THE BIRDS OF THE BELGIAN CONGO

PART 4

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EDITOR'S NOTE

The whole work entitled "The birds of the Belgian Congo" is completed with the publication of the present volume, which is Part 4.

In the long interval between the publication of Part 2 (1939, Bulletin of the American Museum of Natural History, volume 75) and the submission of Parts 3 and 4 for printing, a larger size and a different format and style were adopted for the series, the Bulletin of the American Museum of Natural History.

Because Parts 1 to 4 of "The birds of the Belgian Congo" constitute a very close and unified whole, each Part depending upon the others, it has been agreed that they should all be of the same size, to form one unit.

To avoid, however, inserting two small-sized volumes in the current large format of the Bulletin series, Part 3 of "The birds of the Belgian Congo" (published in 1953) became volume 75A in the serial numbering of the Bulletin of the American Museum of Natural History, and Part 4 (the present volume) becomes volume 75B.

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INTRODUCTION

The fourth and final volume of this series includes the passerine families Dicruridae to Fringillidae, a list of species now to be added, a list of African localities mentioned in the text, and a bibliography.

Many years have passed since I began systematic work on these birds, and now I find it impossible to include all the published records of the last two or three years. Neither is it practicable to list all the specimens I have myself collected in the Belgian Congo since our first Congo Expedition. The addition of the Rothschild Collection to that of the American Museum has enabled me to investigate the geographic variation of the Passeres much more thoroughly, yet there always remains a great deal to be learned.

The collecting of birds in the Congo continues actively, especially for the museums of Brussels and Tervueren, and I have done my best to encourage the friends of these museums in the field. I am happy to have been able to spend nearly a month in 1949 at Tervueren, and wish to express my appreciation to Drs. Schouteden and Verheyen for their many kindnesses. My correspondence with naturalists in the Congo has given me special satisfaction, and I wish to thank particularly Mr. W. K. Braun, Dr. P. Dyleff, Mr. F. L. Hendrickx, Brother Joseph Hutsebaut, Father B. Longo, Dr. A. Prigogine, Mr. S. Rouleff, Father P. van Assche, Mr. J. M. Vrydagh, Mr. J. de Wilde, and Father G. Windmolders. Similar consultations with ornithologists in other parts of Africa have gone on, with Mr. C. W. Benson, Mr. R. H. Braun, Mr. S. Marchant, Mr. M. E. W. North, Mr. P. C. Rougeot, Dr. W. Serle, Mr. R. H. N. Smithers, Dr. V. G. L. van Someren, Mr. A. W. Vincent, Colonel Jack Vincent, Mr. C. M. N. White, and Mr. John G. Williams.

To my friends in many museums in Europe and North America, most of whom have already been named in the earlier volumes, I wish again to express my gratitude, as I do likewise to Dr. Robert Cushman Murphy and all my colleagues of the American Museum. For expert secretarial help I am indebted to Miss Susan Irving (now Mrs. P. F. Scholander) and to Miss Constance D. Sherman, and for the pen-and-ink sketches, to Mr. Alexander Seidel. My wife, Ruth Trimble Chapin, has aided most efficiently in the final corrections of the last two volumes and the reading of the proofs.

In the present volume I have continued to follow the classification of Sclater's "Systema" rather closely, while agreeing in principle with much that has recently been said by Mayr and Amadon in their report on "A classification of recent birds." [1] I do not believe that *Salpornis* is so closely allied to *Certhia* as it is to *Rhabdornis* and *Climacteris,* nor do I think that

[1] 1951, Amer. Mus. Novitates, no. 1496, pp. 1–42.

the Prionopidae and Malaconotinae are necessarily closely allied to the Laniinae. I still place the nine-primaried Fringillidae at the end of the series, but I can appreciate the argument in favor of the birds of paradise.

Naturally there have been many changes of name and numerous details of distribution have been learned since the publication of Part 1 of this work in 1932. As a rule I have not included references to the names used in that first volume; they can easily be learned from the index. Wherever discrepancies are found between Part 1 and subsequent volumes, the more recent treatment is to be taken as correct. I shall not attempt to give any list of errata, but I do wish to point out that in Part 2 a figure of the head of *Pogonornis dubius* has been wrongly captioned as that of *P. rolleti.*

According to my count, the species of birds now recorded from the Belgian Congo and Ruanda-Urundi number approximately 1077. This would be roughly one-eighth of all the bird species of the world, as estimated by Mayr and Amadon. In Part 1 the approximate total was given as 1040, and in an appendix to the present volume I list 31 non-passerine species which have been added in recent years. That the total has not increased more markedly is owing to the "reduction" of a number of species to subspecific rank. At the same time, there remain enough "probabilities" to indicate that it may yet rise to around 1100. The more we know of what species and races occur in the Congo, the better prepared we shall be to go ahead with the investigation of their ecology, their reproductive cycles, and the seasonal migrations of many of them. These are all subjects of inquiry clearly indicated for the future.

SECTION B (*concluded*). SYSTEMATIC LIST OF SPECIES AND RACES, WITH NOTES ON DISTRIBUTION, HABITS, AND FOOD

Names of forms known to occur within the Belgian Congo or Mandated Territory are printed in heavy (bold-faced) type. Those enclosed in brackets have been reported from adjacent areas, so that a number of them may be expected to reach our territory.

ORDER PASSERIFORMES (*concluded*)

FAMILY **DICRURIDAE.** DRONGOS

KEY TO THE SPECIES OF *Dicrurus* IN THE CONGO

1. Tail distinctly forked, to a depth of 8–30 mm., outermost rectrices rather pointed and curved outward; wing usually exceeding 120 mm. . . *D. adsimilis*
   Tail only slightly forked, depth of fork not exceeding 15 mm.; wing usually less than 120 mm. 2
2. Wing usually exceeding 110 mm.; median rectrices more than 15 mm. broad; the steel-green gloss of upperparts and breast very pronounced . . . . . *D. atripennis*
   Wing usually less than 110 mm.; median rectrices less than 15 mm. broad, tail almost square or very slightly forked; greenish or bluish gloss of plumage rather weak . . . . . *D. ludwigii*

Dicrurus ludwigii ludwigii (Smith)

Edolius ludwigii A. SMITH, 1834, South African Quart. Jour., ser. 2, p. 144 (type locality: Port Natal = Durban, South Africa).

? *Dicrurus atripennis* DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika); 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Mommpara; Katanga).

Dicrurus ludwigi SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 5 (Lukonzolwa). BANNERMAN, 1920, Ibis, p. 445. SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 287 (Elisabethville).

Dicrurus ludwigii NEAVE, 1910, Ibis, p. 260 (Kambove, 4500 ft.; Lofu R.; Kalungwisi Valley).

Dicrurus ludwigii ludwigii LYNES AND SCLATER, 1934, Ibis, p. 47 (Tenke). GRANT AND MACKWORTH-PRAED, 1942, Bull. Brit. Ornith. Club. vol. 62, p. 61.

Dicrurus ludwigi ludwigi VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 23, p. 12 (Musosa). WHITE, 1946, Ibis, p. 100 (Mwinilunga).

DISTRIBUTION OF THE SPECIES: Pondoland and Natal, north in eastern Africa to the Juba River, to the Lotti Forest in the Sudan, the Ubangi River, and through forested West Africa to Liberia, Portuguese Guinea, and possibly the Gambia. The nominate race, *ludwigii,* is a little more glossy than *D. l. sharpei* of western and central Africa, more greenish than purplish blue, and much more apt to have whitish tips on the under wing-coverts.

Females are more grayish beneath than males. *Dicrurus l. ludwigii* occupies southeastern Africa and the eastern coastal districts to the Juba River, extending inland in Tanganyika Territory, to the Upper Katanga, and to southern Angola in the region of Lobito Bay.

The square-tailed drongo, with orange-red iris, was noted by Neave as rather common in the Katanga, especially in the denser bush near the banks of streams. It has been reported from as far north as the country near Lake Moero and northeastern Marungu. In southern Africa it is usually described as a bird of retiring habits, seen solitary or in pairs, and giving a harsh call-note. Breeding begins in October and November and may continue into January.

The nest is placed from 6 to 12 feet from the ground, near the extremity of a branch, within the woods. It is cup-shaped, suspended by its margins from a fork, and composed principally of lichens and cobwebs, lined with dry leaf-stalks and lichen. The eggs are about three to a set, spotted with lilac and brown on a white ground, and measure about 20–22 by 15.5–16 mm.

Dicrurus ludwigii sharpei Oustalet

Dicrurus sharpei OUSTALET, 1879, Nouv. Arch. Mus. Paris, ser. 2, vol. 2, p. 97 (type locality: Doumé, upper Ogowé R.). REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 652 (Songa in Lendu country); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 316. BANNERMAN, 1920, Ibis, p. 445; 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 268; 1939, The birds of tropical West Africa, vol. 5, p. 334, fig. 66 (Luma I. in Ubangi R.). SCHOUTEDEN, 1924, Rev. Zool. Bot. Africaines, vol. 12, p. 273 (Kisantu). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 595 (Ubangi R.).

Dicrurus ludwigi JOHNSTON, 1884, The River Congo, p. 364 (between Vivi and Isangila). REICHENOW, 1887, Jour. Ornith., p. 300 (Manyanga); 1903, Die Vögel Afrikas, vol. 2, p. 652 (in part. Manyanga; Mswa). SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 178 (in part. Manyanga).

Dicrurus elgonensis VAN SOMEREN, 1920, Bull. Brit. Ornith. Club, vol. 40, p. 95 (type locality: Lerundo in North Kavirondo District).

Dicrurus ludwigii elgonensis SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 595. GRANT AND MACKWORTH-PRAED, 1942, Bull. Brit. Ornith. Club, vol. 62, p. 62 (northeastern Belgian Congo).

Dicrurus ludwigi elgonensis SCHOUTEDEN, 1940, Rev. Zool. Bot. Africaines, vol. 33, p. 286 (Mt. Wago).

Dicrurus ludwigii sharpei MACDONALD, 1946, Bull. Brit. Ornith. Club. vol. 66, p. 74. VAURIE, 1949, Bull. Amer. Mus. Nat. Hist., vol. 93, p. 219 (Lutete).

DISTRIBUTION: From Portuguese Guinea and perhaps the Gambia Colony through forested West Africa to the Cameroon, the Ubangi, and the Lotti Forest in the southeastern Sudan. It extends also to the Kavirondo District and on the south to the Cataracts district of the western Congo and forested areas in northwestern Angola. It is strange that there are no records from the Kasai District, or from the more central parts of the

Upper Congo forest. In this race females are as black as the males.

In the main it is a lowland bird, yet in the northeast Congo I have met with it only at Djugu on the Lendu Plateau, at an altitude of around 5400 feet. There it perched on bare branches in the woods and seemed a much less noisy bird than any of the other drongos found in the Congo. The orange-red iris is characteristic. George Bates long ago pointed out that in the southern Cameroon Sharpe's square-tailed drongo lives only amid the small trees of second growth and forest clearings.

The nests found by Bates were neatly woven little cups, composed of *Usnea* lichen and plant stems, with some other lichens stuck in, and attached in hammock fashion to two twigs. The nests were supported and held together by gossamer threads and measured only 55 mm. in inside diameter. The eggs, presumably one or two in number, are pinkish cream-color, with a faint zone of lilac spots around the larger end. Measurements are 22–24 by 15–15.5 mm. One of the nests was placed at a height of 10 feet, and the owner, besides scolding loudly, gave some clear song notes.

Dicrurus atripennis Swainson

Dicrurus atripennis SWAINSON, 1837, The birds of West Africa, vol. 1, p. 256 (type locality: Sierra Leone). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 267 (Irumu). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 316 (northwest of Beni; Avakubi). SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 181; 1930, Systema avium Aethiopicarum, pt. 2, p. 595. SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 269 (Kilo); 1918, idem, vol. 5, p. 266 (Masidongo; Lesse; old Mission St. Gustave; Talia-Semliki junction; Bolovet); 1925, idem, vol. 13, p. 17 (Kunungu); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 127 (Buta; Poko; Bondo Mabe; Nava R.; Panga). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 25 (Beni). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 21 (Kartushi; Malisawa; Kampi-na-Mambuti). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 73 (Moera; Ukaika; Mawambi; Mawambi–Irumu). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 564 (Saidi in Ituri). BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 332, pl. 8 (Gudima; Arebi R.; Libokwa). VAURIE, 1949, Bull. Amer. Mus. Nat. Hist., vol. 93, p. 220 (Lukolela; Angumu).

SPECIMENS: Batama, male, September 19. Avakubi, male, May 30; two females, January 17, 21. Ngayu, two males, December 10, 16; three females, April 17, December 16, 25. Penge, male, April 20. Medje, female, April 14; juvenile male, June 8. Rungu, male, June 27.

ADULT MALE: Iris crimson, bill and feet black.

ADULT FEMALE: Similar but iris dark red.

NESTLING: Iris dark grayish brown, bill black with corners of mouth yellowish, feet dark gray.

DISTRIBUTION: Forests of Upper and Lower Guinea, from Sierra Leone to the Cameroon, Ituri, and Semliki Valley. On the south it reaches the

Gaboon, but has not been reported from the Mayombe. It is common at Angumu and at Lukolela on the middle Congo, though not yet known from the Kasai, and must extend to the forested Manyema. Dubois' alleged occurrences from the Katanga and Lake Tanganyika cannot be exact and may have been based on *D. ludwigii.*

Forest drongo would perhaps be a better name than shining drongo for *D. atripennis,* so strictly does it keep to primary forest, perching within 20 or 30 feet of the ground. Most often it is a member of a roaming party of various insect-eating birds, yet not very sociable toward its own kind. The voice is less twanging than that of *D. adsimilis,* and it is said to mimic the calls of other birds. But in my experience the most characteristic performance is a rapid series of five or six loud explosive notes, ringing rather than musical. They suggested the words "quick! quick! quick! quee! quirt!," given more swiftly than I could pronounce them.

In the northern Ituri we examined birds with gonads enlarged in April, May, and September, while the four adults collected during December and January were non-breeding. A nestling scarcely half-grown was brought in by a native at Medje in June, one of two that had occupied a nest about 12 feet from the ground. At Lukolela, near the southern edge of the Congo forest, I took a female that had already laid on August 24, a male with gonads enlarged on September 5, and a juvenile with wings and tail nearly full-grown on October 20.

A nest found by Bates in the southern Cameroon was shallow and slung between two prongs of a horizontal, forked twig, to which it was bound by cobwebs. It was decorated with lichens and contained two young. The eggs remain undescribed.

In the 13 stomachs I examined, insects were never wanting. They included beetles, two dragonflies, one small cicada and the head of a large one, and two green Orthoptera. A spider and a millipede were the only other things eaten.

Dicrurus adsimilis adsimilis (Bechstein)

Corvus adsimilis BECHSTEIN, 1794, Johann Lathams Allgemeine Uebersicht der Vögel, vol. 2, p. 362 (type locality: South Africa).

Dicrurus divaricatus DE SOUSA, 1886, Jor. Sci. Nat. Lisboa, vol. 11, p. 79 (Ntenque); 1886, *in* Capello and Ivens, De Angola a Contra-Costa, vol. 2, p. 445. DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika). SCHALOW, 1887, Jour. Ornith., p. 240 (west of L. Tanganyika). REICHENOW, 1887, Jour. Ornith., p. 308 (Kasongo).

Dicrurus afer REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 646 ("Aruwimi," error). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (L. Leopold II). SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 5 (Lukonzolwa). NEAVE, 1910, Ibis, p. 260 (Katanga). MOURITZ, 1914, Ibis, p. 31. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 266 (Beni;

Mission St. Gustave; Masidongo; "Moera"; Manakwa; Baraka; Yamba-Yamba). DE RIEMAECKER, 1927, Rev. Zool. Bot. Africaines, vol. 14, p. 277 (Elisabethville).

Dicrurus adsimilis divaricatus LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 25 (Kasindi). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 342, 399 (Tshisika; Kwamouth); 1930, idem, vol. 18, p. 287; 1935, idem, vol. 27, p. 402 (Ruindi camp; Gabiro); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 125 (west shore of L. Edward); 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 167 (many localities in Katanga). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 20 (Makora; Masidongo). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 73 (Urundi; Kasindi–Beni). VERHEYEN, 1940, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 16, no. 2, p. 5 (Kanzenze); 1941, idem, vol. 17, no. 16, p. 6 (Kiambi); 1941, idem, vol. 17, no. 23, p. 12 (Musosa); 1947, Exploration du Parc National Kagera, Mission Frechkop, fasc. 2, p. 14 (Kihinga; Kazumbulo; Katodjo); 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 76 (confluence of Modidi and Biangolo rivers).

Dicrurus adsimilis adsimilis BATES, 1933, Bull. Brit. Ornith. Club, vol. 53, p. 178 (in part). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 97 (upper Lufira R.). BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 323, pl. 8 (in part). VAURIE, 1949, Bull. Amer. Mus. Nat. Hist., vol. 93, p. 226 (Moba; Kinia in Marungu). A. W. VINCENT, 1949, Ibis, p. 118.

DISTRIBUTION OF THE SPECIES: From Senegal to Abyssinia and Somaliland, south to Cape Province. There are five races, of which two were long regarded as belonging to a distinct species, because their backs are velvety black. The nominate race, *adsimilis,* occupies savannas from Cape Province to Angola, the southern and eastern Congo, Uganda, and northern Kenya Colony. It has a glossy back, and the fork of the tail is 15–29 mm. deep. *Dicrurus a. divaricatus* is very similar, but the fork of the tail is only 8–20 mm. deep. The latter race occupies grasslands north of the equatorial forest from Senegal to Somaliland.

The Lower Guinea forest and some of its outliers are the home of *D. a. coracinus,* with deeply forked tail like that of *adsimilis,* but the back velvety black instead of glossy. *Dicrurus adsimilis modestus* of Principe Island is similarly colored, but larger.

Occasional hybrids between *coracinus* and the glossy-backed races are found in northern Angola, near the north end of Lake Tanganyika, and in the Uelle.[1] In forested Upper Guinea the whole population shows similar intermediate characters, and thus has been separated as *D. a. atactus* Oberholser, of which the range extends from Lagos, Southern Nigeria, to Sierra Leone.

The common drongo of more open countries in the southern and eastern Congo is *D. a. adsimilis.* It is numerous in the Katanga, but apparently rare in the Kasai, and not reported from the Lower Congo. To the eastward it is common in Ruanda-Urundi and about Lake Edward, but avoids

[1] Cf. Vaurie, 1949, Bull. Amer. Mus. Nat. Hist., vol. 93, p. 230.

the higher mountains. In general its behavior and voice are like those of *divaricatus,* but it seems more apt to join with mixed parties of feeding birds in savanna woods. In Northern Rhodesia Winterbottom (1943) found it represented in 88 per cent of these associations.

In regions south of the Equator the breeding season is mainly from mid-October to January. The nest is saucer-shaped, slung in a fork far out on a bough, and composed of rootlets, plant stems, and tendrils, all bound together with silk. Two or three eggs are the usual set, white, cream, or salmon-pink, sparingly spotted with brown, pinkish, or purplish. Usual dimensions are 20–25 by 17.1–19.2 mm.

Dicrurus adsimilis divaricatus (Lichtenstein)

Muscicapa divaricata M. H. C. LICHTENSTEIN, 1823, Verzeichniss von Vögeln . . . Doubletten des Zoologischer Museums, p. 52 (type locality: Senegal).

Dicrurus afer OUSTALET, 1905, Bull. Mus. Hist. Nat., Paris, vol. 11, p. 11 (Ubangi R.; Beso). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 145 (Mundu; Bellima).

Dicrurus sp. SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 452 (Uelle).

Dicrurus adsimilis divaricatus SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 426 (Mt. Baginzi). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 594 (in part). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 127 (Faradje; Niarembe). VAURIE, 1949, Bull. Amer. Mus. Nat. Hist., vol. 93, p. 227.

Dicrourus divaricatus SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 242.

SPECIMENS: Faradje, four males, February 16, 26, September 10, 21; four females, March 10, September 7, December 3; immature male, May 14. Nzoro, immature male, April 23.

ADULTS OF BOTH SEXES: Iris red, sometimes rather dark red; bill and feet black.

IMMATURE MALE: Iris grayish brown or light yellowish gray.

DISTRIBUTION: Savannas north of the equatorial forests, from Senegal to Abyssinia, Eritrea, and Somaliland. Doubtless intergrades with *adsimilis* in northern Kenya Colony and southern Somaliland. The same change would be expected in the neighborhood of Lake Albert, where records are all but wanting.

This is the common drongo of the Uelle District, wherever it is not mainly forested. A bold, quarrelsome bird, it posts itself in the upper branches of any small tree in the open, pounces upon the larger insects that fly by, and does not hesitate to give chase to a passing kite. Family parties are the only gatherings, and in the Uelle I never saw this species join with mixed bird parties.

When it attempts to sing, the result is usually only a discordant medley of creaking, rasping, or metallic notes. At other times they may utter a

low, whistled "t-wee tiu," and on rare occasions I have heard them give musical imitations of other birds' songs.

In addition to the upright pose and hooked beak, another very raptorial feature is the habit of holding some large insect down on the perch with one foot while picking it to pieces. I have watched one thus dissecting a large cicada; on another day a drongo eating a large moth in the same fashion took a short flight with the victim grasped in one foot. Jays and titmice, of course, sometimes use the foot in a similar way. The drongo's food consisted of insects only; never did I find any remains of birds or other vertebrates.

In the Uelle the breeding period seemed short, lasting through February and March. Farther west, in Nigeria, Boughton-Leigh obtained eggs also in April. He described the nest as a light cradle suspended in a fork, often high up and inaccessible. A set of eggs might number either two or three, their coloration unusually variable. Ground color was white, cream, or pale pinkish orange, most often speckled or blotched with reddish brown, and often with gray or lilac shell markings. Dimensions were 20.4–24.3 by 16–18.2 mm.

Dicrurus adsimilis coracinus Verreaux

Dicrurus coracinus J. AND E. VERREAUX, 1851, Rev. Mag. Zool., p. 311 (type locality: Gaboon). EMIN, 1894, Jour. Ornith., p. 170 (old Irumu). REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 650 (Ubangi R.); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 316 (north of Beni). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Bumba; Kisantu; Mayombe). OGILVIE-GRANT, 1908, Ibis, p. 268 (Ponthierville). SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 451 (Uelle); 1915, idem, ser. 3, vol. 6, p. 280 (Kasai). SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 177. SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 269 (Kilo); 1918, idem, vol. 5, p. 266 (Moera; Baraka; Maroubi; Manakwa; Kamba-Kamba; Molekera; Mutiba). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 24 (Beni). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 73 (east of Rutshuru Plain, 1600 m.; Beni–Mawambi; Mawambi; Ukaika; Mawambi–Irumu).

Dicrurus modestus SHARPE AND BOUVIER, 1876, Bull. Soc. Zool. France, vol. 1, p. 309 (Shiloango). OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 126.

Dicrurus modestus coracinus SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 342 (Basongo; Luebo); 1924, idem, vol. 12, pp. 273, 421 (Kisantu; Kidada; Leopoldville; Eala; Ikengo); 1925, idem, vol. 13, p. 17 (region of Bolobo); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 127 (Mauda; Djamba; Panga; Kotili; Poko; Buta; Rungu); 1943, Rev. Zool. Bot. Africaines, vol. 37, p. 271 (Gabiro). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 594. STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 564 (Saidi in Ituri). BERLIOZ, 1941, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 13, p. 404 (Brazzaville). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 64 (Bangui).

Dicrurus adsimilis coracinus BATES, 1933, Bull. Brit. Ornith. Club, vol. 53, p. 178. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 97 (Tshikapa). BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 328, fig. 65 (Beritio; Angu).

VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 37, 76 (Mutwanga; Luhule R.; Nyabukoko and Bilati near Lutunguru; Semliki R.). VAURIE, 1949, Bull. Amer. Mus. Nat. Hist., vol. 93, p. 229 (Lukolela; Luluabourg; Angumu; Kasongo).

Dicrurus modestus ugandensis CAVE, 1938, Sudan Notes, vol. 21, p. 183 (Sakure in southern Bahr-el-Ghazal).

SPECIMENS: Risasi, between Stanleyville and Bafwaboli, male, September 9. Panga, male, September 17. Avakubi, male, June 11; female, June 6; immature female, May 28. Rungu, male, July 2; female, October 29. Niangara, male, November 17.

ADULTS OF BOTH SEXES: Iris orange-red to deep scarlet, bill and feet black.

IMMATURE FEMALE: Iris dark brown.

DISTRIBUTION: From Southern Nigeria and Fernando Po eastward to the Uelle River, the forest areas in Uganda and the North Kavirondo District. On the south it extends to the Mayombe and the forests of northwestern Angola, also to the gallery forests of the Kasai District and the Manyema.

This very distinctive race, with glossy wings but velvety back, is restricted to areas of rain forest, and thus in Uganda and Kavirondo it overlaps in range with *D. a. adsimilis,* the bird of more open savannas, and is not known to interbreed with it. The Upper Guinea race, *atactus,* may well be considered as a hybrid population, and occasional intermediates, indistinguishable from *atactus,* have been collected in northern Angola, the region of the Ruzizi Valley, and near the Uelle River. The male example, here listed from Niangara, is such a bird, and on July 18, 1927, I collected another like it 10 miles to the southwest of Luvungi in the Ruzizi Valley. Rudolf Grauer, in 1908, had secured five intermediates resembling *atactus* in the vicinity of Baraka and the lower Ruzizi.

In the main, however, *coracinus* behaves in the Congo like a distinct species. It seldom invades the lower levels of the rain forest, but is fond of the largest trees about the edges of clearings, dominating the second growth, or along the roads. There it sits in a very upright posture, with no attempt at concealment, recognizable at first glance by the wide-curving fork of its tail. Most of its loud calls are harsh and semi-metallic, with a characteristic twang. In the Uelle District *coracinus* and *divaricatus* look and act more like different species than like races.

The velvet-mantled drongo is certainly the most pugnacious of its family in the Congo, and common in all the heavy lowland forests. On the mountains east of the Rutshuru Valley I found it up to an elevation of 5200 feet. In the Lower Congo and even near Luluabourg in the Kasai it seems to replace *adsimilis* completely.

In the Medje country and at Lukolela it was a common event to see

a harrier-hawk (*Gymnogenys*) fly across a clearing with one or two, sometimes even four, drongos in angry pursuit, and one of the tormentors darting down on the hawk from above. The same aggressiveness was frequently displayed toward *Bycanistes albotibialis,* less often toward *Tockus fasciatus* and *Tropicranus,* and once, at Rungu, even *Halcyon chelicuti* was the target.

FIG. 1. Velvet-mantled drongos, *Dicrurus adsimilis coracinus.* One is attacking a hawk, *Gymnogenys typicus.*

At Lukolela the Bobangi call both this drongo and *D. atripennis* "nkandongoi," a name combining "nkanda" (anger) with "ngoi" (leopard). Possibly the birds are credited with attacking even a leopard.

Specimens in condition to breed were taken in the northern Ituri during June, July, and November. The nesting season is thus much longer than with *divaricatus* in the Uelle, and I am not convinced that it ends even in the short period of dry weather toward December–January. At Lukolela, on the south, a well-grown nestling was brought to me on November 2, in the first half of the rains.

The only nest I saw myself was hung in a thin fork of a rather small forest tree near Beni, on March 2, 1927. It was quite inaccessible, at a height of 22 yards, so after prolonged scrutiny with the field glass the sitting female was collected. The pieces of broken eggshell adhering to its breast when it fell were pure white. In shape this nest was entirely characteristic for a drongo's, and appeared to be covered beneath with lichen. A similar nest found by Maclatchy in the Gaboon in early December, 18 feet up, was

built largely of black palm fibers and lichen, made fast to a fork with spider silk. It contained a single young bird.

The food of *D. a. coracinus* consists of insects, captured mainly on the wing. The five stomachs I examined contained nothing else; one bird had taken a quantity of winged termites; and I have watched another eat a cicada.

FAMILY **LANIIDAE.** SHRIKES

Key to the Genera of Laniidae as Represented in the Congo

1. Tail short, less than 60 mm.; lateral plates of metatarsi divided into scutes; color above black or brown with some pale markings, below more whitish, often with a rufous stripe on flanks . . . . . *Nilaus* (p. 13)
   Tail longer; lateral plates of metatarsi entire 2
2. Tail very long, exceeding 150 mm.; coloration mainly brownish or black . 3
   Tail less than 150 mm. long 4
3. Coloration mainly black, with some white on scapulars, wings, and rump; bill black . . . . . *Urolestes* (p. 87)
   Color largely brown above, streaked with blackish; below paler, sometimes faintly barred as well; bill yellow . . . . . *Corvinella* (p. 85)
4. Maxilla hooked, and with a pronounced "tooth" just behind its subterminal notch; coloration usually a mixture, gray, white, and black, though some species show considerable rufous, but never bright green or yellow; wing-tip may be either rounded or pointed . . . . . *Lanius* (p. 69)
   Maxilla hooked, but no "tooth" evident behind the subterminal notch; rump-feathering usually thick and soft; wing always very rounded, outermost primary about one-half as long as the longest; coloration very diverse . 5
5. Wing-coverts red-brown 6
   Wing-coverts not red-brown 7
6. Bill rather stout; whole crown covered by a black cap in male, while the female has a whitish superciliary line; tail-feathers narrowly tipped with gray or buff . . . . . *Antichromus* (p. 25)
   Bill less stout, black stripes on crown never cover supercilium; all outer tail-feathers have fair-sized gray or whitish tips . . . . . *Tchagra* (p. 17)
7. Rump area white, gray, or pale brownish, sharply separated from darker-colored back . . . . . *Dryoscopus* (p. 59)
   Rump never wholly white, or so sharply divided from back 8
8. Rump plain black, if nearly the whole bird is black, or with concealed whitish spotting, but never yellow or green; breast may also be white, cinnamon, pinkish, or bright red . . . . . *Laniarius* (p. 46)
   Rump brownish, gray, or greenish, without concealed whitish spotting . . 9
9. Bill usually stout, at least 10 mm. in depth; upperparts largely green, and breast yellow, or yellow washed with rufous brown or scarlet . . . . . *Malaconotus* (p. 39)
   Bill less than 10 mm. deep 10
10. Rump greenish 11
    Rump gray or brown, much like back, little if any green in any part of plumage 12
11. A conspicuous black band across the chest . . . . . *Telophorus* (p. 36)
    No black band across the chest. . . . . *Chlorophoneus* (p. 28)

12. Crown blackish; a whitish superciliary stripe extends to temporal region . . . . . *Chlorophoneus* (p. 28)
Crown more brownish or grayish; no whitish superciliary stripe . . . . . *Dryoscopus* (p. 59)

SUBFAMILY **MALACONOTINAE**

Nilaus afer camerunensis Neumann

Nilaus afer camerunensis NEUMANN, 1907, Jour. Ornith., p. 364 (type locality: Yaunde, southern Cameroon). BATES, 1926, Bull. Brit. Ornith. Club, vol. 46, p. 108 (Holy Family Mission, Ubangi R.). BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 414. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 88 (Ishwa Plain).

Nilaus afer DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 31 (Uelle). SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 456 (Ubangi R.). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 128 (Faradje).

Nilaus afer afer SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 640 (Meridi; Yambio).

SPECIMENS: Dungu, male, June 2. Nzoro, immature female, April 21. Faradje, three males, April 24, August 11, November 19. Aba, three females, July 20, December 14, 22.

ADULTS OF BOTH SEXES: Iris dark brown; bill black with base of mandible blue; feet blue-gray.

DISTRIBUTION OF THE SPECIES: In grasslands north of the equatorial forest from Senegal to Abyssinia and Somaliland, then south through eastern Africa to Natal and the Orange River, also the southern Congo and Angola. I shall recognize but a single species in the genus, with about 10 geographic races. Despite a vague color resemblance to *Batis* among the flycatchers, it seems wiser for the present to retain *Nilaus* among the shrikes, and I see no good reason for referring it to the Prionopidae.

Nilaus a. afer (Latham) ranges from Senegal across the whole Sudan to the Bahr-el-Jebel and Sennar. Very slightly different, yet not so white on throat and breast, is *N. a. camerunensis,* extending from Ngaundere and Yaunde in Cameroon along the northern edge of the forest belt to the Upper Uelle District and the north end of Lake Albert. The wings of our males measures 78 to 80 mm., those of three females all 78 mm.

An East African form, *N. a. massaicus,* comes into the savannas around Lake Albert, Lake Edward, and in eastern Ruanda. It differs from the foregoing by the broader rufous striping on flanks and paler color of the light areas on wings. *Nilaus a. nigritemporalis* of the southeastern Congo lacks any pale temporal stripe and is narrowly striped with rufous on the flanks; *N. a. affinis* of Angola is likewise black on the temporal region and lacks all striping on flanks. *Nilaus a. brubru* (Latham) of southern Africa looks again much more like *massaicus* and *afer,* so I do not believe the deeper

or paler rufous flank stripes of the other races in northeastern Africa can be given more than subspecific importance.

In the grasslands of the northern Congo the Cameroon brubru is never very numerous. Seen only occasionally, it hops about the boughs of trees and in bushes in the upland savanna and is not at all sociable. Acacia trees are favored particularly. The usual call is a prolonged "keerrr" with a

FIG. 2. Brubru shrikes. A. *Nilaus afer nigritemporalis*, male. B, C. *Nilaus afer camerunensis*, male and female.

droning, almost metallic quality, and once a male was watched as it uttered a drier "kkkkkkrrr." The female sometimes answers in a lower tone.

The food consists wholly of insects. One of the five stomachs examined contained four caterpillars and two ants; in the four others only beetles were noticed.

Nesting was evidently carried on in the dry season. None of the adults we took from April to November showed any noticeable enlargement of the gonads. In December one female was nearly ready to lay; and a young bird in April retained most of its juvenal plumage, spotted above and somewhat barred beneath. In Ashanti Willoughby Lowe likewise found a breeding pair of *N. a. afer* in mid-January, but in drier regions farther from the Equator birds of this species may delay nesting until the rains come.

Nests of the nearly allied races are described as small, neat cups, bound

with cobwebs on the outside, and placed on horizontal boughs at a height of 20 or 30 feet. The eggs are two, gray or whitish, spotted with olive-brown or blackish, and measure about 18.5 by 14 mm.

Nilaus afer massaicus Neumann

Nilaus afer massaicus NEUMANN, 1907, Jour. Ornith., p. 363 (type locality: Donje Erok, East Africa). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1185.

Nilaus nigritemporalis JACKSON, 1906, Ibis, p. 553 (Katwe).

Nilaus camerunensis OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 336 (Mokia; Semliki Valley).

Nilaus afer minor REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 309.

Nilaus minor ruwenzorii BANNERMAN, 1923, Ibis, p. 698 (type locality: Mokia, southeast of Ruwenzori). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 602.

Nilaus afer ruwenzorii SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 125 (Molindi R.); 1940, Rev. Zool. Bot. Africaines, vol. 34, p. 60 (Kawa Forest); 1941, idem, vol. 34, p. 365 (Kasenyi). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 76 (Luhule R. near Bombe).

Nilaus afer subsp.? SCHOUTEDEN, 1943, Rev. Zool. Bot. Africaines, vol. 37, p. 271 (Kibungu in Ruanda).

DISTRIBUTION: From the interior of southern Kenya Colony and the plains east of Lake Victoria to the eastern edge of Ruanda, the dry plains near Lake Edward, and supposedly the southwestern shore of Lake Albert. It appears to be wanting at elevations of more than 4500 feet.

