appearance beyond the occasional adoption of a few yellow feathers on the forehead are known as *Z. capensis*, and one of its members, the type of *Z. atmori*, Sharpe, has nearly the whole of the forehead yellow. Another, *Z. pallida*, put on a rather paler dress with sandy rufous flanks and is more readily distinguishable.

Others on leaving Madagascar by a more northern route, settled in Johanna and Great Comoro Island and became *Z. anjuanensis* and *Z. comorensis*, in which the distinguishing character is the yellow sides to the forehead, and some stopped in Aldabra Island, and assuming a yellow shade down the centre of the breast became recognised as *Z. aldabrensis*; while those which extended their range into north-east Africa founded a rather large race *Z. poliogastra*, with the entire forehead bright yellow in adult specimens, and which, with the exception of its slightly larger dimensions agrees exactly in colouring with the type of *Z. atmori* from Grahamstown. A much better marked, distinct, allied form in north-east Africa is *Z. abyssinica*, which ranges over the same country as *Z. poliogastra*.

KEY TO THE SPECIES.

- a. Under tail-coverts yellow.
- a*¹. Throat yellow; upper parts yellowish green.
- a*². Breast not contrasting strongly with the throat.
- a*³. No olive shade on the flanks, which are golden yellow or chestnut.
- a*⁴. Some chestnut on the flanks.
- a*⁵. Forehead olive like the crown *semiflava*. 152
- b*⁵. Forehead bright yellow *mayottensis*. 172
- b*⁴. No chestnut on the flanks.
- c*⁵. Paler, sides of forehead lemon yellow (Africa).
- a*⁶. Smaller; wing about 2·2 inches. *senegalensis*. 172
- b*⁶. Larger; wing 2·3 to 2·4 (S. Africa) *anderssoni*. 177
- d*⁵. Darker, sides of forehead tinged with orange (Gt. Comoro Is.).
- c*⁶. Smaller; wing 2·0 to 2·1; white eye-ring broader *kiriki*. 178
- d*⁶. Larger; wing 2·6; white eye-ring narrower *mouroniensis*. 178
- b*³. Sides of body shaded with olive.
- c*⁴. White eye-ring narrower.
- e*⁵. Larger; wing 2·3; darker and greener; not more than the sides and front of the forehead yellow. *virens*. 177
- f*⁵. Smaller; wing 2·1; paler and yellower; a partial eyebrow of yellow reaching back to as far as posterior edge of eye. *stenoericota*. 181
- d*⁴. White eye-ring broader.
- g*⁵. Forehead with no yellow, but a faint chestnut shade on the sides. *euryericota*. 182
- h*⁵. Forehead yellow.
- e*⁶. Yellow extends back as far as posterior margin of eye; front half of crown yellow *kikuyuensis*. 182
- f*⁶. Yellow extends back as far as

- anterior margin of eye; yellow confined to the entire forehead. *jacksoni*. 184
- c*³. Under parts uniform whitish yellow.
- e*⁴. Smaller; wing 2·0 (Prince's Is.) . . . *ficedulina*. 185
- f*⁴. Larger; wing 2·5 (Annobon Is.) . . . *griscovirescens*. 186
- b*². Breast not yellow and contrasting strongly with the throat.
- d*³. Sides of breast strongly shaded with sandy rufous and no grey. . . . *pallida*. 187
- e*³. Sides of breast greyer.
- g*⁴. Duller (Africa).
- i*⁵. Above bright yellowish green; general plumage darker.
- g*⁶. Smaller; wing 2·3; less yellow on forehead (S. Africa) . . . *capensis*. 188
- h*⁶. Larger; wing 2·5; forehead bright yellow (N. E. Africa) . . . *poliogastra*. 189
- k*⁵. Above more ashy olive; general plumage paler and duller (N. E. Africa) . . . *abyssinica*. 190
- h*⁴. Brighter.
- l*⁵. No yellow on the breast.
- i*⁶. No yellow on the forehead . . . *madagascariensis*. 191
- k*⁶. Sides of forehead yellow.
- a*⁷. Larger; wing 2·2; throat and under tail-coverts deep yellow . . . *anjuanensis*. 192
- b*⁷. Smaller; wing 2·05; throat and under tail-coverts very pale yellow . . . *comorensis*. 193
- m*⁵. Some yellow on chest and centre of abdomen. . . . *aldabrensis*. 194
- b*¹. Throat not yellow; some yellowish green on the upper parts.
- c*². Back of neck and mantle yellowish green; crown black . . . *olivacea*. 195
- d*². Crown, back of neck and mantle slaty grey . . . *chloronota*. 196
- b*. No yellow on the plumage; crown like the back.
- c*¹. Above brown, a white line from the nostril to the eye (Seychelles) . . . *modesta*. 197
- d*¹. Above grey; no white line from the nostril to the eye (Madagascar). . . . *hovarum*. 198

Zosterops semiflava. (Pl. 6, fig. 2.)

Zosterops semiflava, E. Newton, Sharpe, Cat. B. M. ix. p. 190 (1884);
Ridgway, Proc. U. S. Nat. Mus., 1895, p. 514 *Seychelles*; Shelley,
B. Afr. I. No. 85 (1896).

Adult. Above, including the wing-coverts and edges of quills and tail-feathers, olive yellow, yellow towards the upper tail-coverts, remainder of quills and the tail dusky brown; under wing-coverts white washed with yellow; sides of forehead bright yellow; a moderately broad white ring round the eye; lores and a margin beneath the white eye-ring black. Beneath bright yellow strongly washed with chestnut on the flanks. Bill black, with a pale portion at base of lower mandible; iris brown; tarsi and feet grey. Total length 4·5 inches, culmen 0·45, wing 2·35, tail 1·8, tarsus 0·7. *Seychelles* (E. Newton).

The *Seychelles Chestnut-flanked White-eye* is confined to the *Seychelles Archipelago*.

This species was discovered on *Marianne Island* by Mr. Nevill, who "saw a flock of some dozen or so, from which he killed a couple." Mr. H. L. Warry and Dr. Abbott also collected specimens here; others have been met with by Mr. Wright on *Praslin Island*, and Mr. E. Newton was told that the birds inhabit *Ladigue* and *Silhouette*, and believed he saw them, on one occasion, at *Mahé*.

Zosterops mayottensis.

Zosterops mayottensis, Schl. Sharpe, Cat. B. M. ix. p. 191 (1884)
Mayotte Is.; Tristr. Ibis, 1887, p. 370; Milne Edw. and Oust. N.
Arch. Mus. Hist. Nat. Paris (2), x. p. 246 (1888); Shelley, B. Afr.
I. No. 86 (1896).

Adult. Similar to *Z. semiflava*, but differs in having the forehead bright yellow. Total length 3·9 inches, culmen 0·4, wing 2·15, tail 1·2, tarsus 0·7.

The *Mayotte Chestnut-flanked White-eye* is confined to the island of *Mayotte*, one of the *Comoro group*, situated about

halfway between the northern extremity of Madagascar and the African coast.

According to Pollen, who discovered the species, it lives in small flocks of six to twelve individuals, and is generally to be met with along the outskirts of the bush or by the sides of the footpaths, feeding on the small insects and honey from the flowers. It is not shy in its habits, and he likens its song to that of a female Canary. M. Humblot collected four specimens, and often found them in company with *Cinnyris coquereli*.

Zosterops senegalensis.

- Zosterops senegalensis*, Bp. Bouvier, Cat. Ois. Marche, &c., p. 14 (1875) *Bathurst*; id. Bull. S. Z. France, 1887, p. 252 *Uganda*; Petr. Verhandl. Wien. xxxi., p. 144 (1881); Hartl. Abhand. Brem. 1881, p. 99; 1882, p. 199 *Upper White Nile*; Sharpe, Cat. B. M. ix. p. 181 (1884); id. Journ. Linn. Soc. Zool. xvii. p. 426 (1884) *Nyam-Nyam*; Fisch. Zeitschr. 1884, p. 337; id. J. f. O. 1885, p. 138 *Arusha*; Reichen. J. f. O. 1887, p. 75 *Ussure*; Emiu, J. f. O. 1891, p. 60; Reichen. t. c. p. 160 *Mpapwa, Tabora*; Rendall, Ibis, 1892, p. 219 *Gambia*; Shelley, B. Afr. I. No. 87 (1896).
- Zosterops tenella*, Hartl. Fisch. J. f. O. 1885, p. 138 *Kipini, Ishara*; Oust. Bibl. Ecole Hautes Etudes, xxxi. (10), p. 8 (1886).
- Zosterops kirki* (nec Shelley) Shelley, Ibis, 1888, p. 300 *Manda Is.*; Sharpe, Ibis, 1891, p. 594 *Makarungu*; Hinde, Ibis, 1898, p. 580 *Machako's*.
- Zosterops demeryi*, Büttik. Notes Leyd. Mus. 1890, p. 202 *Liberia*.
- Zosterops obsoleta*, Büttik. t. c. p. 203 *Liberia*.
- Zosterops stuhlmanni*, Reichen. J. f. O. 1892, p. 54 *Bukoba, Sesse Is.*; Shelley, B. Afr. I. No. 93 (1896); Neum. J. f. O. 1898, pp. 236, 237 *C. Afr.*; Hartert in Ansorge's "Under Afr. Sun," p. 149 (1899) *Unyoro*.
- Zosterops flavilateralis*, Reichen. J. f. O. 1892, p. 193 *E. Afr.*; Sharpe, P. Z. S. 1895, p. 475 *Somali*; Salvad. Ann. Mus. Genov. 1896, p. 44 *Somali*.
- Zosterops superciliosa*, Reichen. J. f. O. 1892, p. 193 *Wadelai*.

Adult. Above, including the wing-coverts and edges of the quills and tail-feathers, olive yellow, slightly more yellow on the rump; remainder of

the wings and tail brown ; sides of the head and neck like the mantle, but shading into bright pale yellow on the forehead, throat, under surface of body and under tail-coverts ; a silky white ring round the eye, with a black loreal patch in front of and below this ring ; under wing-coverts and inner edges of quills white, the former partially washed with yellow. Bill black with the base of the lower mandible leaden grey ; iris reddish brown ; legs leaden grey. Total length 3.6 inches, culmen 0.4, wing 2.2, tail 1.5, tarsus 0.6. Bathurst (Brit. Mus.).

This species differ chiefly from *Z. kirki*, of Great Comoro Island, in the general paler yellow shade of the plumage, and from *Z. flava*, of Borneo, in having a black loreal band extending above the gape to half way along the under edge of the white eye-ring.

The Senegal Yellow White-eye ranges through Senegambia into Liberia, eastward across the continent to Keren on the Anseba river (17° N. lat.), and south to Ugogo (7° S. lat.).

The type of the species was procured by Swainson from Senegal, Marche's collection contained specimens from Bathurst, Verreaux's from Casamance and Beaudouin's from Bissao. In the British Museum there are five specimens from Senegambia ; here, according to Dr. P. Rendall, it is a rare bird. From Liberia the types of *Z. demeryi* and *Z. obsoleta*, Büttik. were sent to the Leyden Museum in spirits by the late Mr. A. T. Demery, and were brought over by Mr. Büttikofer for comparison with the *Zosteropidae* in the British Museum, where we agreed together that they were really specimens of *Z. senegalensis*, with their true colours completely obliterated by the spirits in which they had been preserved ; the latter specimen, apparently a younger bird, had suffered the most. A very similar case is *Z. prætermissa*, Tristram, which was described from a specimen of *Z. anjuanensis* similarly preserved. This is a warning to all ornithologists against an improper use of strong spirits.

It is strange that this species has not been recorded from any other part of the West African coast, for Dr. R. B. Sharpe mentions a " male from Dem Suleiman, November," and there

is another specimen from the Nyam-Nyam country, also obtained in November by Bohndorff at Monderick, which is in the British Museum, along with one labelled "Albert Edward Nyanza (Scott Elliott)" and another "Fadjulli, ♂ 10. 5. 81 (Emin)." Emin has besides collected specimens to the east of Lake Tanjanyika at Tabora and Mpapwa. According to Dr. S. T. Pruen, at Kakoma in the Usagara country the natives call it "Vimlyelye." The late Dr. Fischer met with the species in Arusha, Ussure, Kipini, Ishara and Kau, and found it plentiful, during his explorations through Masailand, in the high trees, hunting for insects, in pairs or groups up to ten in number. Dr. Hildebrandt found them in the mountains of Ndi in the Teita country around the flowering acacia bushes in company with colonies of Sunbirds. Two of his specimens are in British Museum, which also contains the following:—"Lamu (Kirk)," "Manda Is. (Jackson)," "Machako's, ♂, ♀, 8. 96 (Hinde)." In Somali, specimens have been collected at Sillu in August by Dr. A. Donaldson Smith, and Don Eugento del Principe Ruspoli also met with the species in this country.

Towards Victoria Nyanza Mr. Jackson has procured examples at Makarungu, Mr. W. J. Anson a fine series from Masindi and Fajao in Unyoro, and a specimen from Kiwalogoma in Uganda, in which country the species was also met with by Piaggio, in what was in his time known as Mtesa's country.

According to Dr. Reichenow's views with regard to the division of this species into subspecies, as I understand them, his *Z. flavilateralis* ranges over E. Africa generally east of Lake Tanjanyika and Uganda, and his *Z. stuhlmanni* and *Z. superciliosa* reign jointly over Emin's "happy hunting ground" of the Upper White Nile district of Central Africa, where Dr. Stuhlmann and Emin have met with these forms on

Sesse Island, Bukoba, Fadjulli, Wandj, Kiri and Wadelai. At this latter place Emin procured the type of *Z. superciliosa*, and remarked that they were not rare in this district and generally seen in pairs frequenting the thickly foliaged trees.

I find no mention of these White-eyes to the north of Wadelai and Somaliland until we reach Abyssinia. Here again the species has been broken up into three subspecies by von Heuglin, who is the only naturalist giving us any information on them from this country. Their apparent rarity here, he suggests, is possibly owing to their quiet habits, the call-note being a low piping "schi," and the song much resembles that of our Willow Warbler, but is not so loud. They feed on small insects, and are usually to be met with in pairs, but in the late autumn often assemble in parties of six to twelve individuals.

Von Heuglin, while at Keren in the Anseba valley, between 3,500 and 4,000 feet, discovered the type of his *Zosterops aurifrons*, and at Bongo the type of his *Zosterops pallescens*. In Sennaar Prince P. of Wurtemberg procured a specimen which was first described by von Heuglin as *Zosteropsylvia icterovirens*.

If we divide *Z. senegalensis*, as I understand it, into three subspecies they would probably have the following synonyms :

1. *Z. senegalensis*, Bp. (1850), Senegambia.
Z. demeryi, Büttik. (1890), Liberia.
Z. obsoleta, Büttik. (1890), Liberia.
2. *Z. pallescens*, Heugl. (1862), Bongo.
Z. heuglini, Hartl. (1865), Bongo.
Z. flavilateralis, Reichen. (1892), E. Africa.
3. *Z. tenella*, Hartl. (1865), Keren.
 ? *Zosteropsylvia icterovirens*, Heugl. (1867), Sennaar.
Z. stuhlmanni, Reichen. (1892), Bukoba and Sesse Island.
 ? *Z. superciliosa*, Reichen. (1892), Wadelai.

Zosterops anderssoni. (Pl. 7, fig. 1.)

Zosterops anderssoni, Shelley, B.O.C. I.p. 5 (1892); id. *Ibis*, 1893, p. 118 *Damara*; 1896, p. 180 *Nyasa*; Marshall, t. c. p. 244 *Salisbury*; Shelley, B. Afr. I. No. 88 (1896); id. *Ibis*, 1897, p. 525; 1898, p. 379 *Nyasa*; Stark, Faun. S. Afr. i. p. 300 (1900).

Zosterops senegalensis (nec Bp.) Gurney in Anderss. B. Damara, p. 76 (1872); Bocage, Orn. Angola, p. 288 (1877) *Caconda*, *Biballa*; Sharpe, ed. Layard's B. S. Afr. pp. 325, 834 (1884); id. Cat. B. Mus. ix. p. 181 (1884, pt. S. Afr.); Bocage, Journ. Lisb. 1893, p. 162 *Galanga*.

Zosterops tenella (nec Hartl.) Reichen. J. f. O. 1889, p. 285 *Quilimane*.

Adult. Similar in plumage to *Z. senegalensis*, but larger. "Bill black, iris hazel; legs dark slate colour" (Guy Marshall). Total length 4.3 inches, culmen 0.45, wing 2.35, tail 1.85, tarsus 0.65.

Andersson's Yellow White-eye ranges from Benguela and the Ovampo country into Mashonaland and Mozambique.

This species is the South African representative of *Z. senegalensis*. Anchieta has procured specimens at Caconda, where it is known to the natives as "Hoio," and at Biballa. South of the Cunene at Elephant Vley Mr. Andersson collected the types, two specimens, and writes: "It was only as I approached the Okavango that I became aware of its existence. In the thornless forests bordering upon the stream it is not uncommon, but it migrates northward during the dry season. It is found in small flocks, and diligently explores, in search of insects, the branches of the smaller trees, and especially the buds and flowers, suspending itself in a variety of positions while it is thus employed."

In Nyasaland Mr. Alexander Whyte has collected specimens on Mount Chiradzulu and on the Nyika Plateau where it is probably abundant, for in Mashonaland Mr. Guy Marshall procured a male and female at Salisbury, April 14, which had

been feeding on figs and small insects, and further remarks : "Common at all seasons, busily searching the trees for insects either in pairs or family parties of 5 or 6."

No doubt to this species belongs a female obtained by Dr. Stuhlmann at Quilimane, January 29, where it was known to the natives as "Tschiliko."

Dr. R. B. Sharpe in Layard's "B. S. Afr." has evidently described a typical specimen of *Z. senegalensis*, and not a South African example, for his measurements of the wing and tail are much too small. The "Distribution" given for this species in the "Fauna of South Africa" is far from being correct.

Zosterops kirki.

Zosterops kirki, Shelley, P. Z. S. 1879, p. 676; Sharpe, Cat. B. M. ix. p. 182 (1884) *Great Comoro Is.*; Tristr. Ibis, 1887, p. 370; Milne Edw. and Oust. Ann. Sc. Nat. Zool. 1887, p. 223; iid. N. Arch. Mus. Hist. Nat. Paris (2), x. p. 248, pl. 8, fig. 1 (1888); Shelley, B. Afr. I. No. 89 (1896).

Zosterops angazizæ, Milne Edw. and Oust. C. R. Acad. Sc. ci. p. 221 (1885).

Adult. Above, including the wing-coverts and edges of the tail-feathers, deep olive yellow, slightly yellower on the rump; remainder of the wings and tail brown; sides of the head and neck like the mantle, but shading into deep yellow on the sides of the forehead, the throat, breast and under tail-coverts; a silky white ring round the eye, with a black loreal patch in front and below this ring; under wing-coverts and inner edges of quills white, the former partially washed with yellow. Total length 4 inches, culmen 0.4, wing 2.05, tail 1.5, tarsus 0.5. Gt. Comoro Is. (G. A. Frank).

Kirk's White-eye is confined to Great Comoro, otherwise known as Angaziza Island.

The type specimens, probably male and female, were collected by Sir John Kirk; they are similar in plumage, but the probable female is slightly duller in its colouring. It has since been procured by M. Humblot, who discovered another

much larger species, *Z. mouroniensis*, on the same island, and by Mr. G. A. Frank.

Zosterops mouroniensis.

Zosterops mouroniensis, Milne Edw. and Oust. C. R. Acad. Sc. ci. p. 121 (1885); iid. Ann. Sc. Nat. Zool. 1887, p. 222; iid. N. Arch. Mus. H. N. Paris (2), x. p. 247, pl. 5, fig. 2 (1888) *Gt. Comoro Is.*; Shelley, B. Afr. I. No. 90 (1896).

Adult Male. Similar to *Z. kirki*, but larger, and with the white round the eye very much narrower, scarcely extending beyond the eyelids. Total length 4.6 inches, culmen 0.5, wing 2.6, tail 2.25, tarsus 0.75.

The Larger Great Comoro White-eye is restricted to the Great Comoro Island.

The name for the species is derived from that of a small village where M. Humblot discovered the type.

Not having seen a specimen I have taken my description from Mr. Keulemans' figure of the species instead of following MM. Milne Edwards and Oustalet in their comparison of it with several more or less allied forms.

Zosterops virens. (Pl. 7, fig. 3.)

Zosterops virens, Bp. Sharpe, Cat. B. M. ix. p. 182 (1884); Sharpe, ed. Layard's B. S. Afr. pp. 325, 834 (1884); Distant, Naturalist in Transvaal, p. 167 (1892); Rendall Ibis, 1896, p. 171 *Transvaal*; Shelley, B. Afr. I. No. 91 (1896); id. Ibis, 1897, p. 525 *Nyasaland*; Sharpe, t. c. p. 507 *Zululand*; Stark, Faun. S. Afr. i. p. 301 (1900).
Zosterops capensis (nec Sundev.) Butler, Feilden and Reid, Zool. 1882, p. 247 *Natal*; Sharpe, ed. Layard's B. S. Afr. p. 834 (1884).

Adult Male. Upper parts, including the wing-coverts and edges of the quills and tail-feathers, yellowish green; remainder of wings and tail dark brown, with the inner edges of the quills and the under wing-coverts white, the latter shading into bright pale yellow at the edge of the wing; sides of

forehead yellow, which colour just crosses the base of the forehead; a ring of white feathers round the eye, with a black loreal patch in front of eye and edging the white ring beneath; ear-coverts and sides of neck green like the back; throat, centre of breast, thighs and under tail-coverts bright yellow shading into yellowish green on the sides of the body. "Bill black; iris light brown; tarsi and feet ash colour" (T. Ayres). Total length 4.3 inches, culmen 0.4, wing 2.3, tail 1.8, tarsus 0.6. Pinetown, 30. 7. 75 (T. L. Ayres).

Adult Female. Like the male. Total length 4.3 inches, culmen 0.45, wing 2.3, tail 1.8, tarsus 0.7. Pinetown, 30. 7. 75 (T. L. Ayres).

The Natal Green White-eye ranges over South-eastern Africa from Kingwilliamstown to Lake Nyasa.

The most southern and western range known to me for this species is Kingwilliamstown, where Captain Trevelyan collected several specimens. Some little distance inland the type of the species was discovered by Wahlberg in "Upper Kaffraria."

In Natal the species is common, and probably some of the White-eyes I met with at Durban belonged to this form, for shortly after I left my friend Mr. T. L. Ayres sent me several specimens from Pinetown, and his father, Mr. T. Ayres, writes from Natal: "These birds are gregarious, and very plentiful in the spring of the year (September and October). They do considerable damage to soft fruit, such as the loquat and mulberry; but also do much good in clearing the trees of insects, climbing and hunting amongst the buds and leaves in search of them. They almost constantly utter a loud, monotonous, weeping note, which somewhat resembles that of the *Nectariniæ*, and especially of *Nectarinia amethystina*."

Messrs. Butler, Feilden and Reid write: "A common species, universally distributed throughout the colony. Many specimens were obtained in the kloofs of the Drakensberg, near Newcastle, and it was also shot near Durban. It was usually found in small parties."

In Zululand the Messrs. Woodward collected two specimens

at Eschowe, which are in the British Museum along with three from Kingwilliamstown, fourteen from Natal, nine from the Transvaal and two from Nyasaland.

To the north of the Vaal river Mr. Barratt shot a specimen at Macamac, "a naturalist in the Transvaal," Mr. W. L. Distant, records it from the neighbourhood of Pretoria, and Dr. P. Rendall from the Barberton district. Mr. T. Ayres found the species "common about the wooded parts of the Rustenberg district," and also in the Lydenburg district "this bird is extremely plentiful, both in the forest of the kloofs and among the jungle on the slopes. It builds a neat, open cup-shaped nest in some low shrub; the eggs are white and, as far as I can remember, without spots." I believe Mr. T. Ayres is not quite accurate in calling the eggs white, as all the eggs belonging to members of the genus *Zosterops* are probably uniform pale blue or greenish blue, and according to Stark these birds lay four pale blue unspotted eggs, measuring 0.64 inch by 0.48. The only recorded instance of the occurrence of this species to the north of the Limpopo river is that Mr. Alexander Whyte has collected a pair at Mayawa village on the Nyika Mountain, 6,000 feet, in June. This is to the west of the northern end of Nyasa lake in about 10° 30' S. lat., and 13° north of the Tropic of Capricorn, which was previously the most northern known range for *Z. virens*.

Zosterops stenocricota.

Zosterops stenocricota, Reichen. J. f. O. 1892, p. 191; 1894, p. 41
Cameroon; Shelley, B. Afr. I. No. 94 (1896).

Type. Similar to *Z. virens* but paler and yellower, with the yellow sides of the forehead extending in a band back to the posterior edge of the eye. Total length 4.6 inches, bill 0.36, wing 2.08, tail 1.43, tarsus 0.64.

The Camaroons Olive White-eye inhabits Camaroons.

Dr. Preuss discovered the type in the mountains at an elevation of 950 metres on September 6, 1891. This is all I know regarding the species, for the type appears to be the only specimen yet procured.

Zosterops eurycricota.

Zosterops eurycricota, Fisch. and Reichen. J. f. O. 1884, p. 55 *Massai*; Sharpe, Cat. B. M. ix. p. 292 (1884); Fisch. Zeitschr. 1884, p. 337; id. J. f. O. 1885, p. 138 *Arusha*; Reichen. J. f. O. 1892, pp. 54, 192; Shelley, B. Afr. I. No. 92 (1896).

Zosterops perspicillata, Shelley, P. Z. S. 1889, p. 366, pl. 41, fig. 1 *Kilimanjaro*.

Adult Male. Above, including the wing-coverts and edges of the quills and tail-feathers, bright yellowish green with a slight chestnut shade on the forehead; lores black; a very broad circle of white feathers round the eye 0.15 inch wide; remainder of wings and tail slaty black. Beneath bright yellow passing into yellowish green on the sides of the neck and body. Bill black; legs slaty grey. Total length 4.4 inches, culmen 0.45, wing 2.55, tail 2.1, tarsus 0.75. Kilimanjaro, 8. 81 (Hunter).

Adult Female. Exactly like the male. Total length 4.2 inches, culmen 0.45, wing 2.5, tail 2, tarsus 0.75. Kilimanjaro, 8. 81 (Hunter.)

Fischer's Green White-eye inhabits East Africa.

This species is known to me only by the description of the type, a female procured by the late Dr. Fischer at the base of the Maeru Mountains in Great Arusha on July 17, and by a pair now in the British Museum, the types of my *Z. perspicillata*, obtained by Mr. Hunter on Kilimanjaro in August at an elevation of 5,000 feet.

Dr. Reichenow informs us that my *Z. perspicillata* is the same as his *Z. erycricotus*, which I did not recognise from his short description of that species. My descriptions are taken from Mr. Hunter's specimens, in which the black lores are scarcely visible.

Zosterops kikuyuensis.

Zosterops kikuyuensis, Sharpe, Ibis, 1891, pp. 444, 594, pl. 12, fig. 1
Kikuyu, Mt. Elgon; Shelley, B. Afr. I. No. 95 (1896); Neum.
J. f. O. 1898, p. 239 *Mau*; Hartert in Ansorge's "Under Afr. Sun,"
p. 350 (1899) *Uganda*.

Adult Female: type of the species. Above, yellowish green; wings and tail dusky brown with the outer edges of the feathers green like the back; entire forehead, as well as the front half of the crown, bright yellow; eye-ring white and fairly broad, but not preventing the black in front of the eye from reaching to the eye; throat, centre of breast, thighs and under tail-coverts bright yellow passing into yellowish green on sides of neck and sides of breast; under wing-coverts and inner margins of quills white. Bill black, "irides brown, feet horn-blue." Total length 4.5 inches, culmen 0.45, wing 2.3, tail 1.8, tarsus 0.7.

The Kikuyu Green White-eye inhabits eastern Equatorial Africa. Mr. Jackson discovered the type, an adult female, in the Kikuyu forest, August 15, 1889, which specimen is now in the British Museum. Mr. Hartert records it in Mr. Ansorge's collection from the Eldoma Ravine in the Uganda Protectorate. This is all that is yet known, I believe, regarding this species, if *Z. jacksoni*, Neumann, is really distinct.

I think it is quite possible that *Z. jacksoni*, Neum., may prove to be the more normal form, and that the type of *Z. kikuyuensis*, which only differs in the yellow frontal patch extending 0.2 inch further back on to the middle of the crown, a variety.

The difference between the type of *Z. kikuyuensis* and *Z. jacksoni*, Neum., is much the same as the difference between the unique specimen of *Z. atmori*, Sharpe, and *Z. capensis*, which I unite as mere varieties, feeling confident that the more perfect our series of specimens the more evident their affinities will be shown.

Zosterops jacksoni.

Zosterops jacksoni, Neumann, Orn. Monatsb. 1899, p. 23 *Mau, Massai, Nandi, Mt. Elgon*; Jackson, Ibis, 1899, p. 636 *Ravine, Nandi*.

Zosterops scotti, Neumann, Orn. Monatsb. 1899, p. 24 *Ruenzori*.

Zosterops kikuyuensis, Sharpe (?) Hartert in Ansorge's "Under Afr. Sun," p. 350 (1899) *Eldoma Ravine*.

Adult Male. Above, yellowish green with the entire forehead bright yellow; wings and tail dusky brown with the outer edges of the feathers green like the back; a fairly broad ring of white feathers round the eye, broken through in front by the black loreal feathers which extend from the bill to the eye; throat, centre of breast, thighs and under tail-coverts bright yellow, with the sides of the body yellowish green; under wing-coverts and inner margins of quills white. Total length 4·8 inches, culmen 0·45, wing 2·4, tail 1·8, tarsus 0·7. Mau, ♂ 25. 2. 97 (Jackson).

Adult Female. Exactly like the male. "Bill black, iris hazel, feet horny blue" (Jackson). Total length 4·9 inches, culmen 0·5, wing 2·45, tail 1·9, tarsus 0·7. Mau, ♀ 25. 2. 97 (Jackson).

Jackson's Yellow-fronted Olive White-eye inhabits eastern Equatorial Africa.

The type is a specimen from Mau in the Berlin Museum. Mr. Neumann, when he described the species, knew of, besides the type, four of Mr. Jackson's specimens, and one in Mr. Ansorge's collection from the Eldoma Ravine. I have examined in Mr. Jackson's collection the following eight specimens: Mt. Elgon, 11,500 feet, ♂, February 16; Mau, ♂ ♀, February 25, ♂, April 3; Ravine, ♂ ♀, June 24, ♂, June 29; Nandi, 6,500 feet, ♀, June 4.

All these specimens are exactly alike and agree well with the type of *Z. scotti*, which is in the British Museum, from the forest of Yeria on Mount Ruenzori, where Mr. Scott Elliot obtained the specimen out of a flock which he met with at an elevation of 8,000 feet.

According to Mr. Jackson, the species is very plentiful in this part of Africa and he "found a nest on the 21st" (February?) "in the drooping branches of a tree with small leaves. It was suspended between a small fork to which it was woven by the outer edges. Built entirely of grey hard moss, and lined with the finest of fibre. It contained two eggs of a palish blue." He further remarks: "This little bird is the most diligent that it is possible to imagine in its search for caterpillars and other insects, and after the breeding-season, when two or more family parties congregate in a flock, the amount of insects they destroy must be very great. Except towards evening, when they have filled themselves to repletion, they are rarely if ever still, but keep darting about among the foliage of both bushes and the taller trees, twisting and turning their heads in all directions and getting into all sorts of fantastic positions like a Tit, all the time keeping up an incessant chirrup not unlike that of our Goldcrest. As soon as the apparent leader of the flock leaves a tree, perhaps thinking there is little or nothing left worth looking for in the way of food, it darts off to another tree with a chirrup, when it is followed by the rest, one after the other, all of which keep up the same soft little chirrup. These birds will be invaluable when fruit-trees are introduced into the country, and orchards are established."

Zosterops ficedulina. (Pl. 8, fig. 1.)

Zosterops ficedulina, Hartl. P. Z. S. 1866, p. 327 *Prince's Is.*; Sharpe, Cat. B. M. ix. p. 203 (1884); ? Sousa, Journ. Lisb. 1888, p. 157 ? *St. Thomas Is.*; Shelley, B. Afr. I. No. 96 (1896).

Adult. Above, yellowish olive, slightly browner on the crown and yellower on the rump; edges of the wing and tail-feathers olive like the mantle; a circle of glossy white feathers round the eye; ear-coverts ashy

white; lores and sides of forehead yellowish white, of the same colour as the entire under parts; under wing-coverts and inner margins of quills white. Bill brown with the under mandible pale; iris brownish yellow; tarsi and feet brown. Total length 4.5 inches, culmen 0.4, wing 2, tail 1.5. Prince's Is. (Dohrn).

The Prince's Island White-eye is probably confined to the island of that name, which is separated from the Gaboon coast by about 130 miles of Atlantic Ocean.

Here Dr. Dohrn found the species frequenting the hilly parts of the interior, and remarks that it much resembles our Willow Warbler (*Phylloscopus trochilus*), not only in its colouring but also in its song.

Signor Sousa informs us that the Lisbon Museum contains a specimen labelled "St. Thomas Island, 1880." A collector of St. Thomas Island birds would probably visit Prince's Island, and most likely obtained the bird at the latter place, for there is no other record of the species being found elsewhere than on Prince's Island. Or can the bird be really a specimen of the nearly allied, but larger, form *Z. griseovirescens* from Annobon Island?

Zosterops griseovirescens.

Zosterops griseovirescens, Bocage Journ. Lisb. 1893, p. 18 *Annobon Is.*; Shelley, B. Afr. I. No. 97 (1896).

Type. According to the original description it is compared to *Z. ficedulina*, but is a larger bird, with a longer and stronger bill. Upper parts grey slightly washed with green, most strongly so on the head, and of a more yellow shade on the upper tail-coverts; under parts white tinted with sulphur yellow on the throat and middle of the abdomen; breast and flanks shaded with yellow and pale brown; under tail-coverts washed with bright sulphur yellow; least and median wing-coverts like the back; greater coverts brown edged with greenish yellow; quills brown with white inner margins and narrow greenish yellow outer edges; bend of wing and under wing-coverts pure white; tail feathers brown narrowly edged with green.

Bill blackish with the edges and base of lower mandible of a paler shade; feet brown; iris pale chestnut. Total length 4·8 inches, culmen 0·52, wing 2·5, tail 2, tarsus 0·84.

The Annobon White-eye inhabits the small island of that name in the Atlantic in about 1° 30' S. lat. by 6° E. long.

The species was discovered by Mr. F. Newton, who informs us that it is common in Annobon; remarkable by its very melodious song, and is called by the inhabitants of the island "Bichili." It appears to me to be quite possible that the specimen referred to by Sousa in 1888 as *Zosterops ficedulina*, supposed to have come from St. Thomas Island, really belongs to this species.

Zosterops pallida. (Pl. 7, fig. 2.)

Zosterops pallida, Swains.; Sharpe, Cat. B. M. ix. p. 160 (1884); Sharpe, ed. Layard's B. S. Afr. pp. 324, 334 (1884); Shelley, B. Afr. I. No. 98 (1896); Stark, Faun. S. Afr. i. p. 302 (1900).

Malacirops pallida, Hartl. J. f. O. 1865, p. 28.

Adult Male. Upper parts, including the ear-coverts, sides of neck and edges of the feathers of the wings and tail, yellowish green; remainder of wings and tail dark brown, with the under wing-coverts and inner edges of the quills buffy white; a yellow band on each side of the forehead just reaching across the base of the forehead; a ring of white feathers encircles the eye, margined beneath by the continuation of the black loreal band; chin, throat and under tail-coverts very pale yellow; breast white with sandy rufous on the body, crop and thighs. Bill hoary black, with the basal part of the lower mandible ashy blue; iris light brown. Total length 4·6 inches, culmen 0·35, wing 2·5, tail 2·1, tarsus 0·7. Orange R. (Atmore).

Adult Female. Like the male; tarsi and feet brownish ash. Total length 4·3 inches, culmen 0·35, wing 2·25, tail 1·9, tarsus 0·7. Orange R. (Atmore).

Burchell's Pallid White-eye ranges over South Africa from Swellendam to Rustenberg.

Burchell procured the type of the species during his wanderings in South Africa. Mr. Layard tells us that an example in the South African Museum "was probably sent from Swellendam by Mr. Cairncross, as it bears traces of his stuffing." I find no other evidence for its ranging so far west. In the British Museum there are three specimens from the Orange river, where it has been met with by Dr. Bradshaw and Mr. Atmore; one from Colesberg of Mr. Ortlepp's collecting, and three from the Transvaal. From the Rustenberg neighbourhood Mr. T. Ayres writes: "Occasionally seen in small companies hopping and climbing about the hedges and trees during the winter months."

The type of *Z. lateralis*, Sundev., which was re-christened *Z. sundevalli* by Dr. Hartlaub, was procured by Wahlberg in "Upper Kaffraria," probably between Colesberg and Rustenberg.

Zosterops capensis.

Zosterops capensis, Sundev. Shelley, *Ibis*, 1875, pp. 60, 70 *Cape Col.*; Sharpe, *Cat. B. M.* ix. p. 171 (1884); Kuschel, *J. f. O.* 1895, p. 345 (*egg*); Shelley, *B. Afr. I.* No. 99 (1896); Stark, *Faun. S. Afr. i.* p. 302 (1900).

Zosterops atmorei, Sharpe in Layard's *B. S. Afr.* pp. 326, 834 (1884).

Adult Male. Upper parts, including the wing-coverts and edges of the quills and tail-feathers, as well as sides of head and neck, deep yellowish green, shading into pale yellow on the throat; a white ring round the eye, with the feathers in front black; breast white, washed on the chest and sides with soft ashy brown; under tail-coverts pale yellow; under wing-coverts and inner margins of the quills white; remainder of quills and tail dusky brown. "Bill bluish black, lighter on the under mandible; legs and feet lead colour, with sometimes a tinge of brown; iris yellowish brown" (Andersson). Total length 4·8 inches, culmen 0·45, wing 2·3, tail 1·9, tarsus 0·7. Knysna, January 6 (Andersson).

Adult Female. Similar to the male, but with a yellow patch on each side of the forehead. Table Mountain, November 30 (Andersson).

Type of *Z. atmori*, Sharpe. Similar, but with yellow of the head crossing the base of the forehead. Total length 4·6 inches, culmen 0·4, wing 2·3, tail 1·9, tarsus 0·7.

The Cape White-eye is apparently confined to Africa south of about 27° S. lat.

Andersson writes:—"I have only once or twice observed this species in the southernmost parts of great Namaqualand, along the periodical watercourses bordered by mimosas; but from thence southwards it becomes more numerous, and at the Cape and in many parts of the Colony it is abundant: a pair or two may be seen any day in most of the gardens in the immediate environs of the Cape." He met with these White-eyes in small parties searching diligently amongst low bushes and trees for insects and their larvæ, and found their nests placed at the extreme end of a branch. "The nest is very prettily shaped, and is composed of loose tendrils interlaced, covered with moss outside, and lined internally with hair, &c. The eggs are four or five in number, and are said to be incubated by both parents."

Andersson collected specimens on Table Mountain in November, at the Knysna in January. Victorin found the species in Karroo. Mr. Rickard notes its occurrence at Port Elizabeth and East London; Mr. Atmore procured the type of *Z. atmori*, Sharpe, at Grahamstown; Captain Trevelyan found them some sixty miles eastward at Kingwilliamstown, and Mr. Gordge procured me a specimen at Durban in Natal, which is the furthest known eastern range for the species. Most of these specimens are now in the British Museum, and on comparing them I have come to the conclusion that the type of *Z. atmori* is only an abnormally coloured specimen of *Z. capensis*.

I met with the Cape White-eye in small pleasure parties in the pine forests around the base of Table Mountain, where they

much reminded me of groups of Goldcrests I had previously seen at home, at Avington, where they have greatly decreased of late years. The White-eyes appeared to me to be equally abundant near Durban, but probably I confounded *Z. virens* with the present species, as they closely resemble one another at a little distance, their backs being the part most exposed to view as they cling on, or flutter round, the sunny edges of the woodlands.

Mr. Layard writes:—"The White-eye is common throughout the whole of the Colony, roaming about in small families of from five to twenty in number. During the fruit season they do great damage to the apricots, peaches, plums, &c.; they also destroy the buds to get at the insects that lurk therein. While on the wing, or feeding, they utter incessantly a stridulous chirp, which is generally the first thing that reveals their presence. We never saw them on the ground, but they sometimes creep about low bushes. They place their nests, which they conceal with great care, in a fork caused by the union of several small twigs. It is composed of moss and fibres, covered with cobweb and lichens, and lined with hair, and is shaped like a cup about three inches across by two and a half deep. The eggs, five in number, are of a beautiful spotless blue, rather sharp at the ends." According to Stark:—"The eggs, four or five in number, are unspotted pale blue. They measure 0.66×0.50 . Both parents incubate the eggs, which are hatched at the end of ten days. The nestlings are fed on soft larvæ, small caterpillars and the saccharine juices of flowers by both male and female."

Zosterops polioastra.

Zosterops polioastra, Heugl. Sharpe, Cat. B. M. ix. p. 169 (1884);
Salvad. Ann. Mus. Genov. 1884, p. 141; 1888, p. 249; Gigl. t. c.

p. 40 *Shoa*; Shelley, B. Afr. I. No. 101 (1896); Elliot, Field Columb. Mus. Orn. i. No. 2, p. 41 (1897) *Somali*; Grant, Ibis, 1900, p. 145 *Abyssinia*.

Zosterops flavigula (nec Swains.) Blanf. Geol. and Zool. Abyss. p. 354 (1870).

Adult. Similar in plumage to *Z. capensis*, but with the upper parts slightly yellower and with a broad bright yellow forehead. "Bill black; iris brown; tarsi and feet ashy grey" (Antinori). Total length 5 inches, culmen 0.45, wing 2.5, tail 2.0, tarsus 0.7. Shoa, ♂, 11. 6. 78 (Antinori).

Immature. Slightly duller and browner above; the yellow forehead less strongly marked. Shoa, ♂ 30. 1. 82 (Antinori).

Heuglin's White-breasted White-eye ranges over North-east Africa between 5° and 16° N. lat.

Mr. Elliot informs us that during his travels in Somali-land he collected three specimens at Bohoigashan but did not meet with it elsewhere, so it is apparently not so abundant in that country as *Z. abyssinica*. This is the only record of the species having been found further south than Shoa, for I cannot agree with Dr. R. B. Sharpe in referring a bird from Grahamstown, the type of his *Z. atmori*, to this species (Cat. B. M. ix. p. 169). About half way between Somali and Shoa, Lord Lovat obtained a specimen at Warabill. In Shoa, where *Z. abyssinica* has not yet been recorded, the present species is abundant and a resident, for Antinori has collected specimens at Let Marefia, January and March; forest of Fekerie-Ghem, April; Mahal-Uonz, April and August; Kolla di Mantek, August; Dr. Ragazzi at the forest of Fekerie-Ghem, January and May; Sciotalit and Curé, December.

A nest found by Antinori was of a deep cup-shape, constructed entirely of grass, and contained two unspotted pale sky-blue eggs, 0.65 by 0.5 inch.

In Abyssinia, according to von Heuglin, the species is resident in the eastern and central highlands from 3,000 to 12,000 feet, where he met with it at Telent, Semien and

Begemeder, frequenting the upper branches of the olive and euphorbia trees, and feeding on the fruit of the sycamore and upon small insects. He likens their song to that of the Willow-Warbler, and informs us that their call note is a soft little chirp.