I have watched this brubru on several occasions at the south end of Ruwenzori, in the upper Semliki Plain, and on the eastern edge of the Rutshuru Plain. In behavior and voice it is exactly like *N. a. camerunensis,* and it shows the same preference for acacia trees. None of the three males collected was in condition to breed; the nesting season in that region is not known.

Nilaus afer nigritemporalis Reichenow

Nilaus nigritemporalis REICHENOW, 1892, Jour. Ornith., pp. 26, 218 (type locality: Ngome in Unyamwezi, Tanganyika Territory). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 400 (Kwamouth). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 603. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 97. WHITE, 1944, Ibis, p. 259 (Katanga).

Nilaus brubru SCHALOW, 1886, Jour. Ornith., p. 427 (Lugoma). MATSCHIE, 1887, Jour. Ornith., p. 153.

Nilaus affinis REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 542 (in part). SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 462 (in part).

Nilaus nigritemporalis affinis SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 342 (Kabambaie).

Nilaus affinis nigrotemporalis SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines,

vol. 18, p. 287 (Elisabethville); 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 166 (Tembwe; Sakania; Kiambi; Baudouinville).

Nilaus nigrotemporalis WHITE, 1949, Ibis, p. 286 (Marungu; Baraka; Luluabourg).

DISTRIBUTION: Central Tanganyika Territory south through Nyasaland and Mozambique to the border of Zululand, westward to the Katanga, Marungu, and presumably the Kasai District. There may well be a small race of similiar coloration, *N. a. brevialatus* Grote, with wings only 75–80 mm. long, near the coast of Tanganyika Territory; and White [1] has separated *N. a. occidentalis,* from Balovale in western Northern Rhodesia, because its wings measure 85–91 mm. Specimens of *nigritemporalis* from the southeastern Congo usually have wings 80–86 mm.

There are but few records from the Katanga. Rockefeller and Murphy secured one immature female at Kinia (4100 feet) and two adult males at Lubenga (5650 feet) in Marungu, so there the bird may range well above 5000 feet. Just west of Baraka Rudolf Grauer collected one adult female at 3900 feet. I believe *nigritemporalis* to reach the Kasai, and Schouteden has reported it even from Kwamouth.

According to the description by Sassi and Zimmer (1941), the call is exactly like that of *camerunensis,* and while it is being produced the bird's throat is blown up very noticeably. During its search for food this bird bears little resemblance to a typical shrike.

The nest, as described from Nyasaland,[2] is very like that of *Prionops,* a shallow cup of twigs and tendrils, covered with foliaceous lichen, and placed in a fork of a tree at about 20 feet from the ground. There it is most inconspicuous. In that latitude eggs are laid in October and early November, two to a set, greenish gray, finely spotted with dark brown and blackish, 19.2 by 15 mm.

Nilaus afer affinis Bocage

Nilaus affinis BARBOZA DU BOCAGE, 1878, Jor. Sci. Nat. Lisboa, vol. 6, pp. 204, 213 (type locality: Caconda, Angola). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 603.

DISTRIBUTION: All the central highlands of Angola, ranging northward to Duque de Bragança and the Kwango River. This race, which lacks any rufous stripe on the flanks, must occur within our limits near the Kwango, for there is a female specimen in the Rothschild Collection from Fort Don Carlos I (= Tembo Aluma), just across the river from the Belgian Kwango District.

It is perfectly evident that *affinis* and *brubru* are not to be separated

[1] 1946, Ibis, p. 206.

[2] Belcher, 1930, The birds of Nyasaland, p. 263; Benson and Benson, 1947, Ibis, pp. 288, 289.

specifically from *afer*. In the Rothschild Collection there is an adult female from Quipungo, Mossamedes Province, showing intergradation between those two races. *N. a. brubru* extends up along the coast of southern Angola almost to Benguela town.

The little we know of the behavior of *N. a. affinis* does not indicate any divergence from that of the other races.

KEY TO THE SPECIES OF *Tchagra* IN THE CONGO

Center of crown wholly black, with a broad superciliary stripe of gray or buff . . . . . *T. senegala*

Center of crown gray-brown to rufous, a narrow black line at each side, above the pale superciliary stripe . . . . . *T. australis*

Tchagra senegala camerunensis (Neumann)

Telophonus senegalus camerunensis NEUMANN, 1907, Jour. Ornith., p. 375 (type locality: Yaunde, Cameroon).

Telephonus senegalus OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127.

Pomatorhynchus senegalus SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 451 (Zone of Gurba-Dungu).

Pomatorhynchus senegalus camerunensis CHAPIN, 1929, Jour. Ornith., Festschr. E. Hartert, p. 182 (Uelle District).

Tchagra senegala camerunensis SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 628. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 130 (Mauda; Dika; Faradje; Buta). BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 423.

Tchagra senegalus camerunensis GRANT AND MACKWORTH-PRAED, 1943, Bull. Brit. Ornith. Club, vol. 63, p. 50.

Tchagra senegala pallida BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 74 (upper Kemo R.).

SPECIMENS: Niangara, two males, November 10, 23; female, June 23. Faradje, two males, May 13, October 11; female, October 14; juvenile male, March 29. Garamba, three males, July 15, 22.

ADULT MALE: Iris purplish blue, bill black, feet light blue-gray.

ADULT FEMALE: Iris dark bluish.

DISTRIBUTION OF THE SPECIES: From Tunis to Morocco in North Africa; in southern Arabia; and from Senegal, Lake Chad, and Atbara south to eastern Cape Province. Absent, however, from the whole of the Lower Guinea forest and the more heavily wooded parts of Upper Guinea.

The exact number of races deserving recognition is still a matter of debate. An extremely conservative view was taken by Grant and Mackworth-Praed,[1] who would admit but six in all tropical Africa. Including the forms in North Africa and Arabia, it would seem to me that at least 16 are likely to prove valid.

[1] 1943, Bull. Brit. Ornith. Club, vol. 63, pp. 49-50.

Four subspecies certainly occur in the Belgian Congo. In the savannas just north of the equatorial forest lives *T. s. camerunensis,* with back moderately rufous and wings, in our series from the Uelle, 77–84 mm. It ranges west to Yaunde, Bafia, and Ngaundere in Cameroon, on the north to the Bahr-el-Ghazal Province, but would appear not to extend so far east as the Bahr-el-Jebel. Records from the savannas near Kilo and Irumu are wanting.

Down on the western shore of Lake Albert it is replaced by *T. s. sudanensis,* which appears to spread in from the north. In this race the back is more grayish, the superciliary stripe whiter. The wide-ranging *T. s. armena,* which occupies grasslands of the eastern Congo from the upper Semliki Valley south to the Katanga, is a little more rufous above, more like *camerunensis* but larger. It may range westward to Luluabourg in the Kasai District, but then gives way to *T. s. rufofusca,* a form with still ruddier back and temporal stripe, which ranges north from Angola to the middle Congo, Stanley Pool, and Cabinda.

The black-crowned tchagra is a bird of savannas; we never saw it in clearings of the rain-forest belt. In the Uelle *T. s. camerunensis* lives mainly in bushes and thickets which dot the grasslands. From the Bomokandi River to Garamba on the Sudan frontier it is very common, and at the latter place spent much time on the ground in plantations. Attention is often attracted by its prolonged musical whistling, more varied though less sweet than that of *Laniarius ferrugineus.* Sometimes the tchagra sings while making a short flight above the bushes, but more often it is perched in a tree or bush. Other loud whistling and chuckling calls are given from concealment in the lower brush.

I doubt that *T. senegala* ever preys on vertebrates. In five stomachs of *camerunensis* we found only insect remains, including grasshoppers in three, beetles twice, caterpillars, a mantis, and a beetle larva once.

The majority of our specimens were found to be non-breeding birds. A male with some enlargement of testes in November and a nestling taken on March 29 both gave evidence of breeding during the period of drought in the Uelle, when they certainly sang very loudly. In some drier regions, however, other races have been found to nest during the rains.

Tchagra senegala sudanensis Sclater and Mackworth-Praed

Tschagra senegala sudanensis SCLATER AND MACKWORTH-PRAED, 1918, Ibis, pp. 637, 638 (type locality: Mongalla, Anglo-Egyptian Sudan).

Harpolestes senegalus soudanensis VAN SOMEREN, 1922, Novitates Zool., vol. 29, p. 113 (west of L. Albert).

Pomatorhynchus senegalus sudanensis CHAPIN, 1929, Jour. Ornith., Festschr. E. Hartert, p. 182 (L. Albert). FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 296 (Lado Enclave).

Tchagra senegala erlangeri STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 570 (Kasenyi).

Tchagra senegala sudanensis SCHOUTEDEN, 1941, Rev. Zool. Bot. Africaines, vol. 34, pp. 266, 365. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 88 (escarpment near Mahagi Port; Ishwa Plain).

DISTRIBUTION: Valley of the Bahr-el-Jebel and shores of Lake Albert, possibly to Mubendi in western Uganda. This race is rather like *T. s. erlangeri* in color, but smaller. Its iris, in adults, is rather dark brown with half a dozen small white dots arranged rather regularly around the inner margin. The beak is black; the feet are grayish blue with claws dark gray.

About Kasenyi on the western side of Lake Albert I found this race of the black-crowned tchagra common in bushy patches amid savannas. It should certainly extend to the lower Semliki Valley, but it does not invade even the edges of forest and was not noticed above the escarpment near Bogoro.

Tchagra senegala armena (Oberholser)

Pomatorhynchus senegalus armenus OBERHOLSER, 1906, Proc. U. S. Natl. Mus., vol. 30, p. 809 (type locality: Taveta, East Africa). CHAPIN, 1929, Jour. Ornith., Fetschr. E. Hartert, p. 182. SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 287 (Elisabethville).

Telephonus erythropterus DE SOUSA, 1886, Jor. Sci. Nat. Lisboa, vol. 11, p. 79 (Ntenque); 1886, *in* Capello and Ivens, De Angola a Contra-Costa, vol. 2, p. 445. SCHALOW, 1886, Jour. Ornith., p. 422 (Luvua R.). MATSCHIE, 1887, Jour. Ornith., p. 153. REICHENOW, 1887, Jour. Ornith., pp. 300, 308 (Manyanga; Kasongo). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 337, pl. 19, figs. 21, 23, eggs (Semliki Valley; south Ruwenzori, 3000 ft.; Mubuku Valley, 5000 ft.).

Telophonus erythropterus DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Telephonus erytropterus SCHALOW, 1887, Jour. Ornith., p. 238 (Marungu).

Pomatorhynchus senegalus REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 547 (in part). SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 5 (Lukonzolwa). NEAVE, 1910, Ibis, p. 228 (Dikulwe R., 4000 ft.). MOURITZ, 1914, Ibis, p. 34 (Sibokwa in Katanga). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 262 (old Mission St. Gustave; Manakwa; Tsisilongo; Dogodo R.; Kamba-Kamba). BERLIOZ, 1925, Bull. Mus. Hist. Nat., Paris, vol. 31, p. 349 (Luluabourg).

Telephonus senegalus DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (in part. Tanganyika).

Tschagra senegala SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 362.

Pomatorhynchus catholeucus SALVADORI, 1914, Ann. Mus. Zool. Napoli, new ser., vol. 4, no. 10, p. 21 (Kagera Valley).

Tschagra senegala camerunensis GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 121 (Makora; Masidongo).

Harpolestes (Pomatorhynchus) senegalus SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 30 (Urundi; Usumbura; Baraka; Ruzizi Valley; Kasindi).

Tchagra senegala armena SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 307; 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 126 (Molindi R.; Rwindi); 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 339 (Kabagari); 1949, idem, vol. 42, p. 166 (many localities in Katanga).

Pomatorhynchus senegalus erythropterus FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 294 (Katanga).

Tchagra senegala (rufofusca ≷ mozambica) LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 97 (Luebo).

Tchagra senegala camerunensis ≷ rufofuscus VERHEYEN, 1940, Mus. Roy. Hist. Nat. Belgique, vol. 16, no. 2, p. 5 (Kanzenze).

Tchagra senegala mozambica VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 23, p. 13 (Kikoma).

Tchagra senegala rufofusca WHITE, 1946, Ibis, p. 208 (Kasai District; Mwinilunga; Kawambwa; Isoka).

Tchagra senegala erythropterus VERHEYEN, 1947, Exploration du Parc National Kagera, Mission Frechkop, fasc. 2, p. 15 (Kazumbulale in Ruanda).

Tchagra senegalus rufofuscus ≷ mozambicus A. W. VINCENT, 1949, Ibis, p. 134.

DISTRIBUTION: The interior of Kenya Colony and Tanganyika Territory, southern Uganda, the eastern and southeastern Congo, and Northern Rhodesia. The southern limits are not clear, and *armena* is very similar to *erythroptera,* the race extending from Southern Rhodesia to eastern Cape Province.

I have seen this tchagra near Kasindi, in the Lubilia Valley, and in the Rutshuru Plain. There are specimens in the American Museum from Mohokyia in the adjacent part of Uganda. I have also collected it at Uvira, along the Lualaba River, and at Elisabethville, but on the highlands of Ruanda and the Kivu this bird is scarce or absent. In Marungu Rockefeller and Murphy found it up to 5650 feet at Lubenga. The western limit of this race seems to be near Luluabourg in the Kasai District.

The iris of *T. s. armena,* as I noted it from three adult males, is rather dark gray-blue, a little violaceous, with its inner rim dark brown, and outer rim blackish. There are no light dots.

The behavior is exactly like that of *T. s. camerunensis.* Near the base of Ruwenzori the British Museum Expedition found a nest, placed in a low acacia bush about 3 feet from the ground, and composed of small sticks and roots, with a lining of fine roots. It contained three eggs, white with irregular dashes, dots, and blotches of dull maroon-red and purplish gray, the markings more or less concentrated in a zone around the large end. Dimensions, 23–24 mm. by 17.7 mm. While nesting has been observed near Lake Edward in May and June, it is carried on in the Upper Katanga from the third week of September to the beginning of November. Alfred Vincent found nests at heights of 5 to 20 feet, always with two eggs. His measurements of eggs from the Katanga are 22.4–26.1 by 17–18.8 mm.

Tchagra senegala rufofusca (Neumann)

Telophonus senegalus rufofuscus NEUMANN, 1907, Jour. Ornith., p. 376 (type locality: Ngungo, north Bailundo, Angola).

Telephonus erythropterus SHARPE, 1873, Proc. Zool. Soc. London, p. 717 (Cabinda).

Pomatorhynchus senegalus REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 547 (in part. Manyanga). LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 12 (Mukimbungu).

Telephonus senegalus DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (in part. Kisantu; Mayombe).

Tschagra senegala rufofusca BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 356. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 342, 400 (Ngombe in Kasai; Tshisika; Kwamouth); 1924, idem, vol. 12, p. 273 (Kidada; Kisantu; Leopoldville); 1925, idem, vol. 13, p. 17 (region of Bolobo).

Pomatorhynchus senegalus rufofuscus CHAPIN, 1929, Jour. Ornith., Festschr. E. Hartert, p. 182 (Stanley Pool).

Tchagra senegala rufofusca SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 628. BERLIOZ, 1941, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 13, p. 403 (Brazzaville).

SPECIMEN: Leopoldville, male, July 6.

ADULT MALE: Iris dark gray, bill black, feet light bluish gray.

DISTRIBUTION: From the southern edge of the forest in the region of Stanley Pool and the Loango Coast south through Angola to the Waterberg in Southwest Africa. This race, with very ruddy upperparts and gray breast, seems to reach the western part of the Kasai District and then intergrades with *armena*. I doubt its occurrence in Northern Rhodesia.

In the vicinity of Leopoldville it is common, a dweller amid bushes in the grassland, like *camerunensis* in the Uelle. The one adult male taken in the dry season was in non-breeding condition. Nesting there is probably carried on mainly during the rains, though Malbrant secured a fledgling with tail two-thirds grown at Brazzaville on October 9. In March I have watched this tchagra still making rising flights with rather loud wing beats, not unlike the performance of *T. australis*. Afterwards it would perch, and then give the usual whistled song.

Tchagra australis frater (Reichenow)

Pomatorhynchus australis frater REICHENOW, 1902, Jour. Ornith., p. 258 (type locality: Bangwa, Cameroon); 1903, Die Vögel Afrikas, vol. 2, p. 546 (Ngombe on lower Congo R.); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 310 (L. Mohasi). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 262 (Kilo; Talia-Semliki confluence). FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 315 (Kivu region).

Telephonus trivirgatus HARTLAUB, 1857, System der Ornithologie Westafrica's, opposite p. lix ("Congo").

Telephonus australis DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Lower Congo).

Telophonus australis frater NEUMANN, 1907, Jour. Ornith., pp. 370, 371 (L. Kivu).

Pomatorhynchus australis var. *kiwuensis* REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 310 (type locality: Kisenyi, L. Kivu).

Tschagra australis emini SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, pp. 374, 379 (Ubangi R.).

Tschagra australis frater BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 357. GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 122 (Tamohanga; Ngoma).

Tchagra australis frater SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 626 (Stanleyville; west Ruwenzori). BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 417. BOUET, 1942, Ois. Rev. Française Ornith., new ser., vol. 12, p. 147 (Bangui); 1945, idem, new ser., vol. 14, p. 74 (Brazzaville).

SPECIMENS: Stanleyville, female, November 14; immature female, November 8. Gamangui, immature male, February 21. Medje, two males, March 5, May 24; female, January 26; three immature females, March 27, June 21, July 23. Niangara, immature male, January 20; juvenile female, December 4.

ADULTS OF BOTH SEXES: Iris dark purplish brown, with inner rim much lighter and grayish all around; bill black; feet light blue.

IMMATURE: Iris dark brown; bill blackish above, shading to gray beneath mandible; feet light blue.

DISTRIBUTION OF THE SPECIES: From Sierra Leone eastward to the Cameroon, the southern Bahr-el-Ghazal Province, and Kenya Colony; southward through the Congo, Angola, and East Africa to northern Natal, the Transvaal, and Damaraland.

There are about nine valid subspecies, of which three are certainly represented in the Congo. *Tchagra australis frater,* a large-billed form closely allied to *T. a. ussheri* (Sharpe) of Upper Guinea, occupies the borders and clearings of the Lower Guinea forest, from the Calabar Province of Nigeria to the Lower Congo and eastward to the Uelle District, the base of Ruwenzori, Lake Kivu, the forested Manyema, and the vicinity of Baraka.

Another race of rather similar coloration but often with smaller bill, *T. a. emini,* comes into the eastern borderland of the Congo and to Ruanda, but their intergradation is baffling, and in the main I have been forced to accept the identifications as given by authors. *Tchagra a. souzae,* on the other hand, is readily recognized by its rather uniform rufous inner secondaries, and has a small bill. It occupies the Katanga, the southern Kasai, and has even been reported from Kwamouth. The race *ansorgei,* described by Neumann from northwestern Angola, is of doubtful validity and not known from the adjacent part of the Congo.

In the northeastern part of the Congo forest and in the more wooded southern part of the Uelle we found *frater* a rather common bird of forest clearings, where it haunts the thickest brush available. From this concealment it repeats a short "chuck!" at intervals. The male also performs a

flight song, rising first obliquely above the bushes and giving a rapid series of whistled notes like "whew-whew-whew . . ." that almost become a trill. Loud beats of the wings accompany it. Then the notes are lengthened and die away as he comes gradually lower and lower, finally taking to cover again. Such a flight may carry him 20 or even 60 yards.

About Avakubi, in the central Ituri, where clearings were not extensive, this tchagra was not observed. Along the eastern margin of the Congo forest, even up to 7500 feet on the highlands, the brown-capped tchagra is a common bird and behaves in the same way, except that the notes of the flight song often seemed less musical, more "buzzy" in tone. It is in this region that I have so much difficulty in distinguishing between *frater* and *emini*. Some specimens do have bills that are not very stout, but I find no consistent difference.

So many of our adult specimens showed enlargement of the gonads that I expect nesting, in the Ituri forest, to continue throughout the year. Even at Niangara, it should be noted, a nestling was found in December. In southern Cameroon, Bates [1] found nests in March, August, September, and October—the most, however, in August. They were described as shallow cups of dry leaf stalks, grass, and other stems or rootlets, supported in a thick shrub or the forks of a manioc bush. The two eggs were pure white rather sparingly marked with small blotches and lines of brown and gray. Dimensions were 22–25 mm. by 16.5–18 mm.

The food I noted from six stomach examinations consisted wholly of insects, grasshoppers especially, and once a few caterpillars.

Tchagra australis emini (Reichenow)

Telephonus australis emini REICHENOW, 1893, Ornith. Monatsber., p. 60 (type locality: Bukoba, west shore of L. Victoria).

Telephonus emini OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 337 (Mubuku Valley, 6000 ft.; Mokia, 3400 ft.).

Pomatorhynchus australis emini SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 267 (Kilo); 1918, idem, vol. 5, p. 262 (Beni; Kamabo; Nya-Mundja). FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 288. FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 315.

Potamorhynchus australis emini SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 269 (Mangbetu country).

Harpolestes australis emini VAN SOMEREN, 1922, Novitates Zool., vol. 29, p. 110 (Semliki and Kivu district).

Harpolestes (*Pomatorhynchus*) *australis emini* SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 30 (Kisaka; Urundi; Usumbura; Kasindi; northwest of L. Tanganyika, 2000 m.; Baraka).

Tchagra australis emini SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 626 (Kivu and Uelle districts). SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 307 (Ngoma; Kibati; Lulenga); 1935, idem, vol. 27, p. 402 (Katana);

[1] 1908, Ibis, p. 335; 1909, Ibis, p. 33; 1911, Ibis, p. 536.

1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 130 (Medje; Mauda; Mahagi Port; Buta); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 126 (Mugunga; Nzulu; Ruhengeri, 1800 m.; Kanyabayongo; Kamande). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1226. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 77 (Kalehe near Lutunguru). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 88 (Kwandruma; Niarembe escarpment; Rethy).

Tschagra australis emini SCHOUTEDEN, 1933, Rev. Zool. Bot. Africaines, vol. 22, p. 374 (Nyundo).

DISTRIBUTION: Supposedly from the western and northern shores of Lake Victoria to the southern Bahr-el-Ghazal Province, the eastern side of Ruwenzori, Lake Kivu, and Ruanda. As explained above, it is all but impossible to draw any clear line between *emini* and *frater*.

Some specimens from the west slope of Ruwenzori, the west shore of Lake Kivu, and the vicinity of Baraka cannot be separated from the Cameroon race. Yet most authors have referred Kivu birds to *emini*, and that is an earlier name than *frater*. The brown-capped tchagra ascends to around 7200 feet on Ruwenzori, and to 7500 feet on the highland west of Lake Edward. There it frequents the thickets of bracken, elephant grass, and bushes, sometimes at the edge of mountain bamboos. The series of notes it delivered in flight seemed as a rule less musical, more wheezy in tone, than those I had been accustomed to hear in the northern Ituri. I was inclined to write them "chree-chree-chree . . ." or even "prizzy-prizzy-prizzy . . ."; otherwise the performance was the same.

In these equatorial latitudes no short breeding season would be expected. Descriptions of nests and eggs from eastern Africa show them to be very like those of *T. a. frater*.

[*Tchagra australis minor* (Reichenow)]

Telephonus minor REICHENOW, 1887, Jour. Ornith., p. 64 (type locality: Kagehi, Mwanza district, Tanganyika Territory).

Rather similar to *T. a. emini* but with paler brown back and a trifle smaller, the race *minor* extends from Kenya Colony to Nyasaland, a large part of Northern Rhodesia, and the Zambesi Valley. It has been reported from the region southeast of Lake Bangweolo but it is not known to reach Congo territory.

Tchagra australis souzae (Bocage)

Telephonus souzae BARBOZA DU BOCAGE, 1892, Jor. Sci. Nat. Lisboa, ser. 2, vol. 2, p. 203 (type locality: Quindumbo, Angola).

Pomatorhynchus australis congener NEAVE, 1910, Ibis, p. 228 (Dikulwe R., 4000 ft.; upper Lualaba R., 3500 ft.).

Tschagra souzae SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 382. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 343, 400 (Tshikapa; Kwamouth).

Pomatorhynchus minor MOURITZ, 1914, Ibis, p. 34 (Sibokwa's in Katanga).

Pomatorhynchus souzae SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 287 (Elisabethville).

Tchagra australis souzae SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 627 (Katanga). A. W. VINCENT, 1949, Ibis, p. 133.

Tchagra souzae souzae SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 166 (Kabalo; Kangué; Nieuwdorp).

DISTRIBUTION: From the highland of Angola near Bailundo eastward to the Upper Katanga, northward to the southern Kasai District, and supposedly Kwamouth. A closely allied form, *T. a. ansorgei* Neumann, was described from Pungo Andongo in northern Angola because of its more brownish breast and flanks. It may be based on immature birds, and it has not been reported from Congo territory.

Sousa's brown-capped tchagra is distinguished from the other races in the Congo by the more uniform rufous color of its inner secondaries and the warm brown tone of crown and back. Two examples which I collected near Elisabethville in August differ from those of Angola by the small size of their bills. The culmen (to base) measures only 17.3 and 18 mm., whereas in 10 adults from Angola I find the length to be 19–21 mm. My Katanga birds appear to be a little lighter brown above.

In the savanna woods near Elisabethville this tchagra is relatively easy to see. It may perch in trees some 25 feet above the ground, but is more apt to seek concealment amid the denser growth of small trees and bushes which so often flourishes on large termite mounds. Nesting is carried on during the rains. Near Elisabethville on October 12, Alfred Vincent found a nest 9 feet up, in a fork near the top of a leafy shrub. It held two eggs, white with fine lines and specks of chocolate brown and violet-gray, 22.9 by 17 and 22.3 by 16.5 mm.

Antichromus minutus minutus (Hartlaub)

Telephonus minutus HARTLAUB, 1858, Proc. Zool. Soc. London, p. 292 (type locality: Ashanti, Gold Coast). REICHENOW, 1887, Jour. Ornith., p. 309 (Kibondo). OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127. OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 338 (Mubuku Valley, 6000 ft.; south Ruwenzori, 3000 ft.). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 277 (southern Makraka). EMIN, 1922, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 3, p. 379 (Mswa); 1927, idem, vol. 4, p. 257 (Madjamboni = Nyangabo).

Pomatorhynchus minutus REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 552; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 310 (L. Mohasi; Kisenyi; Kasenyi). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 23 (Rutshuru; Beni; Kabare). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 262 (Biogo; Boga; Talia-Semliki confluence; Masidongo; Bulaimu; Bigoisagua; Mission St. Gustave; Lufungula).

Antichromus minutus DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1,

p. 31 (Kisantu). SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 387 (Ubangi and Uelle rivers). BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 357. GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 123 (Abeli; Tabaro; Sidabo). FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 317. SCHOUTEDEN, 1940, Rev. Zool. Bot. Africaines, vol. 33, p. 286 (Mt. Wago); 1942, idem, vol. 36, p. 339 (Bimba; Kibingo). HENDRICKX, 1944, Ostrich, vol. 15, p. 204 (southwest of L. Kivu).

Harpolestes (*Pomatorhynchus*) *minutus* SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 31 (Ruzizi Valley; Rutshuru Plain; Kasindi; Irumu).

Antichromus minutus minutus GRANVIK, 1934, Rev. Zool. Bot. Africaines, vol. 25, p. 122 (L. Kivu). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 570 (Bunia). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 130 (Mahagi Port; Mauda; Medje; Panga); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 127 (Nzulu; Munagana, 2000 m.); 1943, Rev. Zool. Bot. Africaines, vol. 37, p. 271 (Gabiro). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1229 (Kigezi; L. Albert). BANNERMAN, 1939, The birds of Tropical West Africa, vol. 5, p. 424, fig. 92. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 42, 77 (Rugari; Butahu R.). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 89 (Butembo; Mt. Mé; Nioka).

SPECIMENS: Boma, male, January 25. Niangara, male, January 18; female, April 27. Faradje, three males, January 8, February 23, October 10; two females, February 23, March 9; immature female, March 19.

ADULTS OF BOTH SEXES: Iris rose-pink, bill black with base of mandible sometimes blue-gray, feet lead-gray.

DISTRIBUTION OF THE SPECIES: From Sierra Leone to Nigeria, Lake No on the White Nile, and the southwestern border of Abyssinia. It does not invade the rain forests of Lower Guinea, but ranges southward through eastern Africa to Southern Rhodesia, and westward again across the southern Congo to the Loango Coast and Angola.

The nominate race, *minutus,* is distinguished by having a black stripe or patch at each side of the rufous back. It ranges from Sierra Leone to Abyssinia, south to Morogoro and Kigoma in Tanganyika Territory, to Ruanda, the Manyema, and the Lower Congo.

Antichromus minutus anchietae, with wholly rufous back, and wings 72–80 mm., extends from northern Angola eastward to the southern Kasai, Katanga, Nyasaland, and the eastern part of Southern Rhodesia. In the coastlands of East Africa, from Lamu to Ugogo, lives the smaller *A. m. reichenowi* (Neumann), with wings only 68–73 mm. long.

As compared with members of the genus *Tchagra,* this black-capped *Antichromus* is a rather stolid bird, generally seen in or near high grass, especially on the borders of marshes. I found it rather common about Boma, as it was also in the Upper Uelle, and as far south as Pawa in the northern Ituri. It follows the eastern margin of the Congo forest southward from the Lendu Plateau to the Ruzizi Valley and Baraka, but only occasionally lives at elevations above 6000 feet, in places not heavily wooded.

Its song is shorter than that of the typical tchagras, a musical warbling

phrase which suggests the words "to-day or to-morrow," given during a flight of only a few yards. The singer barely clears the grass tops.

Nesting evidently goes on during most of the rainy season, and in the Uelle stops toward October. Nests described by Jackson and by Serle were placed low down in bushes, where they were well concealed by rank grass. They were composed of rootlets and fibers, and bound to the supporting stems with cobweb. Sets may consist of two or of three eggs, white with spots and blotches of warm brown most numerous around the larger end, where there are also purplish shell marks. Dimensions: 22.7–23.5 by 17–17.5 mm.

Examination of seven stomachs indicated a diet exclusively of insects. Grasshoppers far outnumbered the beetles and other insects devoured; they were present in all but one case.

Antichromus minutus anchietae (Bocage)

Telephonus anchietae BARBOZA DU BOCAGE, 1870, Jor. Sci. Nat. Lisboa, vol. 2, p. 344 (type locality: Pungo Andongo, northern Angola). OGILVIE-GRANT, 1908, Ibis, p. 291 (northwest of L. Tanganyika, 4000 ft.).

Pomatorhynchus anchietae NEAVE, 1910, Ibis, p. 229 (Kambove, 4500 ft.; Lufupa R., 4000 ft.).

Antichromus anchietae SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 389. BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 358. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 343 (Tshikapa; Tshisika). FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 317 (Katanga).

Antichromus minutus anchietae SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 630. PRIEST, 1936, The birds of Southern Rhodesia, vol. 4, p. 78, fig. 22. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1230. WHITE, 1944, Ibis, p. 150 (Luapula R.; north of Solwezi). A. W. VINCENT, 1949, Ibis, p. 135 (Elisabethville). SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 166 (Kole; Sandoa; Kinda; Dilolo; Lukonzolwa; Kando).

DISTRIBUTION: From northwestern Angola and the northern edge of the Benguella Plateau east of the Kasai District, the Katanga, southwestern Tanganyika Territory, and south through Nyasaland to Gazaland. We have two male specimens from Luluabourg, and Rockefeller and Murphy secured a pair at Moba on Lake Tanganyika, as well as a male at Mkuli, 5225 feet, in Marungu. This plain-backed race would seem to meet with nominate *minutus* in the Manyema. Grauer collected an adult female of *minutus* on the northwest shore of Lake Tanganyika, and Bohndorff secured that same race at Kibondo. Yet Carruthers obtained *anchietae* to the northwest of Lake Tanganyika.

In behavior this southern race is exactly like *minutus,* frequenting high grass at the borders of woods and marshes and breeding during the rains. Its iris is pale purplish or amethyst-pink in both sexes. In Gazaland Swynnerton determined the food as grasshoppers, beetles, and dragonflies.

Alfred Vincent found nests near Elisabethville, each with two eggs, on

February 5 and March 5, as well as a third with two young on February 11. They were in small thorn trees and a tall weedy plant, concealed by high grass, and only 3 to 5 feet up. The eggs were pale cream, with small spots and specks of light chocolate or burnt umber and ashy gray. Dimensions: 22.8–23.9 by 16.4–16.9 mm.

KEY TO THE SPECIES OF *Chlorophoneus* IN THE CONGO

1. No green or yellow in adult plumage; crown and nape black, eyebrow whitish, lower back gray, and underparts whitish . . . . . *C. bocagei*
   With yellow or green somewhere in plumage, breast usually yellow or red, occasionally buffy or whitish 2
2. Anterior forehead yellow when adult, extending as a stripe of same color above eye; underparts yellow, often washed on check with scarlet . . . . . *C. sulfureopectus*
   Forehead not yellow, but usually with a narrow black band, and sometimes gray or whitish in females 3
3. Rectrices always green, outer ones only narrowly tipped at most with yellow . . . . . *C. nigrifrons*
   Rectrices green or black, outer ones always more broadly tipped with yellow or reddish, these tips at least 10 mm. broad . . . . . *C. multicolor*

Chlorophoneus bocagei jacksoni (Sharpe)

Dryoscopus jacksoni SHARPE, 1901, Bull. Brit. Ornith. Club, vol. 11, p. 57 (type locality: Nandi, western Kenya Colony).

Chlorophoneus bocagei jacksoni SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 26 (Beni; Moera; Mawambi). CHAPIN, 1947, Auk, p. 60.

Dryoscopus bocagei bocagei SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 624 (in part. Upper Uelle District).

Dryoscopus bocagei jacksoni SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 130 (Poko; Bomili; Buta). JACKSON, 1938, The birds of Kenya Colony and the Uganda Protectorate, vol. 3, p. 1223 (Kigezi). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 77 (Butahu R.).

Dryophoneus bocagei bocagei BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 399, fig. 85 (Poko; Gudima).

SPECIMENS: Avakubi, two males, August 26, September 2. Medje, two males, July 20, August 1; female, September 10. Pawa, female, July 7.

ADULT MALE: Iris dark red-brown, bill black, feet bluish gray.

ADULT FEMALE: Iris dark brown.

DISTRIBUTION OF THE SPECIES: From near Bamenda, Kumba, and Bipindi in the Cameroon southward to Ndala Tando in Angola, eastward across the Congo to the Nandi district of Kenya Colony. The nominate race, *C. b. bocagei* (Reichenow), is dark gray on the back, with tail of males black, that of females grayer. It inhabits the Cameroon, Spanish Guinea, and northern Gaboon, extending eastward probably into the Upper Congo.

A very similar race, *jacksoni,* occupies forests in the Uganda region, extending westward into the Congo. It is difficult to say where these two forms meet, because *jacksoni* scarcely differs except by the more blackish tail of its female. *Chlorophoneus b. ansorgei* of northwestern Angola is a little lighter gray on the back, the tail of females washed with gray. This seems to be the race occurring in the Lower Congo.

The close relationship between *Chlorophoneus bocagei* and *sulfureopectus* is evident in many ways. The juvenal plumage of *bocagei* has the throat white but the remaining underparts with indistinct gray barring and a wash of light yellow. The feathering of upperparts is gray, with rather broad tips of yellowish, each feather with a subterminal black bar. There is a pale superciliary stripe and below it a blackish band extending to the sides of neck. Wings and tail gray, with light greenish edgings and quills tipped with buff. In voice and general behavior *bocagei* also recalls *sulfureopectus.*

The type of *Chlorophoneus andaryae* Jackson[1] does not represent a valid species. It has been regarded as an aberrant example of *C. sulfureopectus,*[2] but the description suggests a greater affinity with *C. bocagei* or perhaps even a hybrid between those two species.

Chlorophoneus bocagei jacksoni is characteristic of the forested lowlands in the eastern Congo, extending northward into the heavier gallery forests of the Uelle and southward to the forested Manyema, perhaps also to the Kasai. A male specimen from Luluabourg is indistinguishable from *jacksoni,* but it might also be taken for the nominate race.

In the Ituri *jacksoni* is a fairly common inhabitant of old second growth and trees at the borders of clearings. The male reveals his presence by whistled notes very like those of *C. sulfureopectus* in the savanna countries. "Twee ti ti teer" he often calls, but the exact form may vary. This song is seldom heard during the driest part of the year.

A nest found at Avakubi on August 20 was placed in the forks of a branch in an acacia tree, 35 feet up. It was of open texture and artless appearance but composed exclusively of strong spiral tendrils of some vine, which intertwined so as to give great strength. By September 2 it held two eggs, already heavily incubated. These were light green, thickly spotted and streaked with dull dark brown. The male was seen to incubate them. One of these eggs measured 21.9 by 16 mm.; and an egg of *C. b. bocagei,* 21 by 15.5 mm., according to Bates, who likewise noted that the nest was composed entirely of tendrils. The same material is used by *C. sulfureopectus.*

Caterpillars must form the principal food of *C. bocagei;* they were all I found in six out of seven stomachs. Only one bird had eaten other insects.

[1] 1919, Bull. Brit. Ornith. Club, vol. 39, p. 94 (Kisubi, near Entebbe, Uganda).

[2] 1946, Grant and Mackworth-Praed, Bull. Brit. Ornith. Club, vol. 67, pp. 39–40.

Chlorophoneus bocagei ansorgei (Sclater)

Dryoscopus bocagei ansorgei SCLATER, 1911, Bull. Brit. Ornith. Club, vol. 29, p. 37 (type locality: Ndala Tando, Angola).

Chlorophoneus bocagei DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Kisantu).

Chlorophoneus bocagei ansorgei CHAPIN, 1947, Auk, p. 61 (Lower Congo).

DISTRIBUTION: The forest patches of northwestern Angola, from Canhoca and Ndala Tando northward; also the Lower Congo. A male from the Mayombe Forest agrees with *ansorgei,* and I believe Father Goosens' specimen from Kisantu also belongs here.

At Lukolela on the middle Congo I never once heard the familiar calls of this species, during a stay of many months, but in the Mayombe I found it at once amid the flamboyant trees right in the post of Ganda Sundi. Near Camabatela, Angola, Rudolf Braun tells me, *C. b. ansorgei* lives in forest, while *C. sulfureopectus* inhabits the neighboring savannas wherever there are suitable trees.

Chlorophoneus sulfureopectus sulfureopectus (Lesson)

Tchagra sulfureopectus LESSON, 1831, Traité d'ornithologie, p. 373 (Africa; restricted type locality: Senegal).

Laniarius sulfureipectus OUSTALET, 1893, Naturaliste, ser. 2, vol. 8, p. 127.

Laniarius similis OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 339 (Mubuku Valley, 5000 ft.; Mokia, 3400 ft.).

Chlorophoneus sulfureopectus SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 426 (in part. Mangbetu country). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 115 (Masidongo).

Chlorophoneus sulfureopectus chlorogaster SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 262 (in part. Masidongo).

Chlorophoneus sulfureopictus chrysogaster SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 135 (Negunda; Tomaya; Tunguru; Nyamsansi).

Dryoscopus sulphureipectus SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 245.

Chlorophoneus sulfureopectus sulfureopectus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 632 (Shari R. district; Uganda). FRIEDMANN, 1930, Occas. Papers Boston Soc. Nat. Hist., vol. 5, p. 251; 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 303. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 131 (Tiro R.; Mauda; Faradje; Abimva; Niarembe); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 127 (Mai-ya-Moto; Kanyabayongo; Katanda); 1940, Rev. Zool. Bot. Africaines, vol. 34, p. 60 (Kawa Forest). BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 431. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 89 (Mahagi Port).

SPECIMENS: Dungu, two males, January 24. Faradje, male, November 19; two females, February 26, October 5; immature male, November 20. Aba, female, July 20. Garamba, immature female, July 7.

ADULTS OF BOTH SEXES: Iris dark brown to reddish brown, bill black, feet bluish gray.

DISTRIBUTION OF THE SPECIES: Senegal to southern Abyssinia, East Africa, and from the southern Congo to eastern Cape Province. It avoids heavy forests in both Upper and Lower Guinea.

Chlorophoneus s. sulfureopectus, with auriculars black in males, ranges from Senegal to Uganda and western Kenya Colony. In most of eastern Africa the reddish chest band is deeper in color, auriculars less black; yet *C. s. suahelicus* differs but little from *C. s. similis* (Smith) of South Africa. *C. s. fricki* Friedmann of southern Abyssinia and northern Kenya Colony was believed to have more green on the crown, while *C. s. modestus* of Angola and the southern Congo is said to have less reddish color on the chest. These racial characters are shown clearly only by adult males.

Within our limits, nominate *sulfureopectus* is found in the grasslands of the Uelle and those near Lake Albert and Lake Edward. It haunts the trees scattered in the savannas and along the outer borders of gallery forests. Hopping and flying from bough to bough, it lets one know of its presence by repeating a cheery sequence of whistles which I transcribed as "twĭ-twĭ-twĭ—teer" or "twĭ-twĭ-tir—teer." These could be confused only with the call of *C. bocagei,* but the latter species always kept to more wooded spots, if only a few miles away, as in the Mangbetu country or the Semliki Valley.

Most of our specimens, taken in the dry season, showed no indication of reproductive activity save for one male in late January. In Nigeria Hutson found a pair building on May 10; in Uganda nests have been reported in February and March. The end of the drought or beginning of the rains would seem to be the season for reproduction.

The nest is usually placed in a high bush or acacia tree at 10 to 12 feet above the ground. One, in Uganda, was built entirely of tendrils, and Captain Pitman assures me that the eggs are very similar to those of *C. bocagei jacksoni.*

Of four stomachs of this shrike which I examined, two held caterpillars, the others only other insects.

Chlorophoneus sulfureopectus suahelicus (Neumann)

Cosmophoneus sulphureopectus suahelicus NEUMANN, 1899, Jour. Ornith., p. 395 (type locality: Kakoma, Tanganyika Territory).

Chlorophoneus sulfureopectus suahelicus SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 25 (Baraka; Ruzizi Valley).

Chlorophoneus sulfureopectus similis SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 307 (Lulenga).

DISTRIBUTION: Supposedly from Southern Somaliland and central Kenya Colony to Mozambique. But *fricki* of southern Abyssinia may not be separable, and *suahelicus* is very close to *similis* of South Africa. It seems advisable to use the name *suahelicus* for the birds of East African type which occur near Lake Kivu, in eastern Ruanda, and in the Ruzizi Valley. The

birds of Baraka and the Manyema grasslands may prove to be closer to *modestus*.

On the highlands of the Kivu and Ruanda the sulphur-breasted shrike seems to be extremely scarce. Grauer collected one female in eastern Ruanda near the Kagera River, and a male at Kitengule on the Kagera.

Chlorophoneus sulfureopectus modestus (Bocage)

Laniarius modestus BARBOZA DU BOCAGE, 1867, Jor. Sci. Nat. Lisboa, vol. 1, p. 151 (type locality: Benguella, Angola).

Laniarius chrysogaster DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Laniarius similis DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Laniarius sulphureipectus SCHALOW, 1886, Jour. Ornith., p. 420 (Lukumbi R.).

Laniarius sulfureipectus REICHENOW, 1887, Jour. Ornith., p. 308 (Kasongo).

Chlorophoneus sulphureipectus MATSCHIE, 1887, Jour. Ornith., p. 153.

Chlorophoneus sulfureopectus chrysogaster REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 562.

Cosmophoneus sulfureopectus var. *chrysogaster* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Mpala).

Chlorophoneus sulfureopectus LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 13 (Lower Congo). SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 426 (in part. Lufupa R.).

Chlorophoneus chrysogaster NEAVE, 1910, Ibis, p. 227 (Kambove, 4500 ft.; Lufupa R., 4000 ft.).

Chlorophoneus sulfureopectus chlorogaster SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 262 (in part. Kamba-Kamba; Mboka; Kabemba).

Chlorophoneus sulfureopectus modestus FRIEDMANN, 1930, Occas. Papers Boston Soc. Nat. Hist., vol. 5, p. 252; 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 303. CHAPIN, 1947, Auk, p. 61. SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 166 (Kabalo, Moba; Kiambi; Kapiri; Kinda; Nieuwdorp).

Chlorophoneus sulfureopectus similis A. W. VINCENT, 1949, Ibis, p. 135 (Elisabethville).

DISTRIBUTION: Over the greater part of Angola, and thence eastward to the Manyema, the western shore of Lake Tanganyika, and the Upper Katanga. In this race the red of the chest seems less well marked than in East and South African birds; the gray of the nape may not extend so far down the back.

From the Lower Congo there is but a single record. Father George Windmolders tells me he has obtained one specimen at Mérode in the Kasai. From the Manyema more are known. Rockefeller and Murphy collected this race at Moba on Lake Tanganyika and in Marungu at Mlonde, Kasoko, and Lubenga (5650 feet). Neave found it in the Upper Katanga, where I too have seen it near Elisabethville.

In behavior *modestus* is exactly like the nominate race, frequenting open savanna woods. Near Elisabethville Alfred Vincent found it in fair num-

bers, laying its eggs chiefly from mid-September to mid-October. The nest is shallow, built of small twigs, or occasionally of dark plant tendrils, and usually with a lining of finer vegetable materials. It is placed at a height of 9 to 20 feet and contains two eggs, greenish white, pale bluish green, or cream, streaked, smeared, and speckled with browns of varying sorts, also with gray shell markings. Dimensions: 21.1–23.8 by 15–17 mm.

Chlorophoneus multicolor batesi Sharpe

Chlorophoneus batesi SHARPE, 1908, Ibis, p. 330 (type locality: River Ja, southern Cameroon).

Chlorophoneus melamprosopus ituriensis SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 267 (type locality: Kilo); 1918, idem, vol. 5, p. 263.

Chlorophoneus multicolor theliei SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 268 (type locality: Kilo); 1918, idem, vol. 5, p. 263 (Kokoba); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 130 (Bondo Mabe). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 631.

Chlorophoneus multicolor graueri SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 23 (in part. Moera; Mawambi-Irumu). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 114 (Abeli).

Chlorophoneus melamprosopus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 631. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 130 (Bondo Mabe). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1231 (Mpanga Forest).

Chlorophoneus multicolor batesi BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 429. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 77 (in part. Semliki R.; Tungula R.; Butahu R.; Djelube R.). CHAPIN, 1947, Auk, pp. 56, 62 (Medje).

Chlorophoneus multicolor SCHOUTEDEN, 1939, Bull. Cercle Zool. Congolais, vol. 16, pp. 34, 37 (Mongbwalu); 1940, idem, vol. 16, pp. 71, 99.

SPECIMEN: Medje, immature male, August 21.

ADULTS OF BOTH SEXES: Iris reddish mauve, with narrow whitish inner rim; bill black, feet light blue-gray, claws dark gray.

DISTRIBUTION OF THE SPECIES: Sierra Leone to the Cameroon, the Ituri, and Toro in western Uganda, thence southward in the eastern Congo to the country west of Uvira; also in woods of northwestern Angola. In Lower Guinea the species seems to avoid the central Congo Basin.

Chlorophoneus m. multicolor occupies forested Upper Guinea and British Cameroons, while *C. m. batesi,* with blacker rectrices, ranges from the base of Mt. Cameroon along the northern edge of the forest belt eastward to Toro. Adult males usually have considerable white just behind the black of the forehead. This race is also known from northwestern Angola, from Oyem in the Gaboon, but not the Lower Congo. *C. m. graueri,* with much less white on forehead of males, extends from the highland west of Lake Edward to the mountains northwest of Lake Tanganyika.

This species exhibits four color phases. Black-chested males are known

only from Upper Guinea and ·a in the British Cameroons[1]; buff-breasted examples only within t] ;e of *graueri*. In the subspecies *batesi* adults of either sex may be re· ·asted or golden-breasted; thus far I have examined 17 with red and 1(·ı golden breast.

In the northeastern Congo *C* *batesi* appears to be restricted to the border regions of the forest, espe y the Nepoko area, vicinity of Kilo, and Semliki Valley, where it lives in densest thickets, or tangles of creepers draped from trees. I never saw it around Avakubi. Additional examples were secured in 1926 at Djugu, 5400 feet, west of Lake Albert, and in the vicinity of the new post of Beni, 3900 feet. Though occurring at the base of Ruwenzori, this gaudy shrike is not known to ascend above 5000 feet there.

Attention is apt to be attracted by their prolonged rasping call notes, but even then the birds are difficult to see, and I have never heard any musical song. Serle mentions a whistled "whoop" as very characteristic. Single birds or pairs are the rule. Along the northern edge of the forest some individuals have been found in breeding condition in January, but the nest of this species has never been found.

Examination of four stomachs showed caterpillars in three cases, a grasshopper, a moth, a small stick-insect, and bits of small beetles.

Chlorophoneus multicolor graueri (Hartert)

Laniarius graueri HARTERT, 1908, Bull. Brit. Ornith. Club, vol. 23, p. 10 (type locality: forest west of L. Edward); 1909, Novitates Zool., vol. 16, p. 335 (northwest of L. Tanganyika).

Laniarius rubiginosus rudolfi HARTERT, 1908, Bull. Brit. Ornith. Club, vol. 23, p. 10 (type locality: forest 90 km. west of L. Edward); 1909, Novitates Zool., vol. 16, p. 335 (northwest of L. Tanganyika).

Chlorophoneus melamprosopus SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 422 (in part. West of L. Edward; west of L. Tanganyika). BERLIOZ, 1935, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 7, pp. 161, 162 (Mbwahi); 1936, idem, ser. 2, vol. 8, p. 332.

Chlorophoneus melamprosopus reichenowi HARTERT, 1920, Novitates Zool., vol. 27, p. 451.

Chlorophoneus rubiginosus rudolfi HARTERT, 1920, Novitates Zool., vol. 27, p. 451. VAN SOMEREN, 1922, Novitates Zool., vol. 29, p. 114. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 24. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 633.

Chlorophoneus nigrifrons conceptus HARTERT, 1923, Bull. Brit. Ornith. Club, vol. 43, p. 79 (type locality: forest northwest of L. Tanganyika, 2000 m.); 1928, Novitates Zool., vol. 34, p. 211 (120 km. west of L. Tanganyika). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 633. FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 322.

Chlorophoneus multicolor graueri SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 23 (in part. Northwest of L. Tanganyika, 2000 m.). CHAPIN, 1947, Auk, pp. 54, 57, 62.

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[1] See Serle, 1950, Ibis, pp. 621–622; 1952, Bull. Brit. Ornith. Club, vol. 72, pp. 26–27.

Chlorophoneus graueri HARTERT, 1928, Novitates Zool., vol. 34, p. 211.

Chlorophoneus multicolor batesi VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 77 (in part. Vicinity of Lutunguru).

DISTRIBUTION: Highlands along the western side of the Albertine Rift, from west of Lake Edward south to the country west of Uvira, mainly at elevations of 5000 to 7000 feet. Few red-breasted birds of this race are known, but in addition to golden-breasted birds of both sexes there are some with almost no yellow color on the underparts. The upperparts and facial markings are the same as in golden-breasted examples. Although named by Hartert as a race of *C. rubiginosus,* such individuals represent only a color phase of *C. m. graueri.* Thus far I know of 14 golden-breasted and four buff-breasted specimens of this race. A. Prigogine tells me that to the northwest of Lake Tanganyika the buff-breasted birds are more numerous than red-breasted.[1]

The type of *conceptus* is an immature golden-breasted male of *graueri,* not a representative of the species *nigrifrons.* If intergradation between *multicolor* and *nigrifrons* is suspected, it must be sought farther south, somewhere between the Kivu and the Katanga. In the region of Lake Victoria a wide gap seems to divide their ranges.

In the country near the Ulindi and Elila rivers, Rockefeller and Murphy found *C. m. graueri* living in mountain forests, amid the thickest tangles. At Mohanga, 5800 feet, west of Lake Edward, in 1937 I collected one golden-breasted male in very tangled woods near the edge of a clearing.

The colors of eyes, bill, and feet are the same in both phases of *graueri* as in *batesi;* the iris has been noted as red or purplish, bill black, feet blue-gray.

Chlorophoneus nigrifrons manningi (Shelley)

Malaconotus manningi SHELLEY, 1899, Bull. Brit. Ornith. Club, vol. 8, p. 35 (type locality: Nyasa-Tanganyika Plateau).

Chlorophoneus nigrifrons NEAVE, 1910, Ibis, p. 226 (Kambove, 4500 ft.). SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 425.

Chlorophoneus melamprosopus SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 422 (in part. Kambove).

Chlorophoneus nigrifrons manningi SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 633. FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 322. CHAPIN, 1947, Auk, pp. 54, 61. SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 166 (Kapiri).

Chlorophoneus abbotti manningi VINCENT, 1935, Ibis, pp. 754, 755. WHITE, 1946, Ibis, p. 209 (Mwinilunga).

DISTRIBUTION OF THE SPECIES: Northern Transvaal and Melsetter District north to Mwinilunga, the Katanga, Usambara, and Marakwet in Kenya

[1] At Tshibati I have seen a red-breasted male mated with a buff-breasted female.

Colony. Restricted to highland forests, from 3000 feet up in Usambara and 5000 feet in Kenya Colony.

This species shows four phases of coloration corresponding to those of *C. multicolor*. Black-breasted males have been found only in Usambara and on Mt. Namuli in Portuguese East Africa. Red-breasted birds of both sexes occur in Kenya Colony, on Kilimanjaro, and from the Katanga to the Transvaal. Golden-breasted birds are known from Kenya Colony and Tanganyika Territory; and buff-breasted from Mt. Kenya, Teita, and Tanganyika Territory.

It is difficult to see on what basis this group can be divided into geographic races. For the present, perhaps, we can recognize only *manningi* as separable from nominate *nigrifrons*. From the Katanga and Ufipa southward, the vast majority of males are rather red-breasted, but the red is not quite so bright as in Kenya Colony. In other respects there is little difference, unless the small yellow terminal spots on the remiges are taken as another character of *manningi*. Vincent found the iris to be alizarin-scarlet in both sexes, bill black, feet bluish slate-gray.

This is the only representative known from the Congo, where it is restricted to the Katanga, and not yet known to come in contact with *C. multicolor*. Neave and White both found *C. n. manningi* only in patches of evergreen forest at elevations near 4000 and 4500 feet. In the region south of Nyasa Jack Vincent[1] noted that these shrikes were always in company with parties of bulbuls, preferring the densest cover of forest canopy or enveloping liana growths. Their calls were a clear fluty whistle repeated at intervals of four or five seconds, or two fluty notes sometimes followed by a rasping chitter drawn out at the end.

In that area it seemed that eggs were laid mainly from late July to August. The Bensons[2] found a nest among lianas in evergreen forest, 60 feet up, a shallow saucer made of dried twigs and tendrils, on October 25. The two eggs were pale greenish, with elongate smears of dark brown and light chocolate, as well as grayish shell markings. Dimensions: 22.4 by 17 and 22.3 by 17.3 mm.

Key to the Species of *Telophorus* in the Congo

A chestnut stripe down middle of breast and abdomen, flanks green; forehead yellow or brown, not red like throat . . . . . *T. viridis*

Lower breast and abdomen entirely yellow; forehead bright red like throat . . . . . *T. dohertyi*

Telophorus viridis viridis (Vieillot)

Laniarius viridis Vieillot, 1817, Nouveau dictionnaire d'histoire naturelle, vol. 13, p. 300 (type locality: Malimbe, Loango Coast). Gadow, 1883, Catalogue of

[1] 1935, Ibis, pp. 753–756.

[2] 1947, Ibis, p. 289.

the birds in the British Museum, vol. 8, p. 165 (Landana). REICHENOW, 1887, Jour. Ornith., p. 305 (Leopoldville).

Laniarius gutturalis HARTLAUB, 1857, System der Ornithologie West-africa's, p. 108 (Congo); 1884, Jour. Ornith., p. 98.

Ixonotus landanae OUSTALET, 1884, Ann. Sci. Nat., Zool., Paris, ser. 6, vol. 17, art. 8, p. 2 (type locality: Landana, Loango Coast).

Chlorophoneus gutturalis REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 566. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 400 (Kwamouth); 1937, Bull. Cercle Zool. Congolais, vol. 13, p. 103 (Thysville).

Telophorus viridis SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 397. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 635. BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 434, fig. 93.

DISTRIBUTION OF THE SPECIES: From the Loango Coast south to the Cuval River in Benguella Province; eastward to Kwamouth, to Kabinda in the Sankuru District, and to the Cavungu District of Angola, near the headwaters of the Zambesi. The western part of the range is occupied by nominate *viridis,* of which both sexes are much alike in color, with wings 80–87 mm.

Telophorus v. vieirae, of the eastern sections, is slightly larger, with the female apparently somewhat duller in color. It is believed to range northward from the Cavungu District to Kabinda in the Sankuru District of the Congo. *Telophorus quadricolor* (Cassin) of the lowlands of eastern and southeastern Africa is closely allied to *T. viridis,* but of lighter coloration. The dull-colored juvenile of *T. v. viridis* was mistaken by Oustalet for a new species of *Ixonotus.*

In northwestern Angola and the Lower Congo Perrein's bush-shrike skulks in the shrubbery of gallery forests and clearings in more wooded localities. It may be expected to give rasping call notes, and its short series of resonant whistles, like "hew-hew-wheet, hew-hew-wheet!" were described by L. Petit.[1]

Nothing is known of its breeding, but the nest must certainly be built low down in tangles of bushes or vines, like that of *T. quadricolor,* which lays two pale greenish blue eggs spotted with red-brown and purplish slate.

Telophorus viridis vieirae White

Telophorus viridis vieirae WHITE, 1946, Bull. Brit. Ornith. Club, vol. 67, p. 23 (type locality: Kamano R., Cavungu, eastern Angola).

DISTRIBUTION: Described from the Cavungu District in eastern Angola and thus to be expected within our limits near Dilolo and in the Sankuru District, the race *vieirae* differs but little from nominate *viridis.* It may be a little larger, the female duller as compared with the male. Mr. White has kindly provided us with three specimens, their wings measuring 86–90 mm.

[1] 1926, Dix années de chasse, p. 233.

At Kabinda in the Sankuru District, Father George Windmolders collected at least three examples for the Congo Museum, and Schouteden tells me they represent *T. v. vieirae*.

White's notes on behavior agree with those for nominate *viridis*. This eastern race lives low down in patches of thick woods, is very elusive, yet betrays its whereabouts by a loud call, "ko-ko-kwi!"

Telophorus dohertyi (Rothschild)

Laniarius dohertyi ROTHSCHILD, 1901, Bull. Brit. Ornith. Club, vol. 11, p. 52 (type locality: Kikuyu Escarpment, Kenya Colony). OGILVIE-GRANT, 1908, Ibis, p. 290 (Mfumbiro Volcanoes, 7000 ft.).

Chlorophoneus dohertyi REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 312 (Bugoie Forest, 2500 m.; northwest of L. Tanganyika, 1900 m.). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 263 (Biogo; Baraka; Kibati; foot of Mt. Karisimbi); 1929, Bull. Cercle Zool. Congolais, vol. 5, p. 77; 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 339 (Astrida). VAN SOMEREN, 1922, Novitates Zool., vol. 29, p. 116. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 25.

Telophorus dohertyi SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 400; 1930, Systema avium Aethiopicarum, pt. 2, p. 635. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 307 (Mt. Mikeno; Lulenga; Burunga; Nya-Muzinga); 1933, idem, vol. 22, p. 374 (Rwankeri); 1933, Inst. Roy. Colonial Belge, Bull. Séances, vol. 4, p. 150; 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 127 (Mt. Bisoko in Kibumba, 2000 m.; Tshamugussa, 2250 m.; Kundhuru-ya-Tshuve; Nyabitsindi, 2400 m.). BERLIOZ, 1936, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 8, p. 333 (Lugege in Ruanda). FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 306. JACKSON, 1938, The Birds of Kenya Colony and . . . Uganda, vol. 3, p. 1236. VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 9, p. 2 (Mt. Kabobo).

Telophorus quadricolor dohertyi VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 42, 77 (Mushumangabo; Mangwa near Lutunguru).

ADULTS: Iris dark brown, bill black, feet gray-blue, claws blackish.

DISTRIBUTION: Highlands above 5000 feet, from Nyeri and the Aberdare Mountains in Kenya Colony to Elgon, the Mau Plateau, and the highlands of the eastern Congo from Butembo south to Mt. Kabobo. It does not occur on the Lendu Plateau or Ruwenzori, but is rather common on most of the highlands of the Kivu and Ruanda at elevations between 6000 and 9000 feet.

Doherty's bush-shrike is not a bird of dense forests, but prefers thickets of scrub and bracken. There it lives in pairs, keeping so well under cover that one rarely sees both birds. Its presence is announced by a rather musical phrase of sharp, short notes which usually sounded like "quit-quit-quit-work!," although "quick" might better suggest its spirit than "quit." This may be taken to represent the song, and one or two syllables were occasionally added. Less often I heard a "quip!" followed by a rising whistle,

"whee-u. . . ." A prolonged low rasping sound issuing from low scrub might also come from this shrike.

Near Behungi in the Kigezi District, on Mt. Mikeno, and on Mt. Kandashomwa I have found these birds up amid the bamboos, hiding in thick bushes. Male and female are closely alike in color. A few stomach examinations showed only the remains of insects, some of them beetles.

The nest has not been found. In Kenya Colony young in barred juvenal dress have been collected between December and March. On Mt. Kandashomwa Rockefeller and Murphy took a breeding female in July, but a little farther south near Baraka Grauer obtained a barred young bird as late as November. Closer to the Equator I expect nesting to be possible in almost any month.

KEY TO THE SPECIES OF *Malaconotus* IN THE CONGO

1. Tail with a subterminal black bar; throat and breast more or less washed with bright red . . . . . *M. cruentus*
   Tail without a subterminal black bar; underparts yellow, sometimes washed with brown on chest 2
2. Lores gray like crown and cheeks; inner secondaries tipped with yellow, but blackish subterminally . . . . . *M. lagdeni*
   Lores paler gray or whitish, unlike the gray of crown; inner secondaries tipped with yellow, but elsewhere green . . . . . *M. poliocephalus*

Malaconotus cruentus gabonensis Shelley

Malaconotus gabonensis SHELLEY, 1894, Bull. Brit. Ornith. Club, vol. 3, p. 43 (type locality: Gaboon).

Laniarius hypopyrrhus OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127 (Ubangi R.).

Malaconotus cruentus gabonensis BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 74 (Bangui).

DISTRIBUTION OF THE SPECIES: Sierra Leone to forested Cameroon, Gaboon, and Ubangi; also in the forested Semliki Valley. The nominate race of Upper Guinea is less heavily washed with scarlet on throat and breast than *M. c. gabonensis*. The latter form occupies the southern Cameroon and the Gaboon, extending eastward to the great bend of the Ubangi River, but is unknown in the central Congo Basin. The species reappears in the eastern Congo Forest, where a few specimens have been obtained near Buta, at Angumu, and in the Semliki Forest. But *M. c. adolfi-friederici* is very similar to *gabonensis*.

Dybowski's specimen from Bangui, wrongly identified by Oustalet, shows that *gabonensis* may be expected in the Belgian Ubangi District, if indeed it does not range eastward to Buta. In the Cameroon Bates found this bird living in dense thickets in the woods, giving harsh calls and presumably a soft cooing sound as well. It eats beetles and other insects, also small frogs.

A nest was reported to have been shallow and loosely built of dry vines, small twigs, and leaf stems, with a lining of black rootlets, and placed in a thicket of *Aframomum*. The three eggs were pinkish white, spotted and blotched with rich maroon and pale purple, measuring 28 to 28.5 by 20.5 mm.[1]

Malaconotus cruentus adolfi-friederici Reichenow

Malaconotus adolfi-friederici REICHENOW, 1908, Ornith. Monatsber., p. 191 (type locality: forest near Beni, Semliki Valley). SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 417. SCHOUTEDEN, 1929, Bull. Cercle Zool. Congolais, vol. 5, p. 75 (Buta); 1938, idem, vol. 15, p. 8 (Angumu).

Malaconotus gabonensis adolfi-friederici REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 314. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 23.

Malaconotus gabonensis adolfi-friderici SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 265 (Moera; Lesse).

Malaconotus cruentus adolfi-friederici SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 637. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 131. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 78 (Semliki R.; between Biangolo and Modidi rivers).

Malaconotus cruentus adolfi-friderici SCHOUTEDEN, 1942, Bull. Cercle Zool. Congolais, vol. 17, p. 7.

MALE: Iris grayish white, bill black, feet gray-blue, claws blackish distally.

DISTRIBUTION: Eastern Congo forest, where it is known only from the vicinity of the Semliki, Angumu, and supposedly Buta. This race differs only slightly at most from *gabonensis,* and it would seem that the bird from Buta might well belong with *gabonensis.* The range is probably not so discontinuous as it may seem, as this fiery-breasted bush-shrike is observed only with difficulty. I thought I saw it once between Rungu and Niangara in the southern Uelle.

Finally in February, 1927, near the lower Butahu River in the Semliki Forest my attention was attracted by some unaccustomed calls being given by two, or possibly three, of these striking birds. One sat high up in the forest canopy and repeated a "toot" or "coo" like that of *Tricholaema hirsutum* about six times, then took it up again after a short interval. Meanwhile another bird or two perched somewhat lower down amid tangled vines, calling "kick-ik-ik," and giving another still more rasping note. There I succeeded in shooting one male, another bird was seen to fly away, and the bird in the treetops continued to coo. For 20 minutes I pursued this last bird, saw it well enough for identification, and then lost it when it ceased cooing.

My male bird from the Semliki scarcely differs in color from *gabonensis,* unless it be a little deeper red on the fore-neck. Its dimensions are small: wing, 107 mm.; tail, 94 mm. Males of *gabonensis* have wings 110–115 mm.,

[1] Bates, 1911, Ibis, p. 540.

tails 100–105 mm. According to Sassi, a male from Moera had the wing only 103, the tail 97 mm., and its back was purer green than that of *gabonensis*. Perhaps this eastern race can be distinguished by its smaller size.

Malaconotus poliocephalus catharoxanthus Neumann

Malaconotus catharoxanthus NEUMANN, 1899, Jour. Ornith., p. 391 (type locality: Bongo, Bahr-el-Ghazal Province).

Laniarius poliocephalus SHARPE, 1884, Jour. Linnean Soc. London, zool., vol. 17, p. 423 (Semio).

Malaconotus poliocephalus catharoxanthus NEUMANN, 1903, Ornith. Monatsber., p. 90; 1905, Jour. Ornith., p. 226. SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 631 (Mt. Baginzi). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 131 (Mauda; Dika; Faradje; Niarembe). FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 307. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 89 (Ishwa Plain).

Malaconotus monteiri catharoxanthus REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 601.

Malaconotus olivaceus SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 450 (Zone of Gurba-Dungu).

Meristes icterus SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 245 (Nambia brook at Gangere-tambu; Negunda).

Meristes olivaceus SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 277 (Bellima).

Malaconotus poliocephalus poliocephalus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 636 (in part). BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 435, pl. 10 (in part). GRANT AND MACKWORTH-PRAED, 1942, Bull. Brit. Ornith. Club, vol. 63, p. 27 (in part).

SPECIMENS: Faradje, six males, February 8, October 12, 21, November 20, December 9; three females, August 20, September 19, 20; two immature males, July 3, August 26; immature female, October 5. Garamba, male, June 30; immature female, July 19.

ADULTS OF BOTH SEXES: Iris orange, bill black, feet blue-gray.

Immature birds have the iris yellow, the bill light gray.

DISTRIBUTION OF THE SPECIES: Senegal to Eritrea and Abyssinia, to East Africa, Angola, and Pondoland in eastern Cape Province; wanting in forests of Upper and Lower Guinea.[1]

Despite any opinion to the contrary, the variation in brownish color on the chest is geographic. Most conspicuous in *M. p. schoanus* Neumann of southern Abyssinia and *M. p. approximans* (Cabanis) of the coast of East Africa, it is wanting in *M. p. catharoxanthus* of Eritrea, the eastern Sudan, and the savannas of the northern Congo, Uganda, and North Kavirondo. The Angola race *M. p. monteiri,* too, is almost always yellow-chested and rather short-billed. Birds from southeastern Africa, *M. p. hypopyrrhus,*

[1] The correct name for the species as a whole may well be *M. blanchoti* Stephens. See Grote, 1936, Anz. Ornith. Gesellsch. Bayern, vol. 2, pp. 373–374.

show a moderate amount of brown on the chest, and intermediates between that form and *monteiri,* ranging from the Manyema to the Katanga, may be recognized as *M. p. interpositus.*

Along the boundaries between such races examples of mixed character may be expected. Nominate *poliocephalus,* extending from Senegal to Northern Nigeria or Cameroon, has a faint wash of brown, and so I find *catharoxanthus* to be valid. *Malaconotus gladiator* (Reichenow) of Mt. Cameroon has sometimes been regarded as a green-breasted mutant of *M. poliocephalus,* but Serle[1] has taken a second specimen near Bamenda, and it must be accepted as a valid species.

This giant yellow-and-green bush-shrike is fairly common in the more open savannas of the Uelle District and may occur along the upper Ubangi. It reaches the vicinity of Mahagi, but has not been reported from Kasenyi or from the country around Lake Edward. We knew it best from Dungu and Faradje northward.

Wandering in pairs or small parties amid the smaller trees in the savannas, or at Faradje in the groves of Ceará rubber trees, the birds would often have escaped notice were it not for a strange hollow whistle repeated at intervals, most frequently in the early morning. This call had some slight similarity to that of *Nilaus afer* and was often introduced by one or two abortive attempts audible only at close range.

With such a powerful beak, this shrike might be expected to display unusual rapacity. I examined 13 stomachs, all containing insects, and of vertebrate prey only one leg of a chameleon. Orthoptera (grasshoppers and a mantis) were found in four cases, bees twice, wasps and beetles twice. A large winged termite, a large dragonfly, some caterpillars, and two millipedes completed the list. In other regions of Africa shrikes of this species have been known to devour lizards, a snake, a frog, a small bird, and bird eggs.

From our dissections it was clear that nesting was carried on in the early part of the rains and mostly before the month of September. In Nigeria nests of *M. p. poliocephalus* have been found by Shuel and by Serle in February, March, June, and September. They are shallow cups of twigs, tendrils, dry leaves, or root fibers, placed in forks of trees from 15 to 25 feet up. Three eggs form a set, they are pinkish white, lilac, or pale lilac-brown, blotched at the large end especially with chestnut-brown and purplish brown, and with lavender shell markings. Dimensions: 28.8–30.2 by 19.6–21.5 mm.

Malaconotus poliocephalus monteiri (Sharpe)

Laniarius monteiri SHARPE, 1870, Proc. Zool. Soc. London, p. 148, pl. 13, fig. 1 (type locality: Dande R., Angola).

[1] 1950, Ibis, p. 622.

Malaconotus poliocephalus monteiri NEUMANN, 1905, Jour. Ornith., p. 226 (L. Moero). STRESEMANN, 1924, Jour. Ornith., p. 86. FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 308. VERHEYEN, 1940, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 16, no. 2, p. 6 (Kanzenze).

Malaconotus monteiri SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 636.