Mr. Blanford obtained a single female specimen at Dongola in Tigré in May, and not feeling quite certain of its identity suggests the name of *Z. flavigula* for his specimen.

Zosterops abyssinica.

Zosterops abyssinica, Guèr. Ferr. et Gal. Voy. Abyss. Zool. p. 209, pl. 9, fig. 2 (1847); Hartl. J. f. O. 1865, p. 9; Sharpe, Cat. B. M. ix. p. 168 (1884); Shelley, B. Afr. I. No. 100 (1896); Tristr. Ibis, 1898, p. 248 *Socotra Is.*; Hawker, Ibis, 1899, p. 67 *Somali*; Grant, Ibis, 1900, p. 144 *Abyssinia*.

Adult. Similar in plumage to *Z. capensis*, but paler, back slightly more ashy and always with a yellow patch confined to the sides of the forehead. "Bill and legs greyish brown with a whitish mark at the base of the keel; iris brown" (O. Grant). Total length 4 inches, culmen 0.45, wing 2.15, tail 1.7, tarsus 0.7. Abyssinia (Blanford).

The Abyssinian White-breasted White-eye ranges over North-east Africa, between 5° and 16° N. lat., and extends eastward to the island of Socotra.

On Socotra, the extreme north-eastern limit of the Ethiopian region, this White-eye has been procured by Professor J. B. Balfour, Dr. Riebeck, Mr. E. N. Bennett and by Messrs. Forbes and O. Grant, and the latter naturalist informs us that it is "fairly plentiful on all parts of Socotra, being equally common in the low bush-clad valleys near the sea, and at an elevation of at least 4,500 feet, where the bush ceases. It was generally met with in small parties of two or more, and its habits remind one strongly of the Cole-tit;

its call note, uttered when feeding and on the wing, is moreover so exactly like that of the latter bird, that when first heard on Mankaradia, to the south of the Hadibu plain, imagination pictured some unknown species of Tit. It is an active, lively little bird, seldom still for a minute, and constantly searching for small insects among the branches of the bushes and trees. The nesting season must have been practically over when we arrived on December 9. On the 17th of that month I fell in with a family party of five, including three young birds. Though able to fly well, they were still being fed by their parents, and it was a pretty sight to watch these beautiful little birds portioning out the dainties they collected with such amazing rapidity. They were so tame that one could observe them from a distance of a few yards."

He further tells us that: "When alarmed they keep up a constant scolding note, 'Chū-é, Chū-é, Chū-é,'" which at once puts all the birds in the neighbourhood on the look out for danger.

This species is apparently equally abundant in Somali-land and throughout the watershed of the Blue Nile, for in the former country specimens have been collected by Mr. Gillett, Mr. Hawker, and by Mr. Lort Phillips in the Darro mountains, at Jifa Meder and Wagga. Lord Lovat procured a specimen at Laga Hardim, about 40° E. long., during his journey westward from Berbera, and states: "This active little bird swarms all over the thick woods of the Abyssinian valleys. Like *Zosterops polio-gastra*, it is widely distributed throughout the low country." Yet it never appears to have been met with by either Antinori or Ragazzi in Shoa, where, from their observations, *Z. polio-gastra* is the only common White-eye. According to von Heuglin the species is to be met with in pairs in most

parts of Abyssinia between 3,000 and 10,000 feet, and ranges southward to Wadla and Talanta and northward into Bogos, and he describes a variety procured in May at Djenda in Amhara. Mr. Jesse also found the species in Bogos and Mr. Blanford in the Komalee pass at Mayen, 3,500 feet above the sea.

From what I have written regarding *Z. abyssinica* and *Z. poliogastra* I am led to think that the former is the more eastern or coast-loving bird of the two, and that *Z. poliogastra* belongs rather to the interior of the continent.

Zosterops madagascariensis.

Zosterops madagascariensis (Linn.), Milne Edw. and Grand. Hist. Madag. Ois. i. p. 291, pl. 113, fig. 2 (1882); Sharpe, Cat. B. M. ix. p. 170 (1884); Deans Cowan, Ibis, 1885, p. 101; Sibree, Ibis, 1891, pp. 426, 439; Shelley, B. Afr. I. No. 102 (1896).

Zosterops madagascariensis gloriosæ, Ridgway, Pr. U. S. Nat. Mus. 1894, p. 372; 1895, p. 526 *Gloriosa* Is.

Adult. Very similar to *Z. capensis*, but brighter and paler, with no trace of yellow on the forehead. Upper parts, as well as sides of head and neck, wing-coverts and outer edges of quills and tail-feathers bright yellowish green; remainder of wing and tail dark brown; under wing-coverts and inner edges of quills white, with a bright yellow edge to the bend of the wing; a clear white ring round the eye; in front of eye and a margin beneath the eye-ring black; throat and under tail-coverts bright yellow; breast white, washed on front and sides with ash; thighs yellowish white. Bill slaty black with a pale patch at the base of the keel; legs leaden grey; iris brown. Total length 4.5 inches, culmen 0.45, wing 2.15, tail 1.65, tarsus 0.65. Madagascar (Crossley).

The Madagascar Green-backed White-eye is a native of the islands of Madagascar and Gloriosa.

According to M. Grandidier, this species is common throughout the wooded parts of Madagascar. They live in parties of

eight or ten, often keeping company with *Eroessa tenella*, *Newtonia brunneicauda*, and sometimes with *Cinnyris souimanga*; are active and lively, always on the move, assuming all kinds of positions, now flitting from branch to branch, then dipping their little brush-tipped tongues into the chalice of a flower to sip the honey or to feed on the small insects and pollen; they are also partial to fruit. Their flight is short, rapid and irregular, and consists mostly in flitting and chasing each other, with the constant little cry of "tseri-tseri." They are not shy, and their flesh is delicate eating. The nest, which is generally placed in a low bush, is constructed of grass and fine roots, is small, deeper than wide, and in the form of a purse. The eggs are oval, of a delicate green, and measure 0.68 by 0.52 inch. The Rev. J. Sibree informs us that *Z. madagascariensis* "builds a very pretty open nest on the end of some hanging branch. Its eggs are very pale blue." Its Hova or general name is Pariamaso, and the provincial Malagasy names are—Siparomaso, Sias, Ramanjereky, Tsaramaso, and Mangirike. In the British Museum there is a specimen of this species which was obtained by Dr. Coppinger, during the voyage of the *Alert*, on *Gloriosa* Island.

Dr. W. L. Abbott, during his visit to that island from January 18 to 25, 1893, collected four specimens, and remarks: "Is the commonest land-bird upon *Gloriosa*." Mr. Ridgway, after describing one of these specimens, an adult female, as *Zosterops madagascariensis gloriosæ*, writes: "Having only one specimen of true *Z. madagascariensis* for comparison, I am not quite satisfied of the propriety of separating the *Gloriosa* bird, which I do more in deference to Professor Newton's views than from my own convictions.

"I may remark that the next commonest species of land-bird met with by Dr. Abbott on *Gloriosa* was *Cinnyris souimanga*, formerly known only from Madagascar."

Zosterops anjuanensis.

Zosterops anjuanensis, E. Newton; Sharpe, Cat. B. M. ix. p. 170 (1884);
Milne Edw. and Oust. N. Arch. Mus. Hist. Nat. Paris (2), x. p. 247
(1888); Shelley, B. Afr. I. No. 103 (1896).

Zosterops prætermissa, Tristr. Ibis, 1887, p. 370, pl. 11, fig. 1; A. and
E. Newton, Ibis, 1888, p. 474.

Adult. Very similar in plumage to *Z. madagascariensis* and *Z. capensis*, but most readily distinguished by the upper parts being decidedly paler and of a brighter and yellower shade, with clear yellow sides to the forehead, forming partial eyebrows; breast more uniform isabelline white. Total length 4·3 inches, culmen 0·45, wing 2·2, tail 1·5, tarsus 0·7. Johanna Is. (G. A. Frank).

The Anjuan White-eye inhabits Johanna, otherwise called Anjuan Island.

Mr. C. E. Bewsher collected the type, four other specimens, a nest and eggs of this species, and informs us that it is called by the natives of the island "Nean Teughnan." He considered it to be not very common, but Sir John Kirk has since sent me six specimens from Johanna.

The nest is cup-shaped, made of grass, and the eggs are pale blue, similar to those of other members of the genus. With regard to *Z. prætermissa*, the type of which I have carefully examined, there can be no doubt—as Messrs. A. and E. Newton have already pointed out—that it is a specimen of *Z. anjuanensis*. It is, however, interesting, as showing how soluble in spirit are the yellow and green colours of the *Zosteropidæ*.

Zosterops comorensis, sp. nov. (Pl. 9, fig. 1.)

Type. Similar to *Z. anjuanensis*, but smaller and with the yellow of the throat and under tail-coverts paler. Total length 3·9 inches, culmen 0·45, wing 2·05, tail 1·4, tarsus 0·6. *Great Comoro Is.* (Kirk).

The White-breasted Great Comoro White-eye inhabits the island of that name, which is situated in the Mozambique Channel in 11° 30' S. lat.

The type was presented to me some years ago by Sir John Kirk, who procured the specimen from Great Comoro Island, and it is now in the British Museum.

Z. comorensis is the third known species of the genus which is confined to this island. As it is extremely rare to meet with the same species inhabiting any two islands of the Mascarene Archipelago, one cannot be surprised to find the present a distinct representative form of the *Z. madagascariensis* group, most nearly allied to *Z. anjuanensis*.

Zosterops aldabrensis.

Zosterops aldabrensis, Ridgway, Pr. U. S. Nat. Mus. 1894, p. 371
Aldabra.

Adult Male. "Similar to *Z. palpebrosa* (Temm.) but supraloral region (sides of head) distinctly orange yellowish, under parts with yellow on chest extending further backward and tingeing the median line of the belly; chest and sides less tinged with grey (some specimens having instead a faint brownish wash), and under tail-coverts very different in colour from chest (varying from maize to chrome yellow, the throat being canary yellow). 'Upper mandible black; lower one leaden; feet leaden; iris light brown' (Abbott). Total length 4.25, culmen 0.35, wing 2.12, tail 1.62, tarsus 0.7, mid. toe 0.37" (Ridgway).

The Aldabra White-eye inhabits the island of Aldabra in the Indian Ocean, in about 9°30' S. lat. by 57° E. long.

Dr. W. L. Abbott, who discovered the species, writes: "A very common, active little bird, generally keeping in the thick jungle and constantly hopping about the branches. Found in flocks of twenty to thirty, and very fond of the seeds of the casuarina tree. One nest was taken in October,

but it breeds plentifully in December. The nest is neatly constructed of bark fibre and casuarine needles, usually placed in a bush six feet from the ground in thick jungle. Two pale eggs are laid."

Zosterops olivacea.

Zosterops olivacea (Linn.), Sharpe, Cat. B. M. ix. p. 192 (1884); Shelley, B. Afr. I. No. 104 (1896).

Adult. Upper parts, including the edges of the feathers of the wings and tail, yellowish green, brighter and yellower on the rump and upper tail-coverts, and more ashy towards the hind neck; lores, forehead and crown blackish; cheeks and ear-coverts grey; a white ring round the eye; chin white, passing into pale ashy grey on the throat; breast ashy white, slightly browner on sides of body; under tail-coverts pale yellow; under surface of wings brown, with the coverts white and the inner edges of the quills buff. "Bill black; iris yellow; feet brown" (Pollen). Total length 4·6 inches, culmen 0·55, wing 2·2, tail 1·85, tarsus 0·7. Bourbon (Bewsher).

The Bourbon Olive White-eye is confined to the island of Réunion or Bourbon, one of the Mascarene group.

The type is one of Leclancher's two specimens in the Paris Museum. It is apparently not an uncommon species within its very restricted range, and Mr. E. Newton certainly referred to this species when he wrote: "At Bourbon (Réunion) there is a bird called 'Tectec.'"

This White-eye resembles *Z. chloronota* in having an exceptionally long and slender bill, and like that species has the yellow of the under parts confined to the tail-coverts, but is readily distinguished by the uniform greenish yellow of the upper parts, the crown only being strongly washed with black.

Zosterops chloronota.

Zosterops chloronota (Vieill.), Sharpe, Cat. B. M. ix. p. 193 (1884); Shelley, B. Afr. I. No. 105 (1896).

Adult. Above, ashy grey, with the lower back, upper tail-coverts and edges of the greater wing-coverts, quills and tail-feathers olive yellow, and with a very faint yellowish shade on the crown; sides of the head and neck ashy grey; a circle of white feathers round the eye, margined in front and below with dusky black. Chin white, passing into pale ashy grey on the throat; breast ashy white shaded with isabelline-brown on the flanks; under tail-coverts bright yellow. Bill dark brown, with a pale basal half to the lower mandible; legs reddish brown; iris light brown. Total length 4.1 inches, culmen 0.55, wing 2, tail 1.4, tarsus 0.7. Mauritius (Bewsher).

The Mauritius Olive White-eye is confined to the island of that name.

Mr. E. Newton writes: "I saw a pair on the hills at St. Martin, and two more pairs very near Souillac. They therefore do not, as I once supposed, remain only on the very high land. The only note I have heard them utter is a short, impatient 'tic-tic.'"

According to Dr. Hartlaub it constructs a strong, warm, cup-shaped nest of fibres bound together with spider's web, which is placed in the fork of a low bush, and usually contains two eggs, of a pale blue colour and roundish in form, 0.65 inch by 0.5.

Zosterops modesta. (Pl. 6, fig. 1.)

Zosterops modesta, E. Newton; Sharpe, Cat. B. M. ix. p. 194 (1884); Ridgway, Proc. U. S. Nat. Mus. 1895, p. 514 *Seychelles*; Shelley, B. Afr. I. No. 107 (1896).

Adult. Above, uniform brown with a very faint olive shade on the lower back; quills and tail darker brown, with pale olive buff outer edges to the feathers; a circle of white feathers round the eye and a white band extending forward to the nostril, below which is a black loreal mark extending back to the gape; beneath whitish shaded with pale brown, most strongly so on the sides of the body; outside of thighs dark brown; under wing-coverts and inner margins of quills white; bill dark brown with the base of the lower mandible greyish; legs dusky grey; iris light brown. Total length 4.4 inches, culmen 0.45, wing 2.35, tail 1.7, tarsus 0.7. Seychelles (E. Newton).

The Seychelles Brown White-eye is confined to the Seychelles Archipelago. Here it was discovered on Mahé, the largest and most central island of this group, by Mr. E. Newton, who found a flock of them on a sort of plateau 500 feet above the sea, and writes: "They were tolerably plentiful in a grove of clove trees, incessantly in motion, following one another from tree to tree, as restless as Titmice. Their only note was a sharp one, and though from their appearance on dissection they would soon have bred, they did not sing." Dr. Abbott has collected three specimens on Mahé in March, and it is quite possible that the species is confined to that island.

Zosterops hovarum.

Zosterops hovarum, Tristr. Ibis, 1887, p. 235, pl. 11, fig. 2; A. and E. Newton, Ibis, 1888, p. 475 *Madagascar*; Shelley, B. Afr. I. No. 108 (1896).

Type. Above, as well as the cheeks and ear-coverts, uniform slaty-grey, faintly washed with brown towards the forehead; quills and tail dark brown, partially edged with grey on the outer webs of the feathers; a clear white ring round the eye; lores dusky black. Beneath, white, shaded with ashy grey on the sides of the throat and with ashy brown on the sides of the body; under wing-coverts and inner margins of the quills white. Bill blackish, legs grey. Total length 4·3 inches, culmen 0·4, wing 2·2, tail 1·7, tarsus 0·65. Type, Madagascar.

The Hova Grey-backed White-eye inhabits Madagascar. The Rev. Canon Tristram, who has kindly lent me the type to describe, writes: "I purchased a small parcel of bird-skins from Madagascar." That they really came from this island there is no reason to doubt, as all the other skins were known to him as belonging to Madagascar species. It is a well-marked species, apparently most nearly allied to *Z. modesta* from the Seychelles.

Genus II. SPEIROPS.

This genus is extremely nearly allied to *Zosterops*, but the bill is rather stouter and the culmen much curved. Its members may be most readily distinguished by the white on the head not being confined to an eye-ring.

KEY TO THE SPECIES.

- a.* Above brown; crown black.
*a*¹. A ring round the eye, and a band above the black lores, white. *St. Thomas Is.* . . *lugubris*.
*b*¹. No white ring round the eye; forehead, cheeks and throat white. *Camaroons* . . . *melanocephala*.
b. Above brownish ash with the head and neck white. *leucophæa*.

Speirops lugubris.

Zosterops lugubris, Hartl.; Sharpe, Cat. B. M. ix. p. 199 (1884)
St. Thomas Is.; Sousa, Jorn. Lisb. 1888, p. 152; Bocage, t. c. p. 231; Shelley, B. Afr. I. No. 106 (1896).

Adult Male. Above, olive brown, with the crown black; wings and tail dark brown, the feathers edged with the same colour as the back; sides of forehead, lores and a ring round the eye white; chin white, throat ashy grey; breast pale olive tinted ashy brown; under tail-coverts slightly more rufous; thighs, axillaries, under wing-coverts and narrow inner margins to the quills white. Bill and legs pale brown; iris pale chestnut. Total length 5.2 inches, culmen 0.55, wing 2.9, tail 2.1, tarsus 0.9. *St. Thomas Is.* 27. 6. 88 (F. Newton).

The *St. Thomas Brown White-eye* is confined to the island of that name, which is situated on the Equator in 5° E. long., or about 150 miles due west of the mouth of the Gaboon river.

The species was discovered by Weiss, two of whose specimens are in the Hamburg Museum. In the British Museum

there are now four specimens: one procured by Mr. Monteiro during his Angola expedition, the others by Mr. F. Newton, who informs us that it is known to the colonists as "Othobranco," and by the natives as "Ue-glosso," so we may presume that it is fairly abundant on the island.

Speirops melanocephala.

Zosterops melanocephala, Gray; Sharpe, Cat. B. M. ix. p. 200 (1884)
Camaroons; Shelley, P. Z. S. 1887, p. 125, pl. 14, fig. 1; Reichen.
 J. f. O. 1890, p. 127; Sjöstedt, K. Sv. Vet. Ak. Handl. 1895, p. 100.
Malacirops melanocephala, Shelley, B. Afr. I. No. 111 (1896).

Adult Female. Above, ashy brown, with the crown brownish black; a dusky shade on the ear-coverts and sides of the neck; sides and front of forehead, cheeks, chin and upper throat white; remainder of the under parts pale ashy brown, fading into white down the centre of the breast; under tail-coverts nearly white; under wing-coverts and inner margins of quills ashy white. Bill and legs pale brown. Total length 4·5 inches, culmen 0·4, wing 2·5, tail 1·8, tarsus 0·85. *Camaroons* (H. H. Johnston).

The *Camaroons* Black-capped *Speirops* inhabits the forest mountains of *Camaroons*.

This species is apparently confined to the highlands, where the type, which is now in the British Museum, was discovered by Burton at an elevation of 7,000 feet, and was unique in collections until Sir Harry Johnston procured two more specimens in the same district, at 7,000 to 8,000 feet, both females. It is interesting, therefore, to be informed by Mr. Yngve Sjöstedt that the Messrs. Knutson and Valdau procured a pair at 7,500 feet, and that the male has the under surface paler than the female, and more white on the throat. A good figure of the female will be found, P. Z. S. 1887, pl. 14.

Speirops leucophæa. (Pl. 8, fig. 2.)

Parinia leucophæa, Hartl. ; id. J. f. O 1861, p. 161 *Gaboon*.

Zosterops leucophæa, Sharpe, Cat. B. M. ix. p. 200 (1884) *Prince's Is. Gaboon*.

Malacirops leucophæa, Shelley, B. Afr. I. No. 112 (1896).

Adult. Mantle and back pale brownish ash; wings and tail more uniform clear brown; head, neck and under parts white with a slight ashy shade on the crown, nape, breast and under tail-coverts. Bill uniform dark grey; iris dark brown, tarsi and feet greyish brown. Total length 5·2 inches, culmen 0·45, wing 2·6, tail 2, tarsus 0·8.

The White-headed *Speirops* is, I believe, confined to Prince's Island, which is situated about 130 miles from the Gaboon coast.

The species was described and made the type of the genus *Parinia*, by Dr. Hartlaub, from a specimen in the Bremen Museum labelled "Gaboon (Verreaux)," and a few years later, in 1861, he records possibly the same specimen as having been procured by Du Chaillu in Gaboon.

I can find no other evidence of the species ever having been seen in a wild state elsewhere than in Prince's Island, which travellers to Gaboon would very likely visit during their journey; I therefore believe the range to be confined to that island, where Dr. Dohrn and Mr. Keulemans met with them in small flocks, found the sexes similar in plumage, and describe one of their nests as "composed of fine grasses and attached to two branches with the silk of moths," comparatively small: diameter 3·6 inches, depth 2·4. Eggs 0·76 by 0·64; two in number, white, and hatched in June and July.

Genus III. MALACIROPS.

The members of this genus, three in number, are similar in form to those of *Zosterops*, but differ in the style of colouring, they all having the upper

tail-coverts white and no white eye-ring. They are only known to occur in the islands of Réunion and Mauritius.

KEY TO THE SPECIES.

- a.* Crown and mantle brown, the former somewhat tinted with grey. *Réunion Is.* . . . *borbonica.*
b. Crown and mantle grey.
*a*¹. Smaller; upper parts leaden grey; bill slightly larger *mauritiana.*
*b*¹. Larger; upper parts slaty grey; bill slighter *e-newtoni.*

Malacirops borbonica.

Malacirops borbonica (Gm.), Shelley, B. Afr. I. No. 109 (1896).

Zosterops borbonica, Sharpe, Cat. B. M. ix. p. 195 (1884) *Bourbon Is.*; Tristram, Ibis, 1887, p. 371; A. and E. Newton, Ibis, 1888, p. 475.

Adult. Above, brown, with the upper tail-coverts white; wings and tail darker, the feathers of the former, partially washed with grey, inclining to ashy white on edges of outermost quills; chin, upper throat, thighs and under tail-coverts pure white, remainder of throat and breast greyish white, passing into chestnut shaded brown on the sides of the neck and body; axillaries, under wing-coverts and inner edges of quills white. Bill and legs leaden grey. Total length 4·6 inches, culmen 0·4, wing 2·15, tail 1·75, tarsus 0·75. Bourbon (Bewsher).

The Brown-backed Bourbon Malacirops is confined to the Island of Réunion, or Bourbon, in the Indian Ocean (21° S. lat. by 56° E. long.).

In habits these birds apparently closely resemble the members of the genus *Zosterops*, for, according to Pollen, they frequent the more elevated parts of the island, and are met with in small flocks of six to twelve individuals. They rarely descend to the shore level, but are occasionally met with in the garden of St. Denis, searching the flowers for the insects and nectar on which they feed.

Malacirops mauritiana.

Malacirops mauritiaua (Gm.), Shelley, B. Afr. I. No. 110 (1896).

Zosterops mauritiana, Sharpe, Cat. B. M. ix. p. 194 (1884) *Mauritius*
Is.; Tristram, Ibis, 1887, p. 371.

Zosterops borbonica (nec Gm.), E. Newton, Ibis, 1861, p. 277 *Mauritius*.

Adult. Above, bluish grey with the upper tail-coverts white; quills and tail darker and browner. Beneath, white, washed on the sides of the body with pale chestnut shaded brown. Bill and legs dull lead colour, soles yellowish; iris bright hazel. Total length 4.4 inches, culmen 0.45, wing 2.1, tail 1.6, tarsus 0.75. Mauritius (Bewsher).

Young. Similar to the adult, but differs in having the crown and back of the neck washed with brown, and no brown on the sides of the breast. Mauritius (Bewsher).

The Mauritius *Malacirops* is confined to the island of Mauritius, which is the extreme eastern limit of the Ethiopian region.

It is nearly allied to *M. borbonica*, with which species it has been occasionally confounded, and is still more nearly allied to *M. e-newtoni*, which inhabits the same island of Réunion.

According to Dr. Hartlaub, Mr. E. Newton found the nest of this species on a bough about sixteen feet from the ground. It was constructed of dry grass, wool and spider's web, and lined with soft fibres mixed with horsehair, and although neatly and strongly constructed was so slight that the eggs could be seen through the texture; but in general appearance it resembled that of our Goldcrest. The eggs, 0.68 by 0.46 inch, generally two in number, sometimes three, were of a pale blue colour.

This species must be common in most parts of Mauritius, for Mr. E. Newton mentions his surprise at not meeting with it during his ten days' sojourn in Savanne, the southernmost district of the island.

Malacirops e-newtoni. (Pl. 9, fig. 2.)

Zosterops e-newtoni, Hartl. Vög. Madag. p. 97 (1877), *Bourbon*;
E. Newton, Ibis, 1888, p. 475.

Adult. Similar to *M. mauritiana*, but larger and darker; above, slaty grey, with the upper tail-coverts white; chin, centre of breast, thighs and under tail-coverts white, remainder of the throat and breast grey, darkest on the sides of the body, where there is scarcely any trace of brown. Total length 4·7 inches, culmen 0·45, wing 2·2, tail 1·8, tarsus 0·8. *Bourbon* (Bewsher).

Edward Newton's *Malacirops* is a native of the island of Réunion.

This is a well-marked species. The only specimen in the British Museum was given to me by Mr. Bewsher, along with other birds from both Réunion and Mauritius, and agrees perfectly with Dr. Hartlaub's very accurate description of what he took to be the male; but I feel sure he was wrong in the determination of the female, which is evidently a specimen of *M. borbonica*, for it is too improbable that the female of this species should be very different in plumage from the male, when in all the other members of the family *Zosteropidæ* the sexes are practically alike.

Family IV. PARISOMIDÆ.

Bill shorter than the head, widened at the base; culmen arched. Nostril placed in a short oval groove, which reaches half way down the bill from the gape to the tip, is covered by a membrane, and opens in a slit. Wing rounded, of ten primaries, bastard primary very large. Tail square or rounded, about the same length as the wing, of twelve feathers which have rounded tips. Tarsi sealed in front; feet and claws fairly strong, the latter much curved. Sexes alike in plumage. Nest cup-shaped; eggs spotted, and two to five in a clutch. They have a powerful and melodious song.

The family *Parisomidæ* should include Dr. R. B. Sharpe's "Group ix. *Liotriches*," Cat. B. M. vii. pp. 596-647, of which he writes: "The Hill Tits, as these birds are popularly called, are universally recognised by writers on Indian ornithology as representing a distinct family of birds. I believe, however, that they are more correctly placed as aberrant *Timeliine* forms, showing great affinities with the *Paridæ*, the true *Timeliidæ*, and even with the Wrens (*Troglodytidæ*); in a less degree they are also allied to the Flycatchers." Both Dr. Sharpe's and my name for this group are taken from Swainson's genera *Parisoma* and *Leiothrix*, Faun. Bor-Amer. B. p. 490 (1831), showing that Swainson recognised the close affinities which exist between these two genera, so I have selected the first of them for the family title.

For a key to the genera of this family I may refer my readers to Cat. B. M. vii. p. 596, as I place the few Ethiopian species in *Parisoma* and *Alcippe*, two nearly allied genera, so need not here enter further into the relationship of the other species, which are eastern forms, mostly inhabiting the Himalayas.

I followed Dr. Sharpe in placing *Alcippe* in the family Timeliidæ, B. Afr. I. p. 66; but when I discovered that *Alcippe kilimensis* was the same species as *Drymophila abyssinica*, Rüpp., I compared the type of *Lioptilus* and *Alcippe* and found them not to be generically distinct and very nearly allied to *Parisoma*.

The next two species on my list of the members of the genus "*Lioptilus*," B. Afr. p. 92, : *Parisoma olivascens*, Cass., and *Muscicapa chocolatina*, Rüpp., belong to the *Muscicapidæ*. Two other birds, *Sylvia lugens*, Rüpp., and its near ally *Parisoma jacksoni*, Sharpe, I place in the *Sylviidæ* close to *Sylvia blanfordi*, Seeböhm; they differ from *Parisoma* in having the nostrils exposed. In the British Museum there

are two specimens of *Parisoma subcæruleum* with a few feathers, evidently the remains of the last moult, which are barred with black and white.

In the nostrils being placed in a groove, and in the form and structure of the nest as well as in the manner in which it is attached to boughs, these birds resemble the *Zosteropidæ*; but they differ in the form of the wing and in laying spotted eggs, and in these characters resemble the *Paridæ*. The wings in the types of *Parus*, *Parisoma* and *Alcippe* are alike in form. The Parisomidæ build a cup-shaped nest, which is placed at the end of a bough near the ground, and, as with the *Zosteropidæ*, it is suspended from rather than resting on the fork or twigs to which it is attached. It is constructed of dry leaves, fine grass rootlets, moss, &c., bound together and attached to the branch often with spider's web.

The genus *Alcippe* ranges over South Africa and Tropical East Africa through the highlands of India, Ceylon, Malay Peninsula and Southern China to Borneo and Formosa. It comprises some fifteen known species, of which three only occur in the Ethiopian region and these are confined to the African continent, and the genus *Parisoma* is purely African.

KEY TO THE GENERA.

- a. Nostrils exposed; tail entirely brown . . . *Alcippe*.
 b. Nostrils covered by hair-like feathers; a distinct white pattern on the tail *Parisoma*.

Genus I. **ALCIPPE.**

Bill rather stout and wide, nostrils exposed; wing rounded, secondaries fall short of tip of wing by about half the length of the first primary; bastard primary nearly half the length of the fifth, which latter reaches

to the end of the wing; second primary does not reach beyond the end of the secondaries. Tail of one colour, rounded and nearly of the same length as the wing. Tarsus scaled in front.

KEY TO THE SPECIES.

- a.* Under tail-coverts not chestnut; back yellowish brown, contrasting with the crown.
*a*¹. Crown and nape black. *nigricapilla.*
*b*¹. Crown and head slaty grey. *abyssinica.*
b. Under tail-coverts chestnut; above ashy brown with a whitish forehead. *galinieri.*

Alcippe nigricapilla.

Lioptilus nigricapillus (Vieill.), Sharpe, Cat. B. M. iv. p. 262 (1879); Shelley, B. Afr. I. No. 1292 (1896).

Adult. Forehead, crown and back of neck jet black; back and edges of the feathers of the wings and tail yellowish brown; remainder of wings and tail dark brown; lores, eyelids and chin black; cheeks, ear-coverts, sides of neck, throat and centre of chest pale grey, centre of abdomen white, sides of body and thighs pale brown; under tail-coverts buff; axillaries and under wing-coverts buff; inner margins of quills white. "Bill pinkish flesh colour, iris dark lake red, tarsi and feet flesh colour" (T. Ayres). Total length 7 inches, culmen 0.6, wing 3.2, tail 3.9, tarsus 0.9. Macamac, ♀ 2. 7. 74 (T. Ayres).

The Natal Black-capped Hill Tit inhabits South Africa south of the Orange and Limpopo rivers.

All that I know regarding this species is summed up by Mr. Layard as follows: "Levaillant found this bird only in the forests of Bruintjes Hoogte, and even there sparingly. Major Bulger procured it in the neighbourhood of Windvogelberg. We ourselves saw it near the summit of the Kat-berg, and Mr. T. C. Atmore has sent us several specimens from Eland's Post; Mr. H. Bowker has also forwarded it from the Trans-

keian region. Mr. Thomas Ayres writes from Natal: 'I have at different periods met with several solitary individuals of this species, always either amongst dense underwood or thick creeping plants. They appeared to be sluggish in their habits, and to feed on small fruits and berries. Their stomachs contained no insects.' Mr. F. A. Barratt fell in with the species near Lydenburg and Pilgrim's Rest gold-fields, but Mr. T. Ayres observes that in the former district it is decidedly scarce, and adds that he cannot remember ever having seen more than a pair together."

Alcippe abyssinica. (Pl. 11, fig. 1.)

- Drymophila abyssinica*, Rüpp. N. Wirb. Vög. p. 108, pl. 40, fig. 2 (1835-40) *Abyssinia*.
Curruca abyssinica, Rüpp. Syst. Uebers. p. 57 (1845).
Aedon abyssinica, Heugl. Syst. Uebers. p. 25 (1856).
Sylvia abyssinica, Heugl. Orn. N. O. Afr. p. 313 (1870).
Lioptilus abyssinicus, Sharpe, P. Z. S. 1884, p. 231; *Salvad. Ann. Mus. Genov.* 1884, p. 128; 1888, p. 238 *Shoa*; Shelley, B. Afr. I. No. 1293; Grant, Ibis, 1900, p. 173 *Abyssinia*.
Bradyornis abyssinica, Hartert, Kat. Mus. Senck. p. 97 (1891).
Alcippe kilimensis, Shelley, P. S. Z. 1889, p. 364, *Kilimanjaro*; Reichen. Vög. Deutsch O. Afr. p. 227 (1894); Shelley, B. Afr. I. No. 921 (1896); Neum. J. f. O. 1898, pp. 241, 288 *Mau*.

Adult. Upper half of head and back of neck deep grey; back, upper tail-coverts and edges of the feathers of the wings and tail yellowish brown; remainder of wings and tail dark brown with the under wing-coverts and inner margin of the quills buffy white; throat, breast and under tail-coverts ashy white shading into pale grey on the crop and sides of the neck and chest; flanks and thighs washed with yellowish brown. "Bill dark; iris light brown; legs grey" (Lord Lovat). Total length 5.2 to 6.0 inches, culmen 0.55, wing 2.75, tail 2.5, tarsus 0.95. Kilimanjaro (Hunter).

A specimen from Abyssinia, apparently not quite adult, has a patch of brown on the crown and is labelled "Burka, 6. 1. 99 (Lord Lovat)."

Rüppell's Grey-headed Hill Tit ranges from Mossamedes into Abyssinia.

In Mossamedes Mr. A. W. Eriksson procured a specimen in the Shella range of mountains in 1882, which was lent to me to name, and is now in the South African Museum. This greatly extends the known range of the species, as it had not hitherto been recorded from further south than the Kilimanjaro mountain, where Mr. Hunter procured the type of *Alcippe kilimensis* in August, 1888, at an elevation of 6,000 feet. In this latter district the species has also been met with by Mr. Neumann in the forests of Mau. Lord Lovat, while on his way from Berbera to the Blue Nile, shot a specimen at Burka in about 8° N. lat., 41° 30' E. long., and writes: "This bird is very common all through the wooded valleys of Southern Abyssinia." In Shoa Antinori and Ragazzi record it from the forests of Sciotalit and Fekerié-gbem, where its presence is most readily known by its loud song, which somewhat resembles that of the Nightingale. The type was discovered by Rüppell in Abyssinia. Here, according to von Heuglin, the species is very rare, for he met with it once only in the Begermeder district between 8,000 and 9,000 feet.

Alcippe galinieri.

- Parisoma galinieri*, Guér. Rev. Zool. 1843, p. 162; id. in. Ferr. and Gal. Vog. Abyss. Ois. iii. p. 223, pl. 13 (1847) *Abyssinia*; Grant, Ibis, 1900, p. 153 *Abyssinia*.
- Ægithalopsis galiuieri*, Heine, J. f. O. 1859, p. 431; Heugl. Orn. N. O. Afr. p. 395 (1870).
- Lioptilus galinieri*, Sharpe, P. Z. S. 1884, p. 232; Salvad. Ann. Mus. Genov. 1884, p. 126; 1888, p. 236; Gigl. t. c. p. 44 *Shoa*; Shelley, B. Afr. I. No. 1296 (1896).
- Parisoma frontalis* (nec Heugl.) Rüpp. Syst. Uebers. pp. 43, 59, pl. 22 (1845) *Shoa*.
- Crateropus melodus*, Heugl. J. f. O. 1862, p. 299.

Adult. Forehead white shading into whitish brown on the crown and then into earthy brown on the back of the head, neck and back; wings and

tail uniform darker brown; a few of the primaries with very partial ashy white edges; feathers in front of the eyes jet black; remainder of the head, throat, chest and thighs brown, scarcely paler than the back; chin and front of cheeks slightly whiter, and a shade of grey on the centre of the chest; abdomen and under tail-coverts chestnut; under surface of wings dark brown with the under wing-coverts paler and partially mottled with rufous and black, inner edges of the quills white. "Iris reddish brown, bill black, legs dark brown" (Lord Lovat). Total length 7.1 inches, culmen 0.6, wing 3.5, tail 3.5, tarsus 1.05. ♂ Shoa (Antinori).

Galinier's White-fronted Hill Tit inhabits the Abyssinian district.

Between Somaliland and Shoa Lord Lovat collected a male and female at Chelunco and Baroma in about 9° N. lat. and east of 40° E. long.

In Shoa Rüppell obtained the type of his *Parisoma frontale*, and in the British Museum there are one of his specimens and one of Harris's from this same country. According to Antinori and Ragazzi the species is not rare in this part of Africa, where its loud clear voice, which somewhat resembles that of our Nightingale, betrays its presence while hidden in the thick foliage of the large forests.

From Abyssinia came the type of the species, as well as the type of *Crateropus melodus*, Heugl. According to von Heuglin it frequents, in pairs, the thick bush and forests of Semien, Bergemeder, Wogara, Wadla, Gala country, and Shoa, at elevations varying from 8,000 to 12,000 feet. It is a resident species, inhabiting the valleys and mountains, where the ring of its loud metallic voice may be heard, morning and night, at a considerable distance, its "dui-dui-dui-di-di-di" being answered back by the female's Reed-Warbler-like note. They feed mostly upon berries.

Genus II. PARISOMA.

Bill moderate, slightly widened at the base; nostril-groove entirely hidden by the stiff bristly feathers of the forehead, which are directed

forward. Wing rounded and similar to that of *Alcippe*. Tail rounded, about the same length as the wing, and with a strongly marked white pattern. Tarsi scutellated; feet and claws moderate, the latter sharp and much curved. Forehead, crown and back uniform grey in all the known species.

KEY TO THE SPECIES.

- a.* No black crop band.
- a*¹. Throat streaked; no white edges to the quills.
- a*². Abdomen and under tail-coverts chestnut *subcæruleum*.
- b*². Centre of abdomen and under tail-coverts white. *layardi*.
- b*¹. Throat not streaked; some broad white edges to the quills.
- c*². Under tail-coverts faintly but distinctly shaded with rufous buff *plumbeum*.
- d*². Under tail-coverts white, with or without a very faint tinge of rufous buff.
- a*³. Slightly darker, subsp. *orientalis*.
- b*³. Slightly paler, subsp. *catoleucum*.
- b.* A black pectoral band; abdomen and under tail-coverts pale chestnut *boehmi*.

Parisoma subcæruleum.

Parisoma subcæruleum (Vieill.), Sharpe, Cat. B. M. iv. p. 268 (1879); Ayres, Ibis, 1880, p. 103 *Transvaal*; Shelley, Ibis, 1882, p. 257 *Mangwato*; Butler, Feilden and Reid, Zool. 1882, p. 248 *Natal*; Sharpe ed. Layard's B. S. Afr. pp. 332, 836 (1884); Fleck, J. f. O. 1894, pp. 340, 346, 413, *Damara, Namaqua, Kalahari*; Shelley, B. Afr. I. No. 134 (1896).

Parisoma rufiventer, Swains.; Chapman, Trav. S. Afr. ii. p. 397 (1868).

Adult Male. Above, ashy grey with the upper tail-coverts dusky; wings dusky brown with most of the coverts and outer edges of quills grey like the back, and some white on the ends of the outer coverts, piniou, and tip of bastard primary; tail black, with white ends to the four outer pairs of feathers, decreasing in size towards the inner ones; sides of head, neck, and

body ashy grey, slightly paler and greyer than the mantle; sides of forehead and the cheek mottled with white; throat white with broad blackish central stripes to the feathers; centre of breast white shading into grey on the crop and sides of body; lower abdomen and under tail-coverts bright chestnut; under surface of wings dusky brown with white on the coverts and whitish inner edges to the quills. "Bill, tarsi and feet black; iris bluish white" (T. Ayres). Total length 5.6 inches, culmen 0.45, wing 2.55, tail 2.8, tarsus 0.8. Eland's Post, 7. 70 (T. Atmore).

Adult Female. Like the male but slightly greyer above, owing apparently to the season. Colesberg, 4. 71 (T. Atmore).

The Red-vented Grey Hill Tit inhabits South Africa south from the Cunene river and Rhodesia.

The most northern limit known for this species is Humbe in the Upper Cunene district, where, from the number of specimens collected by Anchieta, Professor Barboza du Bocage suggests that it must be common, and according to Anchieta it is known to the native as "Mudiankeno" and "Tubiké," and feeds entirely upon insects and spiders.

In Damara and Great Namaqualand it has been recorded as common by Chapman, Andersson, and Dr. E. Fleck, and the last-named naturalist also obtained the species at Ukui in Kalahari. With regard to its habits Andersson writes: "It is rather a pretty songster, and utters, at times, varied and singular notes, and occasionally also a clear ringing call, rapidly repeated. It is very familiar, active, but not rapid in its movements, and careful in its examination of the branches of trees and bushes in search of insects; it is found singly or in pairs. A nest of these birds, taken on September 21, was situated in a hedge and composed outside of grass, fine twigs, and tendrils; internally it was lined with hair and contained two eggs. A second nest, obtained on October 1, was similarly composed externally, but was lined with the softer tendrils of flexible roots; it contained two eggs, hard sat upon. A third nest, taken on November 29, also contained two eggs."

In Cape Colony Levaillant discovered the type and records the species as frequenting the mimosas in small flocks, incessantly on the move in search of their insect food. Mr. Layard mentions the species from Malmesbury, Swellendam, Colesberg and Kuruman, and "saw it in great abundance in the Karroo, as far as Nel's Poort; also on New Year's and Great Fish rivers." Captain Trevelyan has procured the species at Kingwilliamstown. In the British Museum there are specimens from the Orange river, Zululand, and as far north as Matabeleland.

Mr. T. E. Buckley writes: "A very common species from Natal to Matabeleland. It creeps and hops about the bushes, never flying far at a time." Messrs. Butler, Feilden and Reid did not meet with it in Natal, but were given a specimen at Ladysmith.

Mr. T. Ayres writes: "This species is not uncommon about Rustenburg," and he found it in the Mariqua district and along the Limpopo creeping about the low bushes and amongst the grass at the roots of trees in search of insects, and during his expedition with the late Mr. Jameson obtained a specimen at Mangwato, and records the species as: "Now and again to be seen in Matabeleland, but decidedly more plentiful to the south of that country."

The furthest known northern range for the species on this side of the continent is Tati, where the late Mr. Frank Oates obtained a specimen which is now in the British Museum.

Parisoma layardi.

- Parisoma layardi, Hartl.; Sharpe, Cat. B. M. iv. p. 270 (1879); Sharpe, ed. Layard's B. S. Afr. pp. 334, 836 (1884); Shelley, B. Afr. I. No. 135 (1896).
 Sylvia—(?) Chapman, Trav. S. Afr. ii. p. 397 (1868).

Adult Male. Upper parts as well as the wings and tail as in *P. subcæruleum*; under parts paler, the throat-stripes less strongly marked and the abdomen and under tail-coverts white, the latter with obscure brownish centres. "Bill and legs dark; iris yellowish white" (Bradshaw, ♂ 19. 3. 81, Orange R.). Total length 5.4, culmen 0.4, wing 2.6, tail 2.5, tarsus 0.8.

Adult Female. Like the male. "Iris bluish white" Colesberg (Atmore). Another specimen, ♀ 10. 11. 68, Colesberg (Ortlepp) has the upper parts, thighs and under tail-coverts very much browner.

Layard's Hill Tit inhabits South Africa south of the Cunene river, and west of 30° E. longitude.