Malaconotus poliocephalus SCHOUTEDEN, 1938, Bull. Cercle Zool. Congolais, vol. 15, p. 39 (near Luashi, southern Lulua District).

DISTRIBUTION: From Angola eastward to the southern Congo, apparently as far as the western Katanga and Mwinilunga in Northern Rhodesia, possibly to Lake Moero.

The whitish color about the eye of the types was possibly abnormal,[1] for this race is usually characterized by its pure yellow breast, dark gray feathering on eyelids, and relatively small beak. It is true that Ansorge collected one bird with brown-tinged chest at Caiala in Bihé Province. But specimens obtained by White from the Cavungu District in eastern Angola agree with *monteiri*. Three of his birds from Balovale and Mwinilunga begin to approach *interpositus*.

It is surprising that the species is still unknown in the Lower Congo and Kasai. In behavior *M. p. monteiri* must agree with the other races.

Malaconotus poliocephalus interpositus Hartert

Malaconotus interpositus HARTERT, 1911, Bull. Brit. Ornith. Club, vol. 29, p. 36 (type locality: 40 km. west of Baraka, L. Tanganyika).

Archolestes icterus DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Meristes olivaceus SCHALOW, 1886, Jour. Ornith., p. 416 (Manda in Marungu); 1887, idem, p. 239. MATSCHIE, 1887, Jour. Ornith., p. 153 (Mpala).

Malaconotus monteiri REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 600. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 265 (Yamba-Yamba; Nganza, west of L. Tanganyika).

? *Malaconotus olivaceus starki* REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 603 (Mpala).

Laniarius poliocephalus OGILVIE-GRANT, 1908, Ibis, p. 287 (northwest of L. Tanganyika, 4000 ft.); 1911, Bull. Brit. Ornith. Club, vol. 29, p. 36.

Malaconotus poliocephalus SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 407 (in part).

Malaconotus poliocephalus interpositus HARTERT, 1920, Novitates Zool., vol. 27, p. 452. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 23 (Baraka; Uvira). SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 287; 1949, idem, vol. 42, p. 166 (Dilolo; Kiambi; Kabalo; Albertville; Luashi; Tembwe). FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 308.

Malaconotus olivaceus DE RIEMAECKER, 1927, Rev. Zool. Bot. Africaines, vol. 14, p. 278 (Elisabethville).

Malaconotus blanchoti blanchoti A. W. VINCENT, 1949, Ibis, p. 138.

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[1] A single bird of similar coloration from Mt. Cameroon was described as *Laniarius perspicillatus* Reichenow, 1894, Jour. Ornith., p. 36.

DISTRIBUTION: From the Ruzizi Plain and the grasslands of the Manyema south through Marungu to the Upper Katanga. This is of course only a population of intermediates between the yellow-breasted *monteiri* and the brownish-chested *hypopyrrhus,* yet the coloration is stable enough to merit a trinomial name.

Grauer obtained one specimen in the Ruzizi Plain, others on the northwest shore of Lake Tanganyika. Rockefeller and Murphy took an adult male at Kampia, 4525 feet, in Marungu, with only a light brownish wash on chest. I have examined De Riemaecker's specimen of *interpositus* from Elisabethville, a locality where one may expect some variation in chest color. In other parts of the continent, too, where a yellow-breasted race approaches one with brownish chest, rather similar intermediates will be found.

Near Elisabethville Alfred Vincent found nests in the second half of September and in October, placed in the tops of trees, from 12 to 25 feet up. Three eggs were more common than two. Cream or buff in color, they are spotted rather evenly with light chocolate or raw umber, and measure 27.1–32 by 20.1–22.4 mm.

Malaconotus poliocephalus hypopyrrhus Hartlaub

Malaconotus hypopyrrhus HARTLAUB, 1844, Systematisches Verzeichniss der naturhistorischen Sammlung der Gesellschaft Museum, Bremen, Abth. 1, Vögel, p. 61 (Africa; restricted type locality: Durban, Natal).

DISTRIBUTION: From the eastern end of Cape Province north to Lusaka and Fort Jameson in Northern Rhodesia, then north through the interior of Tanganyika Territory to eastern Ruanda and to Nairobi in Kenya Colony. Two examples taken by Grauer in eastern Ruanda near Isavi are referable to this race, which must also approach the border of the southeastern Katanga.

The giant bush-shrike is well known in southeastern Africa as a bold robber of other birds' nests, attacking snakes, fond of catching lizards in shrubbery, and eating frogs, smaller birds and their eggs, as well as a large centipede. Yet the greater part of its food must consist of insects, and its behavior is exactly like that of *catharoxanthus*. The voice, too, is similar, though said to include a single, flute-like call, as well as the soft mellow whistle accompanied by clicks or clinking sounds. The alarm note is rasping.

In Rhodesia and Nyasaland the breeding season is mainly in September and October, but nests have been noted at the end of July and as late as early December. They are placed at levels of 10 to 25 feet, and usually contain three eggs. These may be either greenish cream-color or pale pinkish, spotted with purplish brown or reddish, and also with lilac. Dimensions: 27–32 by 20–21.5 mm.

Malaconotus lagdeni centralis Neumann

Malaconotus lagdeni centralis NEUMANN, 1920, Jour. Ornith., p. 80 (type locality: forest west of L. Tanganyika). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 114 (Lulenga). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 23. SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 128 (Kibumba, 2300 m.; Bitashimwa, 1950 m.; Kamatembe; Mt. Karisimbi, 3800 m.).

Laniarius lagdeni WOOSNAM, 1907, Geogr. Jour., London, vol. 30, p. 628 (Ruwenzori). OGILVIE-GRANT, 1908, Ibis, p. 289 (east Ruwenzori, 9000 ft.; Mfumbiro Volcanoes); 1910, Trans. Zool. Soc. London, vol. 19, p. 340.

Malaconotus lagdeni REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 314 (northwest of L. Tanganyika). SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 415; 1930, Systema avium Aethiopicarum, pt. 2, p. 637. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 264 (Kibati); 1932, idem, vol. 21, p. 306 (Burunga). CHAPIN, 1927, Ibis, p. 360 (west Ruwenzori). BATES, 1930, Handbook of the birds of West Africa, p. 439. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1238. BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 439, fig. 94.

ADULTS OF BOTH SEXES: Iris rather light gray faintly tinged with bluish; bill black; feet light grayish blue.

DISTRIBUTION OF THE SPECIES: Although the type of *M. l. lagdeni* (Sharpe)[1] was obtained in Ashanti, West Africa, the only other examples of the species have come from the highlands near the eastern Congo border, from Ruwenzori southward through the Kivu to the mountains northwest of Baraka. The eastern race, *centralis,* has been separated because of its supposedly shorter, thicker beak.

In the Rothschild Collection there is one adult specimen secured by Rudolf Grauer at 2400 meters on the Kivu Volcanoes, and four more from 2000 and 2100 meters on the mountains northwest of Baraka. At the latter locality Grauer also collected two young birds in complete juvenal plumage on October 31 and November 7. In this dress the throat and middle of breast are whitish gray, crown and cheeks brownish gray, beak gray-brown.

From the known distribution one might have expected that *M. lagdeni* would be found on the highlands of Cameroon, where only the rather mysterious *M. gladiator* with green breast has been secured. It may also be recalled that the Uluguru Mountains in East Africa have a montane species, *Malaconotus alius* Friedmann, with black head and cheeks.

Lagden's bush-shrike is an extremely elusive bird, haunting dense thickets in mountain forests at levels between 6000 and 10,000 feet. Pairs seem to be the rule; they should have a characteristic call, but it has not been detected. I might never have seen this shrike had not my hunter Djega discovered its nest on December 7, 1926, placed at a height of 11 feet in the forks of a

[1] 1884, Proc. Zool. Soc. London, p. 54, pl. 5.

small tree. The tree grew amid dense second growth in an old clearing below the hamlet of Kalongi on west Ruwenzori.

Both birds of the pair were collected, the female having one egg still in the oviduct, in addition to the one already laid. The nest was a bulky bowl of dry leaves and bracken, and two eggs would probably be a complete set. They were dull light gray with specks and spots of dark brown slightly tinged with purplish. Grouped densely about the blunt end, these markings were sparse elsewhere. Dimensions : 30.2 by 20.9 mm.

In feeding habits *M. lagdeni* no doubt resembles *M. poliocephalus*. My examination of two stomachs revealed the remains of insects and the bones of a small frog.

KEY TO THE SPECIES OF *Laniarius* IN THE CONGO

1. Coloration almost entirely black or dark slate-color, no light markings save sometimes on rump 2
   Coloration more varied 4
2. General color dark slate, blackest on head, wings, and tail; rump-feathers with half-concealed spots of white; tail equal in length to wing . . *L. funebris*
   Color more blackish, no light spots on rump, tail somewhat shorter than wing . 3
3. Wing more than 87 mm. long; plumage black with a weak silken sheen . . . . . *L. leucorhynchus*
   Wing less than 87 mm. long; plumage with a faint ashy cast, especially on back . . . . . *L. poensis*
4. Throat, breast, and flanks bright red 5
   Throat and breast whitish, buff, or brownish; or, if orange-red, then that color does not extend to lower breast or flanks 6
5. Crown black like back, no white on upper wing-coverts . . . *L. erythrogaste*
   Crown brownish yellow, middle wing-coverts tipped with white . *L. mufumbir*
6. Crown black; underparts white, often with a light wash of pinkish buff . . . . . *L. ferrugineus*
   Crown light brown or rufous; throat and chest cinnamon or even orange-scarlet, but abdomen and flanks always white . . . . . *L. lühderi*

Laniarius erythrogaster (Cretzschmar)

Lanius erythrogaster CRETZSCHMAR, 1829, *in* Rüppell, Atlas zu der Reise im nördlichen Afrika, Vögel, p. 43, pl. 29 (type locality: Kordofan).

Laniarius erytrogaster DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Ituri; "Uele").

Laniarius erythrogaster REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 313 (Rutshuru Plain; Semliki Plain; west of L. Albert). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 23 (L. Edward; Kasindi; Rutshuru). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 264 (Beni; Karimi; Molekera; Talia-Semliki confluence; Kayera; Kaniki; old Mission St. Gustave); 1935, idem, vol. 27, p. 402 (Katanda); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 129 (Mahagi Port); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 128 (Mai-ya-Moto; Rwindi; west shore of L. Edward); 1938, Bull. Cercle Zool. Congolais, vol. 14, p. 105 (region of L. Kisale); 1940, idem, vol. 16, p. 98 (Lualaba R.); 1940, Rev. Zool. Bot. Africaines, vol. 34, p. 60 (Kawa Forest);

1941, idem, vol. 34, pp. 266, 365. SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 137 (Tunguru). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 116 (Kabare; Kasindi; Masidongo). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 26 (Urundi; Rutshuru Plain). BOWEN, 1931, Proc. Acad. Nat. Sci. Philadelphia, vol. 83, p. 292 (Bukama). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 570 (Kasenyi). BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 384, fig. 80. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 89 (Ishwa Plain).

Laniarius barbarus erythrogaster VERHEYEN, 1947, Exploration du Parc National Kagera, Mission Frechkop, fasc. 2, p. 14 (Uruwiti Plain in Ruanda); 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 38, 77 (Vitshumbi; old Radiadia).

ADULTS: Iris dull light yellow, bill black, feet very dark lead-gray.

DISTRIBUTION: From Adamawa in northern Cameroon eastward across the Sudan to Eritrea and southern Abyssinia, southward through Uganda and the eastern Congo border to the vicinity of Rutshuru, eastern Ruanda and Urundi, and the southern shore of Lake Victoria. Also in the vicinity of the Lualaba River from Lake Kisale to Bukama.

Although approaching the forest so closely on the east, this black-and-red bush-shrike is unknown in the Ubangi and Uelle districts, and does not even reach the southwestern Bahr-el-Ghazal Province. Specimens supposedly from the Ituri and Uelle, collected by Polidori and Millo-Ribotti came probably from the Lado Enclave.

Laniarius erythrogaster has sometimes been regarded as conspecific with the wide-ranging *L. barbarus* Linnaeus of the western Sudan. The case is complicated by the occurrence of another form, *mufumbiri,* with yellowish crown and distinctly longer toes and claws, within the range of *erythrogaster.* The fact that some specimens of *erythrogaster,* especially in the Lualaba area, show scattered yellow feathers on the crown does not aid in understanding the relationships.

In the lowlands around Lake Albert and Lake Edward *erythrogaster* is a common and familiar bird, most apt to be found amid thorny acacias and patches of dense bush in the savannas. It does not invade the Semliki Forest or ascend to the highlands. Pairs are the rule, and from time to time the male gives a single ringing whistle, to which the female may answer immediately with a drier rasping "turr." The first note suggests an oriole's, but is shorter, less mellow.

In Uganda the breeding periods are said by Jackson to be from March to July and again in September and October. This is likely to be true for the vicinity of Lake Edward. The nest is built of rootlets and grass or bark fiber, lined with fine rootlets, and placed in a thick bush or in a tree up to 25 feet from the ground. The eggs are usually two, pale blue or bluish green, heavily blotched with reddish brown and gray. Dimensions: 22.9–25 by 17.8–18 mm.

My examination of the stomachs of three birds revealed pieces of Orthoptera and other insects, two caterpillars, and in each case a few small seeds that evidently came from fruit.

Laniarius mufumbiri Ogilvie-Grant

Laniarius mufumbiri OGILVIE-GRANT, 1911, Bull. Brit. Ornith. Club, vol. 29, p. 30 (type locality: "Mufumbiro Volcanoes," corrected later to Vitshumbi, L. Edward; also from Ruchuduru in Ruchiga, southwest Uganda); 1912, Ibis, p. 332 (Vitshumbi). SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 321. VAN SOMEREN, 1922, Novitates Zool., vol. 29, p. 118 (Kivu District). GROTE, 1930, Falco, vol. 26, p. 10.

Laniarius barbarus mufumbiri BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 10, p. 206; 1939, The birds of tropical West Africa, vol. 5, p. 382. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 616 ("Rutshuru"). FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 306. SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 129. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1207. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 39, 40.

DISTRIBUTION: From the region around Lake Kioga and the northern shore of Lake Victoria westward to Toro, southern Ankole, the Kigezi district, and presumably the shores of Lake Edward.

FIG. 3. *Laniarius mufumbiri*, a red-breasted bush-shrike living in papyrus swamps.

This bird looks like a small counterpart of *Laniarius barbarus,* but is lighter and duller red beneath and has white tips on middle wing-coverts. Its dull yellowish crown does not extend quite so far back; its toes and claws are distinctly longer. If the two forms were not separated by a gap of nearly 1500 miles, and if *L. erythrogaster* did not seem to agree much more closely in behavior with *barbarus,* then it might seem possible to treat *mufumbiri* as a race of the latter.

The name *mufumbiri* is unfortunate, since this bush-shrike has never been taken on the Kivu Volcanoes. The type is labeled as having been obtained by Mrs. M. Roby at Vitshumbi, south of Lake Edward, on December 4, 1910. I have since sought for the bird at Vitshumbi myself, and there found only two pairs of *L. erythrogaster,* feeding amid euphorbias, acacias, and other trees.

What I did not know at the time, however, is that in Uganda *L. mufumbiri* keeps strictly to large papyrus swamps. According to Jackson and to Pitman, it is relatively common, but of retiring habits, in the vast areas of papyrus around the whole northwestern side of Lake Victoria. So it is still possible that *mufumbiri* will be found living amid the papyrus and reeds on both the northern and the southern shores of Lake Edward, while *erythrogaster* prefers trees on drier ground and goes right down to the edges of the swamps.

We are assured that *L. mufumbiri* constantly makes itself known by two mellow notes, "yo-yo" or "yoo-yo," which are even more pleasant than the call of *erythrogaster.* Pitman has sought in vain for the yellow-crowned bird around Lake George, on the Uganda shore of Lake Edward, and in the papyrus swamps of the Kigezi highland. It may well be that *mufumbiri* is mainly restricted to levels below 5000 feet. Its nest has not been found.

Laniarius lühderi lühderi (Reichenow)

Dryoscopus lühderi REICHENOW, 1874, Jour. Ornith., p. 101 (type locality: Cameroon Delta).

Laniarius dubiosus LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 13 (Mukimbungu).

Laniarius lühderi REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 313 (Kwidjwi I.; northwest of L. Tanganyika). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 269 (Kilo); 1918, idem, vol. 5, p. 263 (Beni; Zambo; Moera; Kokoba); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 129 (Djalasinda; Arebi). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 26 (Ukaika; Mawambi). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 621. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1215. BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 397, fig. 84. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 77 (Bilati, Lepi, and Mangwa, near Lutunguru; Kabakuli R.; Semliki R.).

Laniarius luehderi SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 301.

Laniarius lühderi lühderi VAN SOMEREN, 1922, Novitates Zool., vol. 29, p. 118. PETERS AND LOVERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 261.

Laniarius luhderi CHAI ?7, Bull. Amer. Mus. Nat. Hist., vol. 53, p. 478.
SCHOUTEDEN, 1932, Rev. . ot. Africaines, vol. 21, p. 307 (Lulenga; Burunga;
Kibati; west of Ngoma); Exploration du Parc National Albert, Mission de
Witte, fasc. 9, p. 129 (f· ·st of Rutshuru Plain). BOUET, 1942, Ois. Rev.
Française Ornith., new sei 12, p. 146 (Brazzaville).
Laniarius luhderi luhderi ;DMANN AND LOVERIDGE, 1937, Bull. Mus. Comp.
Zool., vol. 81, p. 311 (Ruar .

SPECIMENS: Avakubi, 1. nale, October 27. Bafwabaka, female, July 25. Babonde, female, July 16. Medje, two males, March 24, April 16; immature male, August 12. Pawa, five males, July 6, 7, 13, 15, 18. Niangara, immature male, May 7.

ADULTS OF BOTH SEXES: Iris dark reddish brown to dark-brownish red, bill black, feet light blue.

IMMATURE MALE: Iris reddish brown; bill dark gray, corners of mouth light greenish gray; feet light blue.

DISTRIBUTION OF THE SPECIES: From the base of Mt. Cameroon eastward to the southern Uelle District, Mt. Elgon, the Nandi District, and the east side of Lake Tanganyika. Apparently wanting in most of the central region of the Congo forest but present along its northern and eastern edges, also in the Lower Congo. Represented in wooded areas of northwestern Angola by two very distinct races.

Laniarius l. lühderi extends with little if any change from the Cameroon to western Kenya Colony, Mt. Kungwe on the east side of Lake Tanganyika, and to Stanley Pool and the Lower Congo. Its throat and breast are deep cinnamon in both sexes. Much more beautiful is *L. l. brauni* Bannerman, of the woods near Quicolungo in northwestern Angola, which has the whole throat bright orange-scarlet in both sexes. Near Amboim, farther south in Angola, lives *L. l. amboimensis* Moltoni, with throat and breast white.

In view of the distribution in Angola, it seems strange that there is no record of the species from the Kasai. The heavy forests of the central Congo are not suited to this bush-shrike. During my long stay at Avakubi in the Ituri I observed only one pair; yet in 1937, between Stanleyville and the Tshopo Falls, I listened to one calling from a patch of scrubby second growth.

It was on the northern edge of the Ituri forest, between the Nepoko and Bomokandi rivers, that I first found Lühder's bush-shrike common. In that country of the Mabudu, a succession of thickets, elephant grass, and gallery forests, one continually heard a hoarse "whaw" or "k-kaw" of somewhat metallic resonance, lasting about a second. It invariably issued from the densest scrub and often was answered with a dry "k!-k!-k!-k!" by the female of the pair. I have occasionally heard the male give a slightly musical double note, faintly reminiscent of *L. ferrugineus,* and when disturbed he

may utter a protracted guttural call, quite disagreeable. The skin of the neck, in the male, is thickened and distensible, as though the esophagus may be inflated during calling.

Along the eastern margin of the Congo forest, wherever there are thickets and second growth, this bird is likewise quite common, up at least to an elevation of about 6000 feet. I have noted it up to 5100 feet in the woods on the east of the Rutshuru Valley, and within a few hundred feet of sea level at Ganda Sundi in the Mayombe.

Birds in juvenal dress are quite unlike adults, being olive-brown above, washed with yellow below, and barred on some parts of the body. In the Nepoko area we obtained breeding birds in April and July, so nesting there went on in the rains. In the southern Cameroon Bates described the nests as shallow cups, set in forks of low trees or bushes and built of weed stems, with a lining of fine rootlets. The eggs, in sets of two, are pale blue or greenish blue, rather finely spotted with reddish brown, yellow-umber, and bluish gray. Dimensions: 22–27 by 16–18 mm.

The food of *L. lühderi* is mainly of insects. In nine stomachs examined, the only animals of other classes were one isopod crustacean (a "pill-bug") and two tiny hard-shelled snails. The insects eaten were largely beetles, but four of the birds had also taken caterpillars, and one a leaf-hopper.

[*Laniarius lühderi brauni* Bannerman]

Laniarius lühderi brauni BANNERMAN, 1939, Ibis, p. 748, pl. 16, fig. 2 (type locality: Quicolungo, northwestern Angola).

This very spectacular race of *L. lühderi* with orange-scarlet chest is not to be expected in the Lower Congo but may perhaps be hoped for in woods along the Kwango River near the Franz Joseph Falls. It is known to extend in Angola from Quibaxi, about 50 kilometers north of Ndala Tando (Ruldolf Braun assures me) northward at least to Camabatela, longitude 15° 27′ E., latitude 8° 19′ S. Shunning the open savannas, it has a voice much less pleasing than that of *L. ferrugineus,* and similar no doubt to that of nominate *lühderi.*

Laniarius ferrugineus major (Hartlaub)

Telephonus major HARTLAUB, 1848, Rev. Mag. Zool., vol. 11, p. 108 (type locality: Elmina, Gold Coast).

Laniarius aethiopicus SHARPE, 1884, Jour. Linnean Soc. London, zool., vol. 17, p. 423 (Semio). REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 577 (Djanda).

Laniarius major EMIN, 1894, Jour. Ornith., p. 170 (Irumu). OGILVIE-GRANT, 1908, Ibis, p. 290 (northwest of L. Tanganyika, 2800 ft.). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 263 (Beni; Biogo; Kayumba; Dogodo R.; Kirungu; Molekera). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 136 (Makraka; Buguera). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 26 (Urundi; Usumbura; Baraka; Uvira; Ruzizi Valley).

Laniarius maior REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 580 (Niam-Niam; Nyangabo); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 312 (Kisenyi; Ruanda; Kwidjwi I.; west Ruwenzori, 1600 m.). SALVADORI, 1909, Ann. Mus. Civ. Genova, ser. 3, vol. 4, p. 324 (Buta-Dungu).

Laniarius aethiopicus major LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 24 (Kasindi; Rutshuru). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 116 (Sake).

Laniarius ferrugineus major FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 757 (Lulenga). BERLIOZ, 1932, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 4, p. 377 (Kadjudju on L. Kivu). SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 308 (Ngoma); 1933, idem, vol. 22, p. 374 (Kilinkuli); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 129 (Mauda; Dika; Faradje; "Panga"); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 129 (Mugunga; Nzulu; Molindi R.; Bitashimwa, 1950 m.; Ruhengeri); 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 339 (Astrida; Kibingo). BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 393, fig. 83 (Kwango on Ubangi R.; Angba on Uelle R.). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 40, 77 (Semliki R.; Butahu R.) VRIJDAGH, 1949, Gerfaut, vol. 39, p. 90 (Nioka; Mt. Mé; Ishwa Plain).

SPECIMENS: Dungu, male, January 25. Faradje, four females, February 20, 23, May 11, July 21; immature female, February 25. Aba, female, December 22. Garamba, female, July 14; immature male, July 19.

ADULTS OF BOTH SEXES: Iris dark brown, bill black, feet bluish gray.

DISTRIBUTION OF THE SPECIES: Portuguese Guinea across the Sudan to Eritrea and Abyssinia, and south through grasslands in eastern Africa to southern Cape Province, also westward again to Angola, the southern Congo, and the Loango Coast. There are about 15 valid races.

In the extreme south *L. f. ferrugineus* (Gmelin) and other races living south of the Limpopo River have females of duller coloration than that of the males. Those of the remaining subspecies are very like the males. The white stripe on the upper side of the wing varies geographically and is wanting in *sublacteus* of the East African coast and *turatii* of Sierra Leone and Portuguese Guinea. It does not extend to the inner secondaries in *ambiguus* and *aethiopicus* of East and Northeast Africa, and *bicolor* of the Gaboon often lacks white there.

The pinkish or pinkish buff suffusion of the pale underparts is likewise variable. Within our limits it is rather well developed in *major* of the north and east, less evident in *mossambicus* of the Katanga, and practically wanting in *guttatus* just south of the Congo forest.

Laniarius ferrugineus major ranges from eastern Sierra Leone to the Bahr-el-Ghazal and to the Rift Valley in Kenya Colony. Avoiding the heavy forests in Lower Guinea, it extends south on the eastern side of the Congo forest to the northern end of Lake Tanganyika.

There are local variations within this area. Cameroon birds have wings 99 to 111 mm. Those of the Uelle are surprisingly small, wings 90–95 mm.,

and deeply tinted on the breast. In the Kivu the wing length again increases: 100–110 mm. East of Lake Tanganyika *major* must meet with *mossambicus;* to the west it intergrades with *guttatus.*

The boubou, or bell-shrike, is a familiar bird in all the northern savannas of the Congo and in the eastern grasslands as well, heard much more often than seen. It ascends to over 6000 feet, wherever the country is not forested. Living in pairs, it searches the thickets for insect prey, the male giving a short series of loud mellow whistles, which are answered immediately by its mate. At first one is not sure that the two to five notes are not being produced by a single bird. Then it appears that the female is usually answering her mate from very near, and sometimes two birds will call together from a considerable distance.

A native at Faradje remarked rather aptly that the birds called "peté peté, ku-lé"; those words fit very well for many of the singers in the Upper Uelle. But there may be considerable variation even within the area occupied by this race. As might be expected, other harsher calls are also uttered. Singing continues throughout the year in the Uelle, but breeding was apparently limited to the first half of the rains.

On May 11 a nest was found near Faradje, placed between four divergent branches, 18 feet up, in the top of a small tree. This height was probably exceptional. Built of dry plant stalks with a lining of rootlets, this nest contained two eggs, pale bluish with a heavy wreath of rusty brown spots about the larger end and a few similar spots elsewhere. They measured 24.5 by 16.9 and 23.5 by 17.7 mm. The female was incubating. Two eggs of *major* from Nigeria were said by Serle to measure 26.9–27 by 18.6–18.7 mm. West of Baraka, Grauer secured a nestling on January 19.

I did not find that this bush-shrike molested other birds. In six stomachs I noted only remains of insects: beetles usually, winged termites once, and a single caterpillar.

Laniarius ferrugineus mossambicus (Reichenow)

Dryoscopus major mossambicus REICHENOW, 1880, Jour. Ornith., p. 141 (type locality: Mozambique).

Laniarius aethiopicus var. *major* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Moliro).

Dryoscopus mossambicus NEAVE, 1907, Mem. Proc. Manchester Lit. Phil. Soc., vol. 51, no. 10, p. 74 (Ndola, Northern Rhodesia); 1910, Ibis, p. 228 (Kambove, 4000 ft.; Bunkeya R., 3000 ft.).

Laniarius mossambicus approaching *guttatus* SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 308.

Laniarius major MOURITZ, 1914, Ibis, p. 34 (Sibokwa's in Katanga).

Laniarius ferrugineus mossambicus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 619 (Katanga). A. W. VINCENT, 1949, Ibis, p. 129 (Elisabethville).

Laniarius ferrugineus major VERHEYEN, 1940, Bull. Mus. Roy. Hist. Nat.

Belgique, vol. 16, no. 2, p. 5 (Kanzenze). GRANT AND MACKWORTH-PRAED, 1944, Bull. Brit. Ornith. Club, vol. 64, p. 46 (in part).

Laniarius ferrugineus major ≷ *mossambicus* VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 23, p. 12 (Pweto; Musosa).

Laniarius ferrugineus SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 167, in part (Upper Katanga localities).

DISTRIBUTION: Coastlands of Mozambique, the Zambesi Valley, and Nyasaland. While this race has been said to reach the Upper Katanga, the wing length there is 96–107 mm., and the birds look very like *major* of the Cameroon. The breast is more pinkish than in *guttatus,* which occupies much of the southern Congo.

The behavior of *mossambicus* is described as similar to that of *major;* its calls may differ slightly. This shrike has been seen taking two young sunbirds from a nest. The breeding season in Nyasaland is from mid-November to January; in the Katanga Alfred Vincent found eggs from the last week of September to early December. A favorite site for the nest was a multibranched tree or bush in some sort of tangle, generally from 5 to 14 feet from the ground. It is a shallow bowl, sometimes rather substantial, with a base of twiglets and a middle layer of tendrils and rootlets, a lining of finer tendrils, and some cobweb used to fasten the nest in place. Sets were of two eggs, pale green or bluish green, sometimes more creamy, always streakily spotted and speckled with reddish or yellowish brown, and more obscurely marked with gray. The markings are denser around the large end. Dimensions: 20.3–26.3 by 16.9–18.6 mm.

Laniarius ferrugineus guttatus (Hartlaub)

Dryoscopus guttatus HARTLAUB, 1865, Proc. Zool. Soc. London, p. 86 (type locality: Benguella, Angola).

? *Laniarius barbarus* JOHNSTON, 1884, The River Congo, p. 364.

Malaconotus major DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Dryoscopus aethiopicus SCHALOW, 1886, Jour. Ornith., pp. 411, 412, 413, 414, 416, 418, 432 (Kapampa in Marungu; Lufuku R.; Manda; Lufira and Luvilombo rivers); 1887, idem, p. 239. MATSCHIE, 1887, Jour. Ornith., p. 153 (Mkombe R. mouth; Mpala).

Dryoscopus major REICHENOW, 1887, Jour. Ornith., p. 305 (Leopoldville). BÜTTIKOFER, 1888, Notes Leyden Mus., vol. 10, p. 212 (Banana).

Laniarius aethiopicus bicolor REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 579; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 312.

Laniarius maior guttatus REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 581 (Banana; Leopoldville).

Laniarius aethiopicus var. *bicolor* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30.

Laniarius aethiopicus major SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 400 (Kwamouth).

Laniarius ferrugineus guttatus SCLATER, 1930, Systema avium Aethiopicarum,

pt. 2, p. 619 (Landana; Kasai District). PRIEST, 1936, The birds of Southern Rhodesia, vol. 4, p. 66, fig. 18 (Kasai).

Laniarius ferrugineus SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 167, in part (many localities from Dilolo to Mpala and Kabalo).

SPECIMENS: Boma, male, January 3; immature female, January 7.

ADULT MALE: Iris dark brown, bill black, feet dark bluish gray.

DISTRIBUTION: From the Lower Congo and the greater part of Angola eastward to Lake Tanganyika and probably to Lake Ngami and Victoria Falls. The whiteness of the underparts is the best character; the stripe on the wings extends to the edges of the inner secondaries.

Three specimens collected by Rockefeller and Murphy at Moba on Lake Tanganyika show that this race extends far to the east of the Kasai. We also have one specimen from Luluabourg. About Boma on the lower Congo I found this bell-shrike skulking in the densest bush it could find. The males, in January, uttered short whistles, much less musical than those of *L. f. major* in the Uelle. Their mates would reply with a harsh "kick-ik."

It may well be that in the more easterly part of the range the song is more musical, even flute-like, as Sterling Rockefeller called it. Rudolf Braun tells me that in northern Angola the birds near the coast have far less musical voices than those on the highlands of the interior.

The food eaten by my Boma specimens was of insects, including beetles and a hemipter, and also one millipede.

[*Laniarius ferrugineus bicolor* (Hartlaub)]

Dryoscopus bicolor HARTLAUB, 1857, System der Ornithologie Westafrica's, p. 112 (type locality: Gaboon).

? *Laniarius aethiopicus bicolor* SCHOUTEDEN, 1926, Rev. Zool. Bot. Africaines, vol. 13, p. 201 (Banana).

Laniarius ferrugineus bicolor BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 396.

DISTRIBUTION: Savannas of the Gaboon and Loango Coast. Differs from *guttatus* only by the lessening of white edgings on inner secondaries. There may be no white there, or a narrow margin on one quill; but the white on the wing-coverts is retained.

This is not a very well-marked race. Specimens from Pointe Noire, Setté Cama, and Chinchoua (Gaboon) show some slight variation in wing color, and I believe that birds from Banana will be found to agree with them. Even my examples of *guttatus* from Boma show some approach to *bicolor*.

Laniarius funebris funebris (Hartlaub)

Dryoscopus funebris HARTLAUB, 1863, Proc. Zool. Soc. London, p. 105 (type locality: Meninga, Unyamwezi, Tanganyika Territory).

Laniarius funebris SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 27 (Kisaka district).

Laniarius funebris funebris FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 307 (Ruanda; "Urundi").

DISTRIBUTION OF THE SPECIES: Northern Somaliland and central Abyssinia to Iringa in Tanganyika Territory, and westward to Lake Burigi and the eastern border of Ruanda.

The nominate race occupies all the southwestern parts of the range, and extends northward to Shoa. *Laniarius f. atrocoeruleus* Hilgert, a little paler in color, lives in northeastern Abyssinia and northern Somaliland. A smaller race, *L. f. degener* Hilgert, with wings only 77–86 mm., extends from southern Somaliland to the dry areas near the coast of East Africa.

Within our limits this slaty-black bush-shrike has been collected by Rudolf Grauer in the Kisaka district of southeastern Ruanda. He obtained other specimens near Usuvi and Lake Burigi in Tanganyika Territory, while Doggett collected it at Burumba in Ankole. Schouteden tells me that A. Lestrade collected a specimen for the Congo Museum at Kibungu, Ruanda.

The home of this shrike is in dense thickets, usually thorny, in dry regions. It gives a variety of calls, some loud and ringing, others low and grating. In my experience the voice of the male has a throaty resonance very different from the musical notes of *L. ferrugineus*.

A nest found in early June in the Kidong Valley, Kenya Colony, was bowl-shaped, 4 feet from the ground in a thorny bush under some acacia trees. The female was incubating her three eggs, pale greenish speckled with rufous. These markings almost formed a rufous cap on the larger end. Dimensions: 24–24.4 by 16.8–17.1 mm.

Laniarius poensis holomelas (Jackson)

Dryoscopus holomelas JACKSON, 1906, Bull. Brit. Ornith. Club, vol. 16, p. 90 (type locality: Ruwenzori); 1906, Ibis, p. 551. OGILVIE-Grant, 1910, Trans. Zool. Soc. London, vol. 19, p. 343 (Butagu Valley, 7000 ft.).

Laniarius melas REICHENOW, 1908, Ornith. Monatsber., p. 47 (type locality: Rugege Forest).

Laniarius holomelas REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 312 (Rugege Forest; foot of Mt. Karisimbi; west Ruwenzori, 2500 m.; west of L. Edward; northwest of L. Tanganyika). SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 334. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 263 (Kibati). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 117 (Mt. Muhavura, 3000 m.; Mt. Sabinyo, 2700 m.; Burunga). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 27 (Urundi).

Laniarius poensis holomelas BATES, 1930, Handbook of the birds of West Africa, p. 434. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 618. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 308 (Lulenga; Nya-Muzinga; Mt. Niragongo); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 130 (Kamatembe, 2100 m.; Kibumba, 2300 m.; Nyarusambo, 2000 m.; Nyabit-

sindi, 2400 m.; Nyabirehe, 2400 m.); 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 339 (forest west of Astrida). BERLIOZ, 1936, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 8, p. 332 (Mbwahi). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1210. BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 391, fig. 82. VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 9, p. 2 (Mt. Kabobo); 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 77 (Kalonge; Kamanegu; Nyabukoko near Lutunguru).

ADULTS: Iris dark brown to deep red-brown; bill black; feet blackish, sometimes slightly tinged with blue.

DISTRIBUTION OF THE SPECIES: Mountain forests of Fernando Po, Cameroon, and the eastern Congo border, from Ruwenzori south to Urundi and to Mt. Kabobo north of Albertville. Nominate *poensis,* living on Fernando Po and Mt. Cameroon, is deeper, glossier black, and very slightly smaller (wings 74–86 mm.) than *L. p. holomelas* of the east Congo area (wings 76–89 mm.).

It has been suggested that these birds might be conspecific with *L. fülleborni* (Reichenow), a montane species of northern Nyasaland, Uluguru, and Usambara. But in juvenal dress *fülleborni* has throat and chest dusky olive, the abdomen even more buffy, whereas the young of *holomelas* is entirely sooty black.

This black mountain bush-shrike may be found from 5500 up to 11,000 feet, provided there is suitable cover. It may easily be overlooked, for it keeps to the thickest tangles of bushes and vines, usually within 15 feet of the ground. Even after it has attracted attention by its long-drawn scolding or rasping call, it often eludes observation, and I was not always sure it was really responsible for the various whistles, short and long, that came from the places where it lived. Once it seemed to be giving a hoarse "hurry-hurry, hurry-hurry," as though two birds were answering each other. Woosnam credited it with "a low harsh scraping or chattering sound, followed by some of the most beautiful flute-like notes," also an extraordinary clicking sound, followed by a quick succession of piping notes.

The nest has never been found; and while there is good evidence of breeding on the Kivu Volcanoes and on Mt. Kandashomwa in June and July, I do not expect any short nesting season. Near the Equator egg laying is to be expected in almost any month of the year.

Examination of four stomachs disclosed pieces of insects, including beetles, two rather hairy caterpillars, and one isopod crustacean ("pill-bug").

Laniarius leucorhynchus (Hartlaub)

Telephonus leucorhynchus HARTLAUB, 1848, Rev. Mag. Zool., vol. 11, p. 108 (type locality: Elmina, Gold Coast).

Dryoscopus leucorhynchus REICHENOW, 1887, Jour. Ornith., p. 305 (Leopoldville). SHELLEY, 1890, Ibis, p. 161 (Yambuya). OUSTALET, 1893, Naturaliste, ser. 2,

vol. 7, p. 127. OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 344 (Beni).

Laniarius leucorhynchus FLOWER, 1894, Proc. Zool. Soc. London, p. 605 (Muyoméma). REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 573 (Bundeko); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 312. ALEXANDER, 1907, From the Niger to the Nile, vol. 2, p. 314 (Gudima). SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 450 (Zone of Gurba-Dungu). SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 331 (Ubangi R.; Guruba R.); 1930, Systema avium Aethiopicarum, pt. 2, p. 617. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 263 (Lesse); 1923, idem, vol. 11, pp. 343, 400 (Luebo; Macaco; Dumbi; Kamaiembi; Ngombe in Kasai; Kwamouth); 1924, idem, vol. 12, p. 421 (Bikoro); 1925, idem, vol. 13, p. 17 (Bolobo; Kunungu); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 129 (Buta; Medje; Mauda; Rungu). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 27 (Mawambi; Ukaika). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1209. BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 389, fig. 81 (Poko). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 74 (Bangui). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 77 (Kambatule).

Laniarius nigerrimus DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Stanley Falls).

Dryoscopus nigerrimus SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 265 (Mangbetu country).

SPECIMENS: Stanleyville, male, September 5. Panga, female, September 19. Avakubi, four males, July 5, August 7, November 7, 23; four immature males, January 12, 24, November 7; immature female, December 7. Bafwabaka, male, January 3. Medje, male, May 22. Niangara, two males, May 10, 11; female, January 20.

ADULTS OF BOTH SEXES: Iris dark red-brown to very dark red, bill black, feet blackish or sometimes dark bluish.

IMMATURE: Iris dark brown, bill whitish, feet bluish. At an earlier stage, when the young are still in juvenal plumage, the bill is largely blackish.

DISTRIBUTION: Sierra Leone to the Mabira Forest in Uganda, and south to the central Kasai District. Thus it occupies the forests of Upper and Lower Guinea, together with some of their extensions, gallery forests, and outliers. But it does not ascend the forested mountains.

Neither is it really a bird of primary forest. Rather common in thickets and second growth of clearings throughout the Upper Congo, it seemed even more numerous around the borders of the forest, as at Niangara, where it haunted the undergrowth of woods near watercourses.

By nature rather shy, the black bush-shrike goes in pairs and is not easy to follow. The song of the male I noted as a series of low but mellow whistles, all in much the same key, not very often heard. Holman, in the Gold Coast, found that the female might interpose one harsher note, or that the pair would sing a duet, repeating the combination "Ooo! hwe-e-e!" I heard also a protracted grating call.

My own dissections indicated breeding in the latter half of the rains, with young abroad from November to January near Avakubi. The juvenal dress is entirely sooty black. Nests found in Liberia and the Gold Coast were placed in forks from 3 to 7 feet above the ground, built of twigs and lined with rootlets. The two eggs are greenish gray or greenish white, spotted with ochreous brown or reddish brown, most thickly around the blunt end, and measure 24–25 by 17–18 mm.

The nine stomachs examined all contained remains of insects: many beetles, two caterpillars, some black ants, and several large wasps. A spider and some bits of a snail were the only other food.

KEY TO THE SPECIES OF *Dryoscopus* IN THE CONGO

1. Middle of upper back black, crown and tail black, though there may be light markings on wings and scapulars 2
   Middle of back not black; crown may be black, brown, or gray 5
2. Scapulars and wings black 3
   Scapulars white or gray, wings show pale gray or whitish edgings 4
3. Larger, wing usually exceeding 82 mm., culmen broad and rounded . *D. sabini*
   Smaller, wing usually less than 82 mm., bill slenderer, culmen ridged . . . . . *D. senegalensis*
4. Scapulars have areas of pure white, rump white in male, gray in female; wing usually less than 85 mm. long . . . . . *D. cubla*
   Light areas on scapulars are grayish, rump gray in male, wing often exceeds 85 mm. . . . . *D. gambensis*
5. Crown and hind-neck blackish, sometimes washed with gray; scapulars, wings, and tail uniform ashy gray to blackish; underparts light gray or white, without buffy wash 6
   Crown gray or dusky brown; back, wings, and tail more or less brown or rufous; underparts washed with buff, sometimes cinnamon 7
6. Loral region dark like crown; feet pinkish in life, breast light gray . *D. angolensis*
   A whitish stripe from nostril over lores to above eye; feet gray or blackish . . . . . *D. senegalensis*
7. Culmen broad and rounded; crown light gray, lower back, wings, and tail rather rufous; wing at least 80 mm. long . . . . . *D. sabini*
   Culmen more ridged; lower back, wings, and tail scarcely rufous 8
8. Crown clear gray, breast cinnamon, no grayish edgings on secondaries or wing coverts, feet pinkish in life . . . . . *D. angolensis*
   Crown more dusky or brownish, breast grayish white with a weak wash of buff, wing-coverts and secondaries edged with gray or pale buff; feet grayish . . . . . *D. gambensis*

Dryoscopus gambensis malzacii (Heuglin)

Malaconotus malzacii HEUGLIN, 1871, Ornithologie Nordost-Afrika's, p. 457 (type locality: Bahr-el-Abiad, Anglo-Egyptian Sudan).

Dryoscopus hamatus SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 450 (Uelle).

Dryoscopus malzacii nyansae SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 346 (Mangbetu country).

Dryoscopus gambensis malzacii SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 635 (Mt. Baginzi). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 129 (Mauda; Dika; Dramba; Niarembe; Mahagi Port; Abimva; Poko; Buta). BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 404 (Ubangi R.; Kemo R.; Pompari; Kibali R.). MACDONALD, 1940, Bull. Brit. Ornith. Club, vol. 60, p. 83.

Dryoscopus cinerascens SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 139 (Mondu; Bongeré in Mangbetu country; Tunguru).

Dryoscopus gambiensis SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, pp. 241, 254 (Mundu).

Dryoscopus gambensis EMIN, 1922, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 3, p. 365 (northwest shore of L. Albert).

Dryoscopus gambensis-Gruppe STRESEMANN AND GROTE, 1928, Verhandl. VI. Internatl. Ornith. Kongr., Copenhagen, for 1926, pp. 362, 363, 372.

Dryoscopus gambensis nyansae SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 622. STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 570 (Kasenyi). SCHOUTEDEN, 1941, Rev. Zool. Bot. Africaines, vol. 34, p. 267. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 90 (Nioka; Mt. Mé; Mahagi).

SPECIMENS: Dungu, female, January 26. Faradje, five males, April 8, 24, August 11, November 26, October 14; female, April 18; immature male, October 17.

ADULT MALE: Iris reddish orange, bill black, feet blue-gray with black claws.

ADULT FEMALE: Iris orange-yellow; maxilla black, mandible bluish gray; feet dark bluish gray.

DISTRIBUTION OF THE SPECIES: Senegal, Shari District, Darfur, and Eritrea, south to Kenya Colony, Uganda, the highland northwest of Lake Tanganyika, and the Lower Congo. Wanting in the heavy forests of Upper and Lower Guinea. In the southern Congo its place is taken by *D. cubla,* surely a very close ally, even though the females differ so plainly.

Of *D. gambensis* there may be only five races. The nominate form ranges from Senegal to the country south of Lake Chad. *Dryoscopus g. malzacii,* of which the female is darker and browner on crown and back, extends from the Ubangi-Shari and northern Congo to the Mongalla Province, the Rift Valley, and Nanyuki in Kenya Colony. Of this *nyansae* is a synonym. It occupies the shores of Lake Albert, but from Ruwenzori south through the Kivu is replaced by *D. g. erwini,* of markedly smaller size.

The fourth race is *erythreae* of the Abyssinian region; and the fifth, *D. g. congicus* of the southern Gaboon, Lower and Middle Congo, is distinguished from *malzacii* by more tawny coloration in the female. The subspecific differences are not well marked in males. Those of *gambensis* have wings 87–96 mm., whereas the wings of four males of *malzacii* from the Uelle are only 84–89 mm.

This puff-back shrike is fairly common in the northern Uelle District, living mostly among the trees near the outer edges of gallery forests. We did

not notice it south of the Mangbetu country, never in clearings in the Ituri forest. Apt to be found in pairs, it attracts attention by reiterated notes like "chrim," evidently serving as a song, but hoarser, more nasal than the corresponding notes of *D. senegalensis*. Harsh, grating calls were uttered even more often. The soft white rump-feathers are puffed up during display and the wings beaten audibly.

Breeding individuals were taken only in January and April, so nesting may begin in the Uelle before the rains. In Uganda Van Someren[1] found nests from March to July, and in December and January, in low bushes as well as up to 50 feet in trees. To the main materials, rootlets and bark fibers, were added bits of lichen and cobwebs. The two eggs are grayish white, spotted and streaked with brown and gray, mostly about the larger end.

Dryoscopus gambensis congicus Sharpe

Dryoscopus congicus SHARPE, 1901, Ibis, p. 39 (type locality: Condé, Enclave of Cabinda).

Dryoscopus gambensis JOHNSTON, 1884, The River Congo, p. 364. REICHENOW, 1887, Jour. Ornith., pp. 300, 305 (Manyanga; Leopoldville); 1903, Die Vögel Afrikas, vol. 2, p. 595. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Lower Congo; Kisantu). LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 13 (Mukimbungu). SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 344.

Dryoscopus gambensis congicus REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 596 (San Antonio). GROTE, 1921, Anz. Ornith. Gesellsch. Bayern, vol. 1, p. 40. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 400 (Kwamouth); 1924, idem, vol. 12, p. 273 (Leopoldville). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 623. BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 405. BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 74 (Brazzaville).

SPECIMEN: Leopoldville, male, July 5.

ADULT MALE: Iris orange-red, bill black, feet gray.

DISTRIBUTION: Savannas of the Gaboon to the mouth of the Congo, eastward to Stanley Pool and supposedly to Kwamouth. Males of this race have wings 88–95 mm. Females are lighter and more grayish above than those of *malzacii,* more heavily washed with buff on breast.

The Congo puff-back is similar to *malzacii* in behavior and choice of haunts. Our specimen was shot in brushy second growth near the bank of Stanley Pool. Malbrant has sent us three additional specimens from Brazzaville.

Dryoscopus gambensis erwini Sassi

Dryoscopus gambensis erwini SASSI, 1923, Ornith. Monatsber., p. 109 (type locality: northwest of L. Tanganyika, 2000 m.); 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 28 (Kisenyi–Rutshuru Plain; Kasindi). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 118 (Mt. Muhavura, 3000 m.; Mt. Sabinyo, 2600 m.; Burunga). FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus.

[1] 1916, Ibis, p. 393.

Comp. Zool., vol. 81, p. 313. FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 285. SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 130 (Kamatembe; Kibumba; Bitashimwa; Runyoni; Munagana; Kundhuru-ya-Tshuve, 2600 m.; Tshamugussa; Kanyabayongo; Nyabitsindi). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 77 (Kalonge; Lepi near Lutunguru).

Dryoscopus malzacii OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 342 (Mubuku Valley, 5000–7000 ft.; Mokia, 3400 ft.; lower Semliki Valley, 2500 ft.).

Dryoscopus cubla hamatus REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 313 (northwest of L. Tanganyika, 2000 m.). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 264 (Biogo; Moera).

Dryoscopus cinerascens REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 313 (in part). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 264 (in part. Boga; Mutiba; Talia-Semliki confluence).

Dryoscopus cubla erwini SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 622. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 307 (Lulenga; Nya-Muzinga). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 41 (Kansenze–Tshumba).

Dryoscopus gambensis nyansae SCHOUTEDEN, 1935, Rev. Zool. Bot. Africaines, vol. 27, p. 402 (Mushumangabo). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1220 (in part).

ADULT MALE: Iris orange-red, bill black, feet bluish gray, claws blackish.

ADULT FEMALE: Iris rich orange, bill black with basal two-thirds of mandible bluish gray, feet blue-gray, claws darker gray.

DISTRIBUTION: Southern Ankole, slopes of Ruwenzori, and the country around Lake Edward, south through the Kivu highlands to the highland northwest of Lake Tanganyika. Not restricted to the mountains, it is found on the floor of the Semliki Valley as well as on Ruwenzori up to 7000 feet and on the Kivu Volcanoes to 9800 feet.

In color *erwini* is rather close to *malzacii,* even in female plumage, but noticeably smaller. The wings of males measure 81 to 87 mm. Females of *erwini* are readily distinguished from adult females of *D. cubla,* since the latter are blackish on crown and back, and have little buffy wash on the breast. Males, however, are very like those of *D. cubla hamatus,* but grayer on the rump.

On west Ruwenzori, on the highland west of Lake Edward, and on the central Kivu Volcanoes I found this puff-back not uncommon, often in pairs, keeping to the trees in places not heavily wooded, sometimes even in the bamboo zone. Its behavior is like that of *malzacii;* its voice, too, a reiterated nasal "krĭm, krĭm, krĭm . . ."

On Mt. Kandashomwa, at 7650 feet, west of the Ruzizi Valley, Rockefeller and Murphy took a female of this race, so I believe my male bird from higher up on the same mountain to be *erwini.* It has the rump decidedly gray. Another male with whitish rump from near Luvungi in the Ruzizi

Valley is more probably *D. cubla hamatus*. The differences between males seem no more than subspecific, and the young of *hamatus* go through a stage closely resembling the adult female of *erwini*.

The stomachs of four *erwini* were found to contain nothing but insect remains, noted in one case as rather soft Orthoptera.

Dryoscopus cubla hamatus Hartlaub

Dryoscopus hamatus HARTLAUB, 1863, Proc. Zool. Soc. London, p. 106 (type locality: Kazeh, Unyamwezi, Tanganyika Territory). DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika). SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 5 (Lukonzolwa). OGILVIE-GRANT, 1908, Ibis, p. 291 (northwest of L. Tanganyika, 4000 ft.).

Dryoscopus salimae DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Dryoscopus cubla SCHALOW, 1886, Jour. Ornith., pp. 413, 417, 422, 427, 428 (Mpala; Lufuku R.; Luvua R.; Lugoma R.; Lufua R.); 1887, idem, p. 239. MATSCHIE, 1887, Jour. Ornith., p. 153.

Dryoscopus cubla hamatus REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 594 (Kwango R.). NEAVE, 1910, Ibis, p. 227 (Kambove, 4500 ft.; Lualaba R., 2500 ft.; Lufupa R.). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 343 (Ngombe in Kasai; Tshikapa); 1930, idem, vol. 18, p. 287 (Elisabethville); 1949, idem, vol. 42, p. 167 (many localities in Katanga). SASSI, 1924, Ann. Naturhist Mus. Wien, vol. 38, p. 29 (Baraka). VERHEYEN, 1940, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 16, no. 2, p. 6 (Kanzenze); 1941, idem, vol. 17, no. 23, p. 13 (Musosa). A. W. VINCENT, 1949, Ibis, p. 131.

Dryoscopus cubla var. *hamata* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30.

Dryoscopus cinerascens SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 264 (in part. Munie Mboka; Dogodo R.).

Dryoscopus cubla-Gruppe STRESEMANN AND GROTE, 1928, Verhandl. VI. Internatl. Ornith. Kongr., Copenhagen, for 1926, pp. 362, 363, 372.

DISTRIBUTION OF THE SPECIES: Cape Province to Angola, the southern Congo, the south side of Lake Victoria, Nairobi and Lamu in Kenya Colony. *Dryoscopus c. cubla* (Shaw) of South Africa gives way, from Beira and Southern Rhodesia northward, to *D. c. hamatus,* with whiter underparts in males, less brownish wash on rump in females. The latter race is believed to range from Southwest Africa to northern Angola, the Kasai District, the north end of Lake Tanganyika, and southern Kenya Colony. But along the coast of East Africa, from Dar-es-Salaam to Lamu, many males have lost the white edgings on the wing-feathers, and a few have the scapulars wholly black, so that they resemble *D. senegalensis* of West Africa. It seems best to call these variable East Coast birds *D. cubla affinis* (Gray).

The question remains as to whether the various *gambensis* races are not conspecific with *D. cubla*. I do not know the answer, and can only point to their very close relationship. On the northwest shore of Lake Tanganyika,

on the mountains west of Baraka at 1200 meters, and farther west toward Kasongo, Grauer secured undoubted females of *D. c. hamatus,* and that race seems to extend into the Ruzizi Valley. Higher up on the mountains of that same area, around 2000 meters, *D. g. erwini* must be the usual form. Two species of *Platysteira* also meet in this same small area.

The behavior of this puff-back shrike is similar to that of *D. gambensis,* but it is much more apt to be a member of a mixed bird party. In Barotseland, Winterbottom[1] found it to be present in 61 per cent of such assemblages, and in the Katanga Neave noted it as a common bird, occurring in every bird party. At Luluabourg in the Kasai Father Callewaert collected four males and two females; Rockefeller and Murphy secured specimens at Lake Suzi and Lubenga (5650 feet) in Marungu.

One common call of *hamatus* is written "trrk-wheeu!," a loud click followed by a clear whistle. During the breeding season, October to December in Nyasaland, vocal efforts are more varied. A loud "chikerrrr! chikerrrr!" and a harsh tearing note are characteristic, or the male may sing with outstretched neck, head on one side, a longer series of phrases. His display includes a crackling flight, the erection of the downy white rump-feathers into a fluffy ball, and a repeated "twhew, twhew, twhew," given with flaps of the wings.

The nest is cup-shaped, placed in a fork at 8 to 40 feet from the ground, and built of rootlets, grass, or bark fiber, usually covered with cobwebs, sometimes decorated with bits of lichen. Near Elisabethville Alfred Vincent found eggs toward the end of September and in mid-October. The eggs number two or three, and are whitish with spots of brown, mostly about the large end, and with some gray markings. Dimensions: 20.5–21.9 by 15.9–16.8 mm.

Dryoscopus senegalensis (Hartlaub)

Sigelus senegalensis HARTLAUB, 1857, System der Ornithologie Westafrica's, p. 112 (type locality: "Senegambia"; corrected to Gaboon).

Dryoscopus affinis SHELLEY, 1888, Proc. Zool. Soc. London, p. 25 (Bellima). OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127. REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 590 (in part). OGILVIE-GRANT, 1908, Ibis, p. 290 (Ponthierville); 1910, Trans. Zool. Soc. London, vol. 19, p. 343 (Mawambi).

Dryoscopus tricolor SHELLEY, 1890, Ibis, p. 162 (Yambuya).

Laniarius affinis FLOWER, 1894, Proc. Zool. Soc. London, p. 599 (Ipoto).

? *Laniarius verreauxi* EMIN, 1894, *in* Flower, Proc. Zool. Soc. London, p. 601.

Dryoscopus senegalensis REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 591 (Leopoldville). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Banalia). SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 450 (Zone of Gurba-Dungu). SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 338; 1930, Systema avium Aethiopicarum, pt. 2, p. 623. LÖNNBERG, 1917, Arkiv Zool.,

[1] 1943, Ibis, p. 441.

vol. 10, no. 24, p. 24 (Beni). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 29 (Mawambi; Ukaika). STRESEMANN AND GROTE, 1928, Verhandl. VI. Internatl. Ornith. Kongr., Copenhagen, for 1926, pp. 362, 363, 372. STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 570 (Ekibondo). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 130 (Panga; Djamba; Bondo Mabe; Arebi; Poko; Buta; Bomili); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 130. BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 405, fig. 87 (Bosobangi). BERLIOZ, 1941, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 13, p. 403 (Brazzaville). BOUET, 1942, Ois. Rev. Française Ornith., new ser., vol. 12, p. 148 (Bangui). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 77.

Dryoscopus senegalensis tricolor REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 592; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 313. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 264 (Moera; Zambo; Kamabo; Biogo; L. Edward; Lesse).

Dryoscopus sp. SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 269 (Kilo).

Dryoscopus sublacteus SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 277.

Dryoscopus affinis senegalensis SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 400 (Kwamouth); 1926, idem, vol. 13, p. 201 (Makaia Ntete; Temvo).

Dryoscopus affinis tricolor GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 119 (Molemba).

SPECIMENS: Stanleyville, male, November 21. Avakubi, four males, April 5, August 20, November 6, December 8; immature female, November 27. Gamangui, male, February 15. Bafwabaka, male, January 7. Medje, two males, July 7, 25; three females, May 13, 28, July 25; juvenile female, September 15. Niangara, male, November 18. Rungu, female, June 27.

ADULT MALE: Iris orange-red, bill black, feet lead-gray or blue-gray.

ADULT FEMALE: Iris reddish orange to orange-red; maxilla black, mandible bluish gray with blackish tip; feet blue-gray.

DISTRIBUTION: From Oyo Province in Southern Nigeria and the base of Mt. Cameroon southward to the Lower Congo and eastward to the Semliki Valley and the Elila River, thus occupying the whole Lower Guinea forest. It extends out but slightly in gallery forests, reaching the vicinity of Dungu on the northeast, Stanley Pool and Kwamouth on the south. Yet it is not a bird of primary forest, but rather of bushes and trees in the second growth of old clearings.

It is common in the Ituri and in the Semliki Forest, and its song, given from concealment in the foliage, is easily recognized, a monotonous whistled "chew-chew-chew-chew . . ." The general effect is pleasant, but a harsher scolding may likewise be given. Sometimes the birds chase each other, but the raising of the white puff of feathers on the back is an unusual sight.

Our dissections indicated breeding throughout the year, for individuals

with gonads somewhat enlarged were taken at all seasons, even in February. A nestling was brought us in September. According to Bates, the nest is a shallow, rude cup, placed high in trees and held together with cobweb. The eggs seem not to be known.

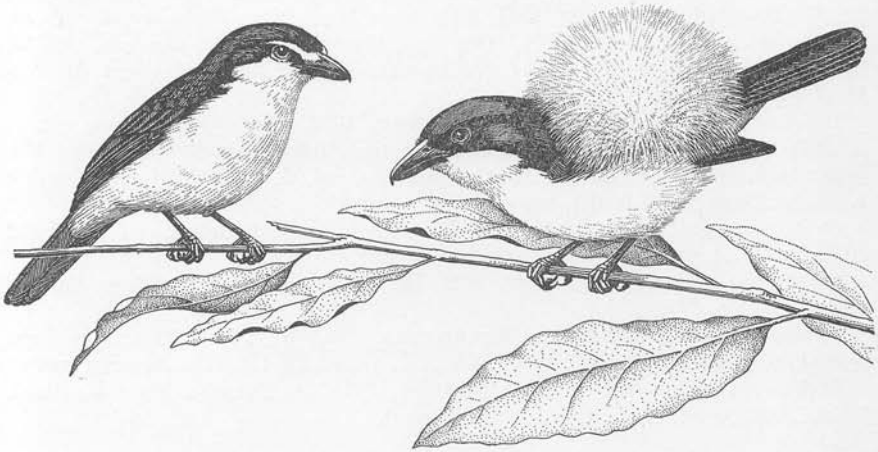

FIG. 4. A pair of puff-back shrikes, *Dryoscopus senegalensis*, the male with rump-feathers expanded.

In six stomachs I noted insect remains each time, save for one bird that had eaten only a spider. The insects included small beetles and two Hemiptera. The flat eggs of an orthopter and the bones of a tiny frog completed the list.

Dryoscopus angolensis angolensis Hartlaub

Dryoscopus angolensis HARTLAUB, 1860, Proc. Zool. Soc. London, p. 111 (type locality: Bembe, Loanda Province, Angola). SCHOUTEDEN, 1926, Rev. Zool. Bot. Africaines, vol. 13, p. 201 (Temvo; Makaia Ntete).

DISTRIBUTION OF THE SPECIES: Fringes of the Lower Guinea forest, and outlying forest patches from the British Cameroons eastward to the North Kavirondo District, and southward to the Kungwe Peninsula on the east side of Lake Tanganyika and to northwestern Angola. Not many specimens of this puff-back are collected; its range seems rather discontinuous, and we have never found it in the central parts of the Upper Congo forest.

Though known here and there from lowlands, *Dryoscopus angolensis* is more apt to occur in mountain forests. In the Cameroon and Mayombe, nevertheless, it has been taken close to sea level. There appear to be four races, not widely divergent. Males are grayish, with dark crown and hind

neck; females gray on the crown, brownish on back, with cinnamon throat, breast, and flanks.

The nominate race is believed to extend northward from the Amboim district of Angola to the Lower Congo. Males have black crown and hind neck, as in *D. a. boydi* Bannerman of the Cameroon, but *boydi* is darker gray on back and breast. The race *nandensis,* of which males have the dark head cap more washed with gray, is common in the North Kavirondo forests and is found also in western Uganda and the eastern Congo. On the Kungwe Peninsula *D. a. kungwensis* Moreau appears to have crown and hind neck of males still grayer than *nandensis.*

In addition to Schouteden's specimens of *D. a. angolensis* from the Mayombe, the Congo Museum has four others collected at Thysville by Schwetz. A specimen reported by Grote[1] from Mbaiki in the French Congo is more likely to be *boydi* than nominate *angolensis.* It suggests that some representative of the species may be looked for in the Belgian Ubangi District near the northern edge of the forest.

Dryoscopus angolensis nandensis Sharpe

Dryoscopus nandensis SHARPE, 1900, Bull. Brit. Ornith. Club, vol. 11, p. 28 (type locality: Nandi, western Kenya Colony). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 342 (Irumu).

Dryoscopus angolensis NEUMANN, 1899, Jour. Ornith., p. 410 (Kitimba in Uvamba). HARTERT, 1900, Novitates Zool., vol. 7, p. 38 (Diapanda).

Dryoscopus angolensis nandensis REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 590; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 313 (west Ruwenzori, 1800 m.). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 269 (Kilo); 1918, idem, vol. 5, p. 264 (Beni); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 130 (Arebi; Bondo Mabe); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 131. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 28 (eastern border of Rutshuru Plain; Moera). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 623. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1222 (Mpanga Forest).

Dryoscopus adolfi-friederici REICHENOW, 1908, Ornith. Monatsber., p. 160 (type locality: Ruwenzori).

Dryoscopus angolensis adolfi-friderici VAN SOMEREN, 1922, Novitates Zool., vol. 29, p. 120 (Semliki; Kivu; north of L. Tanganyika). SCHOUTEDEN, 1940, Rev. Zool. Bot. Africaines, vol. 33, p. 286 (Mt. Wago).

Dryoscopus angolensis adolfi-friederici GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 119 (Kampi-na-Mambuti). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 77 (Semliki R.; Butahu R.).

ADULT MALE: Iris very dark brown, edge of sclerotic membrane bright cobalt blue all around, rim of eyelids dusky with a tinge of dark red; bill black, feet lavender-pink, claws gray.

[1] 1924, Jour. Ornith., p. 510.

DISTRIBUTION: Nandi and North Kavirondo districts of Kenya Colony to Mt. Elgon, reappearing in the Mpanga Forest of western Uganda, on Ruwenzori and the highlands of the eastern Congo, and also along the eastern border of the lowland Congo forest. The northern limit in the Congo is near Arebi; the southern is to the northwest of Baraka. I have been unable to find any differences to support *adolfi-friederici.*

While the habits of the pink-footed puff-back must be like those of *D. gambensis,* and it has similar fluffy rump feathering, one sees it only seldom, and then high up in forest trees. Dr. Wm. Serle has described its call as a harsh churring, uttered by both sexes.

The altitudinal range of *nandensis* is considerable, from 8000 feet on Mt. Elgon down to 2500 feet in the eastern Congo. I have taken a specimen at Djugu on the plateau west of Lake Albert; Grauer got others to the west of Lake Edward, and at 2200–2300 meters on the highland northwest of Baraka.

Dryoscopus sabini melanoleucus (Verreaux)

Hapalophus melanoleucus J. AND E. VERREAUX, 1851, Rev. Mag. Zool., ser. 2, vol. 3, p. 312 (type locality: Gaboon).

Chaunonotus sabinei SHARPE AND BOUVIER, 1877, Bull. Soc. Zool. France, vol. 2, p. 480 (Condé in Cabinda district). NEUMANN, 1899, Jour. Ornith., p. 417. CHAPIN, 1921, Amer. Mus. Novitates, no. 17, p. 16 (Avakubi; Ngayu). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 343 (Kabambaie; Tshikapa; Ngombe in Kasai). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 29 (Mawambi).

Dryoscopus sabinei GADOW, 1883, Catalogue of the birds in the British Museum, vol. 8, p. 143.

Chaunonotus sabini melanoleucus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 625. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 130 (Panga; Bomili). BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 411.

SPECIMENS: Avakubi, male, August 19. Ngayu, immature male, December 10.

ADULT MALE: Iris rather dark red; bill black, with base of mandible and a large patch on base of culmen light blue; feet light blue.

DISTRIBUTION OF THE SPECIES: Sierra Leone eastward to the Ituri forest, and southward to the Cabinda district and the southern Kasai. Upper Guinea birds, *D. s. sabini* (Gray), are smaller, with wings mostly 78–85 mm. Specimens from the Cameroon, though commonly referred to *D. s. melanoleucus,* have wings 80–86 mm., while those from the Gaboon and Belgian Congo usually have them 85–94 mm. Females from the Cameroon have the tail darker olive-brown than those of Upper Guinea, yet a female from Luluabourg in the Kasai has the whole tail much more rufous.

This large-billed puff-back seems not to deserve generic separation from

Dryoscopus. The male is colored like that sex of *D. senegalensis,* while the female suggests the female of *D. angolensis*.

In the Ituri the species seemed decidedly rare, keeping strictly to forest and old second growth. Otherwise its habits are doubtless like those of *Dryoscopus senegalensis*. It is not known along the eastern edge of the Congo forest, and most Congo records are from the Kasai. At Luluabourg Father Callewaert secured three examples.

SUBFAMILY **LANIINAE**

KEY TO THE SPECIES OF *Lanius* IN AND NEAR THE CONGO

1. Tail merely rounded, its outermost quills less than 20 mm. shorter than the median, and its length never exceeding 110 mm. 2
   Tail distinctly graduated, outermost quills at least 30 mm. shorter than median, or else the tail length exceeds 120 mm. 6
2. Wing more than 110 mm. long, outermost primary small, about 19 mm. long; crown, back, and scapulars ashy gray, forehead black . . . . . *L. minor*
   Wing less than 110 mm. long, outermost primary more than 20 mm.; coloration varied, usually not so uniform gray above 3
3. A white stripe on scapulars 4
   No white on scapulars; they are colored like the back 5
4. Most of crown and the hind neck rufous, back black or dark brown . *L. senator*
   Hind crown, hind neck, and back black or very dark gray, without rufous . . . . . *L. nubicus*
5. Wing less than 85 mm. long; crown gray; back rufous in male, usually more grayish in female . . . . . *L. gubernator*
   Wing more than 85 mm. long; crown sometimes gray and back rufous; but both may be grayish, or even light rufous . . . . . *L. collurio*
6. Wing more than 105 mm. long; scapulars black, crown and back gray, bases of rectrices white . . . . . *L. excubitorius*
   Wing less than 105 mm.; a white stripe on scapulars, bases of rectrices dark . 7
7. Crown and back black when adult, bases of primaries usually with a patch of white . . . . . *L. collaris*
   Crown and back not blackish, no white patch at bases of primaries 8
8. Wings and tail quills black, outer rectrices tipped with white, crown and back clear gray . . . . . *L. mackinnoni*
   Wings and tail brown or rufous, often vermiculated with blackish, outer rectrices light-tipped, crown usually grayish, but lower back often brown or rufous . . . . . *L. souzae*

Lanius nubicus Lichtenstein

Lanius nubicus M. H. C. LICHTENSTEIN, 1823, Verzeichniss von Vögeln . . . Doubletten des Zoologischer Museums, p. 47 (type locality: Nubia). EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 9 (Tunguru on L. Albert).

DISTRIBUTION: Breeds from eastern Bulgaria, Cyprus, and Asia Minor to Persia; migrates to northeast Africa, wintering from Zinder on the west to British Somaliland in the east. It is common in winter along the White

Nile, so it is not very surprising that Emin noted it once near the north end of Lake Albert. This must be the southern limit of its winter wanderings. A small, lightly built shrike, it is apt to frequent acacia trees in open country. The male is variegated with black and white above; its flanks are pale maroon.

Lanius senator senator Linnaeus

Lanius senator LINNAEUS, 1758, Systema naturae, ed. 10, p. 94 (type locality: "in Indiis," erroneous, corrected by Hartert to the Rhine). REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 625 ("Ubangi"). GEYR VON SCHWEPPENBURG, 1926, Jour. Ornith., p. 391, map on pl. 10, fig. 1.

Lanius rufus OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127 (upper Kemo R.).

Lanius senator senator SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 613 (Faradje). GROTE, 1930, Mitt. Zool. Mus. Berlin, vol. 16, p. 17. BERLIOZ, 1939, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 11, p. 529 (Zémio on Mbomu R.). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 73. BLANCOU, 1948, Ois. Rev. Française Ornith., new ser., vol. 18, p. 73 (Zémio).

SPECIMEN: Faradje, male, February 23.

DISTRIBUTION OF THE SPECIES: Northern and southern shores of the Mediterranean, as well as islands in it. Northward it extends to Holland and Germany, eastward to Palestine, Persia, and southern Russia. That is the breeding range. The several races winter in tropical Africa, north of the forest belt, and to Mt. Elgon and Mabira in Uganda.