In western South Africa Chapman records the species as "scarce but rather widely distributed," and that it resembles *P. subcæruleum* in habits and manners. Andersson writes: "I have observed it, though very sparingly, in Damara and Great Namaqualand, and near the west coast of Cape Colony. I have also obtained specimens from the Okavango, which are of a darker and richer hue than those from Damara and Great Namaqualand; this is also the case with specimens from the western part of the colony."

According to the late Dr. Bradshaw: "It is scarce on the Orange river, and not found so near water as *P. subcæruleum*." In Cape Colony the species would appear to be restricted to the northern and eastern provinces, for I do not find any mention of it from the immediate neighbourhood of the Cape. Mr. Layard writes: "We procured this species at Nel's Poort about the mountains; in its habits it resembles *P. subcæruleum*, for which we at first mistook it. It is difficult to shoot, as it creeps about dense bushes, and on being hunted conceals itself in the thickest parts and remains perfectly still. My friend, Mr. Henry Jackson, calls it the 'Mocking Bird' from its habits of imitation, and informs me that it makes a cup-shaped nest in a bush, and lays three eggs, which are pure white, blotched chiefly at the

obtuse end with greenish-brown and faded purple spots," 0.75 inch by 0.6. "We have received it from Mr. Russouw, who obtained it in Swartland, in the Malmesbury division." This last-mentioned specimen is the type of the species.

Parisoma plumbeum.

- Parisoma plumbeum* (Hartl.), Sharpe, Cat. B. M. iv. p. 269 (1879); id. ed. Layard's B. S. Afr. p. 836 (1884); Büttik. Notes Leyd. Mus. 1886, p. 256; Sousa, Journ. Lish. 1887, p. 95 *Quissange*; 1888, p. 223 *Quindumbo*; Shelley, P. Z. S. 1888, p. 27 *Wadelai*; id. B. Afr. I. No. 137 (1896); Reichen. J. f. O. 1897, p. 26 *Togoland*; Shelley, Ibis, 1898, p. 379 *Zomba*; Alexander, Ibis, 1899, p. 562 *Zambesi*.
- Steuostira plumbea*, Hartl. Abhand. Brem. 1882, p. 197 *Wakkala*; Reichen. J. f. O. 1887, p. 300 *Manyango*, 305 *Leopoldsville*.
- Parisoma layardi* (nec Hartl.) Butler, Feilden and Reid, Zool. 1882, p. 248 *Natal*.

Subspecies a.

- Parisoma orientalis*, Reichen. and Neum. Orn. Monatsbl. 1895, p. 74 *Kibwesi*; Reichen. Werth. Mittl. N. D. O. Afr. p. 279 (1898) *S. Ukamba*.

Subspecies b.

- Parisoma catoleucum*, Reichen. Orn. Monatsbl. 1900, p. 5 *Chamba*.

Adult. Above, grey with the tail black and white; beneath, greyish white. Crown, back and sides of neck, back and lesser wing-coverts bluish grey; remainder of wings mostly dusky brown with the greater series of wing-coverts and the quills edged with white, most broadly so on the inner feathers; upper tail-coverts partially dusky black; tail black tipped with white, and with the white increasing in extent towards the outer feather on each side, which is almost entirely white. A dusky black patch in front of the eye is surmounted by a broad white band from the nostril to above the front of the eye; eyelids white; under parts uniform very pale grey fading into white on the chin, centre of breast and under tail-coverts, the latter faintly tinted with cinnamon. "Bill horny blue; iris hazel; feet grey" (Emin). Total length 5.7 inches, culmen 0.45, wing 2.6, tail 2.5, tarsus 0.7. Gambia (Brit. Mus.).

a. P. orientalis.

Adult Male. Like *P. plumbeum* but slightly darker above and whiter beneath; under tail-coverts white with an extremely slight partial buff shade. Total length 5·6 inches, culmen 0·5, wing 2·6, tail 2·5, tarsus 0·7. ♂, 11. 3. 92, Kibwezi (Jackson).

Adult Female. Like the male, only with the under tail-coverts entirely pure white. Total length 5·3 inches, culmen 0·45, wing 2·5, tail 2·5, tarsus 0·7. ♀, 11. 3. 92, Kibwezi (Jackson).

b. P. catoleucum.

Type. Very similar to *P. plumbeum* (Hartl.) but with the upper parts paler and the under parts pure white, only washed with grey on the flanks; also smaller. Wing 2·5 inches (Reichenow).

The Plumbeous Hill Tit ranges southward from the Gambia, Gazal river, and Equatorial East Africa into Benguela and Natal.

In the British Museum there are specimens from the Gambia and Casamance. From the latter place the type was procured. In Liberia, Mr. Büttikofer obtained two specimens in the bush near Monrovia and Oldfield, and Dr. Reichenow records specimens from Misahöhe and Kratji in Togoland.

I do not find any mention of the species from the Niger, nor from Camaroons, but in Gaboon Du Chaillu collected the types of *P. melanurum* at the Camma river; these no doubt belong to the present species, for there is a specimen from Landana in the British Museum, and other specimens of *P. plumbeum* have been collected by Bohndorff on the Congo, at Manyango and Leopoldville, and by Anchieta in Benguela, at Quissange and Quindumbo, which is the furthest southern known range for the species in Western Africa, although it has been met with as far south as Durban, in Natal.

The only specimen known to me from Natal is one that was shot by Captain Reid in the thick bush between Durban and the Umgani river, December 26. Mr. T. E. Buckley, during

his travels in South Africa, met with the species in Swaziland, and shot a male and female in July, which are now in the British Museum. In the Zambesi district Mr. Boyd Alexander obtained a specimen in the vicinity of the Kafue river, and Mr. Alexander Whyte one on the Zomba plateau of the Shiré highlands.

A very doubtfully good subspecies, *P. catoleucum*, Reichen., has been described from one of Dr. Fülleborn's specimens from Undis to the north of Lake Nyasa, and apparently a rather better marked subspecies, *P. orientalis*, Reichen., inhabits Kibwezi in South Ukamba. From the description of *P. catoleucum*, it resembles *P. orientalis* in having the under tail-coverts white, and *P. plumbeum* (Hartl.) in the pale colouring of the upper parts. It is stretching a point in the original description when it is said to be smaller than *P. plumbeum*. I much doubt if these subspecific forms will be recognisable when our series of specimens are more complete. In my key I have entered *P. catoleucum* and *P. orientalis* as subspecies of *P. plumbeum*, because they all apparently agree both in their measurements and style of colouring, and differ only in a mere shade. Not having seen a typical specimen of *P. catoleucum* I cannot say which of the other two it most resembles, but judging by the description it comes remarkably near to *P. orientalis*, so it may have the chance of being called *P. plumbeum orientalis catoleucum*. The type of *P. orientalis* which is in the Berlin Museum was procured by Mr. Oskar Neumann at Kibwezi, in South Ukamba. The only other specimens known to me are three males and two females collected at the same locality by Mr. Jackson, in March, 1892.

At first sight Mr. Jackson's examples appear to be very clean, freshly moulted specimens of *P. plumbeum* (Hartl.); but their chief character lies in the under tail-coverts being white with scarcely any trace of colour. *P. orientalis*, Reichen., is so

similar to *P. plumbeum* (Hartl.) that one may expect to find the intermediate links in Uganda, as there are specimens of *P. plumbeum* (Hartl.) in the British Museum from Wakkala and Wadelai collected by Emin, and von Heuglin records it from further north towards the Gazal river in the Wau and Bongo district, where he met with them generally in pairs frequenting the forests.

Parisoma boehmi.

Parisoma boehmi, Reichen. J. f. O. 1882, p. 209, pl. 2, fig. 2 *Ugogo*; Schalow, J. f. O. 1883, p. 359; Fisch. Zeitschr. 1884, p. 340; id. J. f. O. 1885, p. 139 *Pare, Mation*; Reichen. J. f. O. 1887, p. 75 *Serian, Loeru, Wembaere plateau*; Emin, J. f. O. 1891, p. 60 *Ugogo*; Reichen. t. c. p. 162 *Mpapwa, Msanga*; id. Vög. Deutsch. O. Afr. p. 215 (1894); Shelley, B. Afr. I. No. 136 (1896); Elliot, Field Columb. Mus. i. No. 2, p. 48 (1897) *Somali*; Hawker, Ibis, 1899, p. 74 *Somali*.

Adult Male. Above, grey; some of the frontal feathers white and some of the upper tail-coverts blackish; tail brownish black with nearly the whole of the outer web and a broad end to the outer feather white; the white is confined on the remainder of the feathers to the ends and decreases towards the centre ones; wings dark brown with broad white ends to greater and some of the median coverts, and white edges to the quills, broadest on the secondaries; inner edges of the quills white; under wing-coverts white with a dusky patch; sides of head and the throat white mottled with dusky black; a black collar across the crop; breast white shading into cinnamon on the flanks and under tail-coverts. "Bill horny grey with the lower mandible buff; iris yellowish white; tarsi and feet horny grey" (Böhm). Total length 5·4 inches, culmen 0·45, wing 2·5, tail 2·6, tarsus 0·8. Massai, ♂, 13. 4. 83 (Fischer).

The Black-collared Hill Tit ranges over Eastern Africa from Ugogo into Somaliland.

The type of the species was discovered by Böhm at Seke in Ugogo, and Emin has also collected specimens in that

country. Fischer during his travels in East Africa obtained these birds at Pare, Matiom, Serian, Loeru and on the Wembaere plateau, so it appears to be common throughout German East Africa, and ranges northward into the Somali country, where Mr. Elliot has met with it at Hullier and Daboya, and Mr. Hawker collected specimens in November at Daboloe and Sheikh Wufi, in December at Ujawaji, and in January at Jifa Meder, and writes: "The habits of this bird are very similar to those of the Tits in the way it hunts for its food. It has a very pretty song, which it utters as it is feeding."

Family V. PARIDÆ.

Bill shorter than the head, generally conical without a notch, with the keel inclining upwards, and as deep as broad at the nostrils. Tongue obtuse and beset at the tip with horny bristles. Nostrils rounded, not placed in a groove, but somewhat hidden by plumes. Rictal bristles few and short or obsolete. Wing short and rounded, of ten primaries; first or bastard primary, in Ethiopian species, about half the length of the second; fourth, fifth and sixth primaries about equal and the longest. Tail of twelve feathers, square and shorter than the wing in all the Ethiopian species. Tarsus scaled, rather short and strong, not twice the length of the hind toe without claw. Sexes generally similar in plumage at all ages. Nest covered in so that the eggs in it are never exposed to the light. Eggs white, generally spotted with brownish red.

KEY TO THE GENERA AND SUBGENERA.

- a.* Bill stout and rather blunt, culmen arched; crown and most of the head black. . . . PARUS.
- a*¹. Entire head black or nearly so. Subgenus. PENTHERES.
- b*¹. A pale patch on the head. Subgenus. . . PARUS.
- b.* Bill wedge-shaped and very sharply pointed, with the culmen nearly straight; little or no black on the head. ÆGITHALUS.

- c*¹. Bastard primary small, not extending to the end of the primary coverts (not Ethiopian). Subgenus. *ÆGITHALUS*. 246
- d*¹. Bastard primary large, extending beyond the end of the primary coverts. Subgenus *ANTHOSCOPIUS*.

Genus I. *PARUS*.

Bill rather blunt, with the culmen curved downwards and the keel upwards. Breed in holes, generally of trees; construct a solid, rather bulky, nest lined with feathers and lay numerous eggs, up to as many as twelve, which are white spotted or blotched with rufous. They frequent wooded districts mostly, and feed upon insects, buds and fruits, and, at times, do damage to the gardens. They have little or no song, but a loud call-note.

The genus is represented in the Ethiopian region by about 14 forms, all of which are confined to the African continent; these are neither migratory nor gregarious, and include 5 subspecies or local races, to which I have given names in the following key.

KEY TO THE SPECIES AND SUBSPECIES.

- a*. Head entirely black.
- a*¹. Breast black or grey.
- a*². Little or no white on the wings.
- a*³. Mantle buff *leuconotus*. 226
- b*³. Mantle blackish *funereus*. 227
- b*². Upper and under wing-coverts mostly white.
- c*³. Body blue black with no white on the under tail-coverts.
- a*⁴. No white on the tail; wing less than 3·5. *lucumelas*. 228
- a*⁵. Wing 3·15 to 3·4; Abyssinia to Angola, typical.
- b*⁵. Wing 3·0 to 3·1; Gambia to Niger, subsp. *guinensis*. 229
- b*⁴. Tail partially edged with white; wing 3·5 *insignis*. 231

- d*³. Body never blue black, unless there is white on the under tail-coverts.
- c*⁴. Crown glossed with blue; inside of mouth black; some white edges to feathers of abdomen, thighs and under tail-coverts.
- c*⁵. Scapulars not tipped with white . . . *niger*. 212
- d*⁵. Scapulars tipped with white . . . *fuelleborni*. 212
- d*⁴. Crown glossed with green; inside of mouth bright yellow; breast to the tail uniform dusky grey . . . *xanthostomus*. 213
- b*¹. Breast never black or grey.
- c*². Entire plumage black and white . . . *albiventris*. 213
- d*². Mantle grey.
- e*³. Breast white, with a central mottled black band . . . *fasciiventris*. 213
- f*³. No black on centre of breast.
- c*⁴. Larger; wing about 3·3; breast darker.
- e*⁵. Breast cinnamon . . . *rufiventris*. 213
- a*⁶. Breast darker; less white on wings and tail. Congo to Benguela, typical.
- b*⁶. Breast paler; more white on the wings and tail. Masuku range in Nyasaland, subsp. . . *masukuensis*. 213
- f*⁵. Breast rufous buff. . . *pallidiventris*. 213
- f*⁴. Smaller; wing 3·05; breast buffy white, subsp. . . *rovuna*. 213
- b*. Head and neck black with a large pale patch.
- c*¹. Pale patch on sides of head extends down the whole length of the neck.
- e*². Pale portion of head white. S. Afr. . . *afer*. 213
- g*³. Bill larger. Western S. Afr., typical.
- h*³. Bill moderate. Vaal R. to Matabele, subsp. . . *intermedius*. 213
- i*³. Bill small. Mashona to Nyasa, subsp. *parvirostris*. 213
- f*². Pale patch on sides of head grey . . . *griseiventris*. 213
- d*¹. Pale patch on sides of head rounded and surrounded by the black of the neck. . . *thruppi*. 213

With regard to the subspecies: *P. leucomelas*, Rüpp., is represented in West Africa by a very slightly smaller form,

which is apparently confined to the country from Senegambia to the Niger, and the typical race seems to increase in size towards its southern range, and gives way to *P. insignis* in the country to the north of the Cunene and Zambesi.

In like manner this group runs into group *d*³ of my key, which consists of *P. niger*, *P. fuelleborni* and *P. xanthostomus*. The specimens of *P. niger* from the west are generally darker than those from the east of its range. The Damaraland examples generally have a dark blue-black plumage very similar to that of the *P. leucomelas* group, but may be most readily distinguished by the white edges of the feathers in the region of the thighs and under tail-coverts, and in having rather less white on the wing and more white on the tail. The females are generally distinguishable by the dusky grey shade on the under parts. The plumage of *P. fuelleborni* closely resembles that of the female of *P. niger*, but is distinguished by having white ends to the scapulars. In the large series of *P. niger* in the British Museum there is a specimen from the Natal district which has a white terminal spot on a single feather of each shoulder, showing a tendency in the species to assume the character which distinguishes *P. fuelleborni* from *P. niger*.

P. xanthostomus also much resembles the female of *P. niger*, from which it is most readily distinguished by the bright yellow inside of the mouth, the green instead of blue shade on the crown, and the slight olive yellow tinge on the pale margins of the quills.

Group *f* of my key comprises what I look upon as two species, to each of which I assign a subspecific form. They are all similar in style of plumage, and differ chiefly in the shade of colour of the breast.

P. rufiventris, Bocage, inhabits West Africa from the Congo to Benguela. It has the breast deep cinnamon, and the wing measures 3·3 inches.

P. masukuensis, n. subsp., inhabits the Mambwe country to the west of Lake Nyasa. It differs from the last form only in having the breast pale cinnamon, and broader white edges to the feathers of the wings and tail.

P. pallidiventris, Reichen., inhabits Central Africa from Mashonaland to the Usegua country. It differs from the last form only in having the breast cinnamon, shaded buffy white.

P. rorumæ, Shelley, inhabits the Rovuma river district of the East Coast. It differs in its smaller size—wing 3·05—and in having the breast buffy white.

Further research may fill up the gaps still closer between these forms, as they would probably interbreed in the countries where they meet, but at the same time I do not believe that *P. rufiventris*, Bocage, will ever be found on the East Coast or *P. pallidiventris* on the West Coast.

The African Cole Tits, distinguished by having a pale patch on the sides of their black heads, form a very well marked group. They are represented in German East Africa by *P. griseiventris*, and in South Africa by *P. afer*, Gm.; this latter includes three local races or subspecies, differing only in the size of the bill. The typical form has a large strong bill and inhabits western South Africa. *P. afer intermedius*, n. subsp., a bird with a medium sized bill, ranges from Durban into Rhodesia, while a very small billed race, *P. afer parvirostris*, n. subsp., inhabits Mashonaland and Nyasaland.

In Equatorial East Africa this group is represented by *P. thruppi*, to which species I refer *P. barakæ*, Sharpe. The former is a native of Somaliland, and the latter, which is distinguished by having less white on the nape, is known from Somaliland and the adjoining country. I cannot regard the extent of the white on the nape in skins as even of subspecific value. The only two specimens of *P. barakæ* I have seen were killed in September, and I find a similar partial absence

of white on the nape in the following specimens of *P. afer*, Gm. in the British Museum: ♀ 24. 9. 64 Benguela, ♂ Modder R., ♂ 27. 9. 73 Inyati, ♂ 28. 9. 73 Matabele, ♂ 12. 4. 95 Mashonaland. It is striking how often this character occurs in specimens shot in September, for I believe it is chiefly due to the making up of the skins; but in many specimens, notably in the type of *P. barakæ*, the white feathers on the back of the head have hair-like black appendages as if the original black ends to these feathers were gradually wearing away. So it is not improbable that the season may have something to do with the amount of white on the nape; unfortunately that can be determined only by resident field naturalists who have the chance of studying the gradual change of plumage throughout the year.

Parus leuconotus.

Parus leuconotus, Guèrin, Gadow, Cat. B. M. viii. p. 10 (1883)
Abyssinia; Shelley, B. Afr. I. No. 113 (1896); Grant, Ibis, 1900,
p. 145 *Burka*.

Melaniparus leuconotus, Salvad. Ann. Mus. Genov. 1884, p. 137; 1888,
p. 243; Gigl. t. c. p. 41 *Shoa*.

Adult. General plumage black with a slight blue gloss; mantle buff; wings slightly more dusky with the inner edges of the quills white; outer tail-feather with a very narrow partial white outer edge. "Bill black; iris brown; legs slaty grey." Total length 5.2 inches, culmen 0.45, wing 2.6, tail 2.4, tarsus 0.75. Agula, ♂, 16. 5. 68 (Blanford).

The Buff-mantled Black Tit inhabits Abyssinia.

This well-marked species is apparently confined to the mountainous regions of North-east Africa. In Shoa it is certainly a resident, for Antinori and Dr. Ragazzi have collected specimens there at all seasons in the forest of Fecheri-Gem, Sciotalit, Denz, Fallé and Antoto, and it is

evidently abundant in that country, where Rüppell procured the type of his *Parus dorsatus*. Lord Lovat obtained a specimen at Burka, 9° N. lat.

Von Heuglin mentions the species as inhabiting Shoa, the mountains of Galaland, Bergemeder, Wogara and Semien, and abundant in northern Abyssinia upwards from 6,000 feet, generally in pairs on the plateaus and mountain slopes. Its note he likens to that of the Great Tit, and he found it feeding on insects and seeds of all kinds. Mr. Blanford writes: "Occasionally seen about Senafé and Adigrat, but not very common." He procured a specimen at Agula in Tigré, and Mr. Jesse one at Goon-Goon.

Parus funereus.

Parus funereus (Verr.), Sharpe, *Ibis*, 1870, p. 480 *Gold Coast*; Bouvier, *Cat. Ois. Marche, &c.*, p. 16 (1875) *Gaboon*; Gadow, *Cat. B. M.* viii. p. 9 (1883); Shelley, *B. Afr. I.* No. 114 (1896); Reichen. *J. f. O.* 1896, p. 39 *Camaroons*.

Parus nigricinereus, Jackson, *Bull. B. O. C.* viii. p. 22 (1898) *Nandi*; *id.* *Ibis*, 1899, p. 638, pl. 13.

Adult Male. General plumage black, washed with grey on back of neck, back, and edges of the feathers of the wings and tail; throat, front and centre of chest jet black; remainder of the under parts, including the under wing-coverts, slaty grey; inner margins of quills ashy white. "Bill black; iris crimson orange; feet horn blue" (Jackson). Total length 5·4 inches, culmen 0·45, wing 3·35, tail 2·35, tarsus 0·75. *Gaboon* (type).

Adult Female. Differs from the adult male in having the throat and entire under surface of the body uniform deep grey, and two of the median wing-coverts with white terminal spots. Iris crimson brown. *Nandi*, 10. 4. 98 (Jackson).

Immature. Differs from the adults in having the edges of the feathers of crown, back of neck, cheek and throat strongly mottled with deep grey; crop and centre of breast dusky black; white terminal spots to most of the outer median and greater coverts. Bill black, gape pale yellow; iris brown. *Nandi*, ♀ ♂, 10. 4. 98 (Jackson).

The Dusky Black Tit inhabits the Gold Coast, Gaboon and British East Africa.

Dr. R. B. Sharpe has referred to this species a specimen in the Leyden Museum obtained at Elmina, on the Gold Coast, by the late Governor Nagtglas, in September, 1861. Mr. Zenker has procured the species in Camaroons.

The type, which is now in the British Museum, came from Gaboon, where, according to Verreaux, the species arrives in the beginning of September and seeks its insect food in the woods, where rarely more than a pair are to be seen together, and the sexes are similar in plumage. It has also been recorded from Gaboon in the list of Marche and De Compiègne's collection.

In Equatorial Africa Mr. Jackson collected at Mandi, on April 10, 1898, an adult male similar to the type of the species, an apparently adult female and two full grown young birds, a male and female. On account of the white spots on the wing-coverts of the immature birds and the adult female, he distinguished the eastern bird as *Parus nigricinereus*.

Parus leucomelas.

- Parus leucomelas*, Rüpp. N. Wirb. Vög. p. 100, pl. 37, fig. 2 (1838); Heugl. Orn. N. O. Afr. p. 407 (1870); Pelz. Verh. Zool.-bot. Wien. xxxi. pp. 145, 609 (1881) *Mabero*, *Muggi*; Sharpe, Ibis, 1891, p. 595 *Kitosh*; Jackson, Ibis, 1899, p. 638 *Ntibi*; Grant, Ibis, 1900, p. 145 *Abyssinia*.
- Melaniparus leucomelas*, Salvad. Ann. Mus. Genov. 1888, p. 243 *Shoa*.
- Parus leucopterus* (nec Swains.), Hartl. Orn. W. Afr. p. 70 (1857); id. J. f. O. 1861, p. 161 *Bissao*, *Cape Lopez*; Monteiro, Ibis, 1862, p. 338 *Angola*; Blanf. Geol. and Zool. Abyss. 1870, p. 356; Sharpe, Ibis, 1870, p. 480 *Volta R.*; id. and Bouvier, Bull. S. Z. France, 1877, p. 476 *Congo*; Reichen. J. f. O. 1891, p. 392 *Togo*; 1892, p. 55 *Uganda*; Rendall, Ibis, 1892, p. 216 *Gambia*; Shelley, B. Afr. I. No. 115 (1896); Hartert, Nov. Zool. 1899, p. 415 *Gambaga*.
- Melaniparus leucopterus*, Hartert, J. f. O. 1886, p. 579 *Niger*.

Parus niger (nec Vieill.), Gadow, Cat. B. M. viii. p. 7, pt. A (1883); Reichen, J. f. O. 1887, pp. 301, 306 *Congo*; Shelley, P. Z. S. 1888, p. 29 *Kiri*; Gigl. Ann. Mus. Genov. 1888, p. 41 *Shoa*; Hartert in Ansorge's "Under Afr. Sun," p. 352 *Unyoro*; id. Nov. Zool. vii. p. 51 (1900) *Karimia*.

Adult. General plumage jet black with a bluish gloss; most of the median and greater wing-coverts white, forming a large uniform white patch; quills and primary-coverts partially edged with white, under surface of quills dusky ash with their inner edges white; under wing-coverts white. "Bill and feet black; iris straw colour" (Jackson). Total length 5·6 inches, culmen 0·45, wing 3·15, tail 2·8, tarsus 0·75. Anseba R. ♂, 17. 7. 68 (Blanford).

Small race. Total length 5·4 inches, culmen 0·45, wing 3·0, tail 2·7, tarsus 0·7. Volta R. (Ussher).

The Northern Black Tit ranges southward from 16° N. lat., over North Tropical Africa generally, and through the Congo district into Angola.

In the northern portion of the range of this species the specimens are generally small, and there appears to be a constant dwarfed race confined to West Africa, from Senegambia to the Niger. This race I have called in my key *P. leucomelas guineensis*; the only character I can find for it is its smaller size—wing 3·0 to 3·1 inches, tarsus 0·7.

Swainson, who first recorded the species from Senegal, believed it not to be distinct from its South African ally, and only proposed the name of *Parus leucopterus* as an amendment for *P. niger*, so it does not apply to this species.

Dr. P. Rendall met with these Tits at the Gambia and remarked: "When the bird flies, the contrast of black and white is very striking." In this district Mr. Budgett procured a pair at Kunchow Creek, and specimens have also been collected by Verreaux at Casamance, and by Beudouin at Bissao. In Liberia Mr. Büttikofer met with the species at the Kasinga river. Inland from the Gold Coast Captain W. Giffard found it at Gambaga, and a pair from the same district

were collected by Col. H. P. Northcott, and are now in the British Museum along with two of Ussher's from the Volta river. Dr. Buthner has found the species in Togoland, and Mr. Hartert at Loko on the Niger, where the birds were in small parties. This is the furthest southern limit known to me for the small race.

P. leucomelas has not yet been recorded from Camaroons, but Dr. Hartlaub mentions a specimen in Verreaux's collection from Cape Lopez in Gaboon, and in the Congo district it appears to be fairly plentiful, for Lucan and Petit collected specimens at Condé and San Antonio, and Bohndorff at Manyango and Leopoldsville.

Monteiro shot a full plumaged adult specimen of this species near the river Mucozo in Cambambe, and writes: "Never observed another specimen of this bird anywhere in Angola." This specimen is now in the British Museum, and is specially interesting as coming from the most southern known locality for this species; the countries in which *P. leucomelas* and *P. niger* reside are separated by the "Buffer state" inhabited by *P. insignis*.

P. leucomelas probably ranges through the forest region of the Congo, and is apparently plentiful all over the White Nile district, for Emin has collected specimens at Kiri in May, at Mabero in August, at Muggi in October, and also on the island of Someh off the Uganda coast of Victoria Nyanza, and Dr. Ansorge at Fajao in Unyoro. Mr. Jackson procured the species at Kitosh in March, and saw a pair at the foot of Mount Elgon. Lord Lovat brought home a specimen from Telegubaie, in about 11° N. lat., 40° E. long. In Shoa Dr. Ragazzi also obtained a specimen at Goro in November. Further north Rüppell procured the types of the species at Halei in the Taranto mountains in the Province of Temben. Mr. Blandford during his visit to Abyssinia only saw it in the Anseba

valley, but was given a specimen shot by Captain Stuart near Senafé. In the British Museum there are specimens collected by Mr. Jesse at Kohai, and by Esler at Bab-el-Mandel.

According to von Heuglin it remains in North-east Africa throughout the year, and is plentifully distributed over the country south from Kordofan and Bogos. He met with it at elevations from 3,000 to 8,000 in the Beni Amer mountains and along the banks of the Blue and White Niles, where he informs us that they live singly or in pairs, frequenting the shrubs and trees in the open country as well as the forests, usually in the neighbourhood of water courses, and he likens their note to that of the Marsh Tit.

Parus insignis.

Parus insignis, Cab. J. f. O. 1880, p. 419 *Angola*; Shelley, B. Afr. I. No. 116 (1896); id. Ibis, 1897, p. 426 *Nyasa*; 1898, p. 553 *Tanjanyika plateau and Songwe R.*; 1899, p. 366 *Nyasa*.

Parus niger (nec Vieill.), Bocage, Orn. Angola, p. 285 (1881) *Biballa, Kiulo, Cunene*; Shelley, P. Z. S. 1882, p. 302 *Rovuma R.*; Fisch. J. f. O. 1885, p. 139 *Usegua*; Reichen. Vög. Deutsch O. Afr. p. 213 (1893); Sousa, Jorn. Lisb. 1887, p. 99 *Quissange*; Büttik. Notes Leyd. Mus. 1888, p. 231, 1889, p. 71 *Mossamedes*; Bocage, Jorn. Lisb. 1893, p. 162 *Galanga*.

Adult. Similar to *P. leuconotus*, but larger; some white on the tail and more white on both webs of the quills than in *P. niger*. White on tail confined to a narrow partial margin almost surrounding the end half of the tail. Total length 6.2 inches, culmen 0.5, wing 3.5, tail 3, tarsus 0.8. Masuku, July (A. Whyte).

Cabanis's Black Tit ranges from Angola and Benguela into the Shiré highlands and Usegua.

This species is rather a southern representative of *P. leucomelas* than a northern form of *P. niger*. It is not a strongly marked species, and has been so generally confounded

with *P. niger* that its actual range is difficult to define with certainty.

The type of the species was discovered by Schütt in Angola. It is clear from the description of the *P. niger*, Bocage, "Orn. Angola," p. 285, that Anchieta's specimens from Biballa, Kiulo, near the banks of the Cunene, and from Galanga and Quissange belong to this species, so I have little doubt that Mr. Büttikofer made a similar error, and that the specimens collected by Van der Kellen at the Kasango river in February, 1887, and at Humpata in 1888, in the Upper Cunene district, likewise belong to this species.

Apparently the range of *P. insignis* meets that of *P. leucomelas* in Angola, and of *P. niger* near the Cunene and Zambesi rivers, for Sir John Kirk and Mr. Boyd Alexander met with only *P. niger* on both banks of the Zambesi, and in Mr. Alfred Sharpe's last collection from Nyasaland there are two typical specimens of *P. niger* from Liwonde, while the fine series collected by Mr. Whyte and Col. Manning in the Shiré highlands all belong to *P. insignis*, and comprise examples from Kombi on the Masuku range "7,000 feet, July," Tanjanyika Plateau, Songwe and Ikawa—in all seven specimens.

From Dr. Reichenow's description of his *P. niger*, Vög. D. O. Afr. p. 213, it is evident that Fischer's specimen from the Usegna country, like that of the late Mr. Joseph Thomson from the Rovuma river, belong to *Parus insignis*.

Parus niger.

Parus niger, Bonn. et Vicill. Enc. Méth. p. 508 (1823); Chapman, Trav. S. Afr. ii. p. 398 (1848) *Lake Ngami, Damara*; Gurney, Ibis, 1862, pp. 28, 155 *Natal*; id. in Anderss. B. Damara, p. 81 (1872); Buckley,

Ibis, 1874, p. 373 *Bamangwato*; Shelley, Ibis, 1875, p. 73 *Durban*; Ayres, Ibis, 1880, p. 103 *Transvaal*; Sharpe, in Oates's *Matabele*, p. 310 (1881); Shelley, Ibis, 1882, p. 257 *Limpopo, Umvuli R. Mashona*; Butler, Feilden and Reid, *Zool.* 1882, p. 248 *Natal*; Gadow, *Cat. B. M.* viii. p. 7 (1883), *pt. south of Cunene and Zambesi*; Sharpe, ed. *Layard's B. S. Afr.* pp. 331, 835 (1884); Fleck, *J. f. O.* 1894, p. 412 *Damara*; Shelley, *B. Afr. I.* No. 117 (1896); Rendall, *Ibis*, 1896, p. 171 *Transvaal*; Boyd Alexander, *Ibis*, 1899, p. 562 *Zambesi*; Marshall, *Ibis*, 1900, p. 233 *Mashona*; Stark, *Faun. S. Afr. I.* p. 307 (1900).

Parus leucopterus, Swains. *B. W. Afr. ii.* p. 42 (1837); Layard, *B. S. Afr.* p. 113 (1867).

Adult Male (dark form). Similar to *P. insignis*, but smaller, and with the white margins of the greater series of wing-coverts and quills narrower; more white on the tail, and some white edges to the under tail-coverts. Objimbinque, ♂ 29. 9. 66 (Andersson). (Ordinary form): Upper parts blue black; wing with nearly the entire median series of coverts white and with partial white edges to the remainder of the feathers; tail with clear white bands on the outer edges, and with white terminal margins to all the feathers; under parts more dusky, with a slaty grey shade on the flanks; feathers of the thighs and the under tail-coverts broadly tipped with white, under wing-coverts and inner margins of quills mostly white. "Bill black; iris brown; legs slaty grey." Total length 5.6 inches, culmen 0.45, wing 3.15, tail 2.6, tarsus 0.8. Swaziland, ♂, 22. 7. 76 (T. E. Buckley).

Adult Female. Similar to the male but with the throat and breast nearly uniform slaty grey, with the feathers of the abdomen, thighs, and under tail-coverts edged with white. Total length 6.5 inches, culmen 0.45, wing 3.3, tail 3, tarsus 0.75. Ramaqueban R., ♀, 4. 9. 73 (F. Oates).

Immature. Similar in plumage to the adults only with the under surface tinted with rufous and mottled with dull black; inside of the mouth black. Durban, 7. 3. 74 (Shelley).

Levaillant's Black Tit ranges over South Africa south from the Cunene river and Nyasaland.

Chapman records the species as scarce in the Lake Ngami district. Andersson met with it more frequently near the Okavango river and Lake Ngami than in Damaraland proper, and procured specimens at Elephant Vley and at Objimbinque, but never observed it in Great Namaqualand. He writes: "It is generally found in pairs, searching amongst the larger trees for insects and their larvæ; it also feeds on seeds."

Dr. Fleck found them in the above neighbourhood in small groups.

In Cape Colony the type of the species was procured by Levillant in the eastern district. Mr. Layard met with it at Grahamstown and received specimens from Beaufort, Kuruman and East London. Mr. Atmore found these Tits to be plentiful at Elands Post, and Captain Trevelyan procured specimens at Kingwilliamstown and the Chalumna river.

In Natal I shot an immature bird at Durban in March, and have since received specimens from Pinetown. The late Dr. Stark writes: "Everywhere confined to the bush and forest districts, and preferring the larger growth of trees as a hunting ground. In the Natal bush it is a common bird, and is constantly met with in small bands of five or six individuals busily hunting about the tree-tops for insects. Its contrasting colours of black and white render it rather a conspicuous bird, and it frequently attracts attention by its harsh call-note. Eggs of this Tit are white sparingly spotted with pale red, and measure 0.67×0.53 ."

Messrs. Butler, Feilden and Reid met with a small party in the bushy "donga" near Pietermaritzburg in December. Mr. T. Ayres found them in pairs seeking their food in the upper branches of the trees, and "discovered a nest of these birds containing one egg and four callow young. The old bird had evidently taken possession of a deserted Woodpecker's nest. The hole was in a perpendicular and decayed bough of a large tree, about twenty feet from the ground; it was about a foot in depth, and there was a very little fine dry grass at the bottom, on which the egg and young birds were placed. I was obliged to cut and break the front of the bough to get at the contents of the nest; and the old birds showed their dislike to my proceedings by their chattering cries and uneasy manner. On leaving the nest I repaired the hole as well as I

could, and left the little ones safe inside ; but passing the place in about a week, I again climbed the tree and found the nest cold and deserted." To the north of the Vaal river he calls the species common in the Rustenburg district, and while in company with the late Mr. Jameson collected specimens near the Limpopo in May, and found the species tolerably common throughout the bushy country and equally plentiful in Mashonaland in September and October. In the latter month Mr. T. E. Buckley met with it in Bamangwato, and his companion, my friend, the late Mr. Frank Oates, collected specimens in Matabele, at Tati, and the Ramaqueban river.

Dr. Bradshaw procured several specimens in the country between the Orange river and the Zambesi, and along the course of the latter river specimens have been procured by Sir John Kirk at Tete, and by Mr. Boyd Alexander at the Kafue river, and the latter naturalist writes : " Locally distributed, and found either in pairs or in small parties threading their way through the undergrowth. The plumage of the males shot in August was very fresh, the feathers of the wings, under tail-coverts and tail being conspicuously edged with white, while in those obtained near the Kafue river in January the white edgings, especially on the primaries, under tail-coverts, and tail had almost disappeared."

The most northern range known to me for this species is Liwonde in Nyasaland, where Mr. Alfred Sharpe has recently procured a pair in full plumage.

Parus fuelleborni.

Parus fülleborni, Reichen. Oru. Monatsb. 1900, p. 5 *Undis*.

Type. Very similar to *P. niger*, but with the under parts slaty grey, darker on the throat and paler on the abdomen ; scapulars tipped with

white; under tail-coverts dark slaty grey with clear white terminal edges. Total length 5·8 inches, culmen 0·45, wing 3·2, tail 2·8; tarsus 0·7.

Fülleborn's Black Tit inhabits German East Africa.

The type was discovered by Dr. Fülleborn at Undis, in the country to the north of Nyasa Lake, and that is all that is known to me regarding this recently described species.

Parus xanthostomus. (Pl. 10, fig. 2.)

Parus xanthostomus, Shelley, Bull. B. O. C. 1892, i. p. 6 *Zambesia*; id. Ibis, 1893, pp. 17, 18, *Upper Shiré, Grahamstown*; id. B. Afr. I. No. 118 (1896).

Parus niger xanthostomus, Stark, Faun. S. Afr. I. p. 308 (1900).

Adult. Similar to *P. niger*, but differs in the upper parts being dusky black with a green instead of a blue gloss on the crown; wings with the pale edges of the quills partially shaded with olive yellow; throat and under surface of the body ashy grey, with pale, but no clear white ends to the feathers of the thighs and under tail-coverts; bill black with the inside of the mouth bright yellow; legs olive shaded grey. Total length 6 inches, culmen 0·45, wing 3·15, tail 2·7, tarsus 0·75. S. Zambesia (Bradshaw).

The Yellow-mouthed Tit inhabits South-eastern Africa.

The type was procured by Bradshaw during his travels between the Limpopo and Zambesi rivers, and when it passed into my collection I noted it as coming from the Zambesi on account of the number on the label attached to that specimen. In the British Museum there is a specimen from Grahams-town in Cape Colony, one of Atmore's collecting. The species has since been found by Mr. Alexander Whyte at Mpimbe in the Upper Shiré.

Parus albiventris. (Pl. 10, fig. 1.)

Parus albiventris, Shelley; Gadow, Cat. B. M. viii. p. 10 (1883) *Ugogo*; Schal. J. f. O. 1883, p. 358; Fisch. Zeitschr. 1884, p. 340; id. J. f. O.

1885, p. 139 *Naiwasha*; Reichen. J. f. O. 1887, pp. 40, 75 *Salanda, Kagehi*; 1891, p. 162 *Mpapwa, Uniamvesi*; Emin, t. c. p. 60 *Ugogo*; Sharpe, Ibis, 1891, p. 595 *Kikumbuliu*; Reichen. Vög. Deutsch. O. Afr. p. 214 (1893); Shelley, B. Afr. I. No. 119 (1896); Jackson, Ibis, 1899, p. 639 *Ravine, Elgeyu, Nandi*; Hartert in Ansorge's "Under Afr. Sun," p. 352 (1899) *Taru*.

Adult Male. Entirely black and white. Head, neck, back, wings, and tail as in *P. niger*; breast, thighs, and under tail-coverts white, with the sides of the chest black. Total length 6 inches, culmen 0.45, wing 3.45, tail 2.9, tarsus 0.8 "Bill black; iris brown; feet horn blue. Ravine, ♂, 15. 7. 97" (Jackson).

Adult Female. Plumage similar to that of the male, but slightly duller. Total length 5.4, culmen 0.4, wing 3, tail 2.5, tarsus 0.75. Nandi, ♀, 8. 6. 98 (Jackson).

The White-breasted Tit ranges in East Africa from about 7° S. lat. to the Equator.

The first two specimens known of this species were sent to me by Sir John Kirk from Ugogo in 1880, and it has not since been recorded from further south, but these Tits have been met with by Emin at Mpapwa and Mkigwa, Böhm found them to be not uncommon at Kakoma, and Fischer at Kagehi on Speke's Gulf, at Salanda, and Naiwasha Lake.

Mr. Jackson collected specimens in British East Africa at Ravine, Elgeyu, Kikumbuliu and Nandi, and informs us that in habits it much resembles our Great Tit (*Parus major*), and is generally to be met with in pairs and "is very plentiful in the open as well as in belts of forest."

Parus fasciiventris.

Parus fasciiventris, Reichen. Orn. Monatsb. 1893, p. 31 *Ruansori*.; Shelley, B. Afr. I. No. 122 (1896).

Type. Head and throat black; nape, back and least wing-coverts brownish grey; abdomen white with black spots down the centre; flanks greyish; upper tail-coverts and tail black, the latter edged with white; quills, greater and median wing-coverts with white edges; the quills also have white

inner margins; under wing-covert and under tail-coverts white. Total length 5·6 inches, bill 0·4, wing 3·12, tail 2·5, tarsus 0·7 (Reichenow).

The Grey-backed White-breasted Tit inhabits Central Africa.

The type formed part of Emin and Stuhlmann's collection from Ruansori, and is, I believe, the only specimen known of this species.

Parus rufiventris.

Parus rufiventris, Bocage, Gadow, Cat. B. M. viii. p. 40 (1883); Sharpe, ed. Layard's B. S. Afr. p. 835 (1884); Reichen. J. f. O. 1887, p. 306 *Leopoldsville*; Shelley, B. Afr. I., No. 122 (1896).

Subspecies a. P. masukuensis, *Subsp. nov.*

Parus pallidiventris (nec Reichen.), Shelley, Ibis, 1897, p. 526 *Masuku range, and Nyika plateau.*

Adult. Entire head and upper neck glossy bluish black passing into deep grey on the lower neck, back, and lesser wing-coverts; remainder of the wing, tail and a few of the upper tail-coverts blackish, the former with broad white edges and the tail-feathers narrowly tipped with white, which colour also extends down the outer web of the tail; breast deep cinnamon passing into slaty grey towards the crop; under wing-coverts and partial inner margins to the quills white; remainder of the under surface of the quills ashy brown. Bill black; legs slate colour; iris brown. Total length 6·4 inches, culmen 0·45, wing 3·35, tail 3, tarsus 0·85. Caconda, 12. 77 (Anchieta).

Types of P. masukuensis. Differ from the above only in having the breast paler cinnamon, and broader white edges to the feathers of the wings and tail. They are intermediate in colouring between *P. rufiventris*, Bocage, and *P. pallidiventris*, Reichen. Total length 6·3 inches, culmen 0·45, wing 3·3, tail 2·7, tarsus 0·8. Nyika plateau, and Masuku range (A. Whyte).

The Cinnamon-breasted Tit ranges from the Congo into Benguela, and is represented by a slightly paler breasted race to the west of the northern portion of Lake Nyasa.