Lanius s. senator of Europe has a white patch at the base of the primaries, but no white on the base of median rectrices. On Corsica and Sardinia, *L. s. badius* Hartlaub lacks white at the base of primaries, while *L. s. niloticus* of Palestine and Persia has white on primaries and the white of tail base extending to the middle tail feathers. Other minor differences have been invoked to support additional races, but their status in tropical Africa is not clear.

The race *badius* has been reported from the Ivory Coast to northern Cameroon; nominate *senator* from the Gambia to Darfur and the Upper Uelle; *niloticus* from the Bahr-el-Ghazal and the Uelle to Mt. Elgon and Somaliland. Woodchat shrikes visit the grasslands of the northern Congo each year during the dry season. The nominate race is likely to be the only one along the Ubangi, and while both *senator* and *niloticus* have been taken in the Uelle, the latter must be more common.

One of our four specimens from Faradje is best assigned to *senator*. In March, 1911, I noted the species as fairly common around the village of Maruka, near Faradje, keeping watch from the tops of small trees and bushes in the open. From observations by Bates and by Lynes it appears that woodchat shrikes arrive in the Sudan shortly after mid-September and leave late in April. Their stay in the Uelle would be only slightly shorter.

Lanius senator niloticus (Bonaparte)

Enneoctonus niloticus BONAPARTE, 1853, Rev. Mag. Zool., ser. 2, vol. 5, p. 439 (type locality: White Nile).

Enneoctonus rufus DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 31 (Uelle).

Lanius senator niloticus HARTERT, 1907, Die Vögel der paläarktischen Fauna, vol. 1, p. 436 (Lado). SCHOUTEDEN, 1942, Bull. Cercle Zool. Congolais, vol. 17, p. 15 (Bambesa). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 91 (Ishwa Plain).

Lanius ruficollis var. *niloticus* EMIN, 1919, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 2, p. 423 (Tobbo).

Lanius (Phoneus) senator senator SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4. vol. 1, fasc. 2, p. 129 (Faradje).

SPECIMENS: Faradje, male, March 25; two females, February 5, March 30.

ADULTS OF BOTH SEXES: Iris dark brown; bill blackish with base of mandible light blue-gray (male), or gray with base of mandible whitish (female); feet dark brownish gray.

DISTRIBUTION: Breeding in Palestine and Persia, wintering in northeast Africa from British Somaliland and Uganda to the Uelle and Darfur. In life I could not distinguish *niloticus* from *senator,* but the former must be decidedly more common in the eastern Uelle District.

The chestnut area on the back of the crown makes recognition of the species easy. In two stomachs I found only insects, including the remains of a few grasshoppers and one ant.

Lanius collurio collurio Linnaeus

Lanius collurio LINNAEUS, 1758, Systema naturae, ed. 10, p. 94 (Europe; restricted type locality: Sweden). SCHALOW, 1886, Jour. Ornith., pp. 425, 432 (Lugoma R.; Likulwe R.; Lufira R.). REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 622 (Nyangabo; L. Tanganyika); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 315 (Kisenyi). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 266 (Baraka); 1935, idem, vol. 27, p. 402 (Katana; Mulungu). EMIN, 1922, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 3, p. 406 (Tunguru). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 23 (northwest of L. Tanganyika, 2000 m.).

Enneoctonus collurio NEAVE, 1910, Ibis, p. 226 (Lufupa R.). SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 287 (Elisabethville).

Lanius cristatus collurio GEYR VON SCHWEPPENBURG, 1926, Jour. Ornith., p. 392, map on pl. 10, fig. 2.

Lanius (Enneoctonus) collurio SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 308 (Lulenga); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 128 (Buta).

Lanius collurio collurio ECKE, 1936, Vogelzug, pp. 123–135, maps. JITSCHIN AND KOLBE, 1939, Vogelzug, p. 171 (Port Francqui; Kasai District near Angola border, 7° 20′ S., 21° 50′ E.). SCHOUTEDEN, 1941, Rev. Zool. Bot. Africaines, vol. 34, p. 365 (Kasenyi); 1949, idem, vol. 42, p. 167 (Kinda; Kapiri; Sakania; Kasaji). VERHEYEN,

1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, p. 2 (Musosa); 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 77 (Semliki R.; Rugetsi R.; Kamanegu). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 91 (Ishwa Plain).

Lanius (*Enneoctonus*) *collurio collurio* SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 131 (Rutshuru).

SPECIMENS: Stanleyville, female, November 14. Avakubi, male, November 24. Pawa, female, October 22.

ADULTS OF BOTH SEXES: Iris dark brown, feet dusky. The bill of adult males wintering in Africa seems always light gray basally, blackish on culmen and at tip. Breeding males in Europe have it wholly bluish black.

DISTRIBUTION OF THE SPECIES: Breeds in most of Europe and in Asia eastward to Mongolia. *Lanius c. collurio,* with crown of male light gray, back rufous, ranges from Europe to Tomsk and the western Altai. A variable form, *L. c. kobylini* (Buturlin), occupies the Crimea, Caucasus, northern Persia, and Mesopotamia. The red-brown on its back is often more restricted.

Lanius c. phoenicuroides, of west Turkestan and the southern Kirghiz Steppes, is of very different color, light reddish brown on crown, a little more gray-brown on back. *Lanius c. isabellinus* is still paler above, more buffy below; it breeds in east Turkestan and Sinkiang. Somewhat intermediate between the two last is *L. c. speculigerus* Taczanowski; *L. c. tsaidamensis* Stegmann is larger and paler than *isabellinus.*[1]

The winter quarters of four of the races are in Africa. Red-backed shrikes of the nominate form travel southward in numbers, keeping mostly to the east of the Cameroon, and some reaching the Orange River and eastern Cape Province. They arrive in the northern Congo toward the end of September. Most frequently reported from the eastern parts of the Congo, they also cross the forests of the Upper Congo. Rosati obtained an adult male near Makala in November, 1909, and I saw an example at Stanleyville on November 8, 1914, which was not secured.

At Luluabourg in the Kasai Father Callewaert collected 10 specimens between October 18 and December 9, but only one in any other month, April 21. During their northward migration these shrikes are seldom seen in any part of the Congo except the southeast. Rockefeller and Murphy took two at Kinia, near 4000 feet, in Marungu on April 2 and 6. That is just the period when the main northward movement is on in East Africa, but stragglers may be noted until mid-May.

Little need be said about behavior. In the Congo red-backed shrikes are silent and not sociable. In forest clearings they perch on bushes, and in the savannas on bushes and low trees amid the grass. Their food consists entirely of insects, and they impale no prey on thorns.

[1] See Stegmann, 1930, Ornith. Monatsber., pp. 106–118. Olivier, 1944, Monographie des pies-grièches du genre *Lanius*, pp. 28, 75–88, regards *L. isabellinus* as a valid species.

Lanius collurio isabellinus Hemprich and Ehrenberg

Lanius isabellinus HEMPRICH AND EHRENBERG, 1828, Symbolae physicae . . . avium, decas 1, fol. e, footnote 2 (type locality: Kumfuda, Arabia). BERLIOZ, 1922, Bull. Mus. Hist. Nat., Paris, vol. 28, p. 264 (confluence of Kibali and Dungu rivers). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 23 (Beni–Mawambi).

Lanius cristatus isabellinus STRESEMANN, 1927, Jour. Ornith., p. 74.

Lanius collurio isabellinus GROTE, 1930, Mitt. Zool. Mus. Berlin, vol. 16, p. 19. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 91 (Nioka; Ishwa Plain).

Lanius (Otomela) cristatus isabellinus SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 129 (northeastern Uelle).

Lanius isabellinus isabellinus OLIVIER, 1944, Monographie des pies-grièches du genre *Lanius*, pp. 28, 82.

SPECIMENS: Avakubi, immature male, December 27. Niangara, male, January 18. Nzoro, male, April 11. Faradje, two males, February 5, December 18; female, March 10.

DISTRIBUTION: Breeds in east Turkestan and Sinkiang and migrates to northeast Africa, reaching the vicinity of Lake Chad, the Ituri District of the Congo, Lake Kivu, Uganda, and Naivasha in Kenya Colony.

In the savannas of the Uelle this rufous-tailed shrike is not uncommon in the dry season, a silent bird frequenting bushes and trees in the open, preying on beetles and grasshoppers. It appeared in October or November and by the middle of April all had left again. I am informed that additional specimens have recently been obtained at Bambesa and Buta in the Uelle. The occurrence at Avakubi in a forest clearing surprised me, but Grauer also obtained one between Beni and Mawambi.

[*Lanius collurio phoenicuroides* (Schalow)]

Otomela phoenicuroides SCHALOW, 1875, Jour. Ornith., p. 148 (type locality: Tshimkent, Turkestan).

Lanius cristatus phoenicuroides STRESEMANN, 1927, Jour. Ornith., p. 75 (region of L. Victoria).

From West Turkestan this race migrates to northeastern and eastern Africa, south to Usaramo in Tanganyika Territory. Its western limit follows the White Nile rather closely, and in view of occurrences in Uganda and on the west side of Lake Victoria, it may well be expected occasionally near Lake Albert or in eastern Ruanda.

Lanius gubernator Hartlaub

Lanius gubernator HARTLAUB, 1882, Ornith. Centralbl., p. 91 (type locality: Langomeri, western Lado district); 1882, Jour. Ornith., p. 323, pl. 1, fig. 2. SHELLEY, 1888, Proc. Zool. Soc. London, p. 25 (Kuterma). REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 621. EMIN, 1919, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 2, p. 428. BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 370. OLIVIER, 1944, Monographie des pies-grièches du genre *Lanius*, p. 97. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 91 (Ishwa Plain).

Enneoctonus gubernator SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 285.

Lanius gubernator gubernator BANNERMAN AND BATES, 1924, Ibis, p. 247. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 612 (Dungu).

Lanius (*Enneoctonus*) *gubernator gubernator* SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 128.

SPECIMENS: Dungu, male, June 3. Nzoro, female, April 10. Faradje, four males, March 14, July 10, August 21, September 12; two females, March 14, October 18; immature male, July 20; juvenile male, July 10. Aba, female, December 22; immature male, July 16. Garamba, male, June 28; juvenile female, June 10.

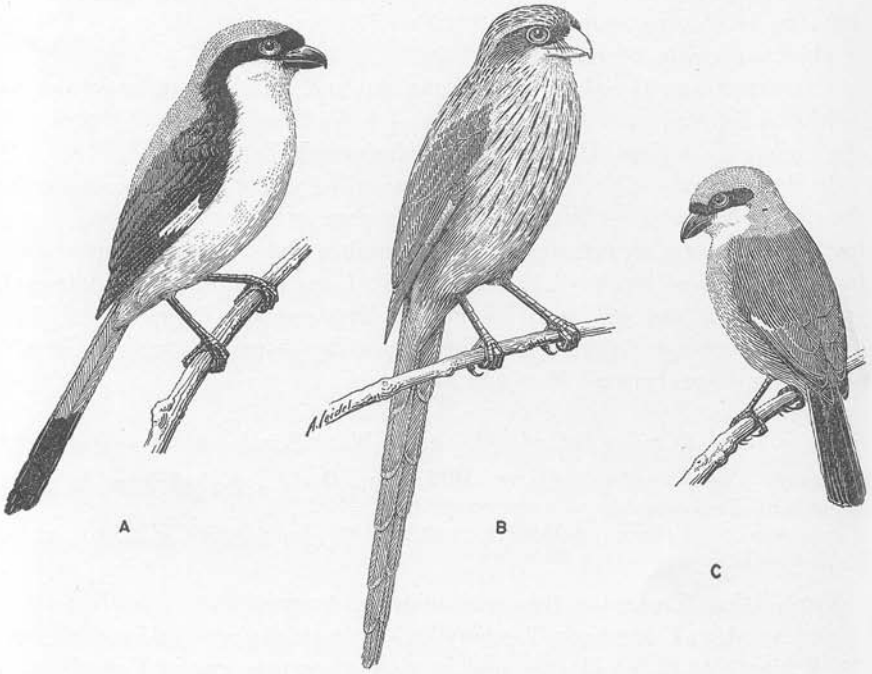

FIG. 5. Three species of typical shrikes. A. *Lanius e. excubitorius*. B. *Corvinella corvina chapini*. C. *Lanius gubernator*.

ADULTS OF BOTH SEXES: Iris dark brown, bill black, feet dark gray.

DISTRIBUTION: From the Northern Territories of the Gold Coast eastward to the vicinity of Lake Chad, the Ubangi-Shari, Bahr-el-Jebel, and northern Uganda. In the northeast Congo Emin's red-backed shrike is known only from the grasslands of the Upper Uelle and, J. M. Vrydagh tells me, the country near Mahagi.

We found this small shrike most frequently about Aba. Elsewhere, in the vicinity of Faradje and Dungu, it was only occasional, a pair or a family perching in the small trees, especially about abandoned village sites or old cultivated fields. There they kept a sharp lookout for insects, without making any noise that I recall. Eight stomachs contained nothing save the remains of insects, including beetles, a green mantis, and a small grasshopper.

Dissections showed that breeding went on in March and April, at the beginning of the rains. Young in barred plumage were taken in July, and they seemed to have left the nest some weeks earlier. In juvenal dress the young male is already much more rufous over the whole upperparts, the young female grayer. The adult female may have the whole back as gray as the crown, or her lower back and rump may be washed with rufous.

Lanius minor Gmelin

Lanius minor GMELIN, 1788, Systema naturae, vol. 1, pt. 1, p. 308 (type locality: Italy). SHARPE AND BOUVIER, 1877, Bull. Soc. Zool. France, vol. 2, p. 479 (Condé in Cabinda district). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 31 (Upper Congo). NEAVE, 1910, Ibis, p. 226 (Lufupa R., 4000 ft.). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 265 (Biogo; Beni; Loashi; Kalegela; Ngingwe); 1933, idem, vol. 22, p. 375 (Nyundo); 1949, idem, vol. 42, p. 167 (Elisabethville; Tembwe). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 22 (Baraka). GEYR VON SCHWEPPENBURG, 1926, Jour. Ornith., p. 396, map on pl. 10, fig. 3. DE SCHAECK, 1927, Bull. Soc. Zool. Genève, vol. 3, fasc. 6, p. 80 (Luluabourg). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 116 (Luebo; Banda). BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 354, fig. 71. VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, p. 2 (Musosa). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 90 (Butembo; Mahagi Port; Nioka).

Lanius (*Lanius*) *minor* SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 128 (Dramba; Buta).

SPECIMENS: Faradje, male, March 28; four females, April 11, 19, 24, 26.

ADULT MALE: Iris dark brown, bill black with base of mandible bluish gray, feet black.

DISTRIBUTION: Breeds from southern and central Europe eastward to the Altai Mountains, also in Asia Minor and Persia. Migrates through northeastern Africa to Southwest Africa and the Transvaal and has been noted occasionally as far west as Zinder and the Enclave of Cabinda.

The majority of Congo records are from the east, but to the south of the forest belt there are some from the Kasai, the Kwango, and even farther west. We have specimens from Luluabourg and Brazzaville. In the clearing around Avakubi I saw two individuals in April, 1910, so it is evident that the lesser gray shrike migrates across the Upper Congo forest.

The southward movement through the Sudan lasts from late August to October; in the northeast Congo this shrike is most in evidence on the return journey. In 1911 I noted it first near Faradje in late March, and

a month later it was still very common, three or four in sight at once, standing guard on the tops of trees or bushes in the grassland. The last one was seen on May 6. In the Upper Katanga Neave noted the lesser gray shrike every year around October, and some doubtless winter in the southern Congo.

Lanius souzae souzae Bocage

Lanius souzae BARBOZA DU BOCAGE, 1878, Jor. Sci. Nat. Lisboa, vol. 6, p. 213 (type locality: Caconda, Angola). REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 621 (Leopoldville). SCHIEBEL, 1906, Jour. Ornith., p. 188, pl. G, fig. 1 (Congo region). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 612. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 97 (Tshikapa; Biano Plateau). BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 366. OLIVIER, 1944, Monographie des pies-grièches du genre *Lanius*, p. 297 (Congo). A. W. VINCENT, 1949, Ibis, p. 127. BENSON, 1950, Auk, p. 394.

Corvinella souzae SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 239.

Fiscus souzae SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 343 (Ngombe in Kasai); 1930, idem, vol. 18, p. 288 (Elisabethville); 1949, idem, vol. 42 p. 167 (Kinda; Kapiri; Musosa).

DISTRIBUTION OF THE SPECIES: From the Benguella highland in Angola north to Stanley Pool, eastward to the southern Kasai, the Katanga, and adjacent parts of Northern Rhodesia. Thence it extends to Nyasaland and northward on the east side of Lake Tanganyika to the vicinity of Lake Burigi.

The nominate form in Angola has the lower back and exposed parts of the whole upper wing surface distinctly rufous, with fine blackish vermiculation. Specimens from Northern Rhodesia and Nyasaland are not very different, but a male and a female from the northeastern corner of the range, just southwest of Lake Victoria, plainly represent another race. The male of *L. s. burigi* is merely brownish gray, without vermiculation, on the lower back; its greater wing-coverts and secondaries are only edged with light brown. The female is a little browner on lower back and rump, with wings much like the male's and the flank patch deeper rufous and more extensive than in females from Angola.

Birds from the Katanga are probably not separable from *L. s. souzae*. While the species has not been collected recently in Marungu, it may occur there, and perhaps was the bird mentioned as *Corvinella* from the Kaué and Lugoma rivers in Richard Böhm's notebooks.[1]

In the Upper Katanga Alfred Vincent found it to be thinly distributed, in pairs, in the savanna woods. White says its general appearance is like that of a small brown fiscal shrike. In the hand, females can almost always

[1] See Schalow, 1886, Jour. Ornith., pp. 418, 425.

be distinguished by their having a wash of rufous brown on the posterior flanks.

Near Elisabethville nests with eggs were found by Alfred Vincent from mid-September to the third week in November, in forks of small trees or tall shrubs, at 8 to 18 feet from the ground. They are cup-shaped, built of leaf stalks and other short plant stems, bound round with plant down and old cobweb, and lined with creeper tendrils or fine grass. Sets are of two, or more often three, eggs, cream or greenish white, with a band of ash-gray and light olive speckles around the larger half, and few markings elsewhere. Dimensions: 19–21.9 by 15.9–17 mm.

[*Lanius souzae burigi* Chapin]

Lanius souzae burigi CHAPIN, 1949, Auk, p. 241 (type locality: between Usuvi in northwest Tanganyika Territory and the Kisaka district of Ruanda).

The range of this race, which is much less rufous on wings and lower back than the nominate form, cannot yet be clearly delimited. It extends southward from Lake Burigi to the Uvinza district in western Tanganyika Territory, and it may include the eastern fringe of Ruanda-Urundi. Rudolf Grauer collected the type, an adult male, close to the border of Ruanda, and a female of the same race at Lake Burigi.

Lanius mackinnoni Sharpe

Lanius mackinnoni SHARPE, 1891, Ibis, pp. 444, 596, pl. 13 (type locality: Bugemaia, Kavirondo, Kenya Colony). LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 14 (Kingoyi); 1917, idem, vol. 10, no. 24, p. 24 (Beni). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 345 (Mubuku Valley, 6000 ft.; northwest of Beni). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 315 (Rugege Forest; southwest Ruanda; foot of Mt. Karisimbi; Bugoie Forest, 2500 m.; northwest of L. Tanganyika). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 269 (Kilo); 1918, idem, vol. 5, p. 265 (Karimi; Moera; Masidongo; Zambo; Bonzo; Kamabo; Marissawa; Mutiba; Sibatwa Forest); 1933, idem, vol. 22, p. 374 (Kisenyi). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 112 (Burunga; Kartushi; Bopu; Kampi-na-Mambuti). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 22. STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 569 (Saidi). FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 303. BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 364, fig. 75. GRANT AND MACKWORTH-PRAED, 1942, Bull. Brit. Ornith. Club, vol. 63, p. 21. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 76 (Mutwanga). OLIVIER, 1944, Monographie des pies-grièches du genre *Lanius*, pp. 51, 269, 273, frontispiece, fig. 2.

Fiscus mackinnoni SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 242 (L. Kivu). SCHOUTEDEN, 1926, Rev. Zool. Bot. Africaines, vol. 13, p. 201 (Ganda Sundi; Temvo; Makaia Ntete); 1942, idem, vol. 36, p. 339 (forest west of Astrida). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 91 (Nioka; Djugu).

? *Corvinella* sp. EMIN, 1921, *in* Schubotz, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 277 (Bellima).

Lanius (*Fiscus*) *mackinnoni* SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 308; 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 128 (Medje; Bondo Mabe); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 132 (Burunga in Mokoto; Kibumba; Kikere; Tshamugussa; Nyabitsindi, 2400 m.; L. Ngando, 2400 m.; Rutshuru).

Fiscus mackinnonni SCHOUTEDEN, 1940, Rev. Zool. Bot. Africaines, vol. 33, p. 286 (Mt. Wago).

SPECIMENS: Bafwabaka, male, January 7; female, January 11. Babonde, female, July 18. Medje, two males, January 15, July 9; two immature males, January 15, March 28; two immature females, January 14; juvenile male, May 18; three juvenile females, June 6, July 8, September 25.

ADULTS OF BOTH SEXES: Iris dark brown, bill black, feet black with yellowish gray soles.

NESTLING WITH TAIL HALF-GROWN: Iris gray with blackish inner rim; bill dusky, corners of mouth yellow; feet light gray.

DISTRIBUTION: From the vicinity of Mt. Cameroon eastward along the northern edge of the Lower Guinea forest and across Uganda to Mt. Elgon and North Kavirondo. Also south through Spanish Guinea to the Gaboon, Mayombe, and to Quicolungo in northwest Angola. On the east it again extends southward to Bukoba, southern Ruanda, and the highland northwest of Lake Tanganyika.

In the center of the Upper Congo forest Mackinnon's shrike is not to be seen, nor are there any records from the Kasai region. Its range crosses the northern Congo in a surprisingly narrow band, mostly between Bafwabaka and Nala, for example, and only about 50 miles wide. Though not a true forest bird, it is so partial to clearings in wooded country that it scarcely reaches the savannas of the Uelle.

Likewise on the eastern edge of the Congo forest it has been found in forest clearings, near patches of woods, and in highlands even up to 8200 feet. Yet Schouteden found it common in the Mayombe, close to sea level. There is some slight geographic variation in size, but not enough for subdivision into races. Our specimens from the northern Ituri have wings 81–87 mm.; 15 others from the highlands of the eastern Congo, 84–92. But occasional examples from the highland northwest of Baraka are said to have wings 93 and 94 mm.

Near Medje, between Irumu and Beni, and in the Semliki Forest, I found Mackinnon's shrike not uncommon, usually occupying rather conspicuous perches in the small trees in clearings. On the western base of Ruwenzori it ascends to at least 6500 feet; it was seen on the highland west of Lake Edward, and on the central Kivu Volcanoes I collected it at 7000 feet. Usually silent, and when it does attempt to sing, in my experience, it produces only a curious broken medley of notes. Bates and Young have both heard it mimic other birds, especially bulbuls.

Near the northern edge of the forest, fledglings with tails not full grown were captured in May, June, July, and September, and the breeding season had begun in April, when we saw an adult carrying nest materials. January specimens were all non-breeding.

Nests have been found by Bates and by Van Someren, placed rather low down in bushes and built of rootlets, twigs, or plant stems, and lined with fine fibers or even "silk" from maize. Two eggs form a set, creamy white or buff, spotted with yellowish brown and lilac-gray. One set measured 23.5 by 17.5 and 23 by 18 mm.

In three stomachs I found only insects: two grasshoppers, some small beetles, and a few Hemiptera. But Bates noted frog bones once, and even found a young bird stuck on a thorn. Jacob Reis watched this shrike feeding on a young sunbird similarly impaled.

Lanius collaris smithii (Fraser)

Collurio smithii FRASER, 1843, Proc. Zool. Soc. London, p. 16 (type locality: Cape Coast Castle, Gold Coast).

Lanius smithii SHARPE AND BOUVIER, 1876, Bull. Soc. Zool. France, vol. 1, p. 308 (Nemlao).

Fiscus collaris var. *smithi* OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127.

Lanius humeralis var. *smithi* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 31 (Kisantu; Mayombe).

Lanius smithi SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 450 (Uelle).

Fiscus smithi SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 252 (Mangbetu country).

Lanius humeralis EMIN, 1919, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 2, p. 428 (Kuterma); 1927, idem, vol. 4, p. 239 (Kavalli). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 240 (Mundu).

Fiscus collaris smithi SCHOUTEDEN, 1926, Rev. Zool. Bot. Africaines, vol. 13, p. 201 (Vista).

Lanius collaris smithii SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 609. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1192. BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 356, fig. 72. VERHEYEN, 1939, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 15, no. 66, p. 5 (Bambesa). OLIVIER, 1944, Monographie des pies-grièches du genre *Lanius*, p. 260.

Lanius (*Fiscus*) *collaris smithi* SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 128 (Faradje; Abimva; Djalasinda; Mahagi Port; Rungu; Mauda; Poko; Niangara; Buta).

Lanius collaris smithi BOUET, 1942, Ois. Rev. Française Ornith., new ser., vol. 12, p. 145 (Brazzaville); 1945, idem, new ser., vol. 14, p. 73.

Fiscus collaris smithii VRIJDAGH, 1949, Gerfaut, vol. 39, p. 92 (Nioka; Ishwa Plain).

SPECIMENS: Zambi, male, June 24. Near Medje, male, female, January 12. Niangara, male, November 17; juvenile female, April 16. Dungu, immature male, June 23. Faradje, two males, April 12, May 1; three females, March 8, April 11, May 7; four juvenile males, March 8, April 3.

ADULTS OF BOTH SEXES: Iris dark brown, bill and feet black.

DISTRIBUTION OF SPECIES: From the coast of French Guinea across the grasslands north of the Equator to Eritrea and Abyssinia, then southward through eastern Africa, and over most of the countries south of the Congo forest, even to the Cape Province. Absent from the higher mountains where forested, as well as from all solid forest country in Upper and Lower Guinea.

Six or seven races are to be recognized, of which three occur within our limits. *Lanius collaris smithii* is distinguished by the weak green gloss of its deep black crown and back. It extends across the northern grasslands from French Guinea to western Uganda, and reappears in a rather small area about the Lower Congo.

The two other races, *capelli* and *humeralis,* living in the southern and eastern Congo, have crown and back more brownish black, with little or no gloss. They differ from each other mainly in the extent of the white tail tips, but in this there is considerable variation. Two races with white superciliary lines are *subcoronatus* of southwestern Africa and *marwitzi* of the highlands north of Lake Nyasa. *Lanius c. collaris* Linnaeus of Cape Province has the underparts gray.

In the northern grasslands of the Congo and those just west of Lake Albert, the fiscal shrike is represented by the race *smithii,* as it is also in the Lower Congo. We found it common from the vicinity of Pawa northward into the Uelle, and I have since taken an undoubted specimen of *smithii* at Irumu. About Stanley Pool most examples agree with *capelli,* but from there west to Pointe Noire and the mouth of the Congo River the grasslands are occupied by *smithii.*

The fiscal shrike is one of the most characteristic birds of the Uelle savannas. From some bush or small tree it keeps silent watch, often moving its long tail as though to balance itself in the breeze. The tail may be wagged from side to side as well as up and down. Whether fleeing from an intruder or simply moving to a new lookout, the bird is apt to fly low over the grass tops, rising abruptly when wishing to reach a higher perch.

Besides a rasping note like that of so many shrikes, the fiscal has some more pleasing notes, which evidently serve as its song. These were heard in the Uelle chiefly in March and again in July and August. To my ear they sounded like "chirp-chirp-chirp, hur—ry; chirp-chirp-chirp, hur—ry, hur—ry," or at other times "chap-lips, chap-lips, chap-lips." I never heard it mimic another bird.

North of the Congo forest breeding begins in January or February and lasts at least into May. The nest is a cup of fine plant stems, grasses, rootlets, and a little bark or other fibrous material. Usually it is placed in a crotch of some small tree at a height of 12 or 14 feet. I saw broods of two

and of three young, but four eggs have sometimes been noted. They are described as pale blue-gray, freckled with light brown and with a zone of purplish brown spots around the widest part.

About the nest the parent birds are especially bold; I have even seen them attack the yellow-billed kite. In southern and eastern Africa this shrike is reported to hang its victims on thorns of various kinds, and to have killed small birds, lizards, frogs, and even a shrew. Yet in the well-watered regions of western and central Africa the impaling of food has scarcely been observed, and the examples I dissected had never eaten anything but insects.

Lanius collaris capelli Bocage

Lanius capelli BARBOZA DU BOCAGE, 1879, Jor. Sci. Nat. Lisboa, vol. 7, no. 26, p. 93 (type locality: Cassange, Angola).

Lanius fiscus DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Lanius smithi REICHENOW, 1887, Jour. Ornith., pp. 300, 305, 308 (Manyanga; Leopoldville; Kasongo).

Lanius humeralis congicus REICHENOW, 1902, Jour. Ornith., p. 258 (type locality: Malange, northern Angola); 1903, Die Vögel Afrikas, vol. 2, p. 610; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 314 (southwest Ruanda; Kisenyi; Rutshuru Plain). LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 13 (Lower Congo); 1917, idem, vol. 10, no. 24, p. 24 (Kabare). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 265 (Beni; Masidongo; Busuenda; Lisasa; Tsisirongo; Boga; old Mission St. Gustave; Baraka; Kalembé).

Lanius humeralis var. *congica* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 31 (L. Leopold II).

Fiscus collaris congicus SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 343, 400 (Luebo; Macaco; Kabambaie; Kwamouth); 1924, idem, vol. 12, p. 273 (Kisantu; Kidada); 1941, idem, vol. 34, p. 267; 1942, idem, vol. 36, p. 339 (Kirinda; Kibingo; Astrida); 1943, idem, vol. 37, p. 271 (Gabiro).

Fiscus collaris humeralis SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 400 (Kwamouth).

Lanius uropygialis SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 22 (in part. Urundi; Usumbura; Uvira; Ishangi).

Lanius collaris congicus GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 111 (Ngoma). FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 757 (Lulenga). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 569 (Kasenyi). VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 16, p. 7 (Rutshuru); 1941, idem, vol. 17, no. 23, p. 12 (Musosa); 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 37, 76 (Rugari).

Lanius collaris capelli BERLIOZ, 1925, Bull. Mus. Hist. Nat., Paris, vol. 31, p. 349 (Luluabourg).

Lanius (Fiscus) collaris congicus SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 132 (Kibati; Nzulu; Bitashimwa; Ninda, 2150 m.; Ruhengeri).

SPECIMENS: Leopoldville, female, July 6. Kwamouth, male, July 14.

ADULTS OF BOTH SEXES: Iris dark brown, bill and feet black.

DISTRIBUTION: From Angola to the Kasai and Lake Tanganyika, then northward through Ruanda and the Kivu to the vicinity of Lake Edward. The majority of birds from northwestern Angola and the Kasai certainly show the restricted tail spots characteristic of *capelli*. Yet in many parts of the southern and eastern Congo other examples are found which can scarcely be distinguished from *humeralis*. In listing the references I have been obliged to depend mostly on the identifications by the authors, so that the two races may seem badly intermingled, especially in the Kivu region. That appears actually to be true. Even my own specimen from Kwamouth has the tail of *humeralis* pattern.

The relatively small areas of white on the rectrices are characteristic not only of Angolan examples but also of *L. c. smithii*. So where *smithii* approaches *humeralis* in the region south of Lake Albert, the intermediates may also be expected to look almost exactly like *capelli*.

It is clear that the name *capelli* rather than *congicus* must be used for the present race. Cassange is only about 100 miles east of Malange, and the whitish spot in the loral feathering which was supposed to be distinctive of *capelli* is a variable feature, appearing occasionally in specimens from the Kasai and even the Kivu.

In the southern and eastern Congo this race is very common and behaves exactly like *smithii*. I found it to eat insects and caterpillars, and never noted any food impaled on thorns. In the Kivu highlands it has been noted as high as 7000 feet, and between Rutshuru and Kabale I found it occasionally living in the same spots with *L. mackinnoni*. On Ruwenzori it scarcely ascends beyond 5000 feet, because of the wooded nature of the slopes. In Marungu Rockefeller and Murphy collected one example at Sambwe, 6100 feet.

Near the Equator nesting may be expected in almost any month; in the southern Congo it should start toward September.

Lanius collaris humeralis Stanley

Lanius humeralis STANLEY, 1814, *in* Salt, A voyage to Abyssinia, app., p. 51 (type locality: Chelicut, Abyssinia).

Fiscus collaris DE SOUSA, 1886, Jor. Sci. Nat. Lisboa, vol. 11, p. 79 (Ntenque); 1886, *in* Capello and Ivens, De Angola á Contra-Costa, vol. 2, p. 445. NEAVE, 1910, Ibis, p. 226 (upper Lufira R., 3600 ft.).

Lanius collaris REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 607 (in part).

Fiscus humeralis SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 5 (Lukonzolwa).

Lanius uropygialis SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 22 (in part. Kisenyi; Irumu).

Lanius collaris congicus DE RIEMAECKER, 1927, Rev. Zool. Bot. Africaines, vol. 14, p. 278 (Kifumanshi R.). A. W. VINCENT, 1949, Ibis, p. 126 (Elisabethville; west of L. Moero).

Fiscus collaris congicus SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 287 (Elisabethville).

Lanius (Fiscus) collaris humeralis SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 308 (Lulenga; Ngoma; Usumbura).

Lanius collaris humeralis SCHOUTEDEN, 1933, Rev. Zool. Bot. Africaines, vol. 22, p. 374 (Kisenyi; Nyundo); 1935, idem, vol. 27, p. 402 (Gatsibu). VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 16, p. 7 (Kiambi; Rutshuru); 1941, idem, vol. 17, no. 23, p. 12 (Musosa).

Fiscus collaris humeralis SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 167 (many localities in Katanga).

DISTRIBUTION: From Eritrea and Abyssinia through East Africa to Northern Rhodesia, Nyasaland, and northeast Zululand. As already stated, some examples from the Kivu and Kasai agree in tail color with *humeralis,* but this race is more characteristic of the Upper Katanga. Its outermost rectrices are almost wholly white, instead of black with white tips only 10 to 20 mm. long, as is the rule with *capelli,* at least in northern Angola.

In the Katanga Neave found this shrike not uncommon in the more open parts of the plateaus, sitting usually on the tops of isolated bushes. I too have collected it near Elisabethville in an open "dambo"; dense savanna woods are evidently avoided.

In this southern latitude nesting goes on from early September to early February. From Nyasaland Belcher described the nest as a deep cup of flexible twigs, other vegetable materials, and insect cocoons, with a lining of fine fibers. Three or even four eggs are laid, cream-color or pale grayish green, with light brown and lilac blotches, mostly in a zone. Dimensions: about 22.9–25.5 by 17–18.6 mm.

In East Africa Jackson found that this fiscal shrike impaled beetles, grasshoppers, and even a mouse and a lizard on the thorns of acacias, sisal plants, and barbed wire fences. But the greater part of its food was composed of insects.

Lanius excubitorius excubitorius Prévost and Des Murs

Lanius excubitorius PRÉVOST AND DES MURS, 1847, *in* Lefebvre, Voyage en Abyssinie, vol. 6, pp. 99, 170, pl. 8 (type locality: Nubia). HARTLAUB, 1881, Abhandl. Naturwiss. Ver. Bremen, vol. 7, pp. 85, 96 (Mahagi). REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 615. EMIN, 1919, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 2, p. 78. SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 140 (Fanigoro; Tunguru).

Lanius excubitorius princeps SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, pp. 265, 266 (upper Semliki Valley).