The most northern known range for the species is Leopoldville on the Congo, from whence it extends southward into Benguela, where Anchieta discovered the type at Caconda and informs us that it is called by the natives "Caxito," also apparently "Quitiaguenene," as that name is the one inscribed on the label of the specimen figured in Bocage's Orn. Angola, which was presented to me after Mr. Kenlemans had finished his sketch.

The pale race for which I propose the name of *P. masukuensis* is possibly very local, as it is known only from the Masuku mountains of North Nyasaland in about 10° S. lat. It is represented in the British Museum by specimens labelled, Nyika plateau, June, and Masuku range, July; the latter I make the type, as it is in very good condition. These two specimens agree perfectly in colouring and measurements, and are so nearly intermediate between typical *P. rufiventris* and *P. pallidiventris* that I formerly referred them to the latter species; but in looking more closely into the matter I consider they represent rather a pale race of *P. rufiventris* than a dark form of *P. pallidiventris*.

Parus pallidiventris.

- Parus pallidiventris*, Reichen. J. f. O. 1885, p. 217 *Kakoma*; 1889, p. 285 *Quilimane, Usegua*; id. Vög. Deutsch O. Afr. p. 214 (1893); Shelley, Ibis, 1894, p. 469 *Nyasa*; id. B. Afr. I. No. 121 (1896); Stark, Faun. S. Afr. i. p. 307 (1900); Marshall, Ibis, 1900, p. 233 *Mashona*.
Parus rufiventris (nec Bocage) Schal. J. f. O. 1883, p. 358 *Kakoma*.

Subspecies a.

- Parus rovumæ*, Shelley, B. O. C. i. p. 6 (1892); id. Ibis, 1893, p. 118 *Rovuma R.*

Adult. Similar in size and very nearly so in colouring to *P. masukuensis*, but differs in the paler rufous buff of the breast, and is intermediate in

colouring between that species and *P. rorumæ*. Total length 6·2 inches, culmen 0·45, wing 3·3, tail 2·8, tarsus 0·8. Mashona, ♂, 16. 8. 98 (Guy Marshall).

Type of P. rorumæ. Similar in general colouring to *P. pallidiventris*, but differs in the paler buffy white breast and in being slightly smaller. Total length 5·3 inches, culmen 0·4, wing 3·05, tail 2·4, tarsus 0·75.

The Buff-breasted Tit ranges over East Africa from Mashonaland into the Usegua country.

The most southern known locality for this Tit is Mashonaland; here Mr. Guy Marshall met with the species, and has kindly forwarded to me a fine specimen for the British Museum, labelled "♂, 16. 8. 98, Glen Lome, 4,500 feet, Salisbury district," and writes: "This species is very fond of searching the young leaves of the mimosa trees, which are generally teeming with phytophagous coleoptera. At the time the example was shot *Anaplectes rubriceps* and the *Pyromelanæ* had not donned their wedding garments."

The Mashona bird agrees perfectly with three specimens from the Shiré district collected by Mr. Alexander Whyte at Fort Lister, which stands on the north slope of the Milanji mountains, twelve miles due south of Lake Shirwa.

To this species Dr. Reichenow refers the specimens collected by Dr. Stuhlmann at Quilimane and in the Usegua country at Pungue and Mesere.

The type of the species was discovered by Böhm at Kakoma.

My friend the late Mr. Joseph Thomson gave me the type of *P. rorumæ*, which he procured during his exploration of the Rovuma river in about 10° S. lat. This specimen differs quite as much from *P. pallidiventris*, as *P. pallidiventris* does from *P. masukuensis*, and rather more than the latter does from *P. rufiventris*.

Parus afer.

Parus afer, Gm. Sharpe in Oates' Matabele, p. 311 (1881) *Samoukwe R.*³; Shelley, Ibis, 1882, p. 257 *Umvuli R.*³; Gadow, Cat. B. M. viii.

p. 39 (1883); Sharpe, ed. Layard's B. S. Afr. pp. 329, 835 (1884); Sousa, Journ. Lisb. 1888, p. 226 *Quindumbo*¹; Fleck, J. f. O. 1894, p. 412 *Damara*¹; Shelley, B. Afr. I. No. 124 (1896); Marshall, Ibis, 1896, p. 244 *Salisbury*³; Stark, Faun. S. Afr. I. p. 305, figs. (1900); Marshall, Ibis, 1900, p. 233 *Mashona*³.

Parus cinerascens, Vieill. Layard, Ibis, 1869, p. 73 *Colesberg*¹; Ayres, Ibis, 1871, 154 *Transvaal*².

Parus cinereus (nec Vieill.), Layard B. S. Afr. p. 112 (1867); id. Ibis, 1869, p. 72 *Swellendam*¹.

Adult. Lores, cheeks, ear-coverts, sides of neck and nape white; remainder of the head and neck, the upper tail-coverts and a central band down the chest bluish black; back and least series of wing-coverts ashy grey; remainder of the wings dark brown with white edges to the feathers, broadest on the coverts and inner secondaries; tail black with narrow white ends to the feathers, which colour extends down the exterior web of the outer feather; remainder of the breast ashy grey, paler towards the black parts. Bill black, iris dark brown, tarsi and feet leaden grey. Total length 5·5 inches, culmen 0·5, wing 3·15, tail 2·5, tarsus 0·85. ♂, 15. 4. 66 *Damara*.

Type of P. afer intermedius. Similar in plumage. Total length 5·3, culmen 0·45, wing 2·9, tail 2·1, tarsus 0·8. ♀, 7. 6. 77 *Potchefstroom*.

Type of P. afer parvirostris. Similar in plumage. Total length 5·3, culmen 0·4, wing 3·05, tail 2·25, tarsus 0·8. ♂, 12. 4. 95 *Salisbury* (Guy Marshall).

The South African Cole Tit, including its local races, ranges over South Africa generally south of about 10° S. lat.

I have divided it, in my key, into three: a large billed race inhabiting South-western Africa to the west of a line drawn from the Upper Quanza river to East London, while a line drawn from Durban to Nyasa Lake would pass through the centre of the range of the other two subspecies, and the southern boundary of Mashonaland may be accepted as dividing the form with a medium sized bill from its northern little billed race. These races are alike in colouring and size with the exception of the bill, which decreases as we follow a line from Cape Town to Nyasa Lake. As these forms have never previously been recognised I have placed a number next to the localities quoted to indicate to which race the references specially refer.

In Benguela Anchieta has collected specimens at Caconda and Quindumbo, and informs us that it is known respectively at these two places as "Caxitico" and "Calucondonjobe"; there is one of Monteiro's collection from Benguela in the British Museum.

To the south of the Cunene Chapman found it scarce in the Lake region and Damaraland, and Andersson also mentions it as found sparingly distributed throughout the country from the Okavango river and Lake Ngami southward into Cape Colony.

In this last district specimens have been collected by Mr. Butler near Cape Town. Layard received it from Beaufort West, and frequently saw the species during his journey from Nel's Poort to the Swartzberg. Atmore has collected specimens at Swellendam and near Hopetown. Ortlepp has sent others from Colesberg, where it is called "Slangwyte" by the Dutch colonists, and Layard records it from Kuruman and writes: "At Nel's Poort we obtained several nests in the crevices of an old brick tank or bath, which was constantly used by members of the household. The entrances to these nests were very small and tortuous, leading to the back of the brickwork, which we had to remove before we could secure the eggs. The nests were large masses of dried bents of grass and feathers. At the Berg river we found them breeding in September in holes of trees. The eggs were pure white with red specks, principally at the obtuse end." These last-mentioned nests were composed of hair, wool and feathers. Atmore found the species at Swellendam nesting in hollow trees, and he took twelve eggs out of one nest. With regard to their habits, Stark writes: "Although, like most of the family, this Tit shows a certain partiality for trees and bushes, when they are present, it frequently inhabits very arid and desolate localities, covered only by a thin growth of Karroo scrub. Here they hunt over the stones and rocks in search

of insects, and build their nests in holes in the ground. On one occasion I met with a family party of these Tits climbing about a paling round the grave of a shipwrecked sailor on the sandy coast of Namaqua Land, at a distance of quite forty miles from the nearest tree."

I now come to the race with the medium sized bill which I call in my key *P. intermedius*; it is represented in the British Museum by the following specimens: *a*, the type, ♀ 7. 6. 77 Potchefstroom; *b*, ♂, Modder R.; *c*, 10. 8. 78 Rustenberg; *d*, ♀, 14. 10. 73 Bamangwato; *e*, ♂, 28. 9. 73 Matabele; *f*, ♂, 27. 9. 73 Inyati. According to Mr. T. Ayres, these birds are "sparsely scattered along the rivers, frequenting shrubs and low bushes, feeding upon insects and creeping about the roots and low branches in search of their food; their flight is not prolonged and their note is harsh." In the most northern known range for this race, it is recorded by Mr. T. E. Buckley as "a very common species throughout the Matabele and Bamangwato district."

The small billed race, *P. parvirostris*, which has the bill scarcely half the size of the typical *P. afer* from western South Africa, is represented in the British Museum by the following three specimens: *a*, the type, ♂, 12. 4. 95 Mashonaland (Guy Marshall); *b*, Samoukwe R. 10. 73 (F. Oates); *c*, Katungo, on Shiré R. (Sharpe). According to Mr. Marshall, these birds are not uncommon in the mimosa-bush, and closely resemble the European Great Tit in general habits.

The white nuchal patch is almost or entirely absent in every specimen I have examined which has been killed in September.

Parus griseiventris.

Parus griseiventris, Reichen. J. f. O. 1882, pp. 210, 235 *Kakoma*; 1886, pl. 2, fig. 1; id. Vög. Deutsch. O. Afr. p. 214 (1893); Gadow, Cat. B. M. viii. p. 40 (1883); Shelley, B. Afr. I. No. 125 (1896).

Adult. Similar to *P. afer*, but differs in having the pale sides of the head grey, uniform in colour to the back and breast, and in having the black of the head extending back to the grey mantle, with no white on the nape; thighs, as well as the under tail-coverts and under wing-coverts white. Bill black; iris brown; legs grey. Total length 5·2 inches, wing, 3·15, tail 2·35.

The Grey-cheeked Cole Tit inhabits East Africa.

All that is known to me with regard to the occurrence of this species is that Böhm procured two specimens in February at Kakoma during his travels between Zanzibar and Lake Tanjanyika.

Parus thruppi.

Parus thruppi, Shelley, *Ibis*, 1885, p. 406, pl. 11, fig. 2 *Somali*; James, *Unkn. Horn. Afr.* p. 295, pl. 6, fig. 2; Sharpe, *P. Z. S.* 1895, p. 476 *Somali*; Shelley, *B. Afr. I.* No. 126 (1896); Elliot, *Field Columb. Mus. Orn. i.* No. 2, p. 41 (1897); Hawker, *Ibis*, 1899, p. 67 *Somali*.
Parus barakæ, Jackson, *Ibis*, 1899, p. 639 *Njemps*.

Adult. Forehead, lores, cheeks, ear-coverts, and back of neck white; crown, sides of neck, throat, and centre of breast glossy black; chin mottled with white; back, scapulars, and least series of wing-coverts ashy grey; remainder of wings black, with broad white edges to the feathers, broadest on the inner secondaries, median and greater wing-coverts; upper tail-coverts and tail black, the latter with white margins to some of the outer feathers, and narrow white tips to the remainder; breast, thighs, and under tail-coverts sandy buff shading into ashy grey on the sides of the body; under surface of quill brown with pale inner margins; under wing-coverts white. Bill black; iris dark brown; legs slate colour. Total length 4·65 and 4·3 inches, culmen 0·4, wing 2·45, tail 2 and 1·9, tarsus 0·7. Male and female alike in plumage. *Somali* (L. Phillips); wing 2·65, ♂, 17. 11. 97 Haragogara (Hawker).

Type of P. barakæ. Similar to the type of *P. thruppi*, but with only a narrow partial white margin separating the black of the head from the mantle. Total length 4·9, culmen 0·4, wing 2·7, tail 2, tarsus 0·7. ♂, 26. 9. 96 (Jackson).

The Somali Cole Tit is a native of Somaliland and British East Africa.

The types, an adult pair, were shot out of a small flock of six by Mr. Lort Phillips during his first journey into Somaliland, in company with Mr. James and Dr. Thrupp, and was named, at his request, after the latter gentleman.

Mr. Elliot collected four males at Le Gud and Hullier, and writes: "We met with this Tit as soon as we entered upon the plateau, the localities given being near the Golis range, the last one a short march from Hargeisa." Dr. A. Donaldson Smith procured a specimen at Milmil, and Mr. Hawker at Haragogara and Jifa Medir, and writes: "I was first attracted by the note of this bird, which was somewhat harsher than that of *Parus major*. Its habits seem to be identical with those of the latter." The occurrence of this species in the adjoining British East Africa rests on the type of *P. baraka*, which was shot at Njemps in September, and differs from the type of *P. thruppi* only in the same characters as examples of South African Cole Tits procured in September do from nearly all the other specimens.

Genus II. ÆGITHALUS.

Bill straight, conical, and sharply pointed. All the members of this genus construct very peculiar pendent nests, from which they derive the name of Penduline Tits. The nests are strongly constructed of soft materials closely felted together. The eggs, six to twelve in number, are uniform pure white. They feed like the members of the genus *Parus*, but are probably more given to frequent marshy localities, and apparently they are better songsters. They are also all of very diminutive size.

This genus is represented in the Ethiopian region by certainly seven well-marked known species, all of which are confined to Tropical and Southern Africa, and all have a comparatively long first primary.

The key to the species of this genus (Cat. viii. p. 66) might be corrected thus:—

(a) First primary very short. Subgeneric group ÆGITHALUS.

(b) First primary long (= about half the length of the second primary). Subgeneric group ANTHOSOPUS.

KEY TO THE SPECIES.

- a.* Forehead mottled with black.
- a*¹. Forehead white with black bases to the feathers; upper throat white; breast sulphur yellow *capensis*. 246
- b*¹. Forehead yellow with black tips to the feathers.
- a*². Throat and breast whitish *punctifrons*. 249
- b*². Throat and breast bright yellow *parvulus*. 250
- b.* Forehead with no black markings.
- c*¹. Above olive green; throat yellow.
- c*². Forehead pale yellow *flavifrons*. 250
- d*². Forehead medium yellow *cameroonensis*. 251
- c*². Forehead orange yellow *calotropiphilus*. 252
- d*¹. Above ashy brown.
- f*². Throat white.
- a*³. Forehead whitish contrasting with the crown; abdomen rufous buff *caroli*. 253
- b*³. Forehead brown like the upper parts generally, abdomen white or slightly shaded with buff *musculus*. 254
- g*². Forehead, neck and chest isabelline rufous *fringillinus*. 255

Ægithalus capensis.

Ægithalus capensis (Gm.), Gadow, Cat. B. M. viii. p. 70, pl. 1, fig. 2 (1883, pt. S. Afr.), Sclater, Ibis, 1887, p. 462; Shelley, B. Afr. I. No. 127 (1896); Stark, Faun. S. Afr. I. p. 310, fig. (1900).

Ægithalus smithi, Jard. and Selby, Hartl. Zool. Jahrb. ii. p. 344 (1887) *S. Afr.*

Anthoscopus capensis, Ayres, Ibis, 1878, p. 286; 1880, p. 103 *Transvaal*; Shelley, Ibis, 1882, p. 257 *Spaldings*; Sharpe, ed. Layard's B. S. Afr. pp. 327, 834 (1884); Reichen. J. f. O. 1886, p. 118 *Damara*; Fleck, J. f. O. 1894, p. 412 *Damara*; Kuschel, J. f. O. 1895, p. 347 (*egg*).

Paroides capensis, Ayres, Ibis, 1871, p. 154 *Limpopo*.

Adult. Forehead black with broad white edges to the feathers; crown and back of neck ashy brown; back yellow shaded ashy brown, more yellow on the lower back and upper tail-coverts; wing and tail brown with paler edges to the feathers which incline to ashy white on the primaries; sides of head, chin, and upper throat white; remainder of throat, breast and under tail-coverts pale yellow; thighs and under wing-coverts and inner margins of quills buffy white. Bill slaty blue; iris dark brown; tarsi and feet bluish ash. Total length 3·5 inches, culmen 0·35, wing 2, tail 1·6, tarsus 0·55. Rustenburg, 8. 6. 78 (W. Lucas).

Adults of both sexes and young birds are similar in plumage.

The Cape Penduline Tit inhabits South Africa south of the Cunene and Limpopo rivers.

Dr. Fleck found the species abundant throughout German South-west Africa to as far north as the Okavango river, which discharges its water into Lake Ngami. There are seven adults and one nestling of Andersson's collecting in the British Museum, showing no variation in the plumages. In Cape Colony they are called by the Dutch "Cappoc Vögel," which means Cotton Birds, on account of their peculiarly constructed nest, formed of wool woven into a structure like felt. Stark informs us that they are to be met with in pairs or small family parties, and are abundant among the scrub on the sandy west coast of Cape Colony, and equally common among the low bushes and mimosas of the Karroo, but he never met with them in the forest districts. "It is an active little bird, constantly in motion, climbing over and carefully examining the twigs and leaves of bushes for small insects and their eggs. Its ordinary call-note is a weak and almost inaudible 'chirp,' but occasionally as it takes wing it utters a sharper cry. Its flight is weak and seldom protracted for any great distance, but usually only from bush to bush. If one of the party flies off it is followed by the others in a regular string. Towards the end of August, in Cape Colony, these Tits separate in pairs and soon after commence building their elaborately

woven nests. A somewhat open bush is usually chosen as a site, after a careful inspection lasting several days. In sheep-farming districts wool is nearly always used as a building material, elsewhere the cotton down of plants; but whatever the substance made use of, it is carefully woven and felted together in several distinct layers until the walls of the domed nest consist of a tough cloth-like material impervious to rain. The nest is usually about four feet off the ground and is attached by its sides to several nearly parallel twigs. It varies in size and shape, but is generally about seven inches high by four inches wide, and more or less oval in form. The entrance is on one side near the top of the nest, through a short sleeve-like tube just wide enough to admit the bird. Immediately below it is a larger pocket or blind opening, in which, according to the Hottentots and Kaffirs, the male roosts. I once had an opportunity of watching a pair of Cotton Birds during the construction of their nest and for some time subsequently. As soon as the nest was completed the female laid an egg and added one every morning until seven were deposited. On leaving the nest after laying, and sometimes when inside, she generally carefully closed the entrance by pinching the upper and lower lips of the entrance-tube together with her bill until no visible aperture was apparent; on one occasion, before leaving the nest for the day, she stitched the upper lip to the lower so effectively that on her return it was some time before she herself could effect an entrance; but on other occasions no attempt was made to close the opening during the day. It appeared to me at the time that the temperature of the interior of the nest was probably regulated by opening or closing the entrance tube; at the same time the nest with entrance closed would be comparatively secure against the assaults of egg-eating snakes and lizards, reptiles which are common enough in most of the localities frequented by the

‘Cappoc Vögel.’” The eggs, six to twelve in a nest, are uniform pure white, and average 0·56 inch by 0·38.

In the British Museum there are specimens from Port Elizabeth, Kingwilliamstown, Rustenburg and Potchefstroom. Mr. T. Ayres found the species frequenting the scrub along the hill sides and the bush by the banks of the Limpopo. During his journey with Jameson they procured a pair at Spaldings, on the Hart river, and met with small flocks busily feeding amongst the low “Vaal bosch,” a grey bush which is very common all over this part of the country. In Bamangwato they met with a couple of deserted nests of this species on December 29, and at Boatlanami Pan found a nest containing one pure white egg.

Ægithalus punctifrons.

Ægithalus punctifrons, Sundev. *Œfv. Vet. Ak. Handl.* 1850, p. 129; Heugl. *Orn. N. O. Œfr.* p. 410 (1869) *Abyssinia, Sennaar*; Hartl. *Zool. Jahrb.* ii. p. 345 (1887); Selater, *Ibis*, 1887, p. 462; Shelley, *B. Afr.* I. No. 128 (1896).

Ægithalus capensis (nec Gm.), Gadow, *Cat. B. M.* ix. p. 71, pt. *Abyssinia*.

Adult. Above, pale dull ashy green washed with yellow on the lower back and upper tail-coverts; wings brown with paler edges inclining to white on the primaries; forehead pale yellow with tiny black spots; beneath white with a greyish shade on the flank; under wing-coverts and inner edges of quills white. Bill dusky horn colour; iris brown; legs grey. Total length 3·4 inches, culmen 0·3, wing 2, tail 1·25, tarsus 0·5.

The Abyssinian Penduline Tit is a native of Abyssinia. All the information I can find regarding this species is that von Heuglin considered it a very rare bird as he never met with it himself, and it was known to him only by a specimen Hedenberg shot in Sennaar and one in Prince Paul of Würtemberg’s collection from the highlands of western Abyssinia.

Ægithalus parvulus.

Ægithalus parvulus, Heugl. J. f. O. 1864, p. 260; id. Orn. N. O. Afr. p. 409 (1869); id. Peterm. Geogr. Mittheil. 1869, p. 414, Hartl. Abhand. Brem. 1881, p. 99 *Redjaf*; id. Zool. Jahrb. ii. p. 347, pl. 12, fig. 3 (1887) *Bongo*; Shelley, P. Z. S. 1888, p. 29 *Kiri*; id. B. Afr. I. No. 129 (1896).

Ægithalus capensis (nec Gm.), Gadow, Cat. B. M. ix. p. 71 pt.

Adult Male. Forehead and front of crown sulphur yellow with minute black spots at the tips of the feathers, remainder of the upper parts greenish-yellow; greater series of wing-coverts, quills and tail-feathers brown, broadly edged with yellowish-white; sides of the head and the entire under parts uniform sulphur yellow; under wing-coverts and inner margins of the quills white, the former slightly washed with yellow. Bill blackish; iris brown; legs grey. Total length 3.35 inches, culmen 0.35, wing 1.95, tail 1.2, tarsus 0.5. *Kiri*, ♂, 24. 5. 84 (Emin).

Heuglin's Penduline Tit inhabits Central Africa from the Albert Nyanza to the Gazal river.

Emin has collected specimens to the north of Albert Nyanza at Redjaf and Kiri. According to von Heuglin it is found, as a rare bird, in the forest of Bongo and along the banks of the Gazal river in flocks of three to six individuals. It is silent but active, constantly flitting with outstretched wings from bough to bough in the manner of our warblers, and is often to be met with in company with such birds as well as with the White-eyes hunting, like them, for insects especially caterpillars, and he once found a party of them huddled together on a horizontal bough, sheltering themselves from the cold.

Ægithalus flavifrons.

Ægithalus flavifrons, Cass., Gadow, Cat. B. M. ix. p. 72 (1883); Bocage, Journ. Lisb. 1880, pp. 14, 242; id. Orn. Angola, p. 555 (1881)

Caconda; Hartl. Zool. Jahrb. ii. p. 345 (1887); Bocage, Journ. Lib., 1893, p. 162 *Galanga*; Shelley, B. Afr. I. p. 130 (1896).
Anthoscopus flavifrons, Sharpe, ed. Layard's B. S. Afr. p. 834 (1884).

Type. Above, yellowish olive, paler and yellower towards the upper tail-coverts; forehead uniform bright yellow; quills and tail-feathers dark brown edged with yellowish olive; beneath, pale yellow tinted with green; under wing-coverts white. Bill blackish; legs dusky flesh colour. Total length 3·52 inches, culmen 0·32, wing 2·4, tail 1·56, tarsus 0·52.

The Gaboon Yellow-fronted Penduline Tit inhabits West Africa from Gaboon to Benguela.

This species was discovered by Du Chaillu at the Moonda river in Gaboon, and Prof. Barboza du Bocage has since recorded it from Caconda in Benguela, where it is called "Canopo."

It is known to me only by the description and figure of the type specimen.

The members of the genus are apparently not wide-ranging species, so I should doubt if this one inhabited the whole of West Africa from Senegambia to Benguela. I have accepted Prof. Barboza du Bocage's determination of the Caconda bird as correct without having seen it or the type of this species, so have given the range of *A. flavifrons* as from Gaboon to Benguela. The Camaroon bird has apparently a much longer bill and the feet are of a different colour, and the Senegambian bird is a paler and smaller form, so I have divided this group into three species.

Ægithalus camaroonensis.

Rhaphidornis flavifrons (nec Cass.), Reichen. Orn. Monatsb. 1897, p. 123
Camaroons.

Anthoscopus flavifrons? Reichen. J. f. O. 1894, p. 42 *Jaunde.*

Type. Above, olive green; forehead chrome yellow; wings and tail dark brown, the feathers narrowly edged with olive yellow; beneath, buff; under wing-coverts and broad inner margins of quills white. Bill black; iris ochre yellow; feet bluish grey. Total length 3·6 inches, culmen 0·5, wing 2·2, tail 1·2.

The Camaroons Yellow-fronted Penduline Tit inhabits Camaroons.

The type of the species was discovered by Mr. Zenker at Bipinde in Camaroons, and through the kindness of Dr. Reichenow I have been able to examine it carefully and have taken my description from that specimen, and I may add that it is the only bird belonging to this West African group I have as yet seen, so they are apparently very rare, at least in collections. Mr. Zenker has found a nest of this species at Jaunde Station.

Ægithalus calotropiphilus.

Ægithalus calotropiphilus, Rochebrune, Bull. Soc. Philorn. (7) vii. p. 166 (1883); id. Act. Soc. Linn. Bordeaux, 1884, p. 271, pl. 16; Reichen. J. f. O. 1886, p. 438; Hartl. Zool. Jahrb. ii. p. 346 (1887) *Senegambia*.

Type. Above, olive green, paler and yellower on the upper tail-coverts; a narrow orange yellow forehead; lesser wing-coverts ashy brown, with yellow edges; quills and tail-feathers dusky olive with yellow margins; beneath pale yellow; under wing-coverts yellowish. Bill yellowish with a dusky tip; feet flesh colour. Total length 2·8 inches, culmen 0·24, wing 1·56, tail 0·72, tarsus 0·44.

The Senegal Yellow-fronted Penduline Tit inhabits Senegambia.

According to Monsieur Rochebrune this species inhabits the interior of Senegambia, but is rare. The species has been badly figured in company with the nest and egg, and

as I have not examined a specimen I feel I know nothing about it.

Ægithalus caroli.

- Ægithalus caroli, Sharpe, Gadow, Cat. B. M. viii. p. 71, pl. 1, fig. 1 (1883); Hartl. Zool. Jahrb. ii. p. 345 (1887); id. Abhand. Brem. 1891, p. 18 *Usambiro*; Shelley B. Afr. I. No. 132 (1896); id. Ibis, 1897, p. 527 *Nyasa*; Stark, Faun. S. Afr. i. p. 312 (1900); Marshall, Ibis, 1900, p. 233 *Mashona*.
 Anthoscopus caroli (Sharpe), Shelley, Ibis, 1882, p. 257 *Matabele*; Sharpe, ed. Layard's B. S. Afr. pp. 327, 834 (1884); Marshall, Ibis, 1896, p. 244 *Mashona*.
 Ægithalus capensis (nec Gm.) Reichen. Vög. Deutsch. O. Afr. p. 214 (1894) *Usambiro*.

Adult. Upper parts pale ashy brown; a broad forehead and sides of head whitish; wings and tail brown with paler edges to the feathers; throat and front of chest white, shading into rufous buff on the abdomen, thighs and under tail-coverts; under wing-coverts and inner edges of quills buffy white. Bill dusky grey; iris brown; legs leaden grey. Total length 3 inches, culmen 0·35, wing 2, tail 1·15, tarsus 0·55. Swaziland, ♂, 7. 7. 76 (T. E. Buckley).

Andersson's Penduline Tit inhabits Damaraland and eastern Africa from Swaziland about 27° S. lat. to Usambiro, south of Victoria Nyanza in about 3° S. lat.

Charles Andersson discovered the species at Ovaquenyama in Damaraland and collected specimens there in May, June and August, and others at Elephant Vley in October.

The most southern known range for this species in eastern Africa is Swaziland, where Mr. T. E. Buckley shot two specimens in July, which were formerly in my collection. In the neighbouring Lydenberg district Mr. H. F. Francis caught a pair taking shelter together in a deserted Wax-bill's nest. In Matabele, Messrs. Jameson and Ayres procured a specimen at the Ganyani river in September, where it was known to

the natives as "Nkilo," and they further inform us that it was shot while hunting among the buds and young leaves of the forest trees in company with others of the same species. Mr. Guy Marshall obtained the species in November near Salisbury in Mashonaland, and writes: "This little bird is not uncommon, but seems to be more in evidence during the winter months. Three or four individuals are usually found together assiduously investigating low trees and bushes, but they are especially fond of several kinds of very tall flowers, on which they find an abundance of minute insects. I have heard only a faint chirping note uttered." To the north of the Zambesi Mr. Whyte procured a specimen in Karonga in Nyasaland, which is now in the British Museum.

Dr. Hartlaub records a specimen of this species as forming part of Emin's collection from Usamiro, 3° S. lat., 33° E. long. This is the most northern known range for the species. Dr. Reichenow, by an oversight, refers this specimen to *Æ. capensis* (Vög. Deutsch. O. Afr. p. 214), a species which has, I believe, never been met with anywhere to the north of the Zambesi.

The habits of this species, no doubt, are very similar to those of *Æ. capensis*, which Stark has described with great accuracy.

Ægithalus musculus. (Pl. 11, fig. 2.)

Ægithalus musculus, Hartl. Orn. Centralbl. 1882, p. 91; id. J. f. O. 1882, p. 326; id. Abhand. Brem. 1882, p. 198; id. Zool. Jahrb. ii. p. 347 (1887) *Lado*; Shelley, P. Z. S. 1888, p. 29 *Lado*; id. B. Afr. I. No. 133 (1896); Sharpe, P. Z. S. 1895, p. 476 *Somali*; Elliot, Field Columb. Mus. Orn. i. No. 2, p. 41 (1897) *Somali*; Grant, Ibis, 1900, p. 145 *Abyssinia*.

Anthoscopus musculus (Hartl.), Hawker, Ibis, 1899, p. 68 *Somali*.

Ægithalus capensis (nec Gm.), Gadow, Cat. B. M. ix. p. 71, pt. (1883).

Adult. Upper parts pale ashy brown with a faint olive tinge; wings and tail darker brown with paler edges to the feathers; cheek and under parts white with a very faint shade of buff on the abdomen; under wing-coverts and inner edges of quills buffy white. Bill and legs slaty grey; iris brown. Total length 3·1 inches, culmen 0·35, wing 1·9, tail 1·2, tarsus 0·5. Lado, ♂, 9. 3. 81 (Emin).

The Mouse-coloured Penduline Tit ranges through northern Equatorial Africa from the Upper White Nile into Somaliland.

This is the northern representative of *A. caroli*, from which it differs chiefly in its paler colouring. It was discovered by Emin at Lado on the Upper White Nile where it is apparently abundant, for there are four of Emin's specimens from that locality in the British Museum.

Dr. W. L. Abbott has obtained the species at Taveta, to the east of the Kilimanjaro Mountain, in August, 1888, and the occurrence of this bird in Somaliland was first made known by Dr. A. Donaldson Smith procuring a specimen at Okoto in September, 1894. Mr. Elliot shot one at Haud and writes: "Seldom seen, but probably it easily escapes recognition on account of its very small size," and Mr. Hawker met with the species at Ujawaji in January, but did not notice it elsewhere. Lord Lovat, during his journey from Somaliland to the Blue Nile, shot a specimen at Hawash in about 9° N. lat.

Ægithalus fringillinus.

Parus fringillinus, Fisch. and Reichen. J. f. O. 1884, p. 56 *Maeru Mt.*; Fisch. Zeitschr. 1884, p. 340, pl. 19, fig. 1; id. J. f. O. 1885, p. 139; Reichen. Vög. Deutsch. O. Afr. p. 213 (1893); Shelley, B. Afr. I. No. 123 (1896).

Adult. Forehead, sides of head, neck, throat, and chest isabelline rufous, remainder of the under parts greyish brown washed with rufous; crown grey mottled with black; upper parts of the body grey shaded with

brown; wings black, with white edges to the feathers; tail feathers black with small white ends and with white edges to the outermost pair; bill, upper mandible horny brown, lower mandible and legs leaden grey; iris brown. Total length 5·1 inches, culmen 0·45, wing 2·95, tail 2·2, tarsus 0·75.

The Rufous-throated Penduline Tit inhabits Masailand in East Africa.

On the Maeru mountain the late Dr. Fischer collected a male and two females, and I cannot find any additional information regarding this species.

Family VI. CERTHIIDÆ.

Bill either short and stout or slender and long; wing of ten primaries, with the first or bastard primary well developed; tarsus short, not longer than either the middle or hind toe with claws; claws sharply pointed and curved, that of the hind toe the longest; tail of twelve feathers (nearly square in all the Ethiopian species). Sexes similar in style of plumage; nest cup-shaped and either hidden in a crevice or exposed on a bough; eggs spotted.

KEY TO THE SUBFAMILIES.

- a.* Bill stout and rather wide, coral red, shorter than the head or tarsus, and with the keel slightly curved upwards; rictal bristles well developed *Hyposittinæ.*
- b.* Bill slender, compressed at the sides, longer than the head or tarsus and with the keel curved downwards; no rictal bristles.
- a*¹. Nostril opening elongated, placed in a groove covered in above by a bare membrane *Certhiinæ.*
- b*¹. Nostril opening round and not placed in a groove. *Falculiinæ.*

Subfamily HYPOSITTINÆ and Genus HYPOSITTA.

These divisions are represented by a single known Madagascar species, *Hypositta corallirostris*.

Bill coral red, shorter than the head or tarsus, rather stout and wide, with the keel slightly inclining upwards; no nasal groove, nostril round and partially hidden by nasal bristles; rictal bristles strongly developed; wing formula: 4, 5, 3=6, 7, 8; 2=9, 10; 1=half of 2; tail slightly rounded, with the centre pair of feathers a trifle elongated; hind claw half as long as the hind toe and much curved.

Professor A. Newton first distinguished this genus under the name of *Hypherpes*, but finding that Baron Chaudoir had previously employed that title in entomology he altered the name to *Hypositta*, by which it is now known.

Hypositta corallirostris.

Hypositta corallirostris, A. Newton, *Cat. B. M.* viii. p. 366 (1883) *Madagascar*; Sibree, *Ibis*, 1891, p. 440; Shelley, *B. Afr. I.* No. 139 (1896).

Hypherpes corallirostris, Milne Edw. and Grand. *Hist. Mad. Ois. i.* p. 319, pls. 121, 121^a, 121^b, 121^c (1882).

Adult Male. General plumage bright blue with a band of black feathers entirely encircling the bill and black loreal bristles; under surface of the quills and tail black; bill vermilion; iris dark red; legs leaden grey. Total length 5·5 inches, culmen 0·45, wing 3·15, tail 2·5, tarsus 0·65.

Adult Female. Differs from the adult male in having the head and entire under parts yellowish brown with a strong wash of blue on the crown; a broadish white band from the eye to the nostril and no black feathers next to the bill; under wing-coverts yellowish-brown like the breast, under surface of the quills and tail dark brown, the former with broad rufous buff edges to the basal half of the inner webs. Total length 5·5 inches, culmen 0·45, wing 3, tail 2·5, tarsus 0·65.

The Coral-billed Creeper is confined to Madagascar, where it is known only from the eastern side of the island.

Mr. E. Newton first discovered the species at Chasmanna, and the type has been well figured. It was, I presume, an

adult female, for I had in my own collection a perfectly similar specimen, as well as a bright blue one, both procured by Crossley at Saralalan. Monsieur Grandidier's illustration of the female does not appear to me so accurate and the colouring is certainly too pale. He informs us that this bird inhabits the large forests, especially frequenting the damp ravines, where, after creeping up the trunk of one tree, it flies down to the base of the next to search that one in a like careful manner. They live silently and singly or in pairs, so that in habits they must much resemble our Common Tree-creeper.

Its native name is "Sakody."

Subfamily II. CERTHIINÆ.

Bill long, slender and slightly curved; tongue split at the tip; nostril placed in a groove, opens in a slit and is overhung by a bare membrane; no nasal nor rectal bristles; tarsus shorter than the bill and scutellated in front. Adult and young birds of both sexes similar in plumage.

KEY TO THE GENERA AND SPECIES.

- a. Hind claw much longer than the hind toe;
back grey, portion of wings bright crimson . . . *Tichodroma muraria*.
- b. Hind claw much shorter than the hind toe;
plumage brown and white; upper parts
brown with white spots and bars *Salpormis salvadorii*.

Genus I. TICHODROMA.

T. muraria, the only species known of this genus, has the bill long, slender, nearly straight and black. Tongue split at the tip (Ibis, 1895, p. 256, fig. 2). Wing formula: 4 = 5; 6 = 3, 7, 2, 8, 1, 9; 1 = more than half of 2 and less than half of 4. Breeds generally in crevices in steep rocks and lays two or three eggs which are white spotted with reddish brown.

Tichodroma muraria.

Tichodroma muraria (Linn.), Rüpp. Syst. Uebers, p. 23 (1845) *Egypt*, *Abyssinia*; Heugl. Orn. N. O. Afr. p. 236 (1869) *Abyssinia*; Gadow, Cat. B. M. viii. p. 331 (1883); Shelley, B. Afr. I. No. 140 (1896).

Adult. Above pale bluish grey slightly washed with brown on the crown and passing into dusky black on the tail-coverts; lesser and median wing-coverts and the basal portion of the outer webs of the primary coverts and of many of the quills bright carmine red; remainder of the wings brownish black slightly washed with grey on the innermost quills, and mostly with whitish ends; the four outer long primaries have large white spots on their inner webs, and some of the secondaries have fawn colour spots similarly placed; tail brownish black with broad pale ends; chin and throat white; breast and under tail-coverts dusky grey; under wing-coverts dusky black partially washed with bright carmine. Bill black; iris dark brown; legs greyish black. Total length 6·4 inches, culmen 1·05, wing 3·9, tail 2·3, tarsus 0·9.

The throat changes into grey or jet black at certain seasons.

The Wall-creeper ranges from the Alps to the Himalayas and China, and is included in Rüppell's list of birds from north-east Africa, as a native of Egypt and Abyssinia.

The only mention, I know of, of this bird occurring in north-east Africa is Rüppell's including it in his list in 1845, and as no one appears since then to have met with it, either in Egypt or Abyssinia, its right to be included in the birds of the Ethiopian region is very doubtful.

Genus II. SALPORNIS.

Bill longer than the head, slender and curved; nostrils elongated, opening in a groove and overhung by a bare membrane; tongue slender and smooth to the tip, which is divided into about five bristles (Ibis, 1895, p. 257, fig. 5); wing fairly long and pointed: 3, 4, 2, 5, 6, 7, 8, 9, 10, 1; 1 not one quarter the length of 2, and not reaching to the end of the primary coverts. Nest, a neat cup-shaped structure, exposed on a bough.

General plumage brown and white; upper parts dark brown, spotted and barred on the wings and tail with white.

Only two very nearly allied species are known: the type *S. spilonotus* a native of Central India, and *S. salvadorii* from Africa. The Indian bird has the bill slightly longer and more compressed, and the throat of a purer white. *S. salvadorii*, bill never more than 0·8; *S. spilonotus*, bill never less than 0·9, measured in a straight line from the frontal feathers to the tip.

Salpornis salvadorii.

- Salpornis salvadorii* (Bocage), Gadow, Cat. B. M. viii. p. 330 (1883) *Benguela, Mashonaland*; Sharpe, ed. Layard's B. S. Afr. p. 835 (1884); Shelley, P. Z. S. 1888, p. 37 *Tobbo*; Büttik. Notes Leyd. Mus. 1888, p. 232 *Kasinga R.*; Sharpe, Ibis, 1891, p. 590 *Mt. Elgon*; Shelley, Ibis, 1894, p. 14 *Nyasaland*; id. B. Afr. I. No. 141 (1896); Marshall, Ibis, 1896, p. 244 *Salisbury*; Shelley, Ibis, 1899, p. 366 *Tanjanyika plateau*; Marshall, Ibis, 1900, p. 235 *Mashona*.
- Salpornis emini*, Hartl. P. Z. S. 1884, p. 415, pl. 37 *Langomeri*; id. Zool. Jahrb. ii. p. 312 (1887); id. J. f. O. 1889, p. 115.
- Salpornis spilonotus salvadorii*, Stark, Faun. S. Afr. i. p. 266 (1900).

Adult. Above dark brown with white markings on each feather, diminishing in size towards the forehead, these marks inclining to shaft stripes on the crown and to bars and large terminal spots on the back and upper tail-coverts; wing and tail-feathers with partial white bars and narrower white ends; sides of the head white with the upper half of the ear-coverts brown; under parts white, slightly washed with rufous buff on the breast, with brownish edges to the feathers of the sides and lower throat, and with partial brown bars on the feathers of the breast; under tail-coverts broadly barred with blackish brown; under surface of the wings brown, mottled with buffish-white on the coverts and with large white spots along the inner webs of the quills; bill dusky brown, paler beneath; legs ashy brown; iris brown. Total length 5·75 inches, culmen 0·3, wing 3·7, tail 2·5, tarsus 0·65. Ganyani R. (J. S. Jameson).

Salvadori's Tree-creeper ranges over Central Africa from the Cunene and Limpopo rivers northward to about 6° N. lat.

In Benguela the type of the species and several other specimens were collected by Auchieta at Caconda, and Prof. Barboza du Bocage, believing it to belong to an undescribed

genus, named it *Hylpsornis salvadori*. Not far from where the type was discovered at the Kasinga river Mr. Van der Kellen procured a specimen, so it does not appear to be very rare in these countries.

To the eastward in Mashonaland Messrs. Jameson and Ayres obtained a female specimen at the Ganyani river on September 17, and wrote: "A pair were seen creeping about the trunks and branches of the large trees. From the state of the ovary it was evidently about to lay." Mr. Guy Marshall has also met with the species in Mashonaland near Salisbury in October, and informs us that it is here called by the natives "Mangwidso," and writes: "Distinctly scarce, and I have seen only single individuals at some intervals. It searches the bark of trees for insects, much like the European Tree-creepers, commencing at the foot and rapidly working its way up, then flying on to the next tree." To the north of the Zambesi in Nyasaland specimens have been collected at Zomba, Fort Hill, and Ikarwa. The species has not been recorded from German East Africa, but has been obtained by Mr. Jackson at Savé, on Mount Elgon, in February, at an elevation of 6,000 feet amongst acacia trees, and Emin procured specimens in the Upper White Nile district at Tobbo, Langomeri and Wadelai, its most northern range being South Macrara (5° 4' N. lat., 29° 31' E. long.).

The type of *S. emini* was obtained at Langomeri by Emin, who writes: "During a walk through the ripe eleusine-fields, a small bird met my attention climbing up and down the haulms, and flying in short whips from one haulm to another. What could it be? Not a *Nectarinia* to be sure. The little unknown was very silent. But how great was my pleasure and surprise as my shot brought down a *Certhia*, certainly the first bird of this group met with in Central Africa. All my efforts to procure more specimens were fruitless."

The nest and eggs of this bird have not yet been described, but they probably are very similar to those of its near Indian ally, *S. spilonotus*, of which Mr. Blanford writes (Faun. Brit. Ind. i. p. 333): "Mr. Cleveland found the nest in Gurgaon on April 16. It was placed on a horizontal bough of a tree and attached to a vertical shoot. It was cup-shaped, and composed of bits of leaf-stalk and leaves, chips of bark, and the dung of caterpillars, bound together by cobwebs: it was very firm and elastic, the nest containing two young birds and one egg. The latter was greenish white, with a ring of blackish-brown specks round the large end, and a few specks over the remainder of the shell. It measured 0·68 by 0·53."

Subfamily III. FALCULIINÆ and Genus FALCULIA.

These divisions are represented by a single known Madagascar species, *Falculia palliata*.

Bill pearl grey, long, curved, and much compressed at the sides; no nasal groove; nostrils round and exposed; no nasal nor rictal bristles; wing formula: 4, 5, 3, 6, 7, 2, 8, 9, 10, 1; 1 = more than half the length of 4; tarsus, hind toe with claw, and middle toe with claw, all equal in length. Nest cup-shaped and placed in the fork of a bough.

Falculia palliata.

Falculia palliata, Geoff. St. Hilaire, Bull. Soc. Sc. Nat. 1835, p. 115
Madagascar; Sharpe, Cat. B. M. iii. p. 145 (1877); Hartl. Vög.
 Madag. p. 86 (1877); Milne Edw. and Grand. Hist. Mad. Ois. i.
 p. 304, pls. 117, 117^a, 119, 120 (1879); Sibree, Ibis, 1891, p. 442;
 Shelley, B. Afr. I. No. 142 (1896).

Adult. Snow white, with the back wings and tail black with a green gloss. Bill and legs pearl grey; iris deep brown. Total length 12·8 inches, culmen 2·4, wing 6·0, tail 8·0, tarsus 1·24.

The Baby-bird inhabits the woods which grow on the dry sandy plains of west and south Madagascar.

Here, according to M. Grandidier, it is to be seen climbing up the thick trunks of the trees or flitting from branch to branch in search of insects and their larvæ, which it picks out from the crevices of the bark with its long slender bill; but it is absent from the damper forests which clothe the eastern flanks of the great central mountain range. They live together in flocks of ten to fifteen, and have a heavy, slow flight. These forests to the west of the island resound with their strong plaintive cry which resembles that of a child, and has suggested the Sakalavas name "Voron-zaza" and the Antankaras name of "Fitilintaiky," both of which signify Baby-bird, which, I think, may be well retained as an English name for this species.

According to M. Grandidier, the nest is flat, with a slight depression in the middle, and consists of a rough mass of dry small branches lined with shreds of grass, and is generally placed in the fork of a bough at a considerable distance from the ground, and there the parents bring up a brood of three or four young ones, which are tended to by them for some time after leaving the nest.

Section II. ALAUDÆ.

Bill variable in shape, rarely longer than the head; tongue entire. Wing with nine or ten primaries; secondaries generally abnormally elongated, so as to extend nearly, or quite, to the end of the wing. Tail of twelve feathers and square at the end. Tarsus always with the hinder portion scaled when the wing has a bastard primary; legs rather long and slender and well adapted for their terrestrial pursuits. They feed upon insects and seeds. Nest cup-shaped and placed on or near the ground and occasionally in holes. Eggs from two to five in number, spotted, whitish with brown or dusky markings, most numerous at the thicker end, near which they often form a zone. They are mostly gregarious after the breeding season and some are migratory. Generally, the plumage is alike in both sexes, varies somewhat according to the season, and the young distinctly marked.

KEY TO THE FAMILIES.

- a. Back of the tarsus plain ; wing of only nine primaries, bastard primary absent *Motacillidæ*.
 b. Back of tarsus scaled ; wing nearly always with a distinct bastard primary *Alaudidæ*.

Family VII. MOTACILLIDÆ.

Bill shorter than the head. Wing with only nine primaries, no bastard primary, the three outer primaries nearly equal and the longest ; larger secondaries reach almost or quite to tip of wing. Tail nearly square, of twelve feathers. Tarsi rather long and slender, bilaminated behind and in front somewhat scutellated. Generally the plumage is alike in both sexes and very similar in the nestling ; but sometimes the colouring is considerably altered by the autumn and spring moults.

They frequent the ground mostly, especially near water, and feed almost entirely upon insects. About thirty-two species are known to occur in the Ethiopian region, and of these a third frequent it only during migration.

KEY TO THE GENERA AND SUB-GENERA.

- a. Plumage of upper parts uniform and never brown in adults ; profile of culmen nearly straight from the base to the tip, and about equal in length to the outer toe with claw ; feet dark MOTACILLA. 265
 a¹. Tail longer than the wing ; hind claw shorter than the hind toe.
 a². Under tail-coverts white, subgen. . . . MOTACILLA, Linn. 1766.
 b². Under tail-coverts bright yellow, subgen. CALOBATES, Kaup. 1829.
 b¹. Tail shorter than the wing ; hind claw longer than the hind toe ; lower throat, breast and under tail-coverts uniform bright yellow in full plumage, subgen. . . . BUDYTES, Cuv. 1817.
 b. Plumage of upper parts brown and lark-like ; profile of culmen curved from the centre to the tip ; feet pale.

- c*¹. Outstretched feet not reaching beyond the tail. ANTHUS. 273
- c*². Thighs almost entirely feathered; little or no yellow on the wings or tail, subgen. ANTHUS, Bechst. 1807.
- d*². Thighs mostly naked; under parts and more than half of the wings and tail bright yellow in adults, subgen. TMETOTHYLACUS, Cab. [1879.
- d*¹. Outstretched feet reaching beyond the tail; feet extremely large; hind toe with claw exceeding the length of the tarsus; some bright colours on the under surface MACRONYX.

Genus I. MOTACILLA.

Upper surface uniform and never brown in adults; bill fairly long and slender, with the culmen nearly straight; tail often longer than the wing and the outer feathers mostly pure white; under tail-coverts white or bright yellow; tarsi and feet dark.

They all have a peculiar habit of raising and lowering the tail which has suggested for them the appropriate name of Wagtails; feed entirely upon insects, which they mostly capture close to the ground, often darting after them with quick short runs. They breed in holes or dark corners, construct a cup-shaped nest, and lay about five eggs, which are white spotted or mottled with grey or brown. Of the thirteen forms I recognise as Ethiopian, six are confined to that region and the others occur there, generally in flocks, only during their winter migration from September to April.

KEY TO THE SPECIES.

- a*. Under tail-coverts pure white.
 - a*¹. Forehead, ear-coverts and a band through the eye to the gape black; a broad white eyebrow extends forward to the bill.
 - a*². Flanks black or dusky grey *nigricotis*. 26
 - b*². Flanks white or nearly so *vidua*. 268
 - b*¹. No black on forehead or ear-coverts.
 - c*². No grey on ear-coverts; forehead and ear-coverts white, except in very young birds *alba*. 272
 - d*². Forehead and ear-coverts grey.

- a*³. Mantle bluish grey.
*a*⁴. None of the tail-feathers entirely white *forwoodi*. 274
*b*⁴. Three outer pairs of tail-feathers entirely white *longicauda*. 274
*b*³. Mantle ashy olive; chest yellowish white; a rather broad dusky black crop-band *capensis*. 277
b. Under tail-coverts bright yellow.
*c*¹. Throat and front of chest white with a broad black collar *flaviventris*. 281
*d*¹. No black collar.
*e*². Outer tail-feather entirely white. Wing shorter than tail *melanope*. 282
*f*². Outer tail-feather not entirely white. Wing longer than tail.
*c*³. Upper half of head not jet black.
*c*⁴. Upper half of head yellow or partially so in adults; crown never grey *campestris*. 283
*d*⁴. Upper half of head mostly grey, with no yellow.
*a*⁵. Throat yellow or with only the chin white.
*a*⁶. A complete broad, and distinct, white eyebrow *flava*. 284
*b*⁶. No pale eyebrow; ear-coverts blackish, subsp. *borealis*. 284
*b*⁵. Throat white; generally an imperfect white eyebrow, subsp. *cinereicapilla*. 287
*d*⁵. Upper half of head entirely jet black in adults. Some black on the crown at all ages *melanocephala*. 291

Motacilla nigricotis, sp. nov. (Pl. 12, fig. 2.)

Adult Male. Above, black; a broad white eye-brow from the nostrils to above the ear-coverts separates the crown from the black sides of the head; sides of neck black with a large white patch; exposed portion of all but the innermost greater and median-coverts white, with black shaft-stripes to the latter; base of all but the outer primaries white; broad outer edges and narrow ends to the secondaries white as well as narrow terminal margins

to the inner primaries; outer tail-coverts with broad white outer edges; tail with the two outer pairs of feathers white with boldly marked partial black inner margins, next pair with a small basal portion of the outer web white, and an obsolete white outer edge to the centre pair of feathers. Beneath white, with a black collar extending in two bands from the ear-coverts and base of the neck, joining and widening out over the crop; sides of body and thighs black; under surface of the wing, with the under wing-coverts and a basal portion of most of quills white, remainder of the quills black. Bill and legs black; iris dark brown. Total length 7·6 inches, culmen 0·7, wing 3·7, tail 3·8, tarsus 1·0. North of Limpopo (Bradshaw).

The Black-flanked Pied Wagtail inhabits the central South African watersheds of the Orange river and Limpopo.

In 1885 when Dr. R. B. Sharpe published his article upon *M. vidua* (Cat. x. p. 488) there were only three specimens of *M. nigricotis* in the British Museum, and referring to them he wrote: "I cannot believe that they belong to a different species, and at present consider them to be the winter plumage of very old males."

Against Dr. Sharpe's theory and in support of this being a good species I may remark that this form is known to occur only within a limited portion of central South Africa, and is now represented in the British Museum by the following six specimens: Hopetown, ♂, May (T. Atmore); De Wet's Drift, on the Vaal river, ♂, 8. 5. 79 (T. Ayres); Transvaal (T. Ayres); and three specimens, including the type formerly in my own collection, obtained by the late Dr. Bradshaw during his travels from the Orange river through Matabele, which might have been labelled South Zambesia, but not Zambesi.

As in *M. vidua* the back assumes a slaty grey colour after the breeding season, and in this species the sides of the breast also fade in a like manner. The habits are no doubt similar to those of *M. vidua*, and as its range is included in that of its near ally, from which I am here separating it, as a distinct species, for the first time, I can find no special information regarding its economy.

The Wagtails generally are not shy birds, and frequent the neighbourhood of man; are to be met with both in the fields and by the edges of water, constantly jerking their heads and tails, or run swiftly, with head depressed, catching at intervals the insects as they rise from the ground. They have two broods in the year and normally lay five eggs, which are white minutely freckled or blotched with brown. The nest is usually placed in a hole of a bank or wall and is constructed of grass, moss and fine roots, and warmly lined with hair and wool.

Motacilla vidua. (Pl. 12, fig. 1.)

Motacilla vidua, Sundev.; Reichen. J. f. O. 1875, p. 47 *Camaroons*; Sharpe and Bouvier, Bull. S. Z. France, 1877, p. 477 *Loango*; Sharpe, Cat. B. M. x. p. 488 (1885) *Niger, Gaboon, Angola, Natal, Zambesi, Abyssinia*; Fisch. Zeitschr. 1884, p. 307 *Maurui, Pagani R.*; id. J. f. O. 1885, p. 137, *Tana R., Barawa*; Büttik. Notes, Leyden Mus. 1885, p. 173; 1888, p. 74; 1889, p. 122 *Liberia*; Sousa, Jorn. Lish., 1886, p. 164 *Cuce*; 1889, p. 115 *Catumbella*; Reichen. J. f. O. 1887, p. 73 *Irangi Kagehi*; Matschie, t. c. p. 143 *Karema*, p. 156 *Lufuku, Lagoma*; Schalow, t. c. p. 242; Shelley, Ibis, 1888, p. 292 *Taveita*; Reichen. J. f. O. 1890, p. 124 *Camaroons*; id. 1891, p. 160 *Taboro*; p. 390 *Togoland*; Shelley, Ibis, 1894, p. 23 *Upper Shiré*; Fleck, J. f. O. 1894, p. 411 *Okovango*; Reichen. Vög. Deutsch. O. Afr. p. 200 (1894) *Rovuma R., Ugogo, Kakoma, Igonda, Speke's Gulf*; Sharpe, P. Z. S. 1895, p. 473 *Somali*; Kuschel, J. f. O. 1895, p. 343 (*egg*); Sjostedt, K. Vet. Ak. Handl. Stockholm xxvii. No. 1, p. 93 *Camaroons*; Shelley, B. Afr. I. No. 143 (1896); Rendall, Ibis, 1896, p. 174 *Transvaal*; Reichen. J. f. O. 1897, p. 42 *Togoland*; Hartert, Nov. Zool. 1898, p. 72 *Shiré*; Boyd Alexander, Ibis, 1899, p. 562 *Zambesi*; Jackson, t. c. p. 626, *Uganda*; Oberholser, Pr. U. S. Nat. Mus. 1899, p. 30 *Liberia*; Hartert in Ansorge's "Under Afr. Sun," p. 348 (1899) *Unyoro, Uganda*; id. Nov. Zool. 1899, p. 415 *Gambaga*; Grant, Ibis, 1900, p. 139 *Abyssinia*; Stark, Faun. S. Afr. i. p. 255 (1900); Marshall, Ibis, 1900, p. 238 *Mashona*.

Motacilla lichtensteini, Cab.; Hartert, J. f. O. 1886, p. 582 *Niger*.

Motacilla vaillantii, Bp.; Bouvier, Cat. Ois. Marche, &c., p. 16 (1875) *Gaboon*.

Motacilla alba (nec Linn.) Böhm. J. f. O. 1885, p. 45.

Adult Male. Entirely black and white. Above as well as the sides of the head and neck black, with the following parts white:—a broad eyebrow from the nostrils to above the ear-coverts, a patch on the side of the crop, most of the outer webs of the greater series of wing-coverts, basal portion of the quills with the exception of the outer one, outer margins of the secondaries, and the two outer pairs of tail-feathers with the exception of portion of inner margins. Beneath white, with a broad black crop belt; flanks faintly mottled with grey; thighs slightly mottled with black; under wing-coverts and basal half of the inner webs of the quills white, with the remainder blackish brown; bill and legs black; iris dark brown. Total length 7·6 inches, culmen 0·65, wing 3·7, tail 3·8, tarsus 1·05. Umgeni River, ♂ 2. 6. 41 (Wahlberg).

Adult (winter plumage). Similar to the adult male above described, but with the back blackish grey shading into black on the forehead and upper tail-coverts.

The African Pied Wagtail ranges over Africa generally, south from Liberia and Assouan on the Nile, and also inhabits St. Thomas Island and southern Palestine. This species appears to be common and generally distributed along the water-courses throughout its wide range, except in the Upper White Nile district from Victoria Nyanza to the Gazal river and Shoa, from which countries alone it has not yet been recorded.

In Liberia, Mr. Büttikofer found the species plentiful on the sandbanks and rocks, specially frequenting the rapids and falls which occur along the rivers, and Mr. Hartert mentions it as apparently common along the banks of the Benue tributary of the Niger.

Dr. Hartlaub in 1857 referred to *M. lugubris* a specimen of this species in the Hamburg Museum obtained by Weiss on St. Thomas Island. Mr. Monteiro calls these Wagtails common along the Quanza river and on the marshy plains of Cambambe. In Benguela, according to Anchieta, it is generally distributed throughout the country, and is called by the

natives "Congombo." In the country between the Cunene and Orange rivers I find the species recorded by Mr. Fleck from Okovango, and along the banks of the latter stream, according to Andersson: "It is generally to be seen either singly or in pairs, and usually settles on stones or on the ground, along which it runs with great celerity in pursuit of small insects, which constitute its chief food, and it also skims the surface of the water for the same purpose." Levillant discovered the type of the species at the Orange river, and according to Bradshaw it is very common along that stream, but scarce in Cape Colony.

While I was in Natal I met with a pair at the mouth of the Umgeni river, and another pair at a small brook near Pinetown, which runs through a thickly wooded ravine. According to Mr. T. Ayres, the species is more abundant on the Vaal river than along the Limpopo, where *M. capensis* predominates, but is the only species of Wagtail he met with on the Umfuli river. With regard to the habits of this species, Stark writes: "It is most frequently met with on the borders of large rivers and vleis, almost invariably in pairs. It is also partial to pasture land, where it follows the cattle and horses for the sake of the flies and other insects which infest them. It feeds also on small beetles, the larvæ of various water insects and mosquitoes. The latter it catches on the wing whilst skimming over the surface of the water. The ordinary note of this Wagtail is a sharp 'chirrup' resembling that of the other species; in spring and summer it has a low-pitched but pleasant and melodious song. It runs with great celerity, and its long tail is incessantly in motion, vibrating up and down. Its nest, built in September in inland districts, but about the beginning of August on the coast of Natal, is placed in a hole, on a ledge of rock, or against the bank of a stream. It is rather large, with thick

walls, and is cup-shaped, constructed outwardly of dead leaves, tendrils and dry grass, and lined with fine grass, rootlets and hair. The eggs, from three to five in number, are larger than those of the Cape Wagtail, of a pale brown ground-colour, thickly freckled and spotted all over with dark brown and grey. They measure 0.90×0.60 ."

The species is common along the whole course of the Zambesi, where in the neighbourhood of Tete Sir John Kirk informs us that it is called "Droindwi" and is never injured by the natives, who have some superstitious belief connected with it. In the Shiré highlands specimens have been collected by Mr. Alexander Whyte, who writes: "This is the common Wagtail at Fort Johnston on the Upper Shiré. It is quite tame about the station, where it is the only familiar bird; it has a sweet note." Specimens have also been collected by the late Mr. Joseph Thomson at the Rovuma river, by Sir John Kirk in Ugogo, and by Böhm and Fischer throughout German East Africa, and to as far north as the Tana river and Barawa on the Somali coast. In Equatorial Africa Mr. Jackson met with the species on Manda Island and inside his camp at Taveita, Mr. Anson at Fajao and Masindi in Unyoro, and at Kampala in Uganda, yet I do not find the species recorded from the Upper White Nile between Victoria Nyanza and the Gazal river, nor from Shoa; but in north-east Africa, according to von Heuglin, the species occurs on the Lower White Nile and its tributary streams, at Azrag, the Atbara, and at Berber in Nubia. Rüppell found it in Abyssinia, and at its most northern range on the Nile, the First Cataract, it has probably been remarked by most tourists, boldly wagging its tail as it rests on the large water-worn granite boulders within a few yards of the passing boat. It was here I first became acquainted with this graceful and confiding species, and being an ornithologist and a lover of birds I shot the first specimen

I saw, and its mummied form is now in the British Museum, which is the only proper place in England for interesting specimens of birds; and if others would follow my example by placing their collections in our National Museum it would be a great boon to science, and do away with the useless slaughter of the innocents.

Motacilla alba.

- Motacilla alba*, Linn.; Hartl. J. f. O. 1861, p. 161 *Casamanse*; Selat. and Hartl. P. Z. S. 1881, p. 167 *Socotra*; Sharpe, Cat. B. M. x. p. 464 (1885) *Gambia*, *Socotra*, *Abyssinia*; Yerbury, *Ibis*, 1886, p. 17 *Aden*; Hartert, J. f. O. 1886, p. 583 *Niger*; Rendall, *Ibis*, 1892, p. 216 *Gambia*; Barnes, *Ibis*, 1893, p. 78 *Aden*; Shelley, B. Afr. I. No. 144 (1896); Hawker, *Ibis*, 1899, p. 66 *Somali*; Jackson, t. c. p. 625 *Mumias and Ravine*; Hartert, in Ansorge's "Under Afr. Sun," p. 348 (1899) *Unyoro*; Grant, *Ibis*, 1900, p. 139 *Abyssinia*.
Motacilla gularis, Swains.; Bouvier, Cat. Ois. Marche, &c., p. 16 (1875) *Dakar*.

Adult (winter plumage). Head white, with the hinder half of the crown and the nape jet black; back of neck, back and lesser wing-coverts grey, shading into dusky black on the upper tail-coverts, remainder of the wings black with broad white ends to the median coverts and white edges to the greater coverts and secondaries, and very narrow ashy white edges to the primaries; under wing-coverts and inner margins to the quills white; tail with the four centre pairs of feathers entirely black, the outer two pairs white with oblique broad black edges to their inner webs and a similar shaped black mark on the basal portion of the outer web of the penultimate feather; under parts white, shading into ashy grey on the sides of the body, and with a broad black crop-band. Total length 7·4 inches, culmen 0·55, wing 3·5, tail 3·6, tarsus 0·9. ♂, 3. 12. 97, Somali (Hawker).

The White Wagtail breeds in Europe and Asia and migrates into Africa, from October to May, to as far south as the Equator.

In the British Museum there are four specimens from Senegambia, and Dr. P. Rendall, who met with it near Bathurst, writes: "During the autumn months there were a

few pairs generally on the islands." In the Niger district Thomson procured the species at Idda, and Mr. Hartert found it, on two occasions, in the province of Sokoto during the month of December.

In Central Equatorial Africa, between the Victoria Nyanza and Albert Nyanza, Mr. Ansoerge found the species common from November to January, at Fajao and Masindi in Unyoro, and Mr. Jackson collected four specimens, in February, at Mumias and Ravine, which is the most southern known range for the species.

To the east of the Nile water-shed, Lord Lovat remarks: "This Wagtail takes the place of *M. vidua* on all the rivers not in the Nile basin, Kassin river, Gibbeh, and Turgu." In Somaliland Mr. Hawker shot one at Gebili, and writes: "This bird often came into camp in the early morning and walked about for a short time and then flew off after satisfying its curiosity." On Socotra island, in February and March, Prof. Balfour found the species "common on all the perennial streams, where they reach the lower plains," and according to Messrs. Grant and Forbes: "This Wagtail was fairly common in Socotra both on the Hadibu plain and about the Dinichirs river in the Goahal valley. A few were also met with on the higher ground at Hornhill." At Aden, according to Major Yerbury, it is "a regular cold-weather visitant, appearing, too, at odd times of the year."

In Abyssinia Mr. Blanford calls it: "Common both on the highland and near the coast." He further remarks: "On the 1st of May there were still specimens on the highlands around Lake Ashangi, but only very few remained. A month earlier they had been numerous." Von Heuglin found the species in winter along the White Nile, in Abyssinia, at Req Lake, and believed it to be resident in Egypt.

The name of White Wagtail was given to this species by Latham in 1783.

Motacilla forwoodi.

Motacilla forwoodi, Grant and Forbes, Bull. Liverpool Mus. ii. p. 3 (1899)
Socotra.

Similar to *M. alba* in form and colouring, with the exception of the head. Total length 7 inches, culmen 0·5, wing 3·3, tail 3·5, tarsus 0·9. ♀, 23. 2. 99, Abd-el-Kuri; forehead grey like the back; sides of head white with the cheeks and ear-coverts ashy grey or washed with dusky blackish; centre and sides of hinder half of crown strongly washed with black; chin and entire throat jet black. ♀, 4. 12. 98, Abd-el-Kuri; forehead and crown uniform grey like the back; sides of head, chin, and throat white, with the cheeks and ear-coverts washed with ashy grey; a black crop-band.

The Socotra Pied Wagtail inhabits the island of that name and the adjacent islets.

Mr. Ogilvie Grant kindly informs me: "This species was only met with on the island of Abd-el-Kuri, where it was common enough on the stony plain outside the Arab village. Unfortunately I did not at the time distinguish it from *M. alba*, and only secured two examples, an adult and an immature, both females."

The species has been named after Sir William Forwood, of Bromborough Hall, Cheshire.

Motacilla longicauda.

Motacilla longicauda, Rüpp.; Shelley, P. Z. S. 1882, p. 306 *Ugogo*; Sharpe, C. B. M. x. p. 495 (1885) *Natal*; Shelley, P. Z. S. 1885, p. 228 *Kilimanjaro*; Büttik. Notes Leyd. Mus. 1889, p. 122 *Liberia*; Shelley, Ibis, 1893, p. 27; 1894, p. 23 *Zomba*, p. 472 *Milanji*; Reichen. J. f. O. 1894, p. 40 *Camaroons*; id. Vög. Deutsch O. Afr. p. 201 (1894); Shelley, B. Afr. I. No. 146 (1896); Reichen. J. f. O. 1896, p. 35 *Camaroons*; Sharpe, Ibis, 1897, p. 515 *Zululand*; Shelley t. c. p. 527 *Kombi*; 1898, p. 553, *Mtondwe*; Stark, Faun. S. Afr. i. p. 257 (1900).

Motacilla sp. Bocage, Journ. Lisb., 1881, p. 292 *Biballa*.

Adult. Above, uniform leaden grey; sides of head grey inclining to black in front of the eye and separated by a broad white eyebrow from the forehead and crown; wings black with the least coverts grey, and with white terminal edges to some of the other wing-coverts and white edges to the secondaries, most strongly developed on the innermost feathers; tail with the four outer pairs of feathers entirely white, the two centre pairs black with narrow white edges; under surface pure white with a narrow dusky black crop-belt. "Bill black; iris brown; legs grey." Total length 7.3 inches, culmen 0.6, wing 3.1, tail 3.9, tarsus 0.85. ♂, 8. 5. 75, Pinetown (T. L. Ayres). Sexes exactly alike in plumage, ♂ ♀, 9. 6. 75, Pinetown (T. L. Ayres).

The Long-tailed Pied Wagtail ranges over Africa south from Liberia and Abyssinia.

Although this species has a wide range it cannot be regarded as common anywhere, and appears to occur in western Africa only as a straggler. From Liberia Mr. Büttikofer writes: "A single specimen was collected by me at the falls of the Du Queah river, where it was found together with *M. vidua*; this is the first statement of the occurrence of this species in West Africa."

In Camaroons, as yet, this species is known by a single specimen procured by Dr. Preuss at Victoria in May, and its occurrence in Benguela rests on one specimen mentioned by Prof. Barboza du Bocage from *Biballa*, procured there by Anchieta.

In Cape Colony, according to Layard, it is rare; but he records it from Grahamstown, Buffalo river and Kingwilliamstown. In Natal these Wagtails are probably fairly abundant, for although I did not meet with them, a friend of mine, Mr. T. L. Ayres, has sent me several from Pinetown, where he then lived, and the Messrs. Woodward have procured a specimen at Eschowe in Zululand. Mr. T. Ayres found these Wagtails in Natal frequenting the rocky streams generally in pairs, and

was struck with their particularly graceful movements as they glided over the stones in search of insects, their favourite food being a soft small dragon-fly, and further remarks that they warble very prettily though not loudly. According to Stark: "This peculiarly beautiful and graceful Wagtail is not uncommon on such of the rocky streams of Natal and Zululand as are broken by numerous rapids and waterfalls, and I have myself never met with it elsewhere. Unless the young have lately left the nest, seldom more than a pair are seen together, and these monopolise a certain range of stream, which they appear never to leave. In their habits they closely resemble the Grey Wagtail of Europe. A newly completed nest, found near Pinetown in Natal on August 5, was built on the ledge of a rock by the side of a waterfall; it was rather bulky, constructed outwardly of dead leaves, moss and dry grass, the cup-shaped hollow lined with fine rootlets and hair."

To the north of the Zambesi these Wagtails are distributed over the Shiré highlands and along the streams which flow from the mountains into Lake Nyasa, for Mr. Whyte has collected specimens on the Milanji plateau, along the Mtondwe river, at Zomba and at Kombi on the Masuku mountains at 7,000 feet.

All that I can find regarding its occurrence in German East Africa is that Sir John Kirk sent me a specimen from Ugogo, which is now in the British Museum, and that Sir Harry Johnston collected two specimens on Kilimanjaro at an elevation of 6,000 feet, so it is strange to note the absence of this species in the large collections made by Böhm, Fischer, Emin, Mr. Jackson and Dr. Ragazzi.

Antinori sent five specimens from Shoa collected in May, June and August, and in Abyssinia Rüppell discovered the type of the species in the Semien district. Von Heuglin met with it in the provinces of Adet and Telent and along the

Takazze river, and remarks that its note much resembles that of our Grey Wagtail.

Motacilla capensis.

Motacilla capensis, Linn.; Shelley, *Ibis*, 1875, pp. 60, 73 *Cape, Natal*; Sharpe, *Cat. B. M. x.* p. 493 (1885); Distant, *Naturalist in Transv.* pp. 49, 70, 164, 168 (1892) *Pretoria*; Bocage, *Jorn. Lisb.* 1893, p. 162 *Galanga*; Fleck, *J. f. O.* 1894, p. 411 *Damara, Namaqua*; Reichen. *Vög. Deutsch O. Afr.* p. 201 (1894) *Karagwe*; Kuschel, *J. f. O.* 1895, p. 343 (*egg*); Shelley, *B. Afr. I.* No. 145 (1896); Hartert, *Nov. Zool.* 1898, p. 72 *Shirè*; Jackson, *Ibis*, 1899, p. 626 *Nandi*; Stark, *Faun. S. Afr. i.* p. 259 (1900); Marshall, *Ibis*, 1900, p. 238 *Mashona*.

Adult Male. Above, dusky grey with an olive yellow shade on the back and lesser wing-coverts; sides of head dusky grey like the crown, and separated from it by a somewhat ill-defined whitish eyebrow; wings dark brown with pale edges of olive yellow passing into white along the tips of the greater coverts and the outer edge of the first primary; tail with the two outer pairs of feathers white with black oblique marks on the basal half of their inner webs, and a similar shaped black mark on the outer web of the penultimate feather; the remainder of the tail-feathers dusky brown with very narrow pale edges. Under parts white with a slight yellow shade on the breast, which is separated from the throat by a dusky brown crop-band much increased in breadth at the centre; flanks and thighs yellowish ashy; under surface of wings dusky brown, mottled with white on the under wing-coverts, and with partial broad white inner edges to the quills. Bill and legs very dark brown; iris brown. Total length 6·8 inches, culmen 0·55, wing 3·3, tail 3·4, tarsus 0·9. ♂, 22. 6. 75, Pinetown (T. L. Ayres).

The Cape Wagtail inhabits Africa to the south of the Quanza river on the west and the Equator in central and eastern Africa.

On the western side of the continent Anchieta has collected specimens at Caconda, where it is called by the natives "Oquicecenebanene," and he considered it rare at Galanga. To the south of the Cunene, according to Andersson: "This

is rather a local bird in Damara and Great Namaqualand, but is found somewhat numerous in moist and humid localities, and is also at times pretty freely met with on the sea-shore. It occurs sometimes in small flocks. It captures its prey both on the wing and by running along the ground, frequently following in the wake of cattle and picking up such small insects as may chance to be thus disturbed. The nest of this Wagtail is found in a variety of situations, and is composed of tendrils and soft pliable plants. The eggs are three or four in number, and are generally of a yellow-drab tint, profusely speckled with obscure spots of pale brown, especially towards the larger end." The species is also recorded from German South-western Africa by Mr. Fleck.

Stark informs us that these Wagtails are resident on the barren and waterless guano islands off the west coast, and with regard to their breeding habits writes: "The nest, usually commenced in September, is a somewhat bulky cup-shaped structure, built of dry grass and dead leaves and lined with short hairs and fur. It is often placed against the bank of a river or stream, under a stone, or among the exposed roots of a tree or bush, sometimes in the hole of a wall or rock, and at others on a heap of driftwood. The eggs, three or four in number, are buff-coloured, thickly spotted and mottled all over with brown. They average about 0.84×0.56 ."

Bradshaw found them very common along the Orange river. Layard writes: "The 'Quick Stertje' as it is called by the colonists, is abundant throughout the colony, frequenting the crowded cities equally with the outlying farmsteads," and adds: "In the country, each farm-house and 'pondok' (mud-dwelling of Hottentot labourer) has its well-known pairs of this engaging bird; and woe to the unlucky urchin who dares to meddle with them or their nests! To say that 'the angels won't love them,' would be a blessing compared to the

fate that would be prophesied for the wicked child. We have often seen the master of the house sitting in his chair in the cool of the evening, and, perhaps, while one bird perched on the rail of his chair, another would jump at the flies on his soil-stained shoes, while two or three more stood pecking at those that plagued the old dog lying at his master's feet. Perhaps one or two would have found their way into the *voorhuis*, or entrance hall, where a rich harvest awaited them in the bodies of those flies slain by the attendant dark urchins, who, often ignorant of breeches or petticoats, guard their master's viands with a plume of dirty ostrich-feathers or leafy bough torn from the nearest tree.

“These birds consort much with cattle, and jump up against their sides as they stand lazily chewing the cud, to catch the small flies that keep about them; they also congregate in considerable number on the sea-beach, to feed on the flies bred in the putrefying sea-weed; they run along the sand with great agility, or walk with a stately, swaggering gait, which is very amusing. They also congregate in flocks upon favourite trees for the purpose of roosting; and this may chiefly be observed in towns.

“The nest is generally constructed in a bank if in the fields; but when in the town they select a hole in the wall, or a dense mass of leaves in some plants creeping up the wall or tree. The nest is composed of leaves, small roots, and horse-hair, with which the structure is lined. The eggs are four or five in number, greyish white, minutely freckled with brown, chiefly at the obtuse end.” With regard to these Wagtails in Natal Messrs. Butler, Feilden and Reid write: “Everywhere abundant inland but not so numerous, apparently, in the neighbourhood of the coast. A graceful, lively bird, with an extremely pretty little song, not often heard. Nests were found in September, October and November, built

on the banks of streams or dry 'dongas,' among overhanging roots, or under projecting stones; they are cup-shaped, neatly and massively constructed of dry grass, lined with fur and cows'-hair. The eggs, three in number usually, are brownish cream colour, very indistinctly freckled with brown, and very slightly glossed: 0.85 inch by 0.55."

Between the Vaal and Limpopo rivers Mr. T. Ayres found them breeding, and Mr. Distant records them from Pretoria where he remarks they are as common as the sparrow in England, but from their tameness and partiality for the habitations of man they reminded him of our Robin, and like that bird they are as little molested. No winged insect apparently comes amiss as food for these birds; he saw one kill an Arctiid moth (*Binna madagascariensis*) and another pursuing a butterfly belonging to the genus *Aerwa*, which is generally exempt from the attack of birds. He also records seeing a swarm of winged ants (*Termes angustatus*) largely destroyed by the Cape Wagtails.

The late Mr. Frank Oates procured a specimen at Inyati and Mr. T. Ayres records the species from Mashonaland, and from this country Mr. Guy Marshall writes: "Everywhere abundant, occurring near water in flocks varying from three or four up to twenty individuals." He found both this species and *M. vidua* nesting in tussocks of grass in the middle of the dry bed of the Umfuli, and remarks: "There must have been a considerable destruction of young birds when the river came down with a 4-foot wall of water a week later. Although a resident, it appears to be considerably more numerous during the summer months."

The species apparently becomes rare to the north of the Zambesi, for it has not yet been recorded from Nyasaland and only from Karagwe in German East Africa, although it ranges to as far north as Nandi near the Equator, at which latter

place Mr. Jackson shot an adult male in May at an elevation of 6,500 feet.

Motacilla flaviventris.

Motacilla flaviventris, Verr. ; Sharpe, Cat. B. M. x. p. 496 (1885)
Madagascar ; Sibree, Ibis, 1891, p. 441 ; Shelley, B. Afr. I. No. 147
(1896).

Adult. Above, deep grey with a slight yellow shade on the lower back and scapulars ; sides of the head deep grey inclining to black in front of the eye, and separated from the crown by a white eyebrow ; wing brownish black with the least coverts grey, the other feathers with partial pale edges, the quills have a large white patch towards the base confined to the inner webs of the primaries and crossing both webs of the secondaries ; under wing-coverts white ; upper tail-coverts and four pairs of centre tail-feathers black, and the outer two pairs of tail-feathers white, with broad oblique black inner edges ; throat and front of chest white with a black crop-band, remainder of the breast and the under tail-coverts bright yellow ; thighs white. Iris brown ; bill and legs blackish. Total length 6·8 inches, culmen 0·55, wing 3·3, tail 3·4, tarsus 0·9.

The Madagascar Wagtail is confined to the island of that name.

This is the only species of the family *Motacillidæ* which has yet been met with in the Madagascar subregion. According to M. Grandidier, who has devoted so much energy in studying the birds of Madagascar, the females and young differ from the adult males in being of a duller colouring, with the rump less green and the abdomen paler. Their habits are like those of the other better-known Wagtails : they frequent the banks of streams and lakes and damp districts, always on the move, walking step by step, or running swiftly after some insect, and constantly flitting their tails up and down. Their flight is undulating and generally close to the ground. They are mostly found singly or in pairs, like other Wagtails, when not on migration, and feed on the insects and their larvæ

which they find near the water, and are tame and confiding. Their eggs are greenish, covered with dots and streaks of pale brown, and measure 0·8 inch by 0·6.

The Antanosis call them "Salaly," and the Betsimisarakas give them the name of "Seritra" (= jokers) on account of their way of wagging their tails at the passer-by. "Tsitsio," another of their names, is derived from their note, which is very similar to that of others of the genus. The Rev. J. Sibree adds "Fandiafasika" as their Hova and general name, and "Triotriotsa," "Triotrio" and "Seritse" as other provincial names.

Motacilla melanope.

Motacilla melanope, Pall. ; Sharpe, Cat. B. M. x. p. 497 (1885) *Dogos* ; id. *Ibis*, 1891, p. 588 *Mau, Mt. Elgon* ; Rendall, *Ibis*, 1892, p. 217 *Gambia* ; Shelley, B. Afr. I. No. 148 (1896) ; Lort Phillips, *Ibis*, 1898, p. 401 *Somali* ; Jackson, *Ibis*, 1899, p. 627 *Ravine* ; Grant, *Ibis*, 1900, p. 140 *Abyssinia*.

Motacilla sulphurea, Bechst. ; Salvad. Ann. Mus. Genov. 1888, pp. 263, 536 *Shoa*.

Motacilla boarula, Linn. ; Salvad. Mem. R. Acc. Torino (2) xlv. p. 557 (1894) *Somali*.

Adult (winter). Tail longer than the wing, breast yellow. Above, grey, with the rump, upper tail-coverts and partial edges to the tail-feathers olive shaded yellow ; sides of head grey, darker in front of the eye, and separated from the crown by a fairly distinct white eyebrow ; wing brownish black with the least series of coverts grey, and the other feathers with partial pale edges, broadest and slightly shaded with yellow on the innermost feathers ; sides of body and under wing-coverts grey ; quills with a white patch towards the base, confined to the inner webs of the primaries and crossing both webs of the secondaries ; tail with the centre three pairs of feathers black, and the three outer pairs white with partial black outer edges, excepting the outer pair which are entirely white ; breast and under tail-coverts bright yellow. Bill, iris and legs brown. Total length 7·8 inches, culmen 0·5, wing 3·4, tail 5·2, tarsus 0·8.

Immature. Less yellow on the breast, and throat shaded with rufous buff.

The Grey Wagtail migrates into Northern Africa in winter, to as far south as the Equator, and ranges over the greater part of Europe and Asia.

The most southern known range for the species in West Africa is the Gambia river, where Dr. P. Rendall records it as a rare visitant. In eastern Africa Mr. Jackson has collected specimens from the neighbourhood of the Equator, from Mau and Ravine in September and March, and on Mount Elgon in February. In Somaliland the Grey Wagtail has certainly been met with on two occasions, one of which was by Mr. Lort Phillips in February, at the Hankadeely wells on the Wagga mountain, at 7,000 feet. Lord Lovat, while on his way from Berbera to the Blue Nile, collected specimens at Baroma and Gedda, and writes: "I shot one specimen of the Grey Wagtail in the middle of the Kuni forest, several miles from water." In Shoa it is said to be common by Antinori and Dr. Ragazzi, who have procured specimens in October, November, January and March. In the British Museum there is an immature specimen shot by Mr. Blanford on the 10th of August in the Lebka Valley, and Brehm records the species from Mensa in April, and von Heuglin suggests that it possibly remains throughout the year in the mountainous districts of Abyssinia, along the streams of which he found it common during the autumn and spring months.

The name of Grey Water Wagtail was given to this species by Edwards in 1758, and it was made the type of the genus *Calobates*, Kaup, in 1829. It is much nearer allied to *Motacilla*, Linn., than to *Budytes*, Cuv.

Motacilla campestris.

Motacilla campestris, Pall.; Sharpe, Cat. B. M. x. p. 510, pl. 6, figs. 1, 2
(1885) Senegambia, Gold Coast, Gaboon, Natal, Zambesi, Tigré;

Shelley, Ibis, 1890, p. 164 *Yambuya*; Rendall, Ibis, 1892, p. 216 *Gambia*; Shelley, B. Afr. I. No. 149 (1896); Hartert, Nov. Zool. 1898, p. 72 *Shiré*; Shelley, Ibis, 1898, p. 379 *Mt. Mlosa, Zomba*; Jackson, Ibis, 1899, p. 626 *Ravine*; Hartert in Ansorge's "Under Afr. Sun," p. 247 (1899) *Uganda, Unyoro*; Grant, Ibis, 1900, p. 140 *Abyssinia*; Marshall, Ibis, 1900, p. 238 *Mashona*; Stark, Faun. S. Afr. i. p. 260 (1900).

Budytes campestris, Reichen. J. f. O. 1889, p. 284 *Quilimane*; 1892, p. 52; id. Vög. Deutsch O. Afr. p. 200 (1894) *Bukoba*.

Budytes rayi, Bp.; Reichen. and Lühder, J. f. O. 1873, p. 217 *Accra*; Oust. N. Arch. Mus. (2) ii. Bull. p. 104 (1879) *Ogowé*; Hartert, J. f. O. 1886, p. 583 *Niger*; Emin, 1891, p. 346 *Bukoba*.

Motacilla flava var. *rayi*, Reichen. J. f. O. 1875, p. 47 *Camaroons*; Sjöstedt, K. Sv. Vet. Ak. Handl. Stockholm, 1895, p. 93 *Camaroons*.

Adult. With some yellow on the upper half of the head. Upper parts olive yellow; eyebrow, sides of head and entire under surface bright yellow, mottled on the sides of the head with olive; wing with the least coverts olive like the back, remainder of the feathers dark brown with pale edges, broadest and approaching to white at the ends of the median and greater coverts and the edges of the secondaries; under wing-coverts yellowish white and the basal half of the inner webs of the quills with ill-defined whitish edges; tail with the four pairs of centre feathers brownish black with partial narrow yellowish white edges; two outer pairs of feathers white with oblique black marks on the inner edges and a smaller similarly shaped mark on the outer web, next to the shaft, of the penultimate feather. Bill blackish brown fading into dull yellow at the base of the lower mandible; iris brown; legs pale brown. Total length 5·8 inches, culmen 0·5, wing 3·25, tail 2·8, tarsus 0·9.

Immature. Differs in the less amount of yellow, which is confined to a wash of that colour on the lower breast and under tail-coverts, entire crown, back and scapulars being earthy brown; eyebrow buff like the throat, and an indication of a dusky collar round the basal half of the throat.

The Yellow-browed Wagtail ranges over the whole of Africa and Western Europe and through south-eastern Russia into Turkestan.

Specimens have been collected by Marche and De Compiègne at Dakar and Ruffisque on Cape Verde. At the Gambia Dr. P. Rendall occasionally met with it, and Verreaux has procured the species from Casamance. Mr. Büttikofer does

not mention it from Liberia; but from the Gold Coast there are specimens in the British Museum collected by Col. Strachan in that country, and one of Mr. Godfrey Lagden's from Ashantec, and Drs. Reichenow and Lühder met with them in flocks along the Accra coast. Mr. Hartert records meeting with this species twice at Loko on the Benue tributary of the Niger, and in the highlands to the north found it throughout the winter in full breeding plumage. In Camaroons the species has been found by both Dr. Reichenow and Mr. Sjöstedt. From Gaboon there is one of Verreaux's specimens in the British Museum, and Marche met with it in the Ogové district. On the Congo at Yambuya, Jameson procured the species while waiting with the ill-fated rear-guard of the Stanley expedition.