Lanius excubitorius böhmi SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 265 (in part. Beni; old Mission St. Gustave; Kalegela).

Lanius excubitorius excubitorius SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 611 (L. Edward). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 569 (Kasenyi). FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 271. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1195.

VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 76 (Luhule R.; Rugetsi R.). OLIVIER, 1944, Monographie des pies-grièches du genre *Lanius*, p. 243 (Niam-Niam).

Lanius (*Fiscus*) *excubitorius excubitorius* SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 128.

Lanius (*Fiscus*) *excubitorius böhmi* SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 133 (Rwindi; Mabenga).

Fiscus excubitorius excubitorius SCHOUTEDEN, 1941, Rev. Zool. Bot. Africaines, vol. 34, pp. 267, 365. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 92 (Ishwa Plain; Mahagi Port).

ADULTS: Iris dark brown, bill black, feet blackish.

DISTRIBUTION OF THE SPECIES: From Marua in Northern Nigeria east to the White Nile and Abyssinia, then south through eastern Africa to the highlands northeast of Lake Nyasa. *Lanius e. excubitorius* of the White Nile extends to Lake Naivasha in Kenya Colony and to the plain just south of Lake Edward. The race *tschadensis* of the Lake Chad region is doubtfully separable. *Lanius e. intercedens* Neumann of southern Abyssinia is distinctly larger, with more white in the tail, and other large birds, colored more like the nominate race, inhabit the vicinity of Mt. Elgon and North Kavirondo. *Lanius e. böhmi* is a little darker above than the other forms and intermediate in size. It ranges from the Kivu District southward through western Tanganyika Territory.

This large gray-backed shrike is numerous on all the relatively dry plains about Lake Albert and Lake Edward but avoids the forest and does not ascend to the highlands. It is never seen in the Upper Uelle District. Going often in pairs and family parties, it chooses conspicuous perches on acacias and other trees. The song it gives has not the slightest melody but rather is a discordant medley of strident, often metallic notes, truly an epitome of musical efforts by typical shrikes.

Because of its large size, *excubitorius* is among the more rapacious of African shrikes. In the few stomachs I was able to examine I found not only the remains of insects but also the bones of a small batrachian and a whole nestling of some small passerine bird. Yet I never noticed any food impaled on thorns that might have been left by this marauder.

In central Uganda nesting has been noted especially in May–July and October–December, and nestlings or fledglings have been taken in the drier country along the Bahr-el-Jebel in January and February. About Lake Edward nests may be expected at almost any season. They are placed on horizontal branches at 10 to 35 feet from the ground, built of twigs and rootlets with a lining of fine grass. Eggs usually number three or four, pale yellowish gray with a few spots of brown and gray; average dimensions, 25 by 19 mm.

Lanius excubitorius böhmi Reichenow

Lanius böhmi REICHENOW, 1902, Jour. Ornith., p. 258 (type locality: Boga Katani, east of L. Tanganyika).

Lanius excubitorius DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 31 (Ruzizi-Kivu).

Lanius excubitorius böhmi NEUMANN, 1905, Jour. Ornith., pp. 228, 229 (L. Tanganyika). REICHENOW, 1905, Jour. Ornith., p. 428 (L. Kivu); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 314 (Kisenyi). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 24 (Rutshuru ?). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 265 (in part. Baraka; Luvungi; Komba-Komba); 1943, idem, vol. 37, p. 271 (Gabiro). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 22 (Kisaka; Urundi; Baraka; Ruzizi Valley; Rutshuru Plain). FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 302 (Kivu District; Ruanda). FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 272.

Lanius excubitor SALVADORI, 1914, Ann. Mus. Zool. Napoli, new ser., vol. 4, no. 10, p. 22 (Kagera Valley).

Lanius excubitorius excubitorius SCHOUTEDEN, 1935, Rev. Zool. Bot. Africaines, vol. 27, p. 402 (Luvungi; Gabiro; Katana; Ruindi camp).

Lanius excubitorius intercedens VERHEYEN, 1947, Exploration du Parc National Kagera, Mission Frechkop, fasc. 2, p. 14 (Katodjo; Rwindi Plain).

DISTRIBUTION: From Songea in Tanganyika Territory northward along the eastern side of Lake Tanganyika to the south shore of Lake Victoria and the vicinity of Lake Kivu. Despite published records of *böhmi* from the plains north of the Kivu Volcanoes, some of which are admitted here, I think such birds are more likely to resemble the nominate race. The male I collected in the lower Rutshuru Plain is certainly *excubitorius*.

The behavior of this darker race is undoubtedly the same as that of the nominate form, and it is largely restricted to the plains lying below 5000 feet. While specimens have been collected at Baraka on Lake Tanganyika, it extends only a little way into the grasslands of the Manyema.

Corvinella corvina chapini Friedmann and Bowen

Corvinella corvina chapini FRIEDMANN AND BOWEN, 1933, Proc. Biol. Soc. Washington, vol. 46, p. 121 (type locality: Kibigori, Kavirondo District; also from Vankerckhovenville and Garamba in northeast Congo). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1202.

Corvinella corvina SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 449 (Uelle). BEQUAERT, 1922, Bull. Amer. Mus. Nat. Hist., vol. 45, p. 309.

Corvinella corvina affinis SCLATER AND MACKWORTH-PRAED, 1919, Ibis, p. 627 (Mt. Baginzi; Yei). BOWEN, 1931, Catalogue of Sudan birds, pt. 2, p. 69. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 129 (Dungu). GRANT AND MACKWORTH-PRAED, 1947, Bull. Brit. Ornith. Club, vol. 67, p. 62 (northeastern Belgian Congo).

SPECIMENS: Nzoro, male, July 30; two females, July 30, August 9; immature male, August 9; immature female, July 30. Garamba, two males,

June 4, 25; three females, June 4, 7, July 18; two immature males, July 18, 21; two immature females, June 25, July 18.

ADULTS OF BOTH SEXES: Iris dark brown, rim of eyelids yellow; bill yellow; feet dark green.

DISTRIBUTION OF THE SPECIES: Senegal to the White Nile, northern Uganda, Turkwell River, and Lumbwa in Kenya Colony. There are apparently four or five races. *Corvinella c. corvina* of Senegal, the Gambia, and adjacent parts of the western Sudan retains throughout life traces of dusky barring on the chest and has a relatively large rufous area on the primaries. In the eastern Sudan *C. c. affinis* Hartlaub is supposed to differ by being more heavily streaked on the upperparts and less rufous on crown and neck. Along the northern border of the Upper Guinea forest, birds like *corvina* are more deeply colored and have been named *C. c. togoensis* Neumann. But these have often been reunited with *affinis*.

In the Upper Uelle, northern Uganda, and the Kavirondo District the general coloration is distinctly grayish brown, the rufous area on primaries is more restricted, and adults never show any barring on the chest. This race has been separated as *C. c. chapini*. Another form, *caliginosa*, more heavily streaked and with longer tail, has been described from the southern Bahr-el-Ghazal.

This giant brown shrike with yellow bill is rather locally distributed in the savannas of the Upper Uelle. In the vicinity of Nzoro, about two native farms, we noted parties of *Corvinella* at intervals of five to 10 days, so that they seemed resident. The groups numbered from four to 10 individuals, young and old together, sitting around on stumps or trees and very wary of approach. Sometimes they flew out to capture ants on the wing, and they had a loud grating call.

It was not until we reached Garamba, 75 miles farther north on the boundary of the Sudan, that we saw these shrikes again. There they were more numerous, living in flocks about the dense groves of tall savanna trees with grass beneath. Again we watched them pursue flying ants, but that was by no means their only food. Among the 12 stomachs I examined, four held beetles, three had winged ants, one a hemipter, and one a couple of caterpillars. One spider was also found. Insect remains were never wanting, but there was no trace of vertebrate food. In West Africa this shrike has been seen to attack young birds of other species. But my impression was that despite its large size it was not very aggressive.

None of our specimens was in condition to breed, and from the age of the young examples it was evident that they had been hatched toward April, at the beginning of the rains, if not a little earlier. In the Nile Province of Uganda Van Someren found a nest with four young in February.

Another race of this same species nests near Ilorin, Nigeria, in January,

February, and March,[1] while farther north in the same colony nests have been noted from April 30 to July 21.[2] They were placed in trees, from 4 to 15 feet up; eggs numbered four, sometimes five to a set. These were cream-color, buff, or greenish white, spotted with yellowish brown and gray, measuring 23.2–26.4 by 17–19.1 mm.

[*Corvinella corvina caliginosa* Friedmann and Bowen]

Corvinella corvina caliginosa FRIEDMANN AND BOWEN, 1933, Proc. Biol. Soc. Washington, vol. 46, p. 122 (type locality: Rangu, in Yambio district, southern Bahr-el-Ghazal). CAVE AND MACDONALD, 1950, Ibis, p. 378 (Yambio).

I have hesitated to recognize this race, because Yambio is little more than 100 miles to the west of Garamba, where I collected *C. c. chapini.* It is supposed to differ from *chapini* by being more heavily streaked above and below and by having a longer tail (188.5–191 mm.). The tail of *chapini* varies actually from 166 to 186 mm., and the difference between the maxima is but 5 mm.

Inasmuch as Cave and Macdonald say that additional specimens from Yambio confirm the validity of *caliginosa,* and since there is a considerable area to the westward in the southern Ubangi-Shari where this yellow-billed shrike should occur, it is well to call attention to *C. c. caliginosa.* It may occur along the northern border of the Congo near the Mbomu or even the Ubangi River.

[*Urolestes melanoleucus aequatorialis* Reichenow]

Urolestes aequatorialis REICHENOW, 1887, Jour. Ornith., p. 65 (type locality: Gasa Mts., Irangi District, Tanganyika Territory).

Urolestes melanoleucus DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (region of L. Tanganyika); 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 31.

The magpie-shrike ranges from Zululand and the Transvaal to Damaraland, southern Angola, and in East Africa to the region east of Lake Victoria and the vicinity of Kilimanjaro. The southern, nominate race extends to Angola, but eastern birds, from the Zambesi northward, are deeper black on throat and chest, with tails shorter, not exceeding 260 mm. The latter are *U. m. aequatorialis.*

While nominate *melanoleucus* has been reported from near Lusaka in Northern Rhodesia, it is not expected to reach the Katanga. Storms's specimen of *aequatorialis* must have come from the eastern side of Lake Tanganyika, since none has since been obtained on the western shore of that lake.

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[1] Boughton-Leigh, 1937, Oologists' Rec., vol. 17, p. 70.

[2] Shuel, 1938, Ibis, p. 241; Serle, 1940, Ibis, p. 24.

FAMILY **PRIONOPIDAE.** HELMET-SHRIKES

KEY TO THE GENERA OF PRIONOPIDAE OCCURRING IN OR NEAR THE CONGO

1. Feathers of forehead, and often those of crown as well, lengthened to form a crest; a bare wattle of red or yellow color with scalloped border surrounds the eye . . . . . *Prionops* (p. 91)
   Feathers of forehead not lengthened, head not crested; border of eyelids may be bare but is not expanded into a wattle 2
2. Beak and feet reddish; crown bluish gray, throat black, back blackish, abdomen rufous . . . . . *Sigmodus* (p. 88)
   Beak and feet blackish; crown and throat white, back dark brown, abdomen whitish . . . . . *Eurocephalus* (p. 88)

[*Eurocephalus rüppelli rüppelli* Bonaparte]

Eurocephalus rüppelli BONAPARTE, 1853, Rev. Mag. Zool., ser. 2, vol. 5, p. 440 (type locality: White Nile).

The white-crowned shrike ranges from Northern Somaliland, Abyssinia, and the Bahr-el-Jebel south through East Africa to southern Tanganyika Territory. It may be divided into three races, none of which has been found in Congo territory. The nominate form has been collected at Gondokoro and Redjaf, and *E. r. böhmi* Zedlitz occurs east of Lake Tanganyika and near the north end of Lake Nyasa.

Eurocephalus rüppelli is a conspicuous bird, traveling in parties of four to eight, feeding on insects amid the trees, and occasionally coming to the ground. The call notes are varied, more or less squawky, and the flight is often "fluttery" as the birds proceed from tree to tree.

Sigmodus caniceps rufiventris Bonaparte

Sigmodus rufiventris BONAPARTE, 1853, Rev. Mag. Zool., ser. 2, vol. 5, p. 441 (type locality: "Mozambique," but correctly Gaboon). OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127 (Ubangi). REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 537.

Sigmodus rufiventris rufiventris BANNERMAN, 1920, Rev. Zool. Bot. Africaines, vol. 7, p. 289; 1922, idem, vol. 9, p. 361; 1939, The birds of tropical West Africa, vol. 5, p. 346, fig. 69. SCHOUTEDEN, 1925, Rev. Zool. Bot. Africaines, vol. 13, p. 17 (Bolobo; Kunungu). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 73 (Bangui).

DISTRIBUTION OF THE SPECIES: Forested regions from Sierra Leone to Southern Nigeria, and in Lower Guinea from the Cameroon and Gaboon east to the Kasai, the Uelle, and the Bugoma Forest in Uganda. The two western races, *S. c. caniceps* Bonaparte and *S. c. harterti* Neumann, are entirely black on the throat. *Sigmodus c. rufiventris* has the chin gray, lower underparts more rufous. It ranges from the Cameroon coast and Gaboon to the Ubangi River and Middle Congo. Farther east the rufous

color of the underparts becomes still deeper, and *S. c. mentalis* occupies wooded areas from the Kasai and the Manyema to the Uelle and western Uganda.

At Lukolela I found red-billed shrikes of the race *rufiventris* rather common in the forest, usually in parties of three to six, and once of nine. They gave a pleasant if not very musical call, a whistled "chewy-you," repeated from two to six times. One fledgling was brought to me alive on September 8, very different in color pattern from the adult. It was similar to the nestling of *S. c. mentalis* which I had collected in the Ituri 20 years before, but much paler cinnamon on the lower breast.

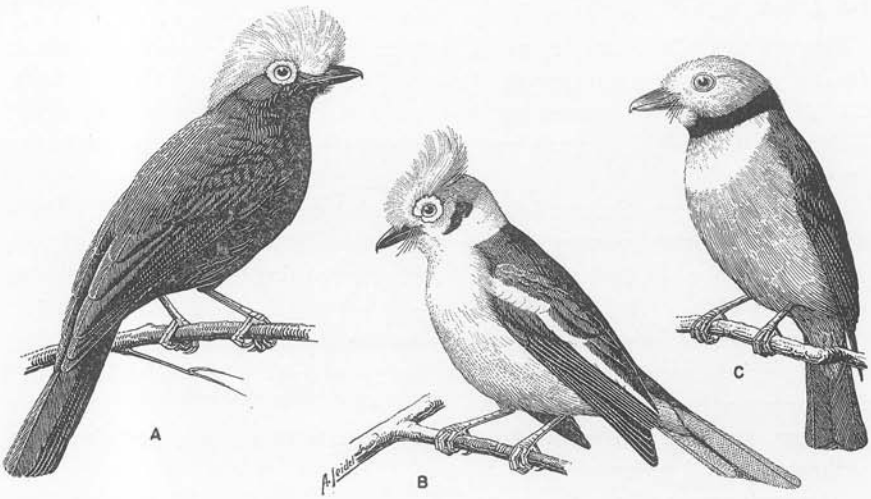

FIG. 6. Helmet-shrikes. A. *Prionops alberti*. B. *Prionops plumata concinnata*. C. *Sigmodus caniceps mentalis*.

While it is certain that nesting was in progress at the very beginning of the rains, I should expect reproduction to go on for several months at least. The stomachs of three specimens contained remains of insects, most of them rather soft, like Orthoptera and small cicadas, also one green caterpillar and one fair-sized spider.

Sigmodus caniceps mentalis Sharpe

Sigmodus mentalis SHARPE, 1884, Jour. Linnean Soc. London, zool., vol. 17, p. 425 (type locality: Sassa in Azande country). REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 538. SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 467, pl. 57, fig. 2. SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 267 (Kilo); 1918, idem, vol. 5, p. 261 (Beni; foot of "Mitumba Mts."; Lesse; Skange).

Sigmodus rufiventris EMIN, 1894, Jour. Ornith., p. 170 (old Irumu). SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 451 (Zone of Gurba-Dungu).

Sigmodus rufiventris mentalis NEUMANN, 1899, Ornith. Monatsber., p. 89 (Nsangaui in Semliki Valley). BANNERMAN, 1920, Rev. Zool. Bot. Africaines, vol. 7, p. 289 (Poko). CHAPIN, 1921, Amer. Mus. Novitates, no. 17, pp. 11–13, fig. 6 (nestling). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 343 (Luebo; Kamaiembi); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 127 (Nava R.). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 124. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 21 (Moera; Ukaika; Mawambi-Irumu). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 599. STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 570 (Saidi). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1180 (Bwamba Forest). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 76 (Bwanandeke; between Biangolo and Modidi rivers).

Sigmodus rufiventris var. *mentalis* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30.

SPECIMENS: Bafwasende, male, female, September 27. Avakubi, male, female, immature male, immature female, April 10. Penge, two males, April 20, 21. Panga, male, immature female, September 15. Gamangui, male, February 4. Medje, juvenile male, October 6. Rungu, female, immature female, June 30.

ADULTS OF BOTH SEXES: Iris dark grayish brown, with outer rim yellow, sclerotic membrane orange (all the way around the cornea), bare rim of eyelids whitish; bill dark red, somewhat lighter at tip; feet bright vermilion, claws brownish.

IMMATURE: Iris grayish green, becoming dark brown on inner edge, rim of sclerotic membrane dark brown, border of eyelids blackish; bill black; feet orange red.

NESTLING: Iris brownish gray; bill black with corners of gape pale yellow; feet dull yellowish.

DISTRIBUTION: From the central Kasai and probably the Bangala District to the gallery forests of the Uelle, the Semliki Valley, and the Bugoma Forest. This race of the red-billed shrike is fairly common in that whole area, going in small parties, sometimes as many as eight together. Tall trees on the borders of open glades or clearings suit them best, they feed amid the leafy boughs, and their broad wings give a buoyant if not rapid flight, suggesting jays.

Their calling is often low, like "chi-chi-chi" or "ch-wĕ"; or else a series of four of five soft whistles, "hiu-yu," may be given. The beak can be snapped audibly, and if one of the party is wounded the others display great solicitude. Both Azande and Mangbetu in the forested southern Uelle call this the leopard-bird, because it is reputed to make a great commotion on seeing a leopard. North of Faradje the Azande say the same of *Prionops p. concinnata.*

I can find no description of the nest, which should be like that of *Prionops*

and very difficult to see. In the Ituri forest breeding must go on throughout the year, if we may judge by the state of the specimens collected. A nestling brought to me in early October was strikingly different in color pattern from the adult and was described and figured by me in 1921. In juvenal dress the wing presents a large whitish patch formed by the greater and middle coverts, but these are soon replaced by black ones. The throat is first buffy white, and two bare patches on the hind crown later become covered by black feathers, though the nape is at first white. Eventually the nape becomes black and the hind crown pale bluish.

Examination of seven stomachs disclosed nothing save remains of insects, including Orthoptera in three cases and naked caterpillars twice.

KEY TO THE SPECIES OF *Prionops* IN THE CONGO

1. Whole plumage almost completely black, save for an area of yellow or whitish covering forehead and entire crown . . . . . *P. alberti*
   Coloration not so extensively black, though whole head and breast may be black 2
2. Head black, bill reddish . . . . . *P. retzii*
   Head gray and white, bill black 3
3. Two pairs of outermost rectrices wholly or almost wholly white; crest of recurved feathers always restricted to forehead . . . . . *P. poliocephala*
   The next-to-outermost pair of rectrices black on basal half; in adults the crest extends back over the crown, its long feathers somewhat curly . *P. plumata*

Prionops retzii nigricans (Neumann)

Sigmodus retzii nigricans NEUMANN, 1899, Ornith. Monatsber., p. 90 (type locality: Malange, Angola). REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 535 (upper Luvule R.). DE RIEMAECKER, 1927, Rev. Zool. Bot. Africaines, vol. 14, p. 278 (Lubumbashi R.; Kiswishi R.). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 599. VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, p. 3 (Musosa).

Sigmodus graculinus DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Prionops retzii SCHALOW, 1886, Jour. Ornith., pp. 413, 424 (Lufuku R.; L. Itambe); 1887, idem, p. 238. MATSCHIE, 1887, Jour. Ornith., p. 153 (Mpala; Luvule R.).

Sigmodus retzii intermedius REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 535 (Mpala). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 261 (Tanganyika; Baraka; Sibatwa Forest; Dogodo R.). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 22.

Sigmodus retzii var. *intermedia* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30.

Sigmodus intermedius SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 4 (Lukonzolwa).

Sigmodus tricolor NEAVE, 1910, Ibis, p. 225 (Dikulwe R., 4000 ft.). MOURITZ, 1914, Ibis, p. 26 (Elisabethville).

Prionops retzii nigricans SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18,

p. 288; 1949, idem, vol 42, p. 166 (many localities in Katanga, west to Kasaji, north to Kabalo and Albertville).

Sigmodus retzii nr. *nigricans* LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 97 (upper Lufira R.)

ADULTS: Iris orange-yellow, with inner rim lemon-yellow, eye-wattle deep red; bill carmine at base, changing to yellow toward tip; feet light red, with claws dusky.

DISTRIBUTION OF THE SPECIES: From the lower Juba River, the Kikuyu District, and the northern end of Lake Tanganyika south to the northern Transvaal; westward also to Angola and Ovamboland.

There appear to be five or six races, differing slightly in the color of the back and in the length of the feathers of the forehead. *Prionops r. retzii* Wahlberg, of the southernmost area, has frontal feathering short, as has *P. r. nigricans*. But the latter is a little less brownish, purer dusky gray on the back. This form appears to range eastward from Angola to Northern Rhodesia, the Katanga, and Lake Tanganyika. I consider specimens from the northwest shore of Tanganyika inseparable from *nigricans*. From Beira north to the Pangani River lives the race *tricolor*. Even *Prionops r. intermedius,* of the southern shore of Lake Victoria, is not known to reach our area; it has the back brownish as in *retzii,* but forehead feathering longer. *Prionops r. graculina* Cabanis of East Africa lacks white bars on the primaries and has a rather high frontal crest.

In the southeastern Congo *nigricans* lives in the savanna woods, preferring the larger trees, and going in parties of six to 10. Some are usually immature birds. Feeding on a variety of insects, including beetles and Orthoptera, they vary their long-drawn scraping notes with more pleasant whistles, almost oriole-like. From the lake shore at Baraka and Moba these birds ascend to Lubenga in Marungu, at 5650 feet.

Nesting must begin in the Katanga in September, but we have a male in breeding condition from Lubenga as late as March 8. A nest found near Mwinilunga by White on October 1 was a shallow cup firmly secured to a large branch, 20 feet from the ground. It was compactly built of fine tendrils, spider web, and plant down, with a little lichen on the outside. Besides a naked nestling it contained two eggs, pale olive-cream sparingly speckled with brown except at the large end, where there was a broad zone of reddish brown and gray blotches. The eggs should measure around 23.5 by 16.9 mm.

Prionops alberti Schouteden

Prionops alberti SCHOUTEDEN, 1933, Rev. Zool. Bot. Africaines, vol. 24, p. 211 (type locality: summit of Mt. Mikeno, 4400 m., Kivu District); 1933, Bull. Cercle Zool. Congolais, vol. 10, p. 31; 1934, idem, vol. 10, p. 85; 1934, idem, vol. 11, pp. 14, 15, fig.; 1935, Rev. Zool. Bot. Africaines, vol. 26, p. 247, fig. on p. 248 (Kamatembe;

Pinga ?; mountains above Kalehe); 1936, idem, vol. 27, pp. 400, 402; 1936, Bull. Cercle Zool. Congolais, vol. 13, pp. 17, 18, fig.; 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 133. DE WITTE, 1935, Bull. Cercle Zool. Congolais, vol. 12, p. 76 (region of Mokoto Lakes); 1937, Exploration du Parc National Albert, Mission de Witte, fasc. 1, Introduction, p. 32 (base of Mt. Namlagira). BERLIOZ, 1935, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 7, p. 163 (Mbwahi, west of L. Kivu); 1936, idem, ser. 2, vol. 8, p. 332. CHAPIN, 1935, Bull. Cercle Zool. Congolais, vol. 12, p. 76. DUPOND, 1937, Gerfaut, vol. 27, p. 198. BURGEON, 1937, *in* De Grunne, Vers les glaciers de l'Equateur, le Ruwenzori, p. 268, fig. 124. BANNERMAN, 1937, Discovery, London, vol. 18, p. 101, fig. FRECHKOP, 1941, Animaux protégés au Congo Belge, p. 282, fig. 173. HENDRICKX, 1946, Gerfaut, vol. 36, p. 202 (mountains northwest of L. Tanganyika; Mt. Kahusi, 2400 m.). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 76 (Kanyabisika, Bilati, and Bambia, all near Lutunguru); 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 9, pp. 2, 3 (Mt. Kabobo, north of Albertville). PRIGOGINE, 1949, Rev. Zool. Bot. Africaines, vol. 42, pp. 307–321, figs. 1–3 (Kibombo near Kitwabaluzi; Lutunguru, 1500 m.; Lubereri, 1850 m.). HOIER, 1950, A travers plaines et volcans au Parc National Albert, p. 118 (Mt. Mikeno; south Nyasheke).

Prionops albertii HENDRICKX, 1944, Ostrich, vol. 15, p. 205.

ADULTS: Iris greenish yellow, eye-wattle orange; bill black; feet light red, with claws blackish.

DISTRIBUTION: From Lutunguru west of Lake Edward and the western Kivu Volcanoes southward along the mountains west of Lake Kivu to Mt. Kabobo on the western side of Lake Tanganyika. Mt. Mikeno, where the type was found dead on the summit by Walter Ganshof van der Meersch, is a little beyond the normal range.

Within the area outlined above, King Albert's helmet-shrike is restricted to wooded places above 4500 feet. In behavior it appears to be similar to *P. retzii,* living in parties of four to 14. Fred Hendrickx, who watched such a group amid *Hagenia* trees on Mt. Kahusi at 7800 feet, described the usual call as like "tlu-uk," or "clu-uk," repeated from two to six times. If one bird is wounded and cries out, all its companions turn back excitedly to see what is wrong. The nest has not yet been found, and I doubt that there is any short, definite breeding period, at least in the latitude of Lake Edward or Lake Kivu. Judging from young birds collected between mid-August and early October at Lutunguru, Prigogine expected eggs to be laid there in June and July.

Young birds in what appears to be juvenal plumage have the whole crown soiled whitish, with only a faint tinge at most of yellow. Their beaks are light brown, probably somewhat reddish in life. Among the adults some have forehead and crown bright yellow, as they were in the type; others have the color there much duller, even grayish white. To me it seems due possibly to exposure and wear, and Berlioz has pointed out that the yellow pigment of this bird is soluble in benzine, alcohol, and to some extent even

in water. Some specimens show a grayish or whitish area on the inner webs of some of the primaries, others do not.

Prionops poliocephala angolica Grote

Prionops poliocephala angolica GROTE, 1939, Ornith. Monatsber., p. 182 (type locality: Malange, Angola). WHITE, 1946, Ibis, p. 206.

Prionops talacoma DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika); 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Katanga). SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 4 (Lukonzolwa); 1914, Ann. Mus. Zool. Napoli, new ser., vol. 4, no. 10, p. 21 (near Usumbura). NEAVE, 1910, Ibis, p. 225 (Kambove, 4000 ft.). RODHAIN ET AL., 1913, Rapport . . . Mission Scientifique du Katanga, pp. 142, 156, 158 (Sankisia). MOURITZ, 1914, Ibis, p. 31 (southeastern Katanga). DE RIEMAECKER, 1927, Rev. Zool. Bot. Africaines, vol. 14, p. 278 (Lubumbashi R.).

Prionops poliocephala SCLATER, 1912, *in* Shelley, The birds of Africa, vol. 5, pt. 2, p. 475. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 261 (Dogodo R.; Manakwa); 1932, idem, vol. 21, p. 309. WHITE, 1944, Ibis, p. 150 (Luapula R.). VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, p. 3 (Musosa).

Prionops poliocephalus SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 21 (Ruzizi Valley). SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 288 (Elisabethville). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 97 (upper Lufira R.).

Prionops poliocephalus poliocephalus FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 315.

Prionops poliocephala talacoma VERHEYEN, 1940, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 16, no. 2, p. 5 (Kanzenze).

Prionops plumatus poliocephalus GRANT AND MACKWORTH-PRAED, 1947, Bull. Brit. Ornith. Club, vol. 67, p. 61.

Prionops poliocephala poliocephala A. W. VINCENT, 1949, Ibis, p. 121.

Prionops poliocephalus talacoma SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 166 (many localities in Katanga).

ADULTS: Iris chrome-yellow, eye-wattle chrome-yellow; bill black; feet orange-red, claws turning blackish toward tips.

DISTRIBUTION OF THE SPECIES: From Zululand, the Transvaal, and northern Damaraland to northern Angola, the Katanga, the Ruzizi Valley, southern Ankole, and southern Kenya Colony. *Prionops p. poliocephala* Stanley, of which the type appears to have been taken in Mozambique, has wings 97–108, while *P. p. angolica* though similar in color shows wing lengths of 102–117. The latter race ranges from Angola eastward to Lake Tanganyika and probably even to Tabora.

Except for the lack of a crest these southern helmet-shrikes are so very like the crested *P. plumata* group of the Sudan that it is hard to believe them specifically distinct. The question is complicated, however, by the occurrence of both *poliocephala* and the black-winged *vinaceigularis* in the

southern part of Kenya Colony. The latter bird is resident there, and *poliocephala* may only wander into the area.

Within our limits *P. p. angolica* is known from the Katanga, Marungu, Manyema grasslands, the north end of Lake Tanganyika, and the vicinity of the Kagera River in eastern Ruanda. Extremely sociable, these birds are always found in parties of six to a dozen, flitting with buoyant wing beats among trees or bushes, giving low rasping calls and snapping their beaks. In the main this is a lowland bird, but it was found up to Lubenga in Marungu, at 5650 feet, by Rockefeller and Murphy. It seems lacking on the highlands of Ruanda, but one was taken by Grauer between Nsaza and the Kagera River.

In the Upper Katanga Alfred Vincent found eggs from mid-September to mid-October, but nests have also been found in Northern Rhodesia toward the end of March. They are placed on horizontal boughs or in open forks of small trees, at 7 to 16 feet from the ground, and are very inconspicuous. The nest is a particularly smooth, small cup, made of fibrous wood, bound heavily with cobweb, and lined with fine wood strips and rootlets or grass. Occasionally several nests have been found in one clump of trees. The eggs are greenish cream or pale blue, with spots and occasional scrawls of chestnut and violet-brown, as well as larger gray shell markings, and measure 19.4–23.4 by 15.9–16.7 mm.

The normal set is of four, but five or six are not uncommon, and as many as eight have been noted. In such a case it seems clear that two females have laid in the same nest. When the incubating bird has been driven from the nest a small party of others is very apt to join it, and later a single bird will detach itself from the group to return to the eggs. As observed by Mrs. Benson[1] the feeding of nestlings is a coooperative activity. The party of six may approach a nest. The brooding bird leaves it, and as many as three other members of the flock may feed the young in rapid succession. The last to feed is apt to settle down to brood. Close to the nest a human intruder is often mobbed by the whole party, which may be supposed to include some birds that are not fully adult.

Prionops plumata concinnata Sundevall

Prionops concinnatus SUNDEVALL, 1850, Öfvers. K. Svenska Vetensk. Akad. Förhandl., vol. 7, p. 130 (type locality: Roseires, eastern Sudan).

Prionops talacoma OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127.

Prionops poliocephala REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 531 (Wandi; Kiri). SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 451 (Uelle).

Prionops concinnata SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 641

[1] 1946, Ostrich, vol. 17, pp. 308–311.

(Yambio; Mt. Baginzi; Yei). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 597 (Upper Uelle; Gribingui R.). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 127 (Buta; Niarembe; Mauda).

Prionops plumata concinnata BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 342, fig. 68 (Dungu). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 73 (Pangoula and Makourou in Ubangi-Shari). BLANCOU, 1948, Ois. Rev. Française Ornith., new ser., vol. 18, p. 73 (Zémio).

Prionops cristatus concinnatus GRANT AND MACKWORTH-PRAED, 1947, Bull. Brit. Ornith. Club, vol. 67, p. 61.

Prionops plumata concinnati VRIJDAGH, 1949, Gerfaut, vol. 39, p. 92 (Niarembe escarpment).

SPECIMENS: Niangara, two males, female, May 4. Between Faradje and Aba, male, October 4. Garamba, five males, May 19, 22, June 8, 16; female, May 19; immature male, June 16; three immature females, May 19, June 8, 16.

ADULTS OF BOTH SEXES: Iris whitish to light gray, the border of sclerotic membrane (more or less concealed by eyelid) yellow all around, wattle about eye rather light yellow; bill black; feet reddish orange, claws gray.

IMMATURE: Iris brown, eye-wattle green; feet yellow.

DISTRIBUTION OF THE SPECIES: Savannas from Senegal eastward to the White Nile, northern Uganda, and (if the black-winged forms are conspecific) to Somaliland, Kenya Colony, and the base of Kilimanjaro.

Prionops plumata plumata (Shaw) of Senegal and the countries east to Nigeria develops long, rather straight crest-feathers which may reach 38 mm. or more. *P. p. concinnata* has crest-feathers scarcely exceeding 24 mm. and somewhat curled. Both have a white stripe on wing-coverts and some secondaries. The names *martensi* and *adamauae* were given by Reichenow to intermediate birds from the North Cameroon region. The name *martensi* may even be a synonym of *concinnata,* for the latter race ranges from the Shari River basin eastward to the Blue Nile and the Abyssinian border, Unyoro and Kyagwe in Uganda. On the south it stops just short of the Congo forest border.[1]

It has been customary to treat *Prionops cristata* Rüppell of northeastern Africa as a distinct species, because of its wholly black upper wing surface. But occasional intermediates do occur in northern Abyssinia, so it seems better to include *cristata, omoensis, melanoptera* (if valid), and *vinaceigularis* among the races of *P. plumata.* We may yet find that *poliocephala* is also conspecific, but *P. poliolopha* Fischer and Reichenow of the East African highland stands plainly apart.

In the Uelle District the spectacled shrike (*P. p. concinnata*) inhabits gallery forests in groups of six to 10 individuals, difficult to follow when

[1] Johnston, 1884, The River Congo, p. 364, was certainly wrong in reporting *Prionops plumatus* from the Lower Congo.

once alarmed. Sometimes they come so low that the snapping of beaks can be heard as they feed, but often they keep to the higher trees. We saw them near Niangara and Dungu, also between Faradje and Aba, but never at Faradje. At Garamba I was rather surprised to find parties of eight to a dozen amid the small trees of open savanna and about native farms. The usual call may be written "chyow" and is repeated at intervals in a hoarse nasal tone. It may change also to a series of shorter notes given more rapidly.

Both the Logo and the Azande said they call this *Prionops* the "leopard-bird," because it mobs any leopard it may happen to find. In the forests a little farther south a similar name is applied to *Sigmodus caniceps*. If one member of the flock suffers injury, the others show the greatest concern and may even mob the man responsible. In May and June we found the parties made up largely of immature birds, the adults all in non-breeding condition. One taken in October also had gonads quiescent.