The most southern known range for this Wagtail is the country between the Limpopo and Vaal rivers, from whence Mr. T. Ayres, in a paper on the ornithology of the Transvaal, writes: "Male and female, shot January 3." In the British Museum there are two specimens collected by Sir John Kirk at Tete on the Zambesi and specimens of Mr. A. Whyte's collecting from Zomba and Mount Mlosa in the Shiré highlands, where the species has also been procured by Dr. P. Rendall. To the eastward at Quilimane Dr. Stuhlmann obtained a specimen in March, and informs us that it is there called by the native "Djiriko." In German East Africa, on the western shores of Victoria Nyanza, Emin found the species at Bukoba in November and December. In British East Africa, Mr. Ansonge frequently met with it in Unyoro and Uganda from October to March, and Mr. Jackson at Ravine in March, when they were in company with *M. flava*. In like manner Mr. Elliot, when he shot a specimen at Berbera in Somaliland, found it in company with the nearly allied species *M. borealis* and *M. cinereicapilla*. At Harrar Meyer Lake, about 100 miles

south-west, Lord Lovat also met with the species, and in Shoa Antinori procured a specimen in March at Mahal-Uonz. Further north Mr. Blanford shot one at Adigrat in Tigré. Von Heuglin in his work on the birds of north-east Africa does not mention the species, regarding it possibly as only a variety of *M. flava*.

Motacilla flava.

Motacilla flava, Linn.; Reichen. J. f. O. 1877, p. 30 *Loango*; Fisch. and Reichen. J. f. O. 1878, p. 268 *Lamu*; Fisch. J. f. O. 1879, pp. 294, 303 *Bagamoyo*; Shelley, P. Z. S. 1881, p. 573 *Pangani*; Sharpe, Cat. B. M. x. p. 516, pl. 6, figs. 3—5 (1885) *Gold Coast, Niger, Damara, Transvaal, Zambesi, Socotra, Abyssinia*; Büttik. Notes Leyd. Mus. 1885, p. 174; 1886, p. 253; 1888, p. 74; 1892, p. 23 *Liberia*; Shelley, P. Z. S. 1888, p. 27 *Lado*; Rendall, Ibis, 1892 p. 216 *Gambia*; Sharpe, P. Z. S. 1895, p. 473 *Somali*; Shelley, B. Afr. I. No. 150 (1896); Hinde, Ibis, 1898, p. 579 *Machako's*; Hawker, Ibis, 1899, p. 66 *Somali*; Boyd Alexander, t. c. p. 562 *Zambesi*; Jackson, t. c. p. 626 *Ntebi, Ravine*; Hartert in Ansorge's "Under Afr. Sun," p. 347 *Uganda, Unyoro*; Stark, Faun. S. Afr. i. p. 261 (1900).

Budytes flavus, Shelley and Buckley, Ibis, 1872, pp. 282 *Sierra Leone*, 290, 292 *Gold Coast*; Bouvier, Cat. Ois. Marche, &c. p. 16 (1875) *Gaboon*; Fisch. J. f. O. 1878, p. 279 *Lamu, Osi R.*; Selat. and Hartl. P. Z. S. 1881, p. 168 *Socotra*; Pelz. Verhandl. Wien. xxx. p. 145 (1881) *Lado, Redjaf, Kiri*; Fisch. Zeitschr. 1884, p. 307; id. J. f. O. 1885, p. 137 *Bagamoyo to Barawa, Wapokomo*; Reichen. J. f. O. 1887, p. 73 *Magu, Kagchi*; Matschie, t. c. pp. 143 *Tanjanyika*, 156 *Likulwe, Katapana*; Reichen. t. c. p. 307 *Stanley-Falls*; 1891, p. 390 *Togo*; 1892, p. 52 *Sesse Is., Kiandibua, Bukoma*; id. Vög. Deutsch O. Afr. p. 200 *Ualaba R., Ronga R., Igonda, Ugalla, Massai, Bokoba*; Reichen. J. f. O. 1897, p. 43 *Togo*.

Subspecies a.

Motacilla borealis.

Motacilla borealis, Sundev.; Sharpe, Cat. B. M. p. 522, pl. 7, figs. 1—3 (1885); Salvad. Mus. R. A. Torino, 1894, p. 557 *Somali*; Shelley, B. Afr. I. No. 151 (1896); Lort Phillips, Ibis, 1896, p. 81 *Somali*;

Elliot, Field Columb. Mus. I. No. 2, p. 40 (1897) *Berbera*.
Motacilla flava borealis, Stark, Faun. S. Afr. i. p. 263 (1900).

Subspecies b.

Motacilla cinereicapilla.

Motacilla cinereicapilla, Savi; Sharpe, Cat. B. M. x. p. 526, pl. 7, figs. 4—6 (1885); Dubois, Bull. Mus. Belg. 1886, p. 148 *Tanjanyika*; Shelley, B. Afr. I. No. 152 (1896); Elliot, Field Columb. Mus. i. No. 2, p. 40 (1897) *Somali*; Shelley, Ibis, 1899, p. 282 *Zomba*.
Motacilla flava var. *cinereicapilla*, Reichen. J. f. O. 1875, p. 47 *Camaroons*.

Adult. Upper half of the head and the nape blue grey with a white eyebrow; chin and some of the upper throat white; remainder like *M. campestris*.

Subspecies a.

Adult. Differ from *M. flava* only in having no white on the upper half of the head, which is generally darker.

Subspecies b.

Adult. Differs in plumage from *M. flava* and *M. borealis* in the greater extent of white on the throat, which extends over more than the entire upper half of the throat, and there is a trace of white on the sides of the upper half of the head.

M. flava, the Common Yellow Wagtail, ranges all over Africa during the winter months; breeds in Europe, Siberia and China, and migrates eastward into the Moluccas.

M. borealis, the Dusky-headed Yellow Wagtail, likewise migrates throughout Africa in winter and ranges over Europe and Asia generally.

M. cinereicapilla, the White-throated Yellow Wagtail, is known to breed in the countries surrounding the Mediterranean, and to wander southward through Africa to at least as far south as 15° S. lat. and northward into Belgium.

With regard to these Yellow Wagtails, I, like Dr. R. B. Sharpe in 1885 (Cat. B. M. x. p. 457), do not feel confident

in the specific value of their characters, and some of the synonyms may prove to be referred to the wrong forms. I have therefore treated *M. borealis* and *M. cinereicapilla* as subspecies of *M. flava*.

Layard procured a specimen which lighted on his vessel while ninety miles off the coast of Senegambia, and according to Dr. Rendall these Wagtails are common at the Gambia throughout the winter months. When I stopped at Sierra Leone, on my way to the Gold Coast, Yellow Wagtails were feeding on the mud-banks in Free Town harbour. In Liberia specimens have been collected by Demery along the Sulymah river, and Mr. Büttikofer found them common on the farms, sometimes close to the native villages, and often in the same localities as *M. vidua*.

Gordon, who was the first to record the species from the Gold Coast, writes: "In considerable numbers during the dry season, disappearing on the setting in of the rains and returning early in November." I and Mr. T. E. Buckley found them abundant on this coast in February and March, about a month before the rainy season. In Togoland it has been met with by Mr. Baumann. In the Niger district Forbes collected three specimens at Shongo in December, Mr. Hartert procured a specimen at Loko in May, and remarked it there only on two occasions, but found it more abundant in the highlands to the north, where they retained their bright plumage throughout the winter.

Marche and De Compiègne collected specimens in Gaboon, and Dr. Reichenow records it as having been procured by Falkenstein on the Loango coast, and by Bohndorff at Stanley Falls on the Congo.

From the West African subregion I find no record of *M. borealis*; but *M. cinereicapilla* is represented in the British Museum by a specimen labelled "Senegal (Laglaize)." Dr.

Reichenow records it from Camaroons, and Mr. Dubois mentions a specimen as forming part of the collection made by Storms during his journey through the Congo district to Lake Tanjanyika, and this subspecies has been more recently procured by Lient.-Col. Manning at Zomba to the south of Lake Nyasa.

Drs. Finsch and Hartlaub refer to *M. borealis* one of Andersson's skins from Damaraland, and Seebohm's collection contained a specimen obtained by Mr. T. Ayres in the Transvaal. To the north of Nyasaland in eastern Africa all three forms appear to be fairly represented.

From South Africa there are three specimens in the British Museum collected by Andersson, who writes: "I had been fifteen years in Damaraland before I became aware of the existence of this Wagtail, which I first observed at Objimbique in 1865." He further adds: "It is a migratory bird, and appears only in or about the rainy season." Layard, in his first work on the birds of South Africa, records a specimen from Swellendam, and in his more recent edition informs us that a specimen was shot by Mr. F. Dumbleton about fifteen miles from Cape Town, and observes, "he had previously told us that he had seen a specimen about the same farm many years before, and as he was a close observer of birds we feel sure that his observations may be trusted, and we may conclude from the fact that only two specimens were met with by him in sixteen years, that this Yellow Wagtail is a very rare and accidental visitor to this part of South Africa. Mr. T. C. Rickard mentions the fact of a specimen having been killed once near East London." Wahlberg procured the species at Port Natal.

From the Transvaal Mr. T. Ayres writes: "This Wagtail appears here in our spring in considerable numbers, and leaves again about the latter end of April; they do not appear to

nest here, neither are they in good plumage; the best-plumaged birds are to be got just as they are leaving. During their stay here they are common on our market-square early every morning, where they find abundant food amongst the short grass, and the cow-dung, which attracts many insects, on which they are often to be seen feeding in company with *Motacilla capensis*."

Along the banks of the Zambesi, Mr. Boyd Alexander remarks: "Considerable numbers of immature birds put in an appearance for the first time at Zumbo on December 10," and Sir John Kirk collected two specimens lower down the river at Likoja, in March, which are now in the British Museum.

Böhm collected specimens along the banks of the Ualaba river and Lake Tanjanyika, at Likulwe in November, and at Katapana in March. Sir John Kirk sent me a specimen from the Pangani river, where the species has been likewise met with by Fischer in November and December. Fischer also collected specimens at the Ronga river in March, and along the east coast from Bamangwato to Barawa on the Somali coast, in Masailand, Wapokomoland, and by the shores of Victoria Nyanza, at Magu and Kagehi in the Unianwesi country, where the species had been previously met with by Speke. At the opposite, north-west, side of this great inland sea, Dr. Stuhlmann found these Wagtails at Bukoba in October, and in December at Kiandibua and on Sesse island. Emin has collected specimens at Redjaf and Kiri in December, and at Lado on the Upper White Nile in October and February. Mr. Ansorge met with these Wagtails frequently in Unyoro and Uganda from October to March, and Mr. Jackson likewise records them as abundant from October 7 to March 21 at Ntebi and Ravine. Dr. Hinde found the species very common at Machako's, and near the coast Fischer procured a specimen on Lamu island, and found them in October in large flocks at Kau on the Osi river.

In Somaliland Dr. A. Donaldson Smith shot a specimen at Sheik Husein in September, and Mr. Hawker one at Jifa Medir in January. At Berbera Mr. Elliot obtained specimens of *M. campestris*, *M. borealis* and *M. cinereicapilla*, and writes: "A large flock of these birds had come to drink at a rill escaping from a cistern close by, and I fired at them and procured these three species. It was the only time I saw them. The different species were all mingled together, maintaining no distinctive organisation, and I supposed there was but one, until I picked them up." Mr. Lort Phillips records *M. borealis* as "fairly common, and seen hunting for insects among the feet of the feeding cattle."

Off the Somali coast in the island of Socotra, Prof. Balfour saw them on the mud-flats extending inland a short distance from the head of Ghor Gharrich. Two of his specimens now in the British Museum belong to the typical subspecies *M. flava*.

Antinori records the Yellow Wagtail as found in Shoa from November to May. Mr. Blanford met with both *M. flava* and *M. cinereicapilla* in Abyssinia, and von Heuglin remarks that they pass on migration along the shores of the Red Sea and from the Upper White Nile to the Delta, in which latter district he believed they remain to breed.

Motacilla melanocephala.

Motacilla melanocephala, Licht.; Hartl. Abhand. Brem. 1881, p. 99 *Lado*; Shelley, B. Afr. I. No. 153 (1896); Stark, Faun. S. Afr. i. p. 263 (1900).

Motacilla feldeggii, Michah; Sharpe, Cat. B. M. x. p. 527, pl. 8, figs. 1-4 (1885) *Transvaal, Abyssinia*; Yerbury, Ibis, 1886, p. 17 *Aden*; Barnes, Ibis, 1893, p. 79 *Aden*; Jackson, Ibis, 1899, p. 626 *Berkeley Bay*; Grant, Ibis, 1900, *Abyssinia*.

Adults. Differ from *M. flava* only in having the entire upper half of the head jet black, and the immature birds may be recognised by their always having some black feathers on the upper half of the head.

The Black-headed Yellow Wagtail ranges from the Transvaal through Eastern Africa into South-eastern Europe, India and Central Asia.

With the exception of the one specimen in the British Museum from the Transvaal, this species has never been recorded from south of the Equator. Regarding this specimen the late Mr. J. H. Gurney writes (*Ibis*, 1871, p. 155): "A male with a fully developed black head was sent by Mr. Ayres with seven specimens of *B. flava*. In common with many other naturalists, he does not appear to consider this form as specifically distinct."

The most western range known to me for this species is Lado, on the Upper White Nile, $5^{\circ} 1' 33''$ N. lat., $31^{\circ} 49' 35''$ E. long., where Emin has met with it. Along the northern shores of Victoria Nyanza Mr. Jackson shot a specimen at Berkeley Bay and writes: "Two or three others seen running about on water-lilies and other aquatic plants in a secluded nook in Berkeley Bay. First individual of this species seen. In company with *M. melanope*." To the north-east Lord Lovat shot a specimen at Lake Harrar Meyer. Along the shores of the Red Sea the species has been procured at Aden, and on the western side at Assus in Sanhar in April. Here Antinori met with an extraordinary flight of this, and probably the allied species of Yellow Wagtails, which lasted for some days, after which time only a few isolated pairs remained. These pairs, I should fancy, breed in north-east Africa, for according to Rüppell, they remain in Egypt and the Abyssinian highlands throughout the year. Mr. Blanford writes from Abyssinia: "Common everywhere during the winter, and I suspect many remain and breed in the highlands of Abyssinia, for birds of this species were still abundant around Lake Ashangi at the beginning of May, although they had then assumed the nuptial plumage more than a month."

From the above, and from my own experience of this species in Egypt, it appears that these Black-headed Wagtails, like their nearest allies, migrate northward in April, and that some stop by the way at localities suited to their tastes for breeding, and that, although their places may be filled to some extent by recruits, the large flocks gradually dwindle down and leave but a few stragglers for the frontier of their range. In like manner when southward bound, a few more energetic than the rest overreach the normal range and may account for the species having been found in South Africa, where it appears to be very rare.

I cannot agree with Dr. R. B. Sharpe in rejecting the name of *Motacilla melanocephala*, Licht., 1823, for this Wagtail, because Gmelin described a Warbler, *Sylvia melanocephala* (Gm.) Seeböhm Cat. B. M. v. p. 29, under the name of *Motacilla melanocephala*.

Genus II. ANTHUS.

Plumage generally mostly brown with the back mottled with black, giving to these birds a very Lark-like appearance. Sexes alike in colouring. Bill rather slender, with the culmen slightly arched. Wing longer than the tail, and of only nine primaries. Tarsi and feet pale. The immature birds generally differ from the adults in having the upper parts darker with the pale edges to the feathers narrow, and the flanks are more streaked.

To this genus I refer nineteen Ethiopian species and subspecies, of which five range into Europe and six into Asia, but none have been found in the Madagascar subregion. It would be inconsistent to place one species in the genus *Imetothylacus* and not recognise *Calobates* and *Budytes* as distinct from *Motacilla*. The character of absence of feathers on the lower portion of the thighs is well-marked in *A. pallidiventris*, which in this respect is somewhat intermediate between *A. pyrrhonotus* and *A. tenellus*.

KEY TO THE SPECIES.

- a. Pale portion of tail never bright yellow; bare portion of legs never extends half way up the thighs.

- a*¹. Under wing-coverts near the bend of the wing bright yellow.
*a*². Some yellow on centre of chest . . . *chloris*. 2
*b*². No yellow on the chest.
*a*³. Upper parts mottled; body strongly streaked *lineiventris*. 2
*b*³. Upper parts and flanks uniform. . . *erenatus*. 298
*b*¹. No bright yellow on the plumage.
*c*². Hind claw shorter than the hind toe (except in some specimens which have no white pattern on the tail).
*c*³. Flanks streaked.
*a*⁴. Tail with half the outer feather and an angular tip to the next pure white.
*a*⁵. Larger: wing more than three inches; upper parts shaded with olive *trivialis*. 298
*b*⁵. Smaller: wing less than three inches; upper parts shaded with rufous *calthorpa*. 301
*b*⁴. Tail with no distinct pure white pattern.
*c*⁵. Smaller: wing about 2·6 inches . . *brachyurus*. 303
*d*⁵. Larger: wing more than 3 inches.
*a*⁶. Upper parts mostly blackish brown; no white on the breast; flank stripes broad and black . . *latistriatus* (type). 304
*b*⁶. Upper parts ashy brown; under parts mostly white; flank-stripes narrow and brown . . *melindæ* (type). 304
*d*³. Flanks uniform.
*c*⁴. Mantle uniform in adults.
*e*⁵. Hind claw less curved and rarely shorter than the hind toe; upper parts dull brown.
*c*⁶. Tarsi and feet longer; tarsus 1·25 inches; middle toe and claw 1·1; breast mostly white. *pallidiventris*. 300
*d*⁶. Tarsi and feet shorter. . . . *pyrrhonotus* 302
*a*⁷. Hind claw generally longer than the hind toe. S. Afr. subsp. *pyrrhonotus*, Vieill. 302
*b*⁷. Hind claw equal to, or shorter than the hind toe. Not S. Afr. subsp. *gouldi*. 304

- f*⁵. Hind claw more curved; mantle more rufous and generally paler; very rarely with any angular pale tip to the penultimate tail-feather; rather large, wing, 3·8 to 4·2 inches *vaalensis.*
- d*⁴. Mantle mottled, with dark centres to the feathers; penultimate tail-feather generally with an angular pale terminal patch not extending down the feather in adults by more than the breadth of the feather.
- g*⁵. Bill shorter; general colouring more rufous. *nicholsoni.*
- h*⁵. Bill longer; general colouring of upper parts ashy *sordidus.*
- d*². Hind claw longer than the hind toe, also a pure white pattern on the two outer pairs of tail-feathers, and the shaft of the outer one generally pure white.
- e*³. Flanks uniform; no olive shade on the upper parts.
- e*⁴. Throat uniform or only slightly mottled with dark shaft-stripes; dark centres to the inner secondaries narrower and lanceolate *campestris.*
- f*⁴. Throat strongly mottled with dark shaft-stripes; dark centres to the inner secondaries broader and less lanceolate *rufulus.*
- f*³. Flanks strongly streaked; an olive shade on the upper parts.
- g*⁴. Rump and upper tail-coverts uniform; no vinous rufous on the throat *pratensis.*
- h*⁴. Rump and upper tail-coverts mottled like the back; often with the throat vinous rufous *cervinus.*
- b*. Entire lower half of the thighs bare; pale pattern of the tail bright yellow *tenellus.*

Anthus chloris.

Anthus chloris, Licht.; Sharpe, Cat. B. M. x. p. 539 (1885) *Natal*; Shelley, B. Afr. I. No. 154 (1896); Stark, Faun. S. Afr. i. p. 243 (1900).

Anthus icterinus, Hartl. *Ibis*, 1862, p. 147 *Swellendam*.

Adult (summer). Upper parts blackish brown with broad pale edges to the feathers, the latter almost hiding the dark centres on the hind neck and lower back; the outer wing-coverts and most of the primaries edged with yellow; axillaries and a large portion of the under wing-coverts next to the bend of the wing bright yellow; tail-feathers blackish brown, with narrow pale edges slightly tinted with yellow, and some white on the outer two pairs; outer tail-feather white with a patch on the basal portion of the inner web blackish, penultimate feather with an angular white end; sides of head brown mottled with black and white and tinted with yellow on the sides of the forehead and behind the eye; chin, throat, breast and centre of abdomen bright yellow with black shaft-stripes to the feathers of the lower throat and sides of fore-chest; remainder of the under surface of the body buff washed with a more tawny shade on the flanks and with blackish lanceolate centres to the greater under tail coverts. Total length 7.1 inches, culmen 0.5, wing 3.35, tail 2.9, tarsus 0.95. Newcastle, ♂, 9. 11. 81 (Butler).

Adult (winter). Differs only from the summer plumage in having the sides of the head white with no trace of yellow, the yellow of the under parts confined to the centre of the chest, the remainder of the throat and chest being tawny buff fading into white towards the chin, and the dark shaft-stripes of the lower throat less strongly marked. Newcastle, ♂, 6. 7. 81 (Butler).

The Smaller Yellow-tufted Pipit inhabits South Africa, south of the Orange and Limpopo rivers.

The most western range known for this species is Swellendam; here Mr. Cairncross procured a specimen which Dr. Hartlaub described, and proposed for it the name of *A. icterinus*, if it should prove to be distinct from the present species which he by error calls *A. limonellus*, Licht. The type came from "Kaffraria," and in the same district, at Grahamstown, the species has been procured by Mr. Granville. Stark writes: "I met with this Pipit in numbers on the veldt near Nottingham Road, in Natal, in October and November, 1893. They were in pairs, but had apparently not commenced nesting. A male had its stomach filled with the remains of mantides and small beetles. At this season the cocks were frequently

to be heard singing from the tops of the ant-hills, or occasionally as they flew from one resting place to another. Their notes reminded me of those of the English Meadow Pipit. They resemble the latter bird also in their habit of creeping through the grass and running quickly across the more open spaces." All the specimens I have seen that have been shot in May, June and July are in the winter dress. In the latter month Captain Savile Reid met with the species at the Ingagani river: "very local and only to be found on one particular open flat near the main drift." In breeding plumage, the whole throat and front of chest is bright yellow, as shown in the front figure (P. Z. S. 1882, p. 336, pl. 18), taken from a specimen shot by Major E. A. Butler at Newcastle on November 9, and which I made the type of *A. butleri*. This specimen, with the rest of my collection, is now in the British Museum.

Anthus lineiventris. (Pl. 13, fig. 1.)

Anthus lineiventris, Sundev.; Sharpe, Cat. B. M. x. p. 540 (1885) *Natal, Transvaal*; Shelley, Ibis, 1894, p. 23 *Zomba*; id. B. Afr. I. No. 155 (1896); Rendall, Ibis, 1896, p. 174 *Transvaal*; Sharpe, Ibis, 1897, p. 515 *Zulu*; Shelley, Ibis, 1898, p. 379 *Zomba*; Stark, Faun. S. Afr. i. p. 245 (1900).

Adult. Upper parts dusky brown with paler ashy brown edges to the feathers; upper wing-coverts and edges of the primaries partially washed with yellow; axillaries and under wing-coverts near the bend of the wing bright yellow; tail-feathers blackish brown with very narrow partial yellow edges and angular white ends to the outer four pairs, largest on the outermost one and deepest on the inner webs next to the shafts; sides of head brown mottled with buff, and with a broad, not very clearly defined buff eyebrow; under parts buff with black shaft-stripes on the sides and base of throat, chest and flanks. "Bill pale brown, with the culmen and end blackish; irides light brown; tarsi and feet pale" (T. Ayres). Total length 6.9 inches, culmen 0.65, wing 3.3, tail 2.8, tarsus 1.1. Rustenberg, ♀, 29. 7. 78 (T. Ayres.)

The Striped Yellow-tufted Pipit inhabits Africa south of about 9° S. lat. In West Africa a single specimen has been procured at Pungo Ndongo, just north of the Quanza river, where, according to Anchieta, it is called by the natives "Kaparala," apparently a local name for all Pipits. This is the type of *A. angolensis*, Bocage, and I find no further record of its occurrence in any other part of the western half of Africa.

In Natal, my friends Mr. T. L. Ayres collected two specimens for me at Pinetown in January and June, and Mr. Gordge one in Zululand. In the latter country the Messrs. Woodward met with the species at Eschowe and at the Ivuna river below the Nongoma range. Near Rustenberg Mr. T. Ayres procured a specimen in July, and writes: "It is a very uncommon species, frequenting rocky hill-sides, especially where the stream issues from the rock." In the Barberton district a specimen was shot by Dr. P. Rendall, and the type of the species was discovered by Wahlberg at the Limpopo river. To the north of the Zambesi two specimens have been collected at Zomba in the Shiré highlands, and are now in the British Museum. The species extends into German East Africa, for I have examined a specimen in the Berlin Museum, dated December 3, 1897, which was obtained by Dr. Fülleborn to the north of Lake Nyasa.

Anthus crenatus. (Pl. 13, fig. 2.)

Anthus crenatus, Finsch and Hartl.; Sharpe, Cat. B. M. x. p. 541 (1885)
Cape Col.; Shelley, B. Afr. I. No. 156 (1896); Stark, Faun. S. Afr. i.
 p. 245 (1900).

Adult. Upper parts uniform earthy brown with obsolete dark centres to the feathers of the crown and mantle; wings dark brown with the edges of the feathers pale and shaded with yellow towards the outer margin

of the wing; under wing-coverts bright yellow near the edge of the wing; tail brown with partial narrow yellow edges, pale pattern of tail brownish white, and almost confined to the ends of the inner webs of the two outer pairs of feathers; sides of head mottled brown and white, with a dusky patch in front of the eye and a broad buffy white eyebrow; under surface rufous shaded buff, inclining to white on the chin and upper throat, and obsolete mottled with dusky shaft-stripes on the sides and base of the throat. Bill brown, paler beneath; iris dark brown; legs pale brown. Total length 7.2 inches, culmen 0.6, wing 3.5, tail 3, tarsus 1.1. Burghersdorp, ♂ (Atmore).

The Larger Yellow-tufted Pipit inhabits Cape Colony. Very little is known regarding this species. The type, a male, was sent by Layard to the Bremen Museum; it was obtained at Cape Town, where Andersson also procured a male specimen, November 16, 1865, which is now in the British Museum, in company with two others from Colesberg, and one from Burghersdorp. Stark obtained a male on the Cape Flats, which attracted his attention by its song, uttered while hovering in the air. Its stomach contained a spider, three small grasshoppers and a few grass-seeds.

Anthus trivialis.

Anthus trivialis (Linn.), Sharpe, Cat. B. M. x. p. 543 (1885) *Dakar*, *Shonga R.*, *Bogos*; id. *Ibis*, 1891, p. 588 *Mt. Elgon*; Reichen, J. f. O. 1891, p. 390 *Togo*; id. *Vög. Deutsch O. Afr.* p. 199 *Kakoma*; Sharpe, P. Z. S. 1895, p. 473 *Somali*; Shelley, B. Afr. I. No. 157 (1896); Reichen, J. f. O. 1897, p. 42 *Togo*; Jackson, *Ibis*, 1899, p. 627 *Ravine*; Hartert in Ansorge's "Under Afr. Sun." p. 348 (1899) *Unyoro*; Grant, *Ibis*, 1900, p. 140 *Abyssinia*; Stark, *Faun. S. Afr. i.* p. 247 (1900).

Pipastes plumatus (P. L. S. Müll.) Bouvier, *Cat. Ois. March. &c.*, p. 16 (1875) *Dakar*.

Anthus arboreus (Gm.) Hartl. *Zool. Jahrb.* 1887, p. 327 *Kudurma*; id. *Abhand. Brem.* 1891, p. 17 *Baguera*.

Adult. Upper parts ashy brown with a faint olive tinge; feathers of the crown and mantle with blackish shaft-stripes occupying about one-third of each feather; wing with the ends of many of the median and greater

coverts pale buff, forming two indistinct partial bars on the wing; axillaries and part of the under wing-coverts white; quills with very indistinct, broad, pale inner margins; tail with the white pattern confined to the outer end half of the exterior feather, and a white angular end to the next; sides of head mottled brown and buff; under surface buff, inclining to white on the upper throat and centre of the abdomen; sides and base of throat, the chest and flanks, washed with brownish buff, and with blackish brown shaft-stripes. Iris brown; upper mandible dusky; lower mandible and legs pale brown. Total length 5·8 inches, culmen 0·45, wing 3·25, tail 2·3, tarsus 0·85, hind claw 0·3. Avington, ♀, 10. 4. 72 (Shelley), and Tatin R., ♂ 10. 12. 80 (Jameson).

The Tree Pipit ranges over Africa and Europe generally, and extends eastward into India.

From West Africa there are two specimens in the British Museum, one from Dakar on Cape Verde and the other from Shongo on the Niger. In the intervening Togoland specimens have been collected in December and March. In South Africa, Wahlberg procured a specimen at the Limpopo between 25° and 26° S. lat., and Jameson one a little further north at the Tatin river. From German East Africa it has been recorded by Dr. Reichenow from Kakoma.

In the Upper White Nile district Emin has collected specimens at Kudurma and Baguera, and in British East Africa Mr. Anson met with the species at Masindi in Unyoro in January. Mr. Jackson found the Tree Pipits plentiful in December at Ravine, where he also collected specimens in March and April, and another one on Mount Elgon in February. Some 500 miles nearly due north, in the watershed of the Blue Nile, Lord Lovat shot a specimen at Ganti in Southern Abyssinia.

Dr. A. Donaldson Smith procured the Tree Pipit in Somaliland, at Sheik Husein in September, and in the same month of the year Lefebure met with the species at Shirié in Eastern Abyssinia. In the British Museum there are adult and immature specimens collected by Esler at Eylet, and

Hemprich and Ehrenberg met with it on both sides of the Red Sea.

The Tree Pipits apparently arrive in the Ethiopian Region early in September, to leave again about the end of April for their favourite breeding haunts in Europe.

Anthus calthorpæ. (Pl. 14, fig. 1.)

Anthus calthorpæ (err.) Layard, B. S. Afr. p. 121 (1867) *Swaziland*.

Anthus brachyurus (nec Sundev.) Ayres, *Ibis*, 1884, p. 231 *Rustenberg* ; Sharpe, Cat. B. M. x. p. 551 (1885) pt. *Transvaal*.

Adult Male. Very similar to *A. trivialis* in structure and pattern but with the general shade of the upper parts pale rufous and the dark centres to the feathers of the crown and mantle broader. Upper parts pale rufous brown ; feathers of the crown and mantle with broadish black shaft-stripes ; wings with the ends of many of the median and greater coverts pale rufous buff, forming two indistinct partial bars on the wing ; axillaries and part of the under wing-coverts white ; quills with indistinct broad pale inner margins ; tail with a pure white pattern confined to the outer half of the exterior feather and an angular end to the next ; sides of head mottled with brown and buff ; under surface buff inclining to white on the upper throat and centre of the abdomen ; sides and base of throat and front of chest strongly marked with blackish shaft-stripe and the flanks more obscurely so. "Iris dark brown ; upper mandible dusky, lower one and legs pale brown." Total length 5·3 inches, culmen 0·45, wing 2·9, tail 2·2, tarsus 0·7. Rustenberg, ♂, 22. 4. 81 (W. Lucas).

Adult Female. Exactly like the male in plumage. Wing 2·8, tail 2·0. Rustenberg, ♀, 10. 10. 82 (T. Ayres).

The Tawny Little Pipit inhabits the Transvaal and Swaziland.

The original description of this species was, Mr. Layard writes, "taken from a little pet—the only specimen I have seen—of a small *Anthus* that is merrily hopping about in my aviary, and known to the household by the familiar name of 'Brownie.' 'Brownie,' from his engaging ways and sprightly

song, is a general favourite. He came into my possession more than six years ago, and was brought from Swartland. He usually commences his song the earliest, but one, of all my birds: the 'early bird' is a Java sparrow, who with the faintest dawn begins a low guttural gobbling, ending in a mellow but short pipe. As soon as I remove the cover from the cage, 'Brownie,' who roosts on the ground, sometimes in a corner, at other times behind the seed-box, mounts a large stone, placed in the cage for his special benefit, and pours out his voluble song, short, certainly, but oft-repeated. Occasionally he will hop on the edge of the cage or mayhap on a perch, and then treat us to a stave; but his favourite singing place is the stone. Sometimes, when I am going to bed, without any warning, 'Brownie' will start off in full tide of song: he is then usually on the ground. 'Brownie,' however, has more than once been in disgrace. Among the many birds confined with him are a pair of doves from Java; these he almost stripped of their feathers for the sake of nibbling the quill-ends, which are rapidly passed through his little sharp bill, like canes through a sugar-crusher, and with the same results. From this propensity I fancy 'Brownie' must like a meat diet—worms and insects, perhaps; he, however, feeds upon canary-seed, and will eat groundsel and chickweed, and all that the canaries that are inhabitants of the same large cage feed upon. I dedicate this, to me, new species to perpetuate the name of the faithful companion of my labours for upwards of twenty years, who has aided me with pen and pencil, and shared the pleasures I have experienced in the study of the works of Nature." This species should be called *A. calthorpæ*, as it was dedicated to Layard's wife, who was a Miss Calthorpe.

I have quoted the above as it gives a vivid picture of both the bird and its friend the author.

When Dr. R. B. Sharpe united this species with *A. brachyurus* (Cat. B. M. x. p. 551) there were in the British Museum only two specimens from the Transvaal, and although he had some hesitation in referring them to the Natal bird, he described them as the "young" and "winter plumage" of *A. brachyurus*. There are now in the Museum three specimens from the Transvaal and three from Swaziland, which all appear to me to be adults, collected in the months of April, July, October and November. *A. brachyurus* from Natal—January, February, September.

Regarding its occurrence in the Rustenberg district, Mr. T. Ayres writes: "The Pipits seem to be very locally distributed on the sloping sides of mountains and the neighbouring valley, where bush and trees are pretty thickly scattered; they are frequently to be found close to some scrubby bush, and on being approached they often quietly move round out of sight, or squat close, and then rise almost under one's feet if the cover is at all good. Though generally alighting on the ground, they occasionally settle on a bush or tree; they have a quicker and more eccentric flight than most of the Pipits, and alight very suddenly." In Swaziland the species is apparently plentiful, for Mr. T. E. Buckley collected three while passing through that country in July.

Anthus brachyurus. (Pl. 14, fig. 2.)

Anthus brachyurus, Sundev.; Sharpe, Cat. B. M. x. p. 551 (1885) pt. Natal; Shelley, B. Afr. I. No. 158 (1896); Sharpe, Ibis, 1897, p. 515 Zululand; Stark, Faun. S. Afr. i. p. 248 (1900) pt. Natal.

Adult Male. Upper parts dull brown, with distinct broad blackish centres to the feathers of the crown, back of neck and mantle, the rump and upper tail coverts being nearly uniform; wings dark brown with the outer web of the first primary white, and the edge of the other feathers pale brown of a slightly more rufous shade than the back; axillaries and under

wing-coverts white shading into buff towards the edges of the wing, quills with broad buff inner edges; tail blackish brown with paler edges to the feathers, and the pale portion which is buff is confined to the outer end half of the outermost feather, and is separated from the dark portion by a line drawn from the base of the outer web of the feather to near the end of the inner web; under surface buff, inclining to white on the upper throat and centre of abdomen, the sides and base of throat, chest and flanks washed with yellowish buff and with broadish black shaft-stripes. "Iris brown; upper mandible dark brown, lower mandible and legs flesh colour." Total length 4.4 inches, culmen 0.4, wing 2.6, tail 1.7, tarsus 0.65. Pinetown, ♂, 7. 9. 75 (T. L. Ayres).

Adult Female. Exactly like the male in plumage. Wing 2.4, tail 1.6. Umlas, ♀, 22. 1. 40 (Wahlberg).

The Dusky Little Pipit inhabits Natal and Zululand. There are now eight specimens in the British Museum from Natal; one is labelled "Umlas R. 2. 1, 1840, Wahlberg," the others are dated February and September, and I think we may safely call it a resident, although Mr. T. Ayres writes from Natal: "This species is only plentiful during the summer months; it is quite a terrestrial bird, never, to my knowledge, alighting on any twig or stem of grass, but always on the ground. The birds generally rise from the grass close to one's feet; and it is no easy matter to shoot them, as their flight is both strong and very eccentric. They build their nests (I am tolerably certain) similar to the Lark's on the ground, with a few dry leaves of grass; they are generally either single or in pairs."

In Zululand Messrs. R. B. and J. D. S. Woodward procured three specimens at Eschowe.

Anthus latistriatus.

Anthus latistriatus, Jackson, *Ibis*, 1899, p. 628 *Kavirondo*.

? *Anthus pyrrhonotus* (nec Vieill.), Grant, *Ibis*, 1900, p. 140 *Mendi*.

Type. Upper parts blackish brown with brownish buff edges to the feathers; these edges are slightly narrower and paler on the wings and tail; lores blackish; ear-coverts mostly brown; eyebrows, cheeks and throat

pale buff, breast deeper buff, under tail-coverts slightly more rufous; an ill-defined blackish band down the sides of the throat, crop and entire sides of the body with blackish centres to the feathers; under surface of wing dusky brown, with the coverts rather more rufous, and with an almost obsolete rufous shade towards the inner margins of the quills. Iris brown, bill dark brown, with the base of the lower mandible whitish brown. Total length 6·5 inches, culmen 0·55, wing 3·5, tail 2·7, tarsus 1·05, hind toe 0·4, hind claw 0·35. Kavirondo, ♀, 12. 11. 94 (Jackson). This specimen is probably immature.

Nearly Adult. Upper parts nearly uniform sepia brown; wing-feathers mostly narrowly edged with tawny buff; tail like that of *A. pyrrhonotus*, dark brown fading into tawny buff on the outermost web; lores black; ear-coverts dark brown; a broad eyebrow, cheek and throat buff mottled with black, passing into cinnamon on the body and under wing-coverts, thighs and under tail-coverts, and the crop and side of the fore chest with blackish shaft-stripes; under surface of the quills dark brown obscurely washed with rufous on the edges of the inner webs. Total length 7·3 inches, wing 4·0, tail 3·0, tarsus 1·05, hind toe 0·4, hind claw 0·6. Mendi, ♂, 2. 4. 99 (Lovat).

Young. Differs from the last bird described in having the upper parts slightly blacker, with narrow rufous buff edges to all the feathers, which edges are rather broader on the wings and tail; under parts paler and more rufous buff; the crop and entire sides of the body mottled with brownish black centres to the feathers. Total length 6·8 inches, culmen 0·55, wing 3·7, tail 3·0, tarsus 1·0, hind toe 0·35, hind claw 0·35. Mendi, 8. 4. 99 (Lovat).

Jackson's Pipit probably inhabits Southern Abyssinia as well as Kavirondo.

With the exception of *A. melindæ*, this is the only Pipit of the *A. pyrrhonotus* group which has the flanks boldly streaked at any period of its life. If I am right in referring Lord Lovat's two specimens from Mendi to this form it would show, as is highly probable, that the type is an immature bird, and that the adults not only lose the stripes on the flanks, but that the hind claw becomes greatly elongated as in typical *A. pyrrhonotus* from South Africa.

***Anthus melindæ*, sp. nov.**

Anthus pyrrhonotus (nec Vieill.), Shelley, P. Z. S. 1881, p. 573 *Melinda*.

Above, dark ashy brown with large dusky centres to the feathers; greater and median wing-coverts with broad rufous shaded buff edges;

primary coverts and quills dark brown with narrow pale edges; tail dark brown with pale edges to the feathers and fading into pale ashy brown on the outer feathers; the two outer pairs of feathers are marked alike, with a narrow whitish edging to their outer webs and ends; eyebrow and eyelids white, sides of head mostly ashy brown slightly mottled with white. Beneath, white tinted with rufous buff on the lower throat and sides of the body and under tail-coverts; lower throat and front of chest strongly spotted with dark brown; centre of chest, sides of body and a few of the larger tail-coverts with distinct brown shaft-stripes; under wing-coverts dusky ash, like the under surface of the quills. Bill: upper mandible horny brown, lower one pale, inclining to dark brown at the tip; tarsi and feet flesh colour. Total length 6·7, culmen 0·6, wing 3·4, tail 2·6, tarsus 1·0, hind toe 0·45, hind claw scarcely 0·4. Melinda (Kirk).

The Melinda Pipit is represented in the British Museum by a single specimen procured for me by Sir John Kirk at Melinda, one of the British East African ports situated in about 3° 30', S. lat. It much resembles in the pattern of the plumage the type of *A. luteistriatus*, but while the latter is an unusually dark bird, the present one is unusually pale, and the streaks on the flanks are longer and narrower. The plumage shows no signs of immaturity.

Anthus pallidiventris.

Anthus pallidiventris, Sharpe, Cat. B. M. x. p. 560 (1885) *Gaboon*; Shelley, B. Afr. I. No. 162 (1896).

Adult. Upper parts uniform brown; the feathers of the wings and tail with pale edges inclining to white on the first primary; tail with no sharply defined pale pattern, but the outer feather gradually fades into ashy buff on the end half and the whole of the outer web, penultimate feather likewise fades into ashy white at the end; eyebrow and cheeks buff; ear-coverts brown; under parts mostly dull white with obscure dusky shaft-stripes on the crop and front of the chest; basal portion of thighs bare; tarsi, toes and hind claw long. Total length 7·3 inches, culmen 0·65, wing 3·85, tail 2·9, tarsus 1·25, middle toe with claw 1·1, hind toe with claw 1·0. Landana, ♂, 11. 5. 76 (Brit. Mus.).

The Long-toed Plain-backed Pipit inhabits Gaboon and the Loango Coast.

The type of the species was procured by Mr. H. T. Ansell at the Danger or Muni river, and for all I know it may entirely replace its nearest ally, *A. pyrrhonotus gouldi* in Gaboon and also on the Loango Coast, as I have not seen a specimen of the latter from either of these countries, where the present bird appears to be plentiful.

Anthus pyrrhonotus.

- Anthus pyrrhonotus* (Vieill.), Sharpe, Cat. B. M. x. p. 555 (1885) pt. *S. Afr.*; Shelley, B. Afr. I. No. 160 (1896); id. *Ibis*, 1899, p. 367 *Tanjanyika plateau*; Marshall, *Ibis*, 1896, p. 246; 1900, p. 238 *Mashona*.
Alauda erythronotos, Steph. Gen. Zool. xiv. p. 24 (1826).

Subspecies a.

Anthus gouldi.

- Anthus gouldi*, Fraser, P. Z. S. 1843, p. 27 *Cape Palmas*; Hartl. and Monteiro, P. Z. S. 1860, p. 110 *Angola*; Fisch. J. f. O. 1885, p. 137 *Naiwasha*; Hartl. Zool. Jahrb. 1887, p. 337; Reichen. J. f. O. 1891, p. 390 *Togo*; Shelley, B. Afr. I. No. 161 (1896).
Anthus pyrrhonotus (nec Vieill.), Shelley, id. *Ibis*, 1883, p. 543 *Niger*; Sharpe, Cat. B. M. x. p. 555 (1885) pt. *W. Afr.*; Büttik. Notes Leyd. M. 1885, p. 174; 1886, p. 253; 1888, p. 75; 1889, p. 122; 1892, p. 23 *Liberia*; Reichen. J. f. O. 1887, p. 308 *Kasongo*; Shelley, P. Z. S. 1888, p. 27 *Redjaf*; Sharpe, *Ibis*, 1891, p. 588 *Kikuyu*; Reichen. J. f. O. 1892, p. 51 *Bukoba*; id. Vog. Deutsch O. Afr. p. 198 (1894); Neum. J. f. O. 1898, p. 233; Jackson, *Ibis*, 1899, p. 627 *Kikuyu*, *Kavirondo*, *Ntebi*, *Semia*, *Nandi*.

Adult. Upper parts uniform brown with obsolete dark shaft-stripes to the feathers of the crown and mantle; feathers of the wings and tail with pale rufous buff edges inclining to white on the first primary; tail with no sharply defined pale pattern, but the outer feather on each side gradually fades into ashy buff on the outer web and terminal half, the penultimate feather likewise fades into ashy buff at the end; eyebrow and cheeks buff; ear-coverts brown; under parts rufous buff with obscure dusky shaft-stripes on the crop and front of the chest; chin nearly white. Bill with the upper

mandible dusky and the lower one pale brown; iris dark brown; legs pale brown. Total length 6·6 inches, culmen 0·55, wing 3·55 and 3·8, tail 2·5 and 2·7, tarsus 1·15 and 1·05, hind toe 0·4, hind claw 0·55 and 0·45. Pinetown, ♂, 25. 4. 72 and ♀, 30. 6. 72 (T. L. Ayres).

Immature. Differs in the upper parts being blacker with narrow buff edges to all the feathers; crop more strongly spotted with black; pale pattern of the tail more strongly marked and very variable. The last feathers of the immature plumage to be discarded are those of the lower back.

Subspecies a.

Type of A. gouldi. Exactly like the specimens of *A. pyrrhonotus* above described in colouring, but differs in the hind claw being much shorter. Total length 6·7 inches, culmen 0·55, wing 3·7, tail 2·8, tarsus 1·0, hind toe 0·4, hind claw 0·35. Cape Palmas (Fraser).

Immature. Differs in plumage from the adult only in having all the feathers of the crown and back rather blacker and narrowly edged with buff. "Iris crimson orange, bill brown, lower mandible pinky white, feet dusky white." Nandi, 9. 4. 98 (Jackson).

Anthus pyrrhonotus, the Cape Plain-backed Pipit, inhabits South Africa south from Damaraland and Nyasaland.

To the south of the Cunene river Andersson found them widely distributed over both Damaraland and Great Namaqualand. Layard writes: "This Pipit, the 'Enkelde Leecuwerk' of the Dutch colonists, is by far the commonest of the South African species. It is found all over the colony." There are specimens in the British Museum from Damaraland, Cape Town, Swellendam, Knysna, Colesberg, Port Elizabeth, Grahamstown, Kingwilliamstown, Pine Town, Mashonaland and Nyasaland. This is all I know with regard to its range, and it is strange to find this form apparently entirely replaced by *A. vaalensis* from Bushman's river in central Natal to the Limpopo.

According to Stark: "Its flight is low and undulating. Its call-note is a weak chirp. In summer the cock sings prettily from the top of a bush or ant-hill. These Pipits feed almost entirely on insects. They build about the end

of September. The nest is cup-shaped, constructed of dry grass lined with finer grass and a few hairs, and is usually concealed in a slight hollow overhung by grass. The eggs, almost invariably three in number, are dull white or cream colour, thickly marked with spots and mottlings of grey, brown and reddish-purple. They measure about 0.85×0.60 ." While I was at Pine Town, in March, I met with these Pipits in large numbers scattered over a considerable tract of open country. From the fine series of specimens collected there by my friend, Mr. T. L. Ayres, it appears to be a resident and to have no marked seasonal change in its plumage.

Levaillant, who was the first to recognise these Pipits in South Africa, called it by the somewhat inappropriate name of "Alouette à dos roux." His illustration of the species is very bad, and he roughly describes, first a specimen of apparently the more rufous form, my *A. vaalensis*, and then one of the duller Cape Colony birds, but certainly makes the latter the type by remarking: "This is the 'Inkelde-liwerk' of the colonist."

In Mashonaland, according to Mr. T. Ayres's notes, they were "in pairs, both in August and October, but not common. They frequent the lower parts of the rocky hills, and on being disturbed, at once fly on to the nearest tree." Those he saw were always in well-wooded parts. In the same country Mr. Guy Marshall records them as "everywhere abundant in the open veldt, but also to be found frequenting trees in open bush." In Nyasaland specimens have been found as far north as the Tanjanyika plateau.

Anthus gouldi, Gould's Plain-backed Pipit, ranges southward from the Gambia and North Abyssinia into Angola.

Specimens have been procured from the Gambia by Sir A. Moloney, from Casamance by Verreaux, from Sierra Leone by Sabine, and from the Sulymah river by Demery. Mr.

Büttikofer informs us that he met with it throughout Liberia from Grand Cape Mount to Cape Palmas, frequenting the open country where the grass had been recently burnt. The type of *A. gouldi* which is in the British Museum came from Cape Palmas. The species is also abundant on the Gold Coast, where Mr. T. E. Buckley and I met with it in February and March distributed over the Accra plains, and it has been found in Togoland by Dr. Büthner. In the Niger district Forbes procured a specimen at Shonga, and Mr. Hartert met with flocks of them along the Kasia valley in September, frequenting the open country.

This species, I believe, has not been met with in Cameroons, for the Pipit procured there by Sir Harry Johnstone, which I referred to *A. pyrrhonotus* (P. Z. S. 1887, p. 125), is a variety or subspecies of *A. rufulus*. It is also doubtful if it occurs in Gaboon and Loango, for all the specimens I have examined from these countries belong to the long-toed *A. pallidiventris*.

In the British Museum there is a specimen from Angola, procured by Mr. Monteiro, who found these Pipits very common on the grassy plains near Bembe. From this locality I can trace the range of *A. gouldi* across the continent to Mount Kilimanjaro, for I have seen specimens in the Tring Museum collected by Bohndorff on the Upper Congo at Kasongo, and Mr. Neumann found them frequenting the open country to the west of Kilimanjaro. In British East Africa Mr. Jackson has collected a fine series from Nandi, Samia, Ntebi, Kakamera in Kavirondo, and in Kikuyu. This collection contains a young bird exactly like the immature specimen of *A. pyrrhonotus* I have above described from South Africa, with the same uniform flanks, in which character these birds differ strongly from *A. latistriatus*. Emin has collected specimens at Bukoba on the western shores of Vic-

toria Nyanza, and at Redjaf and Lado in the Upper White Nile district. Further north *A. gouldi* has been met with by von Henglin at the Gazal river and by Mr. Jesse in Bogosland, where he also procured a specimen of *A. sordidus*, and both of these are now in the British Museum.

According to Mr. Jackson: "This Pipit has a curious habit of fluttering up into the air, and then flying round in wide circles and constantly darting upward with a rapid quivering of the wings, making a loud drumming noise like a toy police rattle." He found it plentiful in British East Africa, but confined to a very restricted area. The habits, as described by Mr. Jackson, appear to be very similar to those of *A. trivialis* and other Pipits.

Anthus vaalensis, sp. nov.

Anthus pyrrhonotus (nec Vieill.), Ayres, Ibis, 1871, p. 156 *Transvaal*; Buckley, Ibis, 1874, p. 384 *Bushman's R.*; Ayres, Ibis, 1876, p. 426 *Lydenburg*; Sharpe in Oates's *Matabele*, p. 317 (1881) *Pietermaritzburg*; Butler, Feilden and Reid, Zool. 1882, p. 336.

Types of A. vaalensis. Very similar in size, form, and colouring to *A. nicholsoni*, but differ in the crown and back being uniform, with no dark centres to the feathers. Total length 7·6 and 7·0 inches, culmen 0·55, wing 4·2 and 3·9, tail 3·2 and 3·0, tarsus 1·15 and 1·1, hind claw 0·35. Newcastle, ♂, 26. 6. 81 (Butler), Ingagani R. ♀, 27. 6. 81 (Reid).

The Tawny Plain-backed Pipit inhabits northern Natal and the Transvaal.

It is well represented in the British Museum by Mr. T. E. Buckley's specimens from Bushman's river, by Messrs. Butler, Feilden and Reid's from the Ingagani river and Newcastle, and to the north of the Vaal river by Mr. T. Ayres's and Oates's specimens from Potchefstroom, Rustenberg and the Lydenburg districts. Amongst these there is an interesting variety

shot at Pothefstroom, June 15, 1870, which has the penultimate tail-feather with a clear pale triangular end as in *A. sordidus*, a character I have never met with in the true *A. pyrrhonotus*, but which is not uncommon in *A. nicholsoni*.

Messrs. Butler, Feilden and Reid write: "It is an exceedingly common bird on the veldt in the upper portion of the colony, and we obtained many specimens. Several nests were taken near Newcastle and Ladysmith. From Butler's notes we extract the following:—'Found a nest near Newcastle, on the 1st October, under a tussock of grass. It was well concealed and composed of dry grass, lined with finer material of the same description, cow-hair, horse-hair, &c., with a run up to it on one side, so that it was necessary to stoop down very low to see into it. Eggs three in number, fresh, white, spotted all over with grey. Another nest, precisely similar in composition and situation, at Sunday's river, on the 12th October, contained three eggs slightly incubated.'" In the Transvaal, according to Mr. Ayres: "This Pipit is distributed during the winter months over the whole country, but more plentifully on the high bare lands than in the bush or along the Limpopo. It feeds on insects, has a low dipping flight, and occasionally alights on low trees." He later on records it as common in the Lydenburg district.

The Tawny Plain-backed Pipit forms a good connecting link between Nicholson's Pipit and the Cape Plain-backed Pipit. On the other side *A. nicholsoni* connects this group of African Pipits with *A. sordidus* and *A. jerdoni*.

Anthus nicholsoni.

Anthus nicholsoni, Sharpe, id. Cat. B. M. x. p. 553 (1885) *Ondonga, Cape Town, Sigonell, Eland's Post, Kingwilliamstown, Newcastle, Rustenberg*; Bocage, Journ. Lisb. 1893, p. 10 *Ambaca, Caconda*; Shelley, B. Afr. I. No. 159 (1896); Stark, Faun. S. Afr. i. p. 249 (1900).

- Anthus erythronotus* (nec Steph.) Bocage, J. f. O. 1876, p. 43 *Ambaca* ;
 Sousa, Jorn. Lisb. 1886, p. 165 *Caconda*.
 ? *A. sordidus* (nec Rüpp.) Fisch. Zeitschr. 1884, p. 307 ; id. J. f. O. 1885,
 137 *Naiwasha* ; Reichen. J. f. O. 1887, p. 73 *Shashi* ; Hartl.
 Abhand. Brem. 1891, p. 17 *Baguera* ; Reichen. Vog. Deutsch O.
 Afr. p. 199 (1894) ; Neum. J. f. O. 1898, p. 233.

Type. Upper parts brown with a slight rufous shade and tolerably distinct dark centres to most of the feathers of the crown and back ; wings and tail dark brown with the edges of the feathers rufous buff inclining to white on the first primary ; tail with the outer feather gradually fading into buff on the outer web, and the end of the penultimate feather fringed with rufous buff (generally increased to an angular patch in other specimens) ; eyebrow and cheeks buff, ear-coverts brown ; under parts rufous shaded buff with dusky shaft-stripes on the crop and front of chest ; chin nearly white ; under surface of quills brown, broadly washed with tawny buff on the inner edges ; under wing-coverts tawny buff. Bill dusky brown fading into pale brown on the lower mandible ; iris dark brown ; legs pale brown. Total length 7·4 inches, culmen 0·6, wing 3·9, tail 3·4, tarsus 1·05, hind toe 0·4, hind claw curved 0·35. Sigonell on Vaal R. ♂ (Atmore).

Nicholson's Pipit, I believe, is confined to the African continent. It ranges over South Africa generally and northward into Angola and Abyssinia.

Anchieta procured specimens in Angola at Ambaca to the north of the Quanza river, and in Benguela at Caconda, and informs us that it is called by the natives "Karapala" at the former place, and "Catemdebipanga" at the latter.

From South Africa there are specimens in the British Museum labelled Ondonga in Damaraland, Cape Town, King-williamstown, Newcastle, Eland's Post, Vaal river, Potchef-stroom, Rustenberg and the Hungani river in Mashonaland, and this is all I know regarding it in South Africa.

I cannot find anything more satisfactory regarding this Pipit as we approach Abyssinia ; specimens from this portion of the continent have been invariably referred to *A. sordidus*, from which the present species differs in having a shorter and stouter bill and a more rufous shade on the plumage. Therefore it is as likely as not that Emin procured this Pipit at

Baguera, that Fischer found it in the Shashi mountains to the north-east of Speke's Gulf and also at Naiwasha lake, and that Mr. Neumann may find it amongst his specimens from the plains to the south-west of Kilimanjaro.

From Somaliland there are two specimens in the British Museum, collected by Mr. Hawker, January 6, at Jifa Medir, where he also collected a pair of *A. sordidus* on December 31. Lord Lovat also met with these two species during his journey from Berbera to the Blue Nile: *A. nicholsoni* at Staboolo and Feyambiro in December, at Gadaburka on January 21, and at Arriro, February 19, while at Hirna, January 9, he shot a specimen of *A. sordidus*. It is therefore probable that Antinori and Dr. Ragazzi likewise procured the two species in Shoa.

Anthus sordidus.

Anthus sordidus, Rüpp.; Sharpe, Cat. B. M. x. p. 560 (1885); Salvad. Ann. Mus. Genov. 1884, p. 167; 1888, p. 264 *Shoa*; Shelley, B. Afr. I. No. 163 (1896); Lort Phillips, Ibis, 1896, p. 81; 1898, p. 402 *Somali*; Elliot, Field Columb. Mus. i. No. 2, p. 40 (1897) *Somali*; Hawker, Ibis, 1899, p. 66 *Somali*; Grant, Ibis, 1900, p. 141, pt. *Abyssinia*.

Anthus cockburniæ, Oates, Faun. Brit. Ind. ii. p. 305 (1890) *Nilghiri hills*.

Adult. Upper parts dusky brown with broad isabelline buff edges to the feathers, of a slightly more ashy shade on the mantle and partially tinged with rufous on the median wing-coverts; pale pattern of the tail extends over half of the outer feather, the larger portion of the outer web being buffy white with a narrow brown shaft-stripe; the penultimate feather with an angular pale end almost confined to the inner web; sides of head brown mottled with buff, and with a well marked broad buffy white eyebrow; cheeks almost white; chin and upper throat white, with a line of dusky spots down the sides; under surface of body buffy white with a slightly more rufous shade on the crop, sides of body and under tail-coverts; feathers of the crop, sides of lower throat and sides of chest with fairly broad brownish black shaft-stripes; a very slight trace of narrow brown shaft-stripes on the flanks; axillaries and under wing-coverts very pale tawny buff, the latter slightly mottled with dark bases to the feathers;

under surface of quills ashy brown with broad indistinct buff inner edges. Bill dusky blackish with the basal portion of the lower mandible buff; iris brown; legs ashy buff. Total length 6.6 inches, culmen 0.7, wing 3.4, tail 2.7, tarsus 1.0, hind toe 0.5, hind claw 0.3. Socotra, ♂, 2. 2. 99 (O. Grant).

Young. Differ from the adults only in the pale edges of the feathers of the upper parts being slightly broader and a little more tinged with rufous, and the dark markings of the crop slightly broader.

Adults in winter plumage. Browner above, and the streaks on the crop brown and narrow. Socotra, December (Balfour).

Through the kindness of Mr. Hartert I have been able to compare the type of *A. sordidus* labelled "524a, Shoa." It agrees well with Rüppell's illustration. It is in extremely worn plumage, which no doubt accounts for the mottling of the back being scarcely perceptible, but the bill, which is likewise much worn, is too long for *A. pyrrhonotus* or *A. nicholsoni*, so I have no hesitation in following Dr. R. B. Sharpe in retaining the name *A. sordidus* for this species.

The Long-billed Pipit ranges from Palestine and north-western India into Somaliland and Abyssinia.

It is the most abundant of the Pipits on Socotra island, and according to Prof. Balfour is there known as "Degasacus." Mr. Ogilvie Grant found them very common in all the parts of the island he visited, from 4,000 feet down to the sea level, and extremely tame. On December 11 he caught in his butterfly net some young birds just able to fly, and on the 16th of that month found a nest containing four slightly incubated eggs, and writes: "The nest, a slight structure of fine grass, was placed at the foot of a thick plant of bush-grass, and so well hidden that it would certainly have been passed unnoticed had not the female left the eggs. At Adha Demellus, 3,500 feet, I found another nest with perfectly fresh eggs on the 8th of February. The male bird sings a sweet song while perched on the top of a bush or rock, and like other members of the genus frequently rises, with quivering wings, to a considerable height in the air, singing as it flies, and descending after some minutes to his former perch."

In Somaliland, specimens have been collected at Hullier, Durra Surri, Sheikh Pass, Wagga, Goolis foot-hills, Ujawaji and Jifa Medir, at which latter place Mr. Hawker also shot two specimens of *A. nicholsoni*, which are now in the British Museum, from which it would appear that *A. sordidus* and *A. nicholsoni* live in company with each other, as is a common habit with *Motacilla flava* and its allies. In Abyssinia, Lord Lovat obtained one specimen at Hirna. The type of the species I have examined, is labelled Shoa. In this district Antinori and Ragazzi have collected a large series of Pipits, two of which I have seen in the British Museum from Fallé and Mahal-Uong, belong to this species. In northern Abyssinia Mr. Jesse procured a specimen of *A. sordidus* at Bejook in July. That this is not the most northern range for the species is proved by there being an example from Palestine in the British Museum.

With regard to its eastern range: the British Museum contains three specimens from Coonor and two collected by Miss Cockburn at Kotagerry, one of which is the type of *Anthus cockburniæ*, Oates.

I have not seen a specimen of *A. sordidus* from anywhere south of the Equator, so have taken Somaliland as the most southern known range for this species, and the references thus excluded I have added to those of *A. nicholsoni*.

To show the affinities of this species to the seven last-mentioned forms I shall take the following four characters.

1. Bill rather long and slender, and much compressed beyond the nostrils. This character being always present in true *A. sordidus* is constant in Pipits of this group from Socotra, but on the African continent gradually disappears, being present or absent in Somali birds collected by Mr. Hawker at Jifa Medir, in Lord Lovat's specimens from South Abyssinia, between the coast and the Blue Nile, and in Jesse's

from Bogosland, and is absent in all I have examined from the countries west and south.

2. An angular pale tip to the penultimate feather. This is always present in *A. sordidus*, generally so in *A. nicholsoni*, very rarely present in *A. vaalensis*, and never to be met with in any of the other species.

3. The mottled plumage of the crown and back is most strongly marked in *A. sordidus* and *A. nicholsoni*, and is present in the young of all the other species, but disappears in them, or becomes obsolete, after the first moult.

4. Hind claw more curved and also shorter than the hind toe. This character is present in *A. sordidus*, *A. nicholsoni*, *A. melindæ* and *A. vaalensis*. In the others the hind claw is less curved, and is longer than the hind toe in adult birds of *A. pyrrhonotus* from South Africa and in what I believe to be the adult of *A. latistriatus*.

Anthus campestris.

Anthus campestris (Linn.), Sharpe, Cat. B. M. x. p. 569 (1885) *Abyssinia* ; Shelley, B. Afr. I. No. 164 (1896) ; Lort Phillips, Ibis, 1898, p. 401 *Somali* ; Hawker, Ibis, 1899, p. 66 *Somali*.
Agrodroma campestris, Bouvier, Cat. Ois. Marche, &c., p. 16 (1875) *Bathurst*.

Adult. Upper parts sandy buff and nearly uniform, owing to the broad pale edges of the feathers almost hiding their dark centres; wings dark brown, with the outer edges of the feathers sandy buff inclining to white on the first primary; axillaries and under wing-coverts buff; tail blackish brown, the centre pair of feathers with broad pale edges, and a strongly marked white pattern extending over the outer feather generally with the exception of a dusky wedge-shaped patch on the basal two-thirds of the inner web; penultimate feather also mostly white, but with the shaft and a large wedge-shaped patch black; eyebrow and sides of head buff with a black mustachial band down each side of the throat; under parts buff, slightly paler towards the chin and centre of the breast; crop uniform buff, or with a few rather indistinct dark shaft-stripes. Bill blackish brown fading

into buff at the base of the lower mandible; iris brown; legs pale yellowish brown. Total length 7 inches, culmen 0·6, wing 3·75, tail 3, tarsus 1·05. Egypt, ♂, 7. 3. 68; ♀, 6. 3. 68 (Shelley).

Immature. Like the adult in the colouring and pattern of the wings and tail, but the remainder of the upper parts are dark brown with narrow pale edges to all the feathers, including those of the lower back; under parts differ in being strongly marked with black pear-shaped spots on the crop and a few dark shaft-stripes on the flanks. Total length 6·1 inches, culmen 0·55, wing 3·3, tail 2·6, tarsus 1·0.

The Tawny Pipit ranges southward to the Gambia river and Somaliland, breeds in Europe, and occurs in Siberia, China and north-western India.

At Bathurst on the Gambia the species has been procured by Marche and De Compiègne and by Verreâux from Casamance. The most southern known range for the Tawny Pipit is Somaliland; here the species was first met with by Mr. Lort Phillips on the open plateau country at Sheikh, January 30, 1897, and Mr. Hawker has collected specimens at Jifa Medir, Makanis and Berbera in January and February. Mr. Ogilvie Grant informs me that during his visit to the island of Socotra this species was only met with on Abdul Kuri, where a pair were seen during his second visit on February 23; they were extremely wary, and after some trouble the male was shot. I do not find it recorded by Count Salvadori from Shoa, but Lord Lovat procured a specimen during his journey from Berbera to the Blue Nile. In the British Museum there are specimens collected by Mr. Blanford in February and March at Senafé and in April at Lake Ashangi and Adigrat. He found it to be very abundant in grassy meadows throughout the highlands, but appeared to be replaced on the cultivated land by *A. cervinus*. According to von Heuglin it migrates regularly each winter into Abyssinia, Kordofan, Senaar, Nubia and Egypt, and more rarely occurs in the White Nile valley and Arabia.

Anthus rufulus.

- Anthus rufulus*, Vieill.; Sharpe, Cat. B. M. x. p. 574 (1885) *Damara, Cape Col., Natal, Transvaal, Zambesi, Zanzibar*; Sousa, Journ. Lisb. 1886, p. 3 *Ibo Is.*; Shelley, Ibis, 1888, p. 301 *Manda Is.*; Sharpe, Ibis, 1891, p. 589 *Masai*; Bocage, Journ. Lisb. 1893, p. 11 *Humbe, Caconda*; Shelley, Ibis, 1893, p. 27; 1894, p. 23; 1896, p. 238 *Nyasa*; id. B. Afr. No. 165 (1896); Lort Phillips, Ibis, 1896, p. 81 *Somali*; Sharpe, Ibis, 1897, p. 515 *Zulu*; Shelley, t. c. p. 527; 1898, pp. 379, 553 *Nyasa*; Hinde, t. c. p. 579 *Machako's*; Alexander, Ibis, 1899, p. 563 *Zambesi*; Jackson, t. c. p. 629 *Ntebi, Ravine, Mau, Nandi*; Stark, Faun. S. Afr. i. p. 251 (1900); Grant, Ibis, 1900, p. 141 *Abyssinia*.
- Anthus cinnamomeus*, Rüpp.; Salvad. Ann. Mus. Genov. 1888, p. 264 *Shoa*; Reichen. Vog. Deutsch O. Afr. p. 198 (1894) *Pangani, Ungu, Rufu R., Kakoma, Lindi, Igonda, Tabora, Ugalla, Bukoba*; Neum. J. f. O. 1898, p. 232 *Gurui Mt.*
- Anthus caffer*, Sundev.; Salvad. Ann. Mus. Genov. 1884, p. 168 *Shoa*.
- Anthus raalteni*, Bp.; Böhm, J. f. O. 1883, p. 206 *Zanzibar*; Schal. t. c. p. 367 *Kakoma*; Fisch. Zeitschr. 1884, p. 307; 1885, p. 137 *Lindi to Barawa*; Reichen. J. f. O. 1887, p. 73 *Ungu*; 1889, p. 284 *Rufu R.*; 1891, p. 160 *Tabora*; 1892, p. 51 *Bukoba, Itale*; Fleck, J. f. O. 1894, p. 411 *Bastardland*; Kuschel, J. f. O. 1895, p. 343 (*egg*).
- Anthus bocagii*, Nicholson; Sharpe, Cat. B. M. x. p. 579 (1885) *Angola, Damara*; Büttik. Notes Leyd. Mus. 1888, p. 241 *Mosamedes*; Shelley, B. Afr. I. No. 166 (1896); Stark, Faun. S. Afr. I. p. 252 (1900).
- Anthus campestris* (nec Bechst.), Sperling, Ibis, 1868, p. 290 *Mosambique*; Sousa, Journ. Lisb. 1886, p. 165 *Benguela*.
- Anthus pyrrhonotus* (nec Vieill.), Shelley, P. Z. S. 1887, p. 125 *Camaroons*.
- Anthus gouldi* (nec Fraser), Reichen. J. f. O. 1890, p. 124 *Camaroons*.

Adult Male. Upper parts buffy brown with dark centres to the feathers of the crown, mantle, and upper tail-coverts; wings blackish brown with their outer edges rufous buff inclining to white on the first primary; axillaries and under wing-coverts rufous buff; tail blackish brown with narrow pale edges to the feathers and a strongly marked white pattern, extending over the outer feather generally, with the exception of a dusky wedge-shaped patch on the basal two-thirds of the inner web, penultimate feather also mostly white but with the shaft and a larger wedge-shaped patch black; sides of head and neck brown mottled with buff and with a broad

buff eyebrow; a black mustachial band down each side of the throat; under parts buff, slightly paler towards the chin and centre of the breast and strongly mottled with black shaft-stripes on the crop. "Bill brown with the basal portion of the lower mandible flesh-colour; iris brown; legs yellowish clay-colour" (Reid). Total length 6 inches, culmen 0.5, wing 3.5, tail 2.6, tarsus 1.1, hind toe 0.45, hind claw 0.5. Pinetown, ♂, 19. 7. 72 (T. L. Ayres).

Adult Female. Exactly like the male. Total length 6.3, culmen 0.5, wing 3.4, tail 2.6, tarsus 1.05, hind toe 0.4, hind claw 0.5. Shoa, ♀, 7. 12. 85 (Antinori).

Var. a (*A. bocagii*?). Similar to the above but paler and more ashy both on the upper and under parts, and differs also in the colouring of the penultimate feathers, which are not alike; the one on the left side is dusky brown with a wedge of white from the tip, while the one on the right side is white with a broad wedge of black rising from the base of the inner web, and on the outer web a black band separated from the black shaft reaches nearly to the tip of the feather. Kinsembo, ♂ (Watkins). This specimen is extremely nearly matched by one in the British Museum labelled "Assensole, ♂, 8. 1. 73 (W. Davison)."

Var. b. Similar to the adult, here first described, but with the upper parts very much blacker and with the lower back mottled with dark centres to the feathers to about the same extent as the mantle and the pale edges of the wing-feathers are narrower. No streaks on the flanks. Total length 6.5, culmen 0.55, wing 3.45, tail 2.6, tarsus 1.1. Camaroons Mt. 10,000 ft., ♂, 8. 10. 86 (H. H. Johnston). As this is, I believe, the only specimen known from Camaroons it may very possibly be a distinct form for which I here propose the name of *A. rufulus camaroonensis*.

Var. c. Similar to the last but slightly less black, with the dark mottling on the lower back; the pale edges of the feathers much narrower and more sharply defined. Flanks slightly streaked. Total length 6.5, culmen 0.55, wing 3.3, tail 2.6, tarsus 1, hind toe 0.45, hind claw 0.45. Immature, E. Timor (Wallace).

Var. d. Very like *var. c.* Total length 5.5, culmen 0.55, wing 3.1, tail 2.5, tarsus 1.05, hind toe 0.45, hind claw 0.4. Immature, Pangani R. (Kirk).

The Rufous Pipit ranges over Africa to as far north as Camaroons on the West Coast and the Mediterranean on the east side, and extends through southern Asia to the Philippines and Timor.

The species, as I understand it, inhabits Camaroons, where its occurrence is known only by a very strangely marked

specimen procured by Sir Harry Johnston in the mountains at an elevation of 10,000 feet, in October, 1886. As the species has never otherwise been recorded from within a radius of 1,000 miles I have named this specimen *A. rufulus camaroonensis*, as it possibly belongs to a local race embodying all the characters of *A. rufulus* excepting the colouring. On following the West Coast southward, the species is next represented by an extremely pale form in the British Museum from Kiusembo in Angola. In Benguela the species is known to the natives as "Tioco" according to Anchieta, who has collected specimens at Humbe and Huilla. A specimen from the former locality is the type of *A. pallescens* (nec Vig. and Horsf.) Bocage, the figure of which (Orn. Angola, p. 294, pl. 7, fig. 1) represents a very typical example of *A. rufulus*, Vieill., nevertheless it was rechristened *A. bocagii*, Nicholson, Ibis, 1884, p. 469. The species has also been met with by van der Kellen in Mossamedes.

From south of the Cunene there are specimens in the British Museum collected at Objimbinque, in February, March, and June, by Andersson, who writes: "I have found these Pipits common at Objimbinque. Their favourite resorts are open places near moist situations; a great number are sometimes found together, yet not in flocks; they mix much with the Wagtails. These birds offer considerable variety in plumage; sometimes they are very light-coloured, and at others their tints are very deep." Mr. Layard writes: "We have shot it ourselves near a vley on the Cape flats, and have received it from Colesberg, Swellendam and Kuruman. Mr. Ortleep and Mr. Rickard have both met with it near Port Elizabeth." Other specimens, now in the British Museum, have been collected at Elands Post, Grahamstown and Kingwilliamstown, Pinetown, Pietermaritzburg, Potchefstroom and Rustenberg, and there is a specimen from Santa Lucia Lake,

procured there by the Messrs. Woodward in June. In Natal Messrs. Butler, Feilden and Reid met with the species, and write: "Common at the Ingagane River, near Newcastle, where Reid obtained four specimens in June and July, feeding on the bare patches round the stone cattle 'kraals.' He also met with it near Ladysmith in November, and obtained the eggs from two nests on the 18th and 19th of that month. The nests were cup-shaped, well concealed among the growing herbage, and resembled those of our common European Meadow Pipit. The eggs in the first nest, three in number, are white, with distinct freckles and small blotches of chocolate brown, and a more obscure series of ashy grey markings, most numerous towards the larger end, measuring '8 in. by '6 in. In the second nest the two eggs have the markings smaller, but more numerous and of a slightly duller brown." According to Stark, these Pipits are usually found in pairs. They have a rough chirping call-note and a rather sweet and pleasant song, which is generally uttered from the branch of a tree or the top of an ant-hill or stone. The nest is cup-shaped, built of dry grass, lined with finer grass and hairs, by the side of a grass-tuft. The eggs, usually three in number, are pale stone colour, thickly mottled with purplish brown and red. They measure about 0.80 × 0.60.

To the north of the Vaal river, according to Mr. T. Ayres: "This species is very common in open glades. I have obtained it in both the Rustenberg and Pretoria districts." At the Tatin river in December, while in company with Jameson, he found these Pipits: "Pretty generally distributed but not common anywhere, almost always in pairs, frequenting the trees." Along the course of the Zambesi Sir John Kirk obtained a specimen at Tete which is now in the British Museum, and Mr. Boyd Alexander writes: "This Pipit frequents waste pieces of land. In the pairing-season the

male will now and again rise up into the air vertically to a height of about 40 feet, and give out notes similar to those of the Meadow-Pipit. It breeds towards the end of July."

In Nyasaland it is the commonest species of Pipit, for I have met with it in nearly all the collections from Mounts Zomba and Mlosa, the Nyika and Milanji plateaus in the Shiré highlands, and from west of the lake up to the Tanjanyika plateau, at Buwa, Karonga and Songwe. To the eastward it is probably "plentiful at Mosambique," as Sperling remarks of a Pipit he calls *A. campestris* (Ibis, 1868, p. 290). Along the coast in about 12° S. lat. Serpa Pinto informs us that *A. rufulus* is called by the native on Ibo island "Esse," and "Malanche" on the main land at Quissango (otherwise spelt Kisango). Fischer found the species generally distributed from Lindi, 10° S. lat., to Barawa, 1° N. lat. on the Somali coast.

In Central Africa the species has been met with at Bukoba on the western shores of Victoria Nyanza, and at Redjaf in the Upper White Nile district. Mr. Jackson found these Pipits very plentiful on the plains of Masailand, and equally common on Manda Island where they were breeding in May, and also collected specimens at Ntebi, Ravine, Mau and Nandi. A nest he found at Ravine in May contained three eggs, and was placed "in a tuft of grass, built entirely of dry grass, with a lining of finer grass." At Nandi he remarks: "This is the commonest Pipit in the country, and is found almost everywhere on the open grassy downs. It is a tame and confiding bird, allows a near approach, and rarely flies far when disturbed. It often settles on trees and bushes during the heat of the day. It nests on the ground, under the shade of a small bush or tuft of grass or other herbage. From Somaliland there are four specimens in the British Museum; Lord Lovat collected six during his journey from Berbera to the

Blue Nile, and Antinori and Dr. Ragazzi eleven others in this district from February to December, showing it to be a resident here. Further north Rüppell procured the type of his *A. cinnamomeus* at Simen, and von Heuglin found the species in pairs in the highlands of Central Abyssinia. There is a specimen in the British Museum from Malta, which is the furthest northern range known to me for this species.

Anthus pratensis.

Anthus pratensis (Linn.), Sharpe, Cat. M. B. x. p. 580 (1885); Shelley, B. Afr. I. No. 167 (1896).

Adult Male. Hind claw not shorter than the hind toe but about equal to it. This coupled with the rather broader dark centres to the feathers of the crown and mantle, are the only characters I can find for distinguishing the species from *A. trivialis*. Total length 5·7 inches, culmen 0·45, wing 3·0, tail 2·3, tarsus 0·8, hind claw 0·45. Avington, ♂, 7. 1. 87 (Shelley).

The Meadow-Pipit ranges from Abyssinia over the whole of Europe and eastward into Turkestan.

The only authority I find for admitting the Meadow Pipit into the Ethiopian fauna rests on a specimen procured by Lefebvre at Adowa in April, and on von Heuglin's statement that he met with it at Gondar in February, and that it occurs in Egypt and Abyssinia during the winter months singly or in small flocks, frequenting the clover fields, moist ground and swamps. That he never met with it in large flocks is probably due to its occurring merely as a straggler in tropical north-east Africa.

It is by no means improbable that the specimens referred to this species by Lefebvre and Heuglin were really examples of *A. cervinus* in winter plumage, for as yet I have not seen a specimen from Africa of our Meadow Pipit.

Anthus cervinus.

Anthus cervinus (Pall.), Sharpe, Cat. B. M. x. p. 585 (1885) *5th Cataract of Nile, Tigré*; Salvad. Ann. Mus. Genov. 1888, pp. 265, 536 *Shoa*; Shelley, P. Z. S. 1888, p. 28, *Redjaf*; Hartl. Abhand. Brem. 1891, p. 17 *Bagamoyo, Tunguru*; Shelley, B. Afr. I. No. 168 (1896); Lort Phillips, Ibis, 1898, p. 402 *Somali*; Hinde, t. c. p. 579 *Machako's*; Jackson, Ibis, 1899, p. 628 *Nandi*; Grant, Ibis, 1900, p. 142 *Abyssinia*.

Adult Male (summer). Like *A. trivialis* in the colouring of the wings and tail, and the mantle similar but with the dark centres of the feathers broader as in *A. pratensis*. It differs from them both in having large dark centres to the rump feathers and upper tail-coverts; sides of the head and entire throat vinous red with the ear-coverts brown; breast and under tail-coverts buff; crop and sides of body with brownish black shaft-stripes, most strongly marked on the flanks. Total length 6·2 inches, culmen 0·45, wing 3·4, tail 2·5, tarsus 0·85, hind claw 0·5. ♂, 26. 6. 76.

Adult (winter). Differs from the summer plumage in the almost, or entire, absence of red on the head and throat, and in this plumage closely resembles *A. pratensis*, from which it may be most readily distinguished by its having large dark centres to the feathers of the rump and upper tail-coverts, which parts in *A. pratensis* are uniform.

The Red-throated Pipit ranges northward from Bagamoyo on the coast opposite Zanzibar, in about 6° 30' S. lat., through Eastern and Central Africa to North Europe, and eastward through China and Borneo into California.

Dr. G. Hartlaub, in 1891, records a male and female of this species collected by Emin on February 25 at Bagamoyo, and also a specimen from Tunguru, on the western shores of the Albert Nyanza, 2° N. lat. Emin has also procured a specimen at Redjaf, 4° 44' 25" N. lat., 31° 42' E. long. This specimen, as well as one from the 5th Cataract of the Nile and another from Senafé in Tigré, are in the British Museum, clearly showing that the Nile Valley forms one of its migration routes. In British East Africa Mr. Jackson found the species

abundant at Nandi in April just before its migrating northward. Dr. Hinde obtained a specimen at Machako's in March, and Mr. Lort Phillips one at Sogsoda, February 6, in Somaliland.

Count Salvadori records from Shoa an adult in full plumage procured by Dr. Traversi at Cialalaka in December, and Lord Lovat collected four specimens during his expedition from Berbera to the Blue Nile, at Lake Harrar Meyer, Baroma, Balti, and Damai Damash, in January and February. According to von Heuglin the Red-throated Pipit is abundant throughout Abyssinia and Nubia, in pairs or small flocks, mostly frequenting the cultivated fields and pasture land, and more rarely to be met with along the edges of the deserts and the sandy dunes by the sea shore, and breeds in May as far south as Egypt.

Anthus tenellus.

Anthus tenellus, Sharpe, Cat. B. M. x. p. 618 (1885) *Lamu*.

Tmetothylacus tenellus (Cab.), Cab. J. f. O. 1897, p. 438; Salvad. Mem. R. Acad. Sc. Torino (2) xlv. p. 557 (1894) *Somali*; Sharpe, P. Z. S. 1895, p. 474 *Somali*; Shelley, B. Afr. I. No. 169 (1896); Elliot, Field Columb. Mus. i. No. 2, p. 40 (1897) *Somali*; Jackson, Ibis, 1898, p. 136 *Witu*.

Macronyx tenellus, Fisch. Zeitschr. 1884, p. 308; id. J. f. O. 1885, p. 137 *Pare, Lamu, Barawa, Wapokomo, Gala*; Oust. Bibl. Ecole Hautes Etudes, xxxi. art. 10, p. 8 (1886); Reichen. Vög. Deutsch O. Afr. p. 200 (1894); Hartert in Ansorge's "Under Afr. Sun," p. 348 (1899) *Taru*.

Adult. Crown, back and sides of neck, upper back and upper tail-coverts dark brown with yellow edges to the feathers; lower back more uniform yellowish ash; wings bright golden yellow, the primaries and outer secondaries with black shafts and ends, the latter increasing in size towards the outer primary, wing-coverts mottled with brownish black, inner feathers of the wing brown; tail bright yellow with the centre pair of feathers dark brown, the next three pairs with brownish black patterns confined mostly

to the margins of the end third of these feathers, outer two pairs entirely uniform yellow; sides of head and the under parts uniform bright yellow with a broad black crop-band and broad black ends to the primaries. Bill dark brown with the end half of the lower mandible pale, iris dark brown. Total length 5·7 inches, culmen 0·5, wing 3·25, tail 2·4, tarsus 1·05. Lamu (Kirk).

Immature. Upper parts brown with broad brownish buff edges to the feathers shading into yellow on the outer wing-coverts and most of the quills and tail-feathers; under surface of the wing with the coverts and broad inner margins to the quills bright golden yellow; pale pattern of the tail yellow and confined to the two outer pairs of feathers; sides of head, throat, breast and under tail-coverts pale rufous shaded buff, inclining to rufous brown on the crop and partially mottled with yellow on the centre of the breast and the under tail-coverts. Hind toe 0·45 inch, hind claw 0·55. The pattern of the tail in young birds is yellow, but otherwise is similar to that of *A. campestris*, which is probably its nearest ally, and the partially bare tarsus appears to me to be hardly of generic value.

The Golden Pipit inhabits eastern Africa between 5° S. lat. and 5° N. lat.

The most southern and western range known to me for this species is the Pangani river, near the Pare mountains; here Fischer collected specimens in August. He also records the species from Lamu and Barawa, on the coast, and inland from Wapokomoland, Galaland. At Kiparadga, on the Tana river, he met with them in small flocks of four to ten individuals in October, and likens them in habits and voice to *Anthus rufulus*. Sir John Kirk collected three specimens for me at Lamu which are now in the British Museum along with one of Mr. H. C. V. Hunter's from Kilimanjaro. Mr. Jackson procured an immature bird at Witu in June, and Mr. Ansorge has met with the species at Taru. The type was obtained in the Teita country by Hildebrandt, who found these Pipits in small flocks amongst the scattered acacia bushes. A good figure of the adult (J. f. O. 1875, pl. 2, fig. 3) shows the bare basal half of the thighs which characterises the sub-genus *Tmetothylacus*, and the remarkable amount of bright yellow on the wings and tail.

In Somaliland Mr. West found the species not uncommon at Hersi Barri in the Ogaden district, and specimens have been collected at Darar by Mr. Donaldson Smith, and in the Lido mountains by Mr. Ruspoli.

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5. p. 8, not p. 10.—8. pl. 6, not pl. 16.—11. Shelley, B. Afr. II. p. 25, pl. 1, fig. 2 (1899).—13. Shelley, Mon. Nect. p. 19, pl. 7 (1877); Cat. ix. p. 4.—13·5. unisplendens, Neum. J. F. O., 1900, p. 300.—14. Shelley, B. Afr. II. p. 28, pl. 1, fig. 1 (1899).—19. Shelley, B. Afr. II. p. 41, pl. 2, fig. 2 (1899).—24·5. nectarinioides, Richmond, Auk. xiv. p. 158 (1897).—25·5. shelleyi, Alexander, B. O. C. viii. p. 54 (1899); id. Ibis, 1899, p. 556, pl. 11.—33. Cat. ix. p. 43.—35·2, 4 and 6. stierlingi, niassæ and angolensis, Reichen. O. M. 1899, p. 171.—36. Shelley, B. Afr. II. p. 66, pl. 3, fig. 1 (1899).—36·3 and 6. cyanescens and igneiventris, Reichen. O. M. 1899, p. 171.—38·4 and 7. aldabrensis and abbotti, Ridgway, Pr. U. S. Nat. Mus. 1894, p. 372.—41·5. subalaris, Reichen. O. M. 1899, p. 170.—43. Shelley, B. Afr. II. p. 79, pl. 3, fig. 2 (1899).—43·4. stuhlmanni, Reichen. O. M. 1893, p. 61.—43·8. fuelleborni, Reichen. O. M. 1899, p. 7; Shelley, B. Afr. II. p. 80, pl. 4, fig. 1 (1899).—46·2, 4 and 6. orphogaster, luhderi and minullus, Reichen. O. M. 1899, pp. 169, 170.—49·0. saturatus, and damarensis (Reichen.) O. M. 1899, p. 171.—52. p. 96, not p. 97.—53. deminata, not dimidiata.—57·5. eboensis (Jard.) Nat. Libr. v. xvi. Sunbirds, p. 244, pl. 30 (1842) = *Cinnyris castaneiventris*, Madarasz, 1889 (err. B. Afr. II. p. 114).—60. Shelley, B. Afr. II. p. 119, pl. 5, fig. 2 (1899).—62. Ill. S. Afr. pl. 57 (1839) not (1843).—63·5. neglecta, Neum. J. f. O. 1900, p. 297.—65. p. 198, not p. 298.—69. Shelley, B. Afr. II. p. 134, pl. 5, fig. 1 (1899).—71·5. oritis (Reichen.) J. f. O. 1892, pp. 190, 225 (added by error to *C. reichenbachi*, B. Afr. II. p. 138).—73·5. idia, Oberholser, Pr. U. S. Nat. Mus. xxii. p. 33 (1899).—73·8, not 964. axillaris (Reichen.) O. M. 1893, p. 32.—75. p. 292, not p. 284; Shelley, B. Afr. II. p. 145, pl. 4, fig. 2 (1899).—76. p. 337, not p. 331.—85. Shelley, B. Afr. II. p. 172, pl. 6, fig. 2 (1900).—86. pl. 19, fig. 2 (1868).—88. Shelley, B. Afr. II. p. 177, pl. 7, fig. 2 (1900).—91. Shelley, B. Afr. II. p. 179, pl. 7, fig. 3 (1900).—93 and 94 = 87.—95·5. jacksoni, Neum. O. M. 1899, p. 23.—96. Shelley, B. Afr. II. p. 185, pl. 8, fig. 1 (1900).—98. Shelley, B. Afr. II. p. 187, pl. 7, fig. 1 (1900).—100. Ferr. et Gall. Voy. Abyss. iii. p. 209, pl. 9, fig. 2.—103·3. comorensis, Shelley, B. Afr. II. p. 196, pl. 9, fig. 1 (1900).—103·6. aldabrensis, Ridgway, Pr. U. S. Nat. Mus. 1894, p. 371.—107. Shelley, B. Afr. II. p. 199, pl. 6, fig. 1 (1900).—110·5. e-newtoni (Hartl.), Vög. Madag. p. 97 (1887); Shelley, B. Afr. II. p. 206, pl. 9, fig. 2 (1900).—112. Shelley, B. Afr. II. p. 203, pl. 8, fig. 2 (1900).—114. Jackson, Ibis, 1899, p. 638, pl. 13.—115. leucomelas, Rüpp. N. Wirb. Vög. p. 100, pl. 36, fig. 2 (1838) not leucopterus, Swains.—115·5. guineensis, Shelley

B. Afr. II. p. 229 (1900).—117·5. *fuelleborni*, Reichen. O. M. 1900, p. 5.—118. Shelley, B. Afr. II. p. 236, pl. 10, fig. 1 (1900).—119. Shelley, B. Afr. II. p. 236, pl. 10, fig. 2 (1900).—121·5. *rovumæ*, Shelley, B. O. C. I. p. 6 (1892).—122·5. *masukuensis*, Shelley, B. Afr. II. p. 238 (1900).—123 = 133·5. Fisch. Zeitschr. 1884, p. 340, pl. 19, fig. 1. This is an *Ægithalus*.—124·3 and 6. *intermedius* and *parvirostris*, Shelley, B. Afr. II. p. 241 (1900).—*Rhapidornis*, Reichen. O. M. 1897, p. 123, type *Ægithalus camaroonensis*.—130·5. *camaroonensis*, Shelley, B. Afr. II. p. 251 (1900).—133. Shelley, B. Afr. II. p. 254, pl. 11, fig. 2 (1900).—Family Parisomidæ, Shelley, B. Afr. II. p. 206 (1900).—Genus I. *Alcippe*, Blyth J. A. S. Beng. xiii. p. 384 (1884) type *A. cinerea* = *Lioptilus*, Cab. Mus. Hein. I. p. 88 (1850), type *A. nigricapillus*. This genus comprises: 1292, 921 = 1293, and 1296.—138·5. *catoleucum*, Reichen. O. M. 1900, p. 5.—141. pp. 198, 211, not pp. 195, 211.—142·8. *nigricotis*, Shelley, B. Afr. II. p. 266, pl. 12, fig. 2 (1900).—143. Shelley, B. Afr. II. p. 268, pl. 12, fig. 1 (1900).—144·5. *forwoordi*, Grant & Forbes, Bull. Liverpool Mus. II. p. 3 (1900).—153. Erase : ? Gm. S. N. i. p. 970 (1788).—155. Shelley, B. Afr. II. p. 297, pl. 13, fig. 1 (1900).—156. Shelley, B. Afr. II. p. 298, pl. 13, fig. 2 (1900).—157. *trivialis* (Linn.) not *trivialis*, Linn.—157·5. *Calthorpæ*, Layard, B. S. Afr. p. 121 (1867); Shelley, B. Afr. II. p. 301, pl. 14, fig. 1 (1900).—158. Shelley, B. Afr. II. p. 303, pl. 14, fig. 1 (1900); Cat. x. p. 551, not p. 55.—158·5. *latistriatus*, Jackson, Ibis, 1899, p. 628.—158·7. *melindæ*, Shelley, B. Afr. II. p. 305 (1900).—159·5. *vaalensis*, Shelley, B. Afr. II. p. 311 (1900).—166 = 165.—170·5. *fuelleborni*, Reichen. O. M. 1900, p. 39.—172. p. 222, not p. 444.—176. p. 45, not p. 48.—*Pseudalæmon*, Lort Phillips, Ibis, 1898, p. 400, type 182·5. *fremantlii*, (Lort Phillips), B. O. C. vi. p. 46 (1897).—182·7. *delamerei*, Sharpe, B. O. C. x. p. 102 (1900).—183. Hartert, Ibis, 1892, p. 523, pl. 13.—189·5. *athensis*, Sharpe, B. O. C. x. p. 101 (1900).—192·5. *razæ*, Alexander, Ibis, 1898, p. 107, pl. 3.—201·5. *marginata*, Hawker, B. O. C. vii. p. 55 (1898).—205·5. *sharpii*, Elliot, Field Columb. Mus. (17, orn.) i., No. 2, p. 37 (1897).—206·2, 4 and 6. *transvaalensis*, *tropicalis* and *athi*, Hartert, Nov. Zool. vii. pp. 45, 46 (1900).—215·5. *intercedens*, Reichen. O. M. 1895, p. 96.—216. pl. 8, fig. 1, not pl. 3.—216·5. *nigrescens*, Reichen. O. M. 1900, p. 39.—217. p. 619, not p. 620.—221·5. *elliotti*, Hartert, Nov. Zool. iv. p. 144 (1897).—222·5. *giffardi*, Hartert, B. O. C. p. 5 (1899).—223. p. 639, not p. 369.—225·5. *akeleyi*, Elliot, Field Columb. Mus. (17. Orn.) i. No. 2, p. 39 (1897).—231·5. *nigriceps*, Gould, Voy. Beagle, Birds, p. 87 (1841).—238. Swains, B. W. Afr. i. p. 20, pl. 18 (1837).—246·5. *insularis*, Grant & Forbes, Bull. Liverpool Mus. ii. p. 2 (1900).—247·5. *socotrana*, Grant & Forbes, Bull. Liverpool Mus. ii. p. 2 (1900).—251. p. 954, not p. 594.—251·5. *louisæ*, Lort Phillips, B. O. C. vi. p. 49 (1897); id. Ibis, 1898, p. 398, pl. 8.—257·5. *hermilleucus*, Grant & Forbes, Bull. Liverpool Mus. ii. p. 3 (1900).—265. p. 302, not p. 202.—268·5. *thierryi* Reichen. O. M. 1899, p. 190.—271. p. 340, not p. 341.—276. = 274.—282. pl. 109, fig. 1 (1830) not pl. 100.—282·5. *sharpii*, Neum. J. f. O. 1900, p. 287.—284. pl. 9, not

pl. 11.—293. p. 98, not p. 94.—293·5. *whytii*, Shelley, Ibis, 1897, p. 528, pl. 11.—294·5. *affinis* (Richmond) Auk. xiv. p. 156 (1897).—295. p. 364, not p. 365.—296·5. *kilimensis* (Richmond) Auk. xiv. p. 155 (1897).—301·5. *punctigula*, Reichen. O. M. 1898, p. 23.—303·5. *fagani*, Sharpe, B. O. C. vi. p. 7 (1896).—*Hyphantospiza*, Reichen. Ber. Allg. Deutsch Orn. Ges. xi. p. 6 (1892) type *Linurgus olivaceus*.—304. *kilimensis* (Reichen. & Neum.) O. M. 1895, p. 74.—309. p. 180, not p. 120.—311. *amauropteryx*, not *amauroptera*.—Genus iii. *Coliopasser*, not *Coliipasser*.—318. Daud. Pl. Enl. iv. pl. 647, not pl. 75.—320·5. *psammacromia* (Reichen.) O. M. 1900, p. 39.—321. (1849) not (1841).—33·5 *nigronotata*, Sharpe, B. O. C. vii. p. 7 (1897).—340. J. f. O. 1880, not 1886.—343·5. *wertheri*, Reichen. O. M. 1897, p. 160.—351 and 353 = 350.—*Atopornis*, Reichen. & Neum. O. M. 1895, type 1331 = 367. N. *schistacea*.—365·5. *kretschmeri*, Reichen. O. M. 1895, p. 187.—366. p. 316, not p. 317.—Genus vi. *Philetærus*, not *Philæterus*.—379·5. *australis*, Shelley, Ibis, 1896, p. 184.—388. p. 52, not p. 50.—396·5. *hawkeri*, Sharpe, B. O. C. viii. p. 23 (1898).—397·5. *cyanocephala* (Richmond) Auk. xiv. p. 157 (1897).—398. B. W. Afr. i. p. 192, pl. 14, not p. 196, pl. 16.—399·0 *jagoensis*, Alexander, Ibis, 1898, p. 85.—399·5. *cavendishi*, Sharpe, Ibis, 1900, p. 110.—406. p. 166, not p. 163.—407·5. *ochrogaster*, Salvad. Boll. Mus. Z. & Anat. Torino xii. No. 287, p. 4 (1897); Grant, Ibis, 1900, p. 130, pl. 3, fig. 1.—407·7. *marwitzii*, Reichen. O. M. 1900, p. 40.—409. J. f. O. 1883, not 1886.—410·5. *delamerei*, Sharpe B. O. C. x. p. 102 (1900).—411. *charmosyna*, not *charmosina*.—419·5. *ansorgi*, Hartert, B. O. C. x. p. 26 (1900).—422. p. 141, not p. 131.—427·5. *rendalli*, Hartert, Nov. Zool. v. p. 72 (1898).—428. *minima*, not *minuta*.—436 (1837) not (1887).—441. p. 296, not p. 297.—441·5. *affinis*, Elliot, Field Columb. Mus. (17, Orn.) i. No. 2, p. 34 (1897).—444. p. 588, not p. 558.—450. p. 500, not p. 50.—461. p. 372, not p. 370.—462. p. 350, not p. 351.—464. p. 32, pl. 11, not p. 3, pl. 2.—471·5. *donaldsoni*, Sharpe, B. O. C. V. p. 14 (1895)—475. p. 109, not p. 100.

476·3. *Anaplectes rufigena*, sp. nov.

Type.—Very like the adult male of *A. melanotis*, from which it differs only in the less amount of black on the head, which colour is confined to the feathers in front and behind the eye, and does not extend on to either the cheeks or the chin, which are red like the throat, neck and upper part of the head. Total length 5·4 inches, culmen 0·6, wing 3·3, tail 2·3, tarsus 0·8, Chuta (Alfred Sharpe).

476·6. *blundelli*, Grant, Ibis, 1900, p. 132.—479·5. *rubricollis*, Sharpe, B. O. C. vi. p. 48 (1897).—487. Reichen. J. f. O. 1896, p. 30, pl. 4, figs. ♂ ♀.—488. p. 185, pl. 23, fig. 3, not pl. 3; Sjostedt, Sv. Ak. Handl. (27, no. 1) p. 83, pl. 7 ♀ (1895).—498. p. 446, not p. 449.—Genus xvii. *Nesyphantes*, not *Neshyphantes*.—505·5. *nandensis* (Jackson) Ibis, 1899, p. 615.—Genus xix. *Otyphantes*, not *Othyphantes*.—511·5. *sharpii*, Shelley, Ibis, 1898, p. 557.—513. fig. 2 ♀.—517 and 518 = 513. Sjostedt, Sv. Ak. Handl. (27, no. 1) p. 88, pl. 9 ♂ (1895).—519. Reichen. J. f. O. 1896, p. 31, pl. 4, upper fig.—528·5.

dicrocephala (Salvad.) Ann. Mus. Genov. 1896, p. 45.—529. p. 399, not p. 392.—531·5. *auricomus* (Sjostedt) O. M. 1893, p. 28; id. Sv. Ak. Handl. (27, no. 1) p. 86, pl. 8 (1895).—532·5. *olivaceiceps* (Reichen.) O. M. 1899, p. 7.—536. Cat. xiii. p. 448, pl. 13, fig. 6 (head).—538, p. 447, not p. 477.—538·5. *camburni* (Sharpe) B. O. C. x. p. 35 (1900).—541·5. *uluensis*, Neum. J. f. O. 1900, p. 283.—551·5. *dicrocephala*, Salvad. Ann. Mus. Genov. 1896, p. 45.—554. Ibis 1887, not 1867.—557·5. *fuellborni*, Reichen. O. M. 1900, p. 99.—563, p. 69, not p. 66.—564. Reichen. J. f. O. 1887, p. 214, not Dubois.—571·5. *meneliki*, Weld-Blundell & Lovat, B. O. C. x. p. 19 (1899); Grant, Ibis, 1900, p. 122, pl. 2.—573·5. *lætior*, Sharpe, B. O. C. vii. p. 17 (1897).—575·5. *chlorocephalus*, Shelley, Ibis, 1896, p. 183, pl. 4.—582·5. *sharpii*. Jackson, B. O. C. viii. p. 22 (1898).—583. Cat. xiii. p. 189, not pp. 198, 667, —583·5. *femorialis*, Richmond, Auk. xiv. p. 160 (1897).—588·5. *brevicaudus*, Sharpe, B. O. C. vi. p. 48 (1897).—593. pl. 80, not pl. 8.—600·5. *massaicus*, Neum. J. f. O. 1900, p. 280.—609. xxiv. not xxxiv.—614·5. *nyansæ*, Shelley, Ibis, 1898, p. 557.—616·5. *canolimbatus*, Reichen. O. M. 1900, p. 99.—622 = 620.—627·0. *dubius* (Richmond) Auk. 1897, p. 158.—627·5. *greyi*, Jackson, B. O. C. viii. p. 50 (1899).—630. Levaill (1799) not (1880).—631. pl. 8, not pl. 10.—Genus xx. *Neerospa*, Sclater, Phil. Trans. clxviii. p. 427 (1879).—631·5. *rodericanus*, Günther & E. Newton, t. c. p. 427, pl. 42, figs. A—G; Cat. xiii. p. 195.—631·7. *leguati*, Forbes, Bull. Liverpool Mus. I. p. 34, pl. 3 (1898).—639. p. 20 not p. 30.—642. Cat. iii. not xiii.—642·5. *oreas*, Reichen. O. M. 1899, p. 40.—647·5. *atactus*, Oberholser, Pr. U. S. Nat. Mus. xxii. p. 35 (1899).—650. p. 107, not p. 106.—Abbot-tornis, Richmond, Pr. U. S. Nat. Mus. xix. p. 692 (1897) type A. *chabert*.—656. *comorensis*, Shelley, B. Afr. II. pl. 2, fig. 1 (1900).—665. = 664.—666·5. *vinaceigularis*, Richmond, Auk. xiv. p. 162 (1897).—671·3. and 6. *nigricans* and *intermedius*, Reichen. O. M. 1899, p. 90.—675. Levaill. iv. (1805) not II. (1799).—678·5. *preussi*, Reichen. O. M. 1899, p. 40.—687. (Poll.) not (Pall.).—698. (Des Murs) not (De Murs).—702. pls. 6, 7, 8 (1883).—714. p. 479, not p. 471.—719. p. 479, not p. 471.—722·5. *hybridus*, Neum. J. f. O. 1899, p. 407.—730. 2nd series, not 3rd series.—734·5. *fuellborni*, Reichen. O. M. 1900, p. 39.—742·3. *occidentalis*, Neum. J. f. O. 1899, p. 413.—742·5. Neum. t. c. p. 414.—747·2. *malzacii* (Hehgl.) Syst. Uebers. p. 34 (1855).—747·4. and 6. *nyansæ*, and *erythreæ*, Neum. J. f. O. 1899, p. 412.—753. p. 128, not p. 138.—760. p. 152, not p. 153.—761. p. 63, not p. 62.—765·5. *bocagii* (Reichen.) Orn. Mitteil. 1875, p. 125; id. J. f. O. 1896, p. 26, pl. 2, fig. 2.—768·5. *catharoxanthus* (Neum.) J. f. O. 1899, p. 391.—*Cosmophoncus*, Neum. J. f. O. 1899, p. 392, type M. *multicolor*.—769·3. *suahelicus* (Neum.) J. f. O. 1899, p. 395.—769·6. *modesta* (Neum.) t. c. p. 396.—770·0. *zosterops*, Büttik, Notes Leyd. Mus. 1889, p. 98.—770·2. *liberianus* (Neum.) J. f. O. 1899, p. 393.—770·5. *manningi*, Shelley, B. O. C. x. p. 35 (1899).—770·7. *abbotti* (Richmond) Auk. 1897, p. 161.—771·5. *pressi* (Neum.) J. f. O. 1899, p. 393.—771·8. *reichenowi* (Neum.) l. c.—774·5. *hæmatothorax*, Neum. t. c. p. 390.—775·5. *nigrifrons*

(Reichen.) O. M. 1896, p. 95.—*Necator*, not *Nicator*.—785. p. 19, not p. 10.—803. Reichen. J. f. O. 1897, p. 48, pl. 2, fig. 2.—816 and 817 = 815.—818. p. 46, not p. 45.—819. pl. 148, not p. 148.—*Eurillas*, Oberholser, Pr. U. S. Nat. Mus. xxii. p. 15 (1899) type 840. *virens*.—836·5. congener, Reichen. J. f. O. 1897, p. 45.—838·5. *masukuensis*, Shelley, Ibis, 1897, p. 534.—840·5. *morwitzi*, Reichen. O. M. 1895, p. 188.—856. Sjostedt, Sv. Vet. Ak. Handl. (27, No. 1) p. 97, pl. 10 (1895).—*Stelgidillus*, Oberholser, Pr. U. S. Nat. Mus. xxii. p. 30, type 867. *gracilirostris*.—860·5 *shelleyi* (Neum.) J. f. O. 1900, p. 292.—861·5. *pallidigula* (Sharpe) B. O. C. vii. p. 7 (1897).—863. p. 356, not p. 350.—866 = 865.—865·4. *marchei* (Ounst.) N. Arch. Mus. Sc. (2) ii. pt. 1, p. 100 (1879).—865·8. *debilis* (W. L. Sclater) Ibis, 1899, p. 284.—867·5. *liberiensis* (Reichen.) Nov. Zool. ii. p. 160 (1895).—880·5. *chlorigula* (Reichen.) O. M. 1899, p. 8.—884 and 885 = 886.—887·5. *olivaceiceps*, Shelley, Ibis, 1896, p. 179.—893·5. *baumanni* (Reichen.) O. M. 1895, p. 96; id. J. f. O. 1897, p. 44, pl. 2, fig. 1.—893 = 897.—899 = 1100.—914·5. *sterlingi*, Reichen. O. M. 1898, p. 82.—917. Reichen. J. f. O. 1896, p. 43, pl. 3, fig. 2.—921. = 1293.—938·5. *helenoræ*, Alexander, B. O. C. viii. p. 48 (1899).—941·5. *atricollis*, Bocage, Journ. Lisb. 1893, p. 153. — 947. (1881) not (1882). — 958·5. *chloronota*, Reichen. O. M. 1895, p. 96.—964 = 738.—965. Reichen. J. f. O. 1896, p. 100, pl. 5, fig. 3.—967·3. *jacksoni*, Sharpe, B. O. C. vii. p. 7 (1897).—967·6. *brachyura*, Lafr. Rev. Zool. 1835, p. 258.—967·8. *canope*, Reichen. O. M. 1900, p. 22.—968·2. *pallida*, Alexander, B. O. C. viii. p. 48 (1899); id. Ibis, 1900, p. 75, pl. 1, fig. 1.—968·3. *flecki*, Reichen. O. M. 1900, p. 22.—968·4. *finschi*, Reichen. l. c.—968·5. *isabellina*, Elliot, Field Columb. Mus. (17, Orn.) i. No. 2, p. 44 (1897).—968·6. *minima*, Grant, Ibis, 1900, p. 156; Alexander, Ibis, 1900, p. 75, pl. 1, fig. 2.—968·8. *major*, Neum. J. f. O. 1900, p. 305.—984. p. 114, not p. 120.—988 = 1016.—997. Reichen. J. f. O. 1896, p. 40, pl. 5, fig. 1.—999·5. *florisuga*, Licht, (Reichen.) J. f. O. 1898, p. 314 + *neglecta*, Alexander, B. O. C. x. p. 17 (1899).—999·7. *golzi* (Fisch. & Reichen.) J. f. O. 1884, p. 182.—1000·5. *viridiceps* (Hawker) B. O. C. vii. p. 55 (1898).—1003. Reichen. J. f. O. 1896, p. 41, pl. 5, fig. 2.—1004·5. *major*, Weld-Blundell & Lovat, B. O. C. x. p. 20 (1899).—1005. + *zenkeri*, Reichen. O. M. 1898, p. 23 = 847.—1013·0. *ngandæ*, Sharpe, B. O. C. vii. p. 6 (1897).—1013·5. *somalica*, Elliot, Field Columb. Mus. (17, Orn.) i. No. 2, p. 45 (1897).—1015. p. 178, not p. 179 = 1010.—1028·5. *hindi*, Sharpe, B. O. C. vi. p. 7 (1896); id. Ibis, 1898, p. 580, pl. 12, fig. 2.—1036. (1882) not (1822).—1039·5. *prinioides*, Neum. J. f. O. 1900, p. 304.—1040·5. *muelleri*, Alexander, B. O. C. viii. p. 63 (1899).—1042·5. *lovati*, Grant, Ibis, 1900, p. 161.—1043. p. 34, pl. 12, not p. 32, pl. 11.—1045. p. 35, pl. 13, not p. 34.—1049·5. *alticola*, Shelley, B. O. C., viii. p. 35 (1899).—1050·5. *nigriloris*, Shelley, Ibis, 1897, p. 536, pl. 12, fig. 2.—1053. P. Z. S. 1843, not 1841.—1057·5. *rufidorsalis*, Sharpe, B. O. C. vi. p. 48 (1897).—1064. p. 245, not p. 243.—1065. p. 243, not p. 245.—1081. 1895, not 1875.—1082·5. *castaneus*, Reichen. O. M. 1900, p. 6.—1084·5. *abyssinica* (Weld-Blundell & Lovat)

B. O. C. x. p. 19 (1899).—1104 = 1103.—1109 = 1107 and erase 1108.—1111 and 1113. Sym. Phys. (1828) not (1833).—1119. rufus, not rufa.—Sylvia, Scop. (1769) not (1869).—1121·0 gularis, Alexander, Ibis, 1898, p. 81.—1126·5. lugens, Rüpp. N. Wirb. Vög. p. 113, pl. 44, fig. 2 (1835).—1126·7. jacksoni (Sharpe) B. O. C. x. p. 28 (1899).—1130. Symb. Phys. (1828) not (1833).—1149·5. inexpectus, Richmond, Pr. U. S. Nat. Mus. xix. S. 678, p. 688 (1897).—1151·5. prosphora, Oberholser, Pr. U. S. Nat. Mus. xxii. p. 37 (1899).—1159·3. poliothorax, Reichen. O. M. 1900, p. 6.—1159·6. fuelleborni, Reichen. O. M. 1900, p. 99.—1165·5. isolama, Reichen. O. M. 1900, p. 5.—1165·7. mawensis, Neum. J. f. O. 1900, p. 309.—1177·5. giffardi, Hartert, B. O. C. x. p. 5 (1899).—1182·4. modesta, Shelley, Ibis, 1897, p. 539, pl. 12, fig. 1.—1182·8. gambagæ, Hartert, B. O. C. x. p. 5 (1899).—1185·5. albigularis, Reichen. O. M. 1895, p. 96.—1194 = 1191.—1198·5. ernesti, Sharpe, B. O. C. x. p. 36 (1900).—1199·5. johnstoni, Shelley, Ibis, 1893, p. 18.—1200. p. 57, not 571.—1201 = 1200.—1200·5. olivaceus, Reichen. O. M. 1900, p. 100.—1215·5. stierlingi (Reichen.) O. M. 1900, p. 5.—1217 = 1212.—1218·5. kilimensis (Neum.) J. f. O. 1900, p. 310.—1224. p. 292, not p. 285, and p. 191, not p. 192.—1225. stormsi, not stormi.—1227. L. Phillips, Ibis, 1896, p. 78, pl. 2.—1234·5. cinerascens, Reichen. O. M. 1898, p. 82.—1243. Contr. Orn. 1852, not 1854.—1254. pileata (Gm.) not pileata, Gm.—1255·5. albinotata, Neum. J. f. O. 1900, p. 313.—1277. Sym. Phy. (1828) not (1833); Yerbery, Ibis, 1896, p. 24, pl. 1, fig. 1. + dubia (Weld-Blundell & Lovat) B. O. C. x. p. 22 (1899).—1279. p. 355, not p. 361.—1285·5. argentata, Reichen. O. M. 1900, p. 100.—1295. pp. 37, 49, pls. 14, 20.—1298·5. schistaceus, Sharpe, P. Z. S. 1895, p. 481.—1306·5. kavirondensis, Neum. J. f. O. 1900, p. 257.—1307. p. 473, not p. 472.—1308·5. sibirica, Neum. J. f. O. 1900, p. 259.—1311 = 1120.—1314·5. nyikensis, Shelley, B. O. C. viii. p. 35 (1899).—1315·5. trothæ, Reichen. O. M. 1900, p. 5.—1317. p. 96, not p. 90.—1321·5. subadusta, Shelley, Ibis, 1897, p. 542.—1327·5. obscura, Sjostedt. O. M. 1893, p. 43; id., Sv. Vet. Ak. Handl. (27, No. 1) p. 73, pl. 5 (1895).—1328·5. pumilus, Reichen. J. f. O. 1892, p. 32.—1330 = 1319.—1331 = 367.—1336·5. olivacea, Büttik. Notes Leyd. Mus. 1897, p. 199.—Erase 1338 = Tricholestes criniger (Blyth) Cat. vi. p. 89.—1342·5. similis, Richmond, Auk. xiv. p. 163 (1897).—1344 = 1343.—1345·0. marginalis, Reichen. O. M. 1900, p. 6.—Pholia, Reichen. type 1347·5. hirundinea, Reichen. O. M. 1900, p. 99.—1352. figs 1, ♂, 2, ♀.—1353·5. jamesoni, Sharpe in Jameson's "Story of Rear Column," p. 414 (1890).—1354·5. chalybea, Reichen. O. M. 1897, p. 46.—1356. Ibis, 1873, not 1875.—1368. orientalis (Hengl.) p. 449, not orientalis, Hengl. p. 440.—1369·5. bella, Elliot, Field Columb. Mus. Orn. ser. 1, No. 2, p. 47 (1897).—1371·0. francisi, W. L. Selater, B. O. C. vii. p. 60 (1898).—1377. Orn. Centralbl. 1879, p. 120.—1380. p. 71, pl. 6.—1390·3 and 6. suahelica and plumbeiceps, Reichen. in Werth. Mittl. Hochl. nordl. Deutsch O. Afr. p. 275 (1898).—1433. Contr. Orn. 1851, p. 141. not 1849, p. 4.—Lecythoplastes, Reichen. type 1438·5. preussi, Reichen.

O. M. 1898, p. 115.—1444·5. *percivali*, Grant, B. O. C. viii. p. 55 (1899).—1447·5. *blanfordi*, Weld-Blundell & Lovat, B. O. C. x. p. 20 (1899).—1453·5. *thomensis*, Hartert, B. O. C. x. p. 53 (1900).—1455. p. 114, not p. 120.—1459. *murinus*, Brehm. Vogelf. p. 46 (1854).—1460. p. 227, not p. 47.

1463·5. *Cypselus alfredi* sp. nov.

Nearly allied to *cypselus æquatorialis*, but slightly larger and darker. General plumage blackish brown, with a slight greenish gloss, fading into white on the chin and upper throat; feathers of the back with almost obsolete pale edges; crop and under surface of body with indistinct narrow white edges to the feathers, inclining to spots on the abdomen and sides of the body; axillaries and some of the larger under wing-coverts with narrow white terminal edges; outer under wing-coverts edged with buff giving them a regular scaled appearance. Total length 10·2 inches, culmen 0·4, wing 7·9, tail, outer feathers 3·5, centre feathers 2·4, tarsus 0·6. Mbara (Alfred Sharpe).

1468·5. *willsi*, Hartert, Nov. Zool. iii. p. 231 (1896).—1470. p. 418, not p. 416.—1473. p. 463, not p. 464.—1474. p. 189, not 187.—1484·3. *jonesi*, Grant & Forbes, Bull. Liverpool Mus. ii. p. 3 (1900).—1484·6. *torridus*, Lort Phillips, B. O. C. viii. p. 22 (1898).—1487·5. *fuellborni*, Reichen. O. M. 1900, p. 89.—1492·5. *stellatus*, Weld-Blundell & Lovat, B. O. C. x. p. 21 (1899); Grant, Ibis, 1900, p. 311, pl. 4.—1499. Cat. xvii., not xvi.—1499·5. *rufiventra*, Dubois, P. Z. S. 1896, p. 999.—1507. pl. 103, not pl. 108.—1523·5. *sharpii*, Hartert, B. O. C. x. p. 27 (1899); Cat. xvii. p. 48, pl. 1, fig. 3.—1524 = 1525.—1528. p. 105, pl. 23, not p. 123, pls. 28, 29.—1529·5. *Australis*, Reichen. J. f. O. 1885, p. 222.—1535·3. *batesiana*, Sharpe B. O. C. x. p. 48 (1900).—1535·6. *northcotti*, Sharpe, t. c. p. 49.—1542. p. 233, not p. 232.—1557. *notatus*, Salvin. Cat. xvi. p. 22 (1892).—1559·5. *schalowi*, Neum. J. f. O. 1900, p. 221.—1569·5. *kethullii* (Dubois) O. M. 1900, p. 69.—1572. J. f. O. 1880, p. 350, pl. 1, not fig. 1.—*Horizocerus*, Oberholser, Pr. U. S. Nat. Mus. xxii. p. 28 (1899) type 1595. *L. hartlaubi*.—1587 = 1585.—1589. *medianus*, not *mediana*.—1600. pl. 20, not pl. 2.—1605. p. 33, not p. 23.—1608. p. 191, not p. 190.—1613. p. 149, not p. 140.—1616. *swainsoni*, Smith, S. Afr. Quart. Journ. 1834, p. 143.—1616·5. *hyacinthinus*, Reichen. J. f. O. 1900, p. 216.—1617. p. 90, not p. 9.—1619. (1814) not (1834).—1626. p. 247, not p. 246.—1631. *Sclater*, P. Z. S. 1884, p. 475. pl. 45, fig. 1.—1634, p. 341, not 321.—1635·5. *berlepschi*, Hartert in Ansorge's "Under Afr. Sun," p. 333 (1899).—1637·5. *pulcher*, Neum. J. f. O. 1900, p. 190.—1638·3 and 6. *pallidus*, and *mossambicus*, Reichen. O. M. 1896, p. 4.—1641·5. *zenkeri*, Reichen. J. f. O. 1896, p. 9.—1643. *livingstonii*, not *livinstoni*.—1643·5. *hybridus*, Reichen. J. f. O. 1898, p. 314.—1646·5. *finschi*, Reichen. O. M. 1899, p. 190.—1648·5. *sharpii*, Reichen. O. M. 1898, p. 182.—1650·5. *ruspoli*, Salvad. Ann. Mus. Genov. 1896, p. 44.—1665. p. 708, not p. 704.—1682·5. *insularis*, Ridgway, Pr. U. S. Nat. Mus. 1894, p. 373.—1683. pl. 220, not pl. 22.—1683·5. *thierryi*, Reichen. O. M. 1899, p. 190.—1688·5. *cupreicauda*, Reichen. O. M.

1896, p. 53.—1689. p. 397, not p. 395.—1689·5. fasciopygialis, Reichen. O. M. 1898, p. 23.—1690. burchelli, Swains. An. in Menag. p. 321 (1838).—1699. Notes Leyd. Mus. 1879, not 1870.—1701. p. 178, not p. 148.—1707. p. 47, pl. 3.—1708. Reichen. J. f. O. 1897, p. 14, pl. 1, fig. 1.—Melignomon, Reichen. O. M. 1898, p. 22, type 1716·5. zenkeri, Reichen. O. M. 1898, p. 22.—1718. fig. 1 (1832), not fig. 2 (1822).—1718·4. lovati, Grant, B. O. C. x. p. 39 (1900).—1718·8. teitensis, Neum. J. f. O. 1900, p. 195.—Melanobucco, Shelley, 1889, not 1882.—1730. N. Dict. iii. (1816) not (1813).—1730·5. macclounii, Shelley, B. O. C. viii. p. 35 (1899).—1732·5. abbotti, Richmond, Auk. xiv. p. 164 (1897).—1739·5. congieus, Reichen. Westl. mittl. Hochl. Nordl. Deutsch. O. Afr. p. 273 (1898).—1741·5. leucogenys, Weld-Blundell & Lovat, B. O. C. x. p. 21 (1899).—1744 = flavipunctata, J. & E. Verr. J. f. O. 1855, p. 103.—1745·5. blandi, Lort Phillips, B. O. C. vi. p. 47 (1897); id. Ibis, 1898, p. 415, pl. 9, fig. 1.—1767. pl. 536, fig. 2 (1832), not pl. 530 (1823).—1767·5. centralis, Reichen. O. M. 1900, p. 40.—1768·5. xanthostieta, Weld-Blundell & Lovat, B. O. C. x. p. 21 (1899); Grant, Ibis, 1900, p. 308, pl. 3, fig. 2.—1770·5. jacksoni, Sharpe, B. O. C. vii. p. 7 (1897).—1777 = 1801. Reichen. J. f. O. 1896, p. 13, pl. 3, fig. 1.—1778. P. Z. S. 1869, not 1863.—1778·5. sowerbyi, Sharpe, B. O. C. vii. p. 36 (1898); id. Ibis, 1898, p. 572, pl. 12, fig. 1.—1780. Woodward, Ibis, 1897, p. 404, pl. 10.—1796. Reichen. J. f. O. 1897, p. 16, pl. 1, fig. 2.—1803·5. neumanni (Reichen.) O. M. 1896, p. 132.—1805·5. nyansæ, Neum. J. f. O. 1900, p. 204.—1808. figs. 4, 5, not 4, 6.—1815·5. hausbergi, Sharpe, B. O. C. x. p. 36 (1900).—1817·5. arizelus, Oberholser, Pr. U. S. Nat. Mus. xxii. p. 29 (1899).—1819. p. 55, pl. 4, fig. 1.—1820·3 and 6. massaius and centralis, Neum. J. f. O. 1900, p. 206.—1821·5. simoni, Grant, B. O. C. x. p. 38 (1900).—1826. p. 57, pl. 4, fig. 2.—1835·5. ingens. Hartert. Nov. Zool. vii. p. 33 (1900).—1836·2, 4 and 6. poicephalus, abyssinicus, Reichen. O. M. 1900, p. 58 and centralis, p. 59.—1858. p. 226, not p. 236.—1859·5. uhehensis, Reichen. O. M. 1898, p. 82.—1861·3. thomensis, Bocage Journ. Lisb. 1888, p. 230.—1861·6. sjostedti, Reichen. J. f. O. 1898, p. 138.—1866·5. harterti, Neum. J. f. O. 1898, p. 287, pl. 2.—1867. Forbes, Bull. Liverpool Mus. ii. p. 135, pls. 2, 3 (1900).—1871·5. kilimeusis, Neum. J. f. O. 1898, p. 289.—1876. p. 216, not p. 215.—1888·5. abbotti, Ridgway, Pr. U. S. Nat. Mus. 1895, p. 513.—1890. comoensis (E. Newton) P. Z. S. 1877, pp. 300, 302.—1900. (1859) not (1862).—1901·3. suahelicus, Reichen. J. f. O. 1898, p. 314.—1901·6. rubricapilla, Forbes & Robinson, Bull. Liverpool, Mus. i. p. 15 (1899).—1913·1 and 2. erythreæ and transvaalensis, Neum. O. M. 1899, p. 25.—1916. p. 102, not p. 110.—1918. pl. 3, not pl. 1.—1934. N. Dict. xxv. not xxxv. and p. 512, not p. 522.—1936. Reichen. J. f. O. 1896, p. 8, pl. 2, fig. 1.—1939. Quart. Journ. 1834, p. 317, not p. 307, and pl. 45, not pl. 65.—1945·2. nigricantius, Sharpe, B. O. C. vi. p. 47 (1897).—1945. 4, 6 and 8, suahelicum, umborjum, Heugl. zanzibariennm, Reichen. in Werth. Mittl. Hochl. Nordl. Deutsch. N. O. Afr. p. 272 (1898).—1952. p. 42, pl. 2 (1895).—1956·5. socotranus, Grant & Forbes,

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J. f. O. 1898, p. 300, pl. 3, fig. 2.—2336·5. *melanogaster*, Neum. J. f. O. 1898, p. 299, p. 3, fig. 1.—2337·5. *bengueblensis*, Bocage, Journ. Lisb. 1893, p. 54.—2339 = 2338.—2342. *leucoscepus*, Gray, List Gall. Brit. Mus. p. 4 (1867).—2351·5. *crawshayi*, Grant, Ibis, 1896, p. 482, pl. 12.—2358·5. *lorti*, Sharpe, Bull. B. O. C. vi. p. 47 (1897); id. Ibis, 1898, p. 425, pl. 10.—2363·5. *kikuyuensis*, Grant B. O. C. vi. p. 23 (1897).—2374·5. *harwoodi*, Weld-Blundell & Lovat B. O. C. x. p. 22 (1899); Grant, Ibis, 1900, p. 335, pl. 6.—2380 = 2378.—2382·5. *tetraoninus*, Weld-Blundell & Lovat B. O. C. x. p. 22 (1899); Grant, Ibis, 1900, p. 336, pl. 5.—2385·5. *bottegi*, Salvad. Ann. Mus. Genov. 1898, p. 652.—2386·5. *florentiæ*, Grant B. O. C. x. p. 107 (1900).—2390·2. *reichenowi*, Grant, Ibis, 1894, p. 535.—2390·4. *zechi*, Reichen. O. M. 1896, p. 76.—2390·6. *transvaalensis*, Neum. O. M. 1899, p. 26.—2390·8. *rikwæ*, Reichen. O. M. 1900, p. 40.—2392·2. *palpillosa*, Reichen. O. M. 1894, p. 145.—2392·4. *maxima*, Neum. O. M. 1898, p. 21.—2392·6. *intermedius*, Neum. O. M. 1898, p. 21.—2393 = 2390.—2396·5. *granti*, Elliot, P. Z. S. 1871, p. 584.—2399·5. *selateri*, Reichen. O. M. 1898, p. 115.—2402·5. *somalicus*, Hartert, Nov. Zool. vii. p. 28 (1900).—2403. *senegalus*, not *senegalensis*.—2407. Erase, Temm. Pl. Col. v. pls. 23, 24 and Gld. B. A. vi. pl. 63 (1851). They both belong to 2406.—2407·5. *saturator*, Hartert, Nov. Zool. vii. p. 29 (1900).—2425. *lovati*, Grant, B. O. C. x. p. 39 (1900).—2429. J. f. O. 1882, not 1852.—2460. Cat. xxiv. p. 182.—2467·5. *thoracica* (Richmond) Pr. Biol. Soc. Washington, x. p. 53 (1896).—2477. Cat. xxiv. p. 586.—2478. Cat. xxiv. p. 593.—2479. Cat. xxiv. p. 602.—2480. Cat. xxiv. p. 578.—2481. Cat. xxiv. p. 538.—2482. Cat. xxiv. p. 570.—2483. *arenaria* (Linn.) Cat. xxiv. p. 526.—Gallinago, p. 30 (1816), not p. 31.—2497. Cat. xxiv. p. 626.—2498. Cat. xxiv. p. 631.—2499. Cat. xxiv. p. 649.—2500. Cat. xxiv. p. 633. *Rostratula*, Vieill. Analys. 56 (1816) = *Rhynchæa*, Cuv. 1817.—2501. Cat. xxiv. p. 683.—*Chionarchus*, Kidder & Coues, Bull. U.S. Nat. Mus. no. 3, p. 116 (1876) type *C. minor*.—2506. *crozettensis* (Sharpe) B. O. C. v. p. 44 (1896); Cat. xxiv. p. 713, not *alba* (Gm.).—2509·5. *buttikoferi*, Reichen. O. M. 1898, p. 182.—2532. p. 354, pl. 67 (1862), not p. 353.—3533·5. *massaicus*, Neum. J. f. O. 1898, p. 243.—2534. p. 575, not p. 574.



1. *Nectarinia kilimensis* ♂
2. " *melanogastra* ♂



1 *Artamia comorensis*.
2 *Cinnerys nesophilus*.



1. *Cinnyris falkensteinii* ♂
2. " *medicorum* ♂



1 *Cinnyris fuelleborni* ♂
2. *Anthothreptes orientalis* ♂



1. *Cyanomitra newtoni*. $\frac{7}{8}$
2. *Elæocerthia thomensis*. $\frac{7}{8}$



1. *Zosterops modesta*. ♂
2. " *semiflava*. ♂



1. *Zosterops pallida*.
2. *Z. anderssoni*. 7
3. *Z. zimbrensis*. 8



1. *Zosterops ficedulina.*

2. *Zosterops leucophæa.*



1. *Zosterops comorensis*
2. *Malaczirops e-newtoni*.



1 Parus caeruleus
2 " alpinus



1. *Alcippe abyssinica*. $\frac{7}{8}$.
2. *Ægithalus musculus* $\frac{1}{4}$.



1. *Motacilla vidua* ♂

2. *Motacilla nigricotis*. ♂



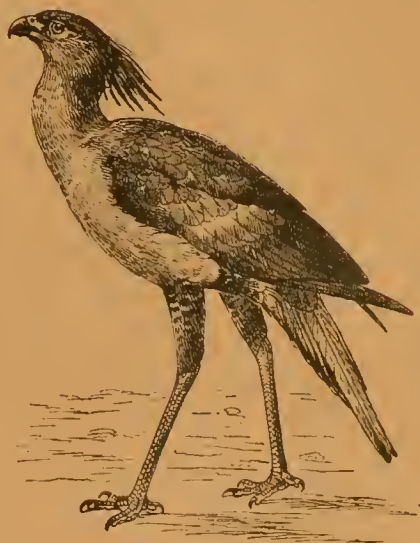
1. *Anthus lineiventris*. ♂. 2. *Anthus crenatus*. ♂.



1 Anthus calthrope
2. " brachyurus

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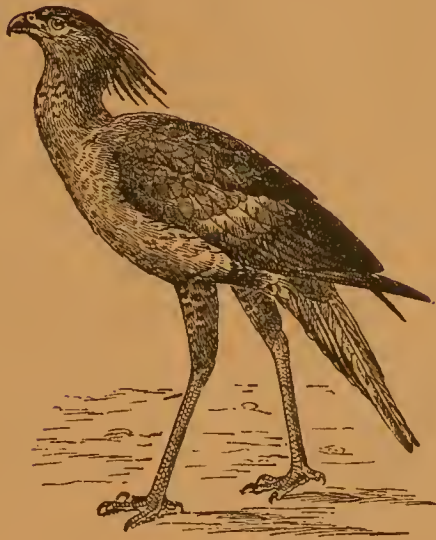
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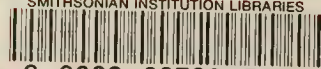


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