It seemed as though nesting were carried on in the dry season, but possibly it begins only toward the end of the drought. In Nigeria nests of *P. p. plumata* have been found in March and April and again in October. In the Gold Coast Willoughby Lowe believed they were nesting in January. The nest and eggs of *concinnata* are undoubtedly like those of *P. poliocephala,* and a whole party must likewise attend to each nest. In the case of *plumata* four birds out of a party of six were seen to bring materials to a nest under construction.[1] Perhaps the breeding behavior finds a parallel in that of *Ixonotus guttatus,* a bulbul.[2]

In 10 stomachs of *concinnata* I found insect remains always. Beetles were noted three times, also two mantises and a large moth. In addition, one bird had eaten a small gecko (*Lygodactylus picturatus*).

FAMILY **PARIDAE.** TITMICE

Key to the Genera Occurring in the Congo

Larger, wing length exceeding 70 mm.; bill rather short, with culmen and gonys slightly convex . . . . . *Parus* (p. 98)

Small, wing length not over 60 mm.; bill very acute, both culmen and gonys nearly straight . . . . . *Anthoscopus* (p. 106)

SUBFAMILY **PARINAE**

Key to the Species of *Parus* in or Near the Congo

1. Head, back, and underparts all black or very dark gray 2
   Lower breast and abdomen not of same dark color as head or back 3
2. Wing-coverts and secondaries conspicuously margined with white . . *P. niger*
   Wing-coverts narrowly edged with dark gray . . . . . *P. funereus*

[1] Clarke, 1936, Nigerian Field, vol. 5, pp. 129, 130.

[2] See Chapin, 1953, Bull. Amer. Mus. Nat. Hist., vol. 75A, p. 128.

3. A conspicuous white or gray patch on ear-coverts, continued forward to base of bill; crown and throat black . . . . . *P. afer*
   Head wholly black or blackish gray 4
4. Lower breast and abdomen uniform white . . . . . *P. albiventris*
   Lower breast not uniform white 5
5. A black median stripe on lower breast, flanks white or soiled light gray . . . . . *P. fasciiventer*
   No median black stripe; lower breast and abdomen rufous or fawn color . . . . . *P. rufiventris*

Parus afer griseiventris Reichenow

Parus griseiventris REICHENOW, 1882, Jour. Ornith., p. 210 (type locality: Kakoma, east of L. Tanganyika).

Parus parvirostris NEAVE, 1907, Mem. Proc. Manchester Lit. Phil. Soc., vol. 51, no. 10, p. 77 (Ndola); 1910, Ibis, p. 230 (upper Luansenshi R.).

Parus afer NEAVE, 1910, Ibis, p. 79 (Kambove).

Parus major griseiventris MEINERTZHAGEN, 1928, Ibis, p. 533, pl. 35 (map).

Parus afer griseiventris SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 640. SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 288 (Elisabethville); 1949, idem, vol. 42, p. 165 (Kansenia). A. W. VINCENT, 1949, Ibis, p. 314.

Parus afer lundarum WHITE, 1946, Ibis, p. 100 (type locality: Kahutu, southern Mwinilunga District, Northern Rhodesia).

Parus cinerascens griseiventris WHITE AND WINTERBOTTOM, 1949, Check list of the birds of Northern Rhodesia, p. 112 (Ndola).

DISTRIBUTION OF THE SPECIES: Cape Province to Angola, the Katanga, East Africa, Gallaland, and Somaliland.

The large-billed nominate race is restricted to western Cape Province and the southern part of Southwest Africa. *Parus afer cinerascens* Vieillot, lighter in color, with much smaller bill, extends from the Orange Free State and Damaraland to the highland of Angola. *Parus afer griseiventris,* a close

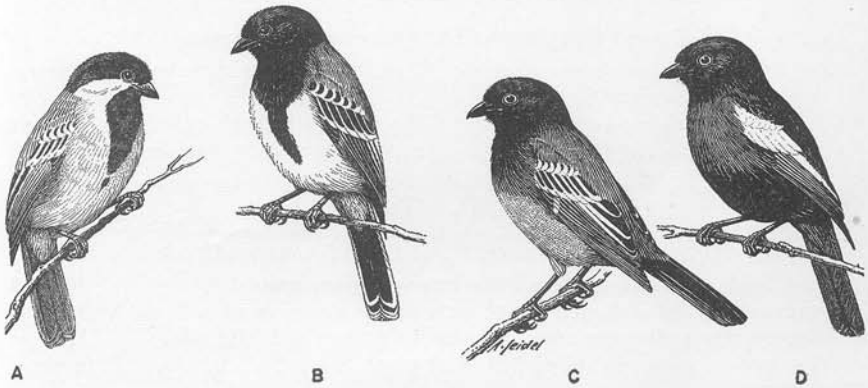

FIG. 7. Four species of titmice. A. *Parus afer griseiventris*. B. *P. fasciiventer*. C. *P. r. rufiventris*. D. *P. niger guineensis*.

ally, slightly paler, is found farther east, in the Katanga, on the east side of Lake Tanganyika, and probably south through Nyasaland to Southern Rhodesia, if *parvirostris* Shelley cannot be upheld.[1] Two additional races, *barakae* and *thruppae,* range from the vicinity of Kilimanjaro north to Somaliland.

The race *lundarum,* described from the Mwinilunga district, seems not to differ appreciably from Katanga specimens which I am referring to *griseiventris.* Only a few examples have been collected within our limits, mainly near 4000 feet in savanna woods. Rockefeller and Murphy secured one male at Lubenga, Marungu, 5650 feet, and noted the species as common there. The general behavior is like that of *Parus major* of Europe.

A nest of *P. a. griseiventris* found by Alfred Vincent near Elisabethville on September 29 was placed in a hollow of a large tree trunk, some 12 feet up. The nest itself was a compact pad of felt-like plant fibers and contained four eggs. They were pale cream-color, evenly freckled with rich chestnut brown and underlying violet gray, and measured 17.1–18.3 by 13.6–14.2 mm.

Parus fasciiventer fasciiventer Reichenow

Parus fasciiventer REICHENOW, 1893, Ornith. Monatsber., p. 31 (type locality: Ruwenzori); 1905, Die Vögel Afrikas, vol. 3, p. 515; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 354 (Rugege Forest; Niragongo, 2800 m.; west Ruwenzori, 2500 m.; foot of Mt. Karisimbi). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 335 (Mubuku Valley, 6000–10,000 ft.). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 288 (Kibati); 1932, idem, vol. 21, p. 283 (Burunga). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 643. BERLIOZ, 1936, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 8, p. 333 (Mbwahi). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1249.

Parus fasciiventris SHELLEY, 1900, The birds of Africa, vol. 2, p. 237.

Pentheres fasciiventer JACKSON, 1906, Ibis, p. 553.

Parus fasciiventer fasciiventer GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 110 (Mt. Sabinyo; Kibati; Mt. Mikeno, 3800 m.; Mt. Karisimbi, 3880 m.). SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 135 (Kabara, 3200 m.; Munagana).

DISTRIBUTION OF THE SPECIES: Highlands from Ruwenzori and the mountains northwest of Lake Edward through the Kivu to the Rugege Forest and the mountains northwest of Lake Tanganyika.

The nominate race occupies the greater part of the range, from Ruwenzori to the Rugege Forest, and presumably the highlands west of Lake Kivu. *Parus f. tanganjicae* of the mountains west of the Ruzizi Valley and Uvira is markedly browner on the chest, not black, and more washed on the underparts with brownish gray. A half dozen Rugege specimens seem less whitish on the flanks than those of Ruwenzori, but they are black on the chest.

[1] See Grant and Mackworth-Praed, 1942, Bull. Brit. Ornith. Club, vol. 63, p. 43.

In the mountain forest and bamboo zones of Ruwenzori from 6500 to 9000 feet the stripe-breasted titmouse is not uncommon and is seen in groups of three to six. Only occasionally does it ascend into the tree heaths, reaching 11,000 feet. On the central Kivu Volcanoes it is rather common in the *Hagenia* woods at 11,000 feet and has even been reported from 12,400 feet. It may be seen feeding in company with *Zosterops* or near a small woodpecker (*Dendropicos fuscescens*) and usually remains rather silent. Near Lubero I found a group of three at 7700 feet, with a half dozen *Zosterops*.

A breeding male was taken on west Ruwenzori on November 30, and on Mt. Karisimbi near 11,800 feet, in mid-June, I watched one fly a couple of times from an old woodpecker hole in a tree stub. But the nest and eggs remain unknown.

Parus fasciiventer tanganjicae Reichenow

Parus fasciiventer tanganjicae REICHENOW, 1909, Ornith. Monatsber., p. 42 (type locality: forest northwest of L. Tanganyika); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 354. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 32 (northwest of L. Tanganyika, 2000 m.).

DISTRIBUTION: Mountains northwest of Baraka and west of the Ruzizi Valley, from 6200 up to 9000 feet. Grauer collected more than a dozen specimens of this well-marked race, and Rockefeller and Murphy secured two males, both in condition to breed on July 9, in the bamboos on Mt. Kandashomwa. In haunts and behavior it seems exactly like the nominate form.

Parus rufiventris rufiventris Bocage

Parus rufiventris BARBOZA DU BOCAGE, 1877, Jor. Sci. Nat. Lisboa, vol. 6, p. 161 (type locality: Caconda, Angola). REICHENOW, 1885, Jour. Ornith., p. 217 (Stanley Pool); 1887, idem, p. 306 (Leopoldville); 1905, Die Vögel Afrikas, vol. 3, p. 514. SHELLEY, 1900, The birds of Africa, vol. 2, p. 238.

Parus rifiventris var. *masukuensis* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 31 (Leopoldville).

Parus rufiventris rufiventris SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 344, 401 (Kabambaie; Ngombe in Kasai; Kwamouth). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 643. A. W. VINCENT, 1949, Ibis, p. 315 (Elisabethville).

SPECIMEN: Leopoldville, immature female, December 21.

IMMATURE FEMALE: Iris brownish gray, bill black, feet light blue.

DISTRIBUTION OF THE SPECIES: From the middle Congo River, Angola, and Ovamboland eastward to Tanganyika Territory and the Mozambique coast. *Parus r. rufiventris,* with deep rufous abdomen, is the westernmost race; it extends to the Kasai and probably to the Katanga. In Marungu it is replaced by *P. r. masukuensis,* with underparts slightly paler and back

lighter gray. The latter race extends to North and West Nyasaland. Much paler, more grayish beneath, *P. r. pallidiventris* Reichenow ranges from Tabora and the Nguru Mountains in Tanganyika Territory to southern Nyasaland and perhaps Mashonaland. *Parus r. rovumae* Shelley, of the coastlands from the Rovuma River south into Mozambique, is supposed to be still more whitish below.

The nominate race of the rufous-bellied titmouse frequents savannas with many small trees and is rather common near Leopoldville and in the Kasai. Our specimen had eaten several caterpillars.

I am not quite sure that the nominate race extends to the Upper Katanga, but Alfred Vincent recorded under *P. r. rufiventris* several nests which he found near Elisabethville between mid-September and mid-October. They were placed in hollows in stumps or trees, usually 3 to 8 feet from the ground, but once at 25 feet. The nest itself was a shallow cup of felt-like vegetable fibers. The eggs numbered three or four, rarely two. Their ground color was creamy white, either speckled or blotched with pinkish brown and chestnut, and usually with some ashy gray markings at the larger end. Dimensions: 15.8–19.5 by 12.8–14.1 mm.

Parus rufiventris masukuensis Shelley

Parus masukuensis SHELLEY, 1900, The birds of Africa, vol. 2, p. 238 (type locality: Masuku Mts., northern Nyasaland).

Parus rufiventris NEAVE, 1910, Ibis, pp. 79, 230 (Kambove; Dikulwe R., 3500 ft.; Lulua Post on upper Lufupa R., 4500 ft.; Lufupa R., 4000 ft.). SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 288 (Elisabethville).

Parus rufiventris masukuensis WINTERBOTTOM, 1939, Ibis, p. 731 (Chambezi R.; Lufupa R.). SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 165 (Kansenia).

ADULTS: Iris light straw-yellow, bill blackish, feet bluish gray.

DISTRIBUTION: From Marungu and perhaps the Upper Katanga to Nyasaland, south to the Kota Kota District. This race differs only slightly in color from nominate *rufiventris*.

In the Katanga Neave found this species not uncommon, going singly or in pairs, sometimes as a member of a mixed bird party. There it lives at levels of 3500 to 4500 feet. In Marungu Rockefeller and Murphy likewise noted it as common, and took specimens at Kinia (3925 feet), Kasoko (4100 feet), and Lubenga (5650 feet). According to Benson, rasping notes are the usual calls, and once he heard a reiterated "chick-wee" that seemed to represent the song.

A nest of *masukuensis* found by Benson[1] at Mzimba, Nyasaland, on October 25 was in a stump of an *Isoberlinia* tree, 5 feet from the ground.

[1] 1951, Bull. Mus. Comp. Zool., vol. 106, p. 108.

The bottom of a hole resulting from decay was lined with a pad of rufous pappus from *Protea* seeds. The four eggs were creamy in ground color, dotted and freckled with rufous of varying shades, and measured 16.9–17.3 by 13.4–13.6 mm.

[*Parus albiventris albiventris* Shelley]

Parus albiventris SHELLEY, 1881, Ibis, p. 116 (type locality: Ugogo, Tanganyika Territory). MOREAU, 1943, Ibis, p. 404 (Mbisi, 7800 ft., in Ufipa).

Parus albiventris albiventris SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 642 (Mt. Maroto south to Ugogo; also Banso Mts. of Cameroon).

The white-bellied titmouse ranges from Mt. Maroto, Mt. Elgon, and the base of Mt. Kenya to Kilimanjaro, central and western Tanganyika Territory; it also occurs in the Cameroon. Specimens from the southern coastal region of Kenya Colony are small and have been separated as *P. a. curtus* Friedmann.

The nominate race is known from the highland of Ufipa but does not reach Congo territory in that region. It reappears, very surprisingly, in the highlands of northern Cameroon, at levels of 3500 to 7000 feet.[1] So if it is to be expected anywhere in the Congo, the highland west of Lake Albert would seem the most likely area. Careful search should still be made there.

Parus niger insignis Cabanis

Parus (Pentheres) insignis CABANIS, 1880, Jour. Ornith., p. 419 (type locality: Malange, Angola).

Parus leucopterus SHARPE AND BOUVIER, 1877, Bull. Soc. Zool. France, vol. 2, p. 476 (San Antonio; Condé).

Parus niger REICHENOW, 1887, Jour. Ornith., pp. 301, 306 (Manyanga; Leopoldville). HARTERT, 1900, Novitates Zool., vol. 7, p. 51 (Karimia). MOURITZ, 1914, Ibis, p. 36 (southeast Katanga).

Parus insignis SHELLEY, 1899, Ibis, p. 366 (Congo). SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 7 (Lukonzolwa). NEAVE, 1910, Ibis, p. 230 (Kambove, 4500 ft.; Lufupa R., 4000 ft.).

Parus leucomelas SHELLEY, 1900, The birds of Africa, vol. 2, p. 228.

Parus niger leucomelas REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 511 (in part). SCHOUTEDEN, 1924, Rev. Zool. Bot. Africaines, vol. 12, p. 273 (Leopoldville).

Melanoparus niger var. *leucomelas* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 31 (Kisantu; "Ituri").

Parus niger insignis LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 17 (Mukimbungu). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 354 (Beni). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 289 (Kabemba; Munie Mboka; Manakwa; Milumba; Dogodo R.); 1923, idem, vol. 11, pp. 344, 401 (Luebo; Basongo; Macaco; Kabambaie; Ngombe in Kasai; Kwamouth); 1925, idem, vol. 13, p. 17 (Kunungu). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 32 (Urundi; Baraka; Ruzizi Valley; Kasindi–Beni). SCLATER, 1930,

[1] See Bannerman, 1948, The birds of tropical West Africa, vol. 6, p. 9.

Systema avium Aethiopicarum, pt. 2, p. 641. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1245 (Kigezi; Semliki Valley). VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, p. 3 (Musosa).

Parus niger purpurascens SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 136 (Molindi R.; Mt. Bichoke). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 78 (old Radiadia; Irunga R.).

Parus leucomelas insignis GRANT AND MACKWORTH-PRAED, 1942, Bull. Brit. Ornith. Club, vol. 63, p. 44. A. W. VINCENT, 1949, Ibis, p. 314 (Elisabethville; west of L. Moero). SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 165 (many localities in Katanga).

SPECIMEN: Leopoldville, immature male, December 21.

DISTRIBUTION OF THE SPECIES: Senegal east to Sennar, Eritrea, and Abyssinia; south in eastern Africa to eastern Cape Province; and westward also to Damaraland, Angola, and the southern Congo. This wide-ranging black titmouse avoids the heavy forests of both Upper and Lower Guinea.

It is divisible into six races, of which three occur in the Congo. *Parus n. niger* Vieillot of South Africa is distinguished by having the female much more slate-colored than the male. It ranges north into the lowlands of Nyasaland and the Loangwa Valley, and its range has been said to overlap that of *insignis*. The latter race, with female about as black as the male and a narrow white edge on outermost tail quills, extends from the Lower Congo and Angola east to Nyasaland, northern Portuguese East Africa, Tanganyika Territory, and the open country near Lake Edward. Its wing measures 82–96 mm.

The grasslands north of the equatorial forests, from Senegal to the White Nile and the Upper Uelle District, are occupied mainly by *P. n. guineensis,* with wings 72–82 mm. and no white fringe on outermost rectrices. But birds from the highlands of Cameroon, like others from Uganda, have wings 78–86 mm. and may be regarded as of the race *purpurascens*. In Northeast Africa live *P. n. lacuum* Neumann and *P. n. leucomelas* Rüppell.

The race *insignis* ranges across the southern Congo from the Congo River mouth to Lake Tanganyika, the Kagera River, and Lake Edward. In this region its wing measures 82–89 mm. I found *P. n. insignis* rather common about Stanley Pool, as it evidently is also in the Kasai, the Manyema, and the Katanga. Rockefeller and Murphy obtained specimens in Marungu at Lubenga (5650 feet) and Sambwe (6100 feet). In the Kivu District it avoids the wooded highlands, for it prefers savannas with scattered trees and bushes and is common in the upper Semliki Valley.

The call note was described by Jack Vincent as one shrill note followed by three rasping syllables. What seemed to serve as a song was a shrill, buzzing twitter: "zeu-zeu-zeu-twit." Nesting is to be expected in the southern Congo in October and November, but near the Equator breeding

dates will be much less regular. Nests were found in the Katanga by Alfred Vincent on October 15 and November 2. Both were in cavities in stumps, 3 and 5 feet up, but others may occupy holes in trees up to 12 feet from the ground. The bottom is lined with a soft pad of grass mixed with a few lichens. Eggs number either three or four; they are white or creamy, thickly spotted with reddish or brown and with gray markings about the blunt end. Dimensions of one set are given by Vincent as 19.2–20.2 by 14–14.2 mm.

Parus niger guineensis Shelley

Parus leucomelas guineensis SHELLEY, 1900, The birds of Africa, vol. 2, p. 229 (type locality: Volta R., Gold Coast). GRANT AND MACKWORTH-PRAED, 1942, Bull. Brit. Ornith. Club, vol. 63, p. 45 (Uelle District).

Parus niger var. *leucomelas* OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127.

Parus leucomelas SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 449 (Uelle).

Parus niger leucomelas SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 626 (Mt. Baginzi; Yambio; Yei).

Parus leucopteus EMIN, 1919, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 2, p. 428 (Kuterma).

Parus niger purpurascens SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 131 (Abimva; Faradje; Dramba; Mahagi Port; Mauda; Dika).

Parus niger guineensis BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 75 (upper Kemo R.).

Melaniparus niger purpurascens BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 7 (Angba on Uelle River).

SPECIMENS: Niangara, two immature males, November 17, 23; immature female, November 23. Faradje, four males, September 30, October 17, November 15; three females, October 18, November 15, 17; immature female, April 27; juvenile male, two juvenile females, April 4. Garamba, immature male, July 21.

ADULTS OF BOTH SEXES: Iris yellow, bill black, feet very dark bluish gray or black.

NESTLING: Iris gray, bill black with light greenish tomia, corners of gape yellowish white, feet purplish gray, claws black.

DISTRIBUTION: Lowland savannas from Senegal east to the vicinity of the White Nile, limited on the south by the northern edge of the rain forests. This is a small race, with no white fringe on the outer rectrices. The wings of males from the Uelle measure 75–80 mm., those of females 72–76; so such birds cannot be called *purpurascens*.

In the grasslands of the northern Congo these black titmice are common, feeding among the small trees in pairs or family parties. They are frequently accompanied by *Salpornis, Hyliota,* or small warblers of the genera *Sylvietta* and *Eremomela.* The calls of the titmice are usually weak and rasping, and the song is reported to be a clear, reiterated "chŭ-wee."

Once, in April, near Faradje, we found a nest in a knot hole only a yard above the ground, but it was abandoned before I could examine the eggs. During the same month a brood of three young was brought us by natives. Specimens dissected from September to November were all non-breeding; nesting seemed to go on only at the very beginning of the rains.

Caterpillars must form a large part of the diet. In four stomachs of this species small naked caterpillars were always present, and only one individual had eaten beetle larvae as well.

Parus niger purpurascens Van Someren

Parus niger purpurascens VAN SOMEREN, 1921, Bull. Brit. Ornith. Club, vol. 41, p. 112 (type locality: Entebbe, Uganda). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 641. BATES, 1931, Ibis, p. 285. FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 85 ("eastern Uelle district"). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 92 (Nioka; Niarembe escarpment; Ishwa Plain).

DISTRIBUTION: Uganda, from near the base of Mt. Elgon west to Mubendi, and probably also in Congo territory on the west side of Lake Albert. Similar birds are found on the highlands of Cameroon. Despite the name *purpurascens,* the body coloration is not distinctive, but the wings are rather long, 78–86 mm. It may be regarded as a geographic intermediate between *guineensis* and *lacuum.*

From Mubendi in Uganda we have a male with a wing of 82 mm. and no white fringe on the tail. It would be surprising if this were not the race living on the Lendu Plateau, where I have myself noted the species at Bogoro.

Parus funereus (Verreaux)

Melanoparus funereus J. AND E. VERREAUX, 1855, Jour. Ornith., p. 104 (type locality: Gaboon).

Parus funereus OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 334 (40 miles north of Beni; Mpanga Forest, 5000 ft.). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 354. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 344 (Luebo; Macaco); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 132 (Buta; Djamba). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 111 (Kampi-na-Mambuti; Simbo). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 31 (Moera; Beni; Mawambi; Ukaika; Mawambi–Irumu). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 642. STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 565 (Saidi). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 78 (Kalehe near Lutunguru).

SPECIMENS: Panga, male, September 15. Avakubi, male, female, June 22; two immature males, June 6, October 22. Ngayu, male, two immature males, immature female, August 3. Medje, male, female, March 19.

ADULT MALE: Iris scarlet, bill black, feet dark bluish.

ADULT FEMALE: Similar, but iris orange-red.

IMMATURE: Iris brown.

DISTRIBUTION: From the coast of the Cameroon and Gaboon eastward across the whole Lower Guinea forest to Uganda, the Nandi District of Kenya Colony, and the Lotti Forest in the southeastern Sudan. It ranges southward in the Kasai to the vicinity of Luebo but has not been reported from the Mayombe. One old record from the Gold Coast Colony has not been confirmed.

On the northern edge of the Congo forest this dusky titmouse ventures out very little into the forest galleries, and, although Schubotz obtained a specimen at Koloka in the Lower Uelle, we scarcely saw any farther north than Medje. Nor does it ascend much above 5000 feet into the forests on mountains, though it occurs in the Mpanga Forest of Uganda, and I have seen it at Djugu, west of Lake Albert.

The dusky titmouse is usually found in parties of three to 10, composed in part of immature birds, feeding among the upper boughs of tall forest trees. Attention is attracted by their short whistled or slightly metallic notes of a single syllable, and their acrobatic postures recall those of the titmice of northern climes. Less often one may meet with them in trees along the borders of clearings, even in parasol trees (*Musanga*).

Breeding adults taken by us in March, June, and September indicate a very long breeding season, but records are wanting in the driest period of the year. Adult females are much grayer than males, but the young of both sexes in juvenal dress, recognizable by the whitish spots on middle and greater wing-coverts, are nearly as black as adult males. A young female taken at Ngayu is just beginning to assume the gray dress.

In nine stomachs examined, one or more small caterpillars (usually hairless) were never wanting, though five of the birds had also partaken of other insects, including one beetle.

SUBFAMILY **REMIZINAE**

KEY TO THE SPECIES OF *Anthoscopus* IN OR NEAR THE CONGO

1. Breast whitish 2
   Breast yellow, greenish, or buff 3
2. Upperparts gray, forehead never yellow . . . . . *A. musculus*
   Upperparts bright green to grayish green, forehead bright or pale yellow . . . . . *A. ansorgei*
3. Breast and sides of head bright yellow, forehead yellow with black dots; back yellowish green . . . . . *A. parvulus*
   Breast yellowish, buffy, or gray, but sides of head never yellow; back olive-green to grayish 4
4. Crown and back deep olive-green; breast yellowish shaded with olive, forehead often yellow . . . . . *A. flavifrons*
   Crown and back gray, sometimes washed with olive, breast buffy or gray with a tinge of yellow, forehead buffy or yellowish white, not bright yellow . . . . . *A. caroli*

Anthoscopus parvulus parvulus (Heuglin)

Aegithalus parvulus HEUGLIN, 1864, Jour. Ornith., p. 260 (type locality: Bongo, Bahr-el-Ghazal Province, Sudan).

Anthoscopus parvulus parvulus SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 132 (Mauda; Mahagi Port).

DISTRIBUTION OF THE SPECIES: From Senegal across the Sudan to the Bahr-el-Ghazal and Bahr-el-Jebel. There are supposed to be four races, differing somewhat in the yellowness of throat and breast and in the color of the forehead. The easternmost, *parvulus,* is believed to be restricted to the region of the Nile and Bahr-el-Jebel and to be replaced in the Ubangi-Shari by *citrinus.* The latter is somewhat deeper in color above and below. From Nigeria westward lives *senegalensis,* but a fourth race, *aureus,* has been described from the northern Gold Coast Colony.

This tiny yellow titmouse may not be so rare in the savannas of the Uelle as it would seem. Only once, in July, 1911, did I notice a single individual between the post of Aba and the frontier. The fact that Schouteden secured specimens at the Mahagi Port in May, and as far west as Mauda in March, would indicate its regular occurrence near the northeastern edges of the Congo.

A nest of the western race, *senegalensis,* found near Argungu, Nigeria, June 7, by William Serle,[1] was a beautiful ellipsoidal pouch, woven of white pappus and suspended from a twig, 18 feet above the ground. It measured 115 mm. from top to bottom, and the entrance tube projected 40 mm. from close to the top. The upper and lower flaps of the entrance came together automatically. The set of two white eggs seemed complete; they measured 12.9 by 9.2 and 13.9 by 9.6 mm.

[*Anthoscopus parvulus citrinus* Reichenow]

Anthoscopus citrinus REICHENOW, 1921, Jour. Ornith., p. 48 (type locality: Bozum, French Equatorial Africa).

Anthoscopus parvulus citrinus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 646 (Bamingui R.).

This race of the yellow penduline titmouse is believed to be restricted to the Shari River Basin and is not very likely to reach the Congo border near the great bend of the Ubangi. In addition to the specimens collected by Tessmann and by Boyd Alexander, there was one in the Frankfurt Museum secured by Schubotz at Badingou on the Bamingui River in December, 1910.

Anthoscopus flavifrons flavifrons (Cassin)

Aegithalus flavifrons CASSIN, 1855, Proc. Acad. Nat. Sci. Philadelphia, vol. 7, p. 325 (type locality: Moonda R., Gaboon).

[1] 1943, Ibis, p. 427.

Anthoscopus SCHOUTEDEN, 1928, Bull. Cercle Zool. Congolais, vol. 5, p. 48; 1938, idem, vol. 15, p. 87 (Lisala ?).

Anthoscopus flavifrons SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 646 (Ituri District). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 132 (Titule).

Anthoscopus flavifrons flavifrons BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 17.

SPECIMENS: Bengamisa, female, September 27. Gamangui, female, February 18. Medje, four males, June 26, October 14; female, June 26.

ADULTS OF BOTH SEXES: Iris dark brown; bill dusky, but light gray along tomia and at base; feet bluish gray.

DISTRIBUTION: Forests of the Gold Coast, Cameroon, and Gaboon, thence eastward to the southern Uelle and Ituri. The Gold Coast bird, *A. f. waldroni* Bannerman, is somewhat yellower than the nominate race of Lower Guinea.

Cassin's type of *flavifrons* in the Philadelphia Academy has the wing 55.5, tail 27.5 mm. Our four males from the Ituri have wings 54–58 mm., tails 28.5–30 mm. Wings of our three females 54.5–58, tails 26.5–28 mm.

The lack of any records near the southern edge of the Congo forest is surprising, even though this very small olive-colored titmouse so easily escapes observation. I never saw it at Lukolela, Angumu, or even Avakubi.

The example taken at Gamangui was climbing about on the smaller branches of a great *Ficus* plant growing about a tall tree, knocking down the small green fruit while apparently searching for insects. Two which we collected near Medje in June were members of a group of four or five exploring the branches of small trees like ordinary titmice. They seemed particularly attracted to a mass of parasitic *Loranthus*.

On October 9, 1910, close by the post of Medje, a nest was found hanging at a height of 30 feet in a tree that had just shed all its foliage. It seemed like a gigantic brown cocoon, but two little birds were frequently seen about it, sometimes carrying downy material in their beaks, so it was left for five days in the hope that eggs might be laid. On the day before our departure I went to look at it at 9 A.M., and a bird carrying down soon appeared in the upper branches. It proved to be a male with enlarged gonads. At 1:30 P.M., coming again, I found another bird in the tree. My expectation that this was the female was disproved by dissection. Its testes were somewhat swollen. A few minutes later a third bird was seen to enter and leave the nest, which likewise proved to be a male in full breeding condition. No female appeared, and the nest was taken down, but found to be empty.

Composed of soft brown vegetable down, as though from unrolling fern fronds, felted rather than woven, the nest was pouch-like with a lateral spout opening into the top rather than the side of the nest. The opening

of the spout, simply by reason of the weight and softness of its material, usually remained closed to a horizontal slit. When about to enter, the bird would cling to the side of the nest just below the entrance. Then by grasping the lower rim with one foot it opened its door and climbed quickly inside. In the case of the kapok-bird of South Africa (*Anthoscopus minutus*) the sides of the opening were said to be pinched together with the beak [1]; here it seemed unnecessary.

Not far from this same post I found another nest, abandoned and dilapidated, hanging from a small silk-cotton tree. The Carnegie Museum has received from A. I. Good a nest of similar size and materials, but the entrance of the spout is closed and another elliptical opening made in the nest just beneath it. This was secured at Lolodorf, Cameroon, and there is a specimen of *A. flavifrons* in the same museum from Elat, Cameroon.

Two other nests which were sent to the American Museum from southern Cameroon by F. McC. Grissett must likewise have been built by this titmouse, the materials being the same. One is very similar in form to ours from Medje; the second is decidedly smaller and rounder, but entered also by a cylindrical spout. Brother Joseph Hutsebaut writes me from the Lower Uelle that since the introduction of cotton growing into that region these titmice have taken to using cotton fiber for nest building. By 1945 he saw one nest composed almost entirely of cotton.

It is difficult to say whether any of our specimens of this penduline titmouse are immature, for all of them had the skull in the condition usually indicative of the young. This is another case like that of *Vidua, Hypochera, Salpornis,* and some other genera of Oscines. None of the specimens save those taken near the nest showed any marked enlargement of the gonads.

The food in one stomach consisted of small insects, but two of the birds which came to the nest had eaten some sort of fruit with small brown seeds.

Anthoscopus ansorgei ansorgei Hartert

Anthoscopus ansorgei HARTERT, 1905, Bull. Brit. Ornith. Club, vol. 15, p. 74 (type locality: Mangonga R., Benguella, Angola). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 646 (Kasai District). SCHOUTEDEN, 1940, Bull. Cercle Zool. Congolais, vol. 16, p. 73, fig. (vicinity of Kunungu).

Anthoscopus flavifrons SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 344 (Macaco; Kabambaie).

Anthoscopus ansorgei ansorgei LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 97 (Luluabourg).

Anthoscopus caroli ansorgei GRANT AND MACKWORTH-PRAED, 1948, Bull. Brit. Ornith. Club, vol. 68, p. 74.

DISTRIBUTION OF THE SPECIES: From Angola eastward to the Kasai, the Katanga, and Ufipa in western Tanganyika Territory. *Anthoscopus a.*

[1] Shelley, 1900, The birds of Africa, vol. 2, p. 248.

ansorgei is yellowish green above, with a patch of bright yellow on forehead and a whitish breast. It ranges from Quillengues in Benguella Province north to the vicinity of Duque de Bragança, the central Kasai District, and perhaps Kunungu near the middle Congo River.

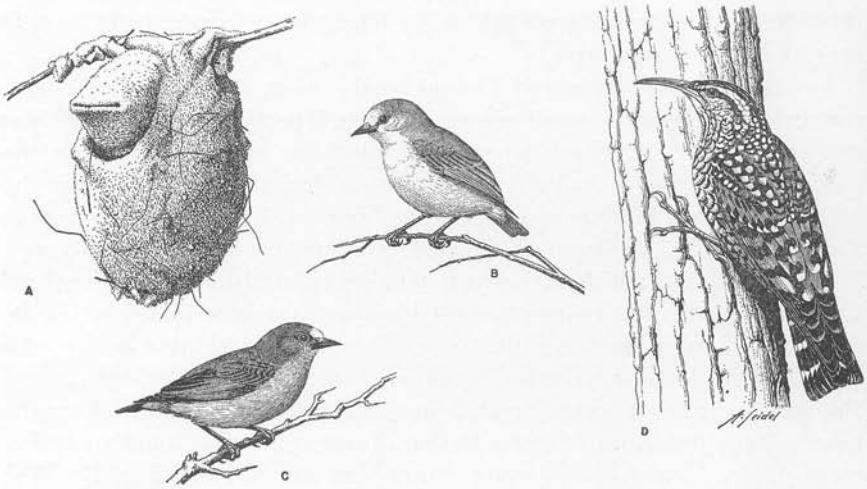

FIG. 8. A. Nest of a penduline titmouse, *Anthoscopus caroli*, × 1/3. B. *Anthoscopus a. ansorgei*, × 2/5. C. *Anthoscopus f. flavifrons*, × 2/5. D. African creeper, *Salpornis spilonota emini*, × 2/5.

Anthoscopus a. rhodesiae is duller green above than the nominate race, pale yellow on the forehead, and it occupies the Katanga and more eastern areas. Possibly these two forms are to be considered as races of *A. caroli*, but they are much greener above and whiter beneath than *A. c. robertsi*, *sylviella*, or *roccattii*.

Little is known of the behavior of Ansorge's kapok-bird, which must inhabit wooded savannas. At Luluabourg Father Callewaert secured two adults in January and February, as well as a young bird on August 29 with all its remiges and rectrices still in the sheath. So it had undoubtedly been reared in the middle of the dry season. At Silva Porto, Angola, Ansorge collected a fledgling of about the same age on October 7.

Anthoscopus ansorgei rhodesiae Sclater

Anthoscopus ansorgei rhodesiae SCLATER, 1932, Bull. Brit. Ornith. Club, vol. 52, p. 143 (type locality: Mt. Sunzu near Abercorn, Northern Rhodesia).

Anthoscopus parvulus NEAVE, 1910, Ibis, p. 231 (Lofu R.).

Anthoscopus roccatii rhodesiae GRANT AND MACKWORTH-PRAED, 1942, Bull. Brit. Ornith. Club, vol. 63, p. 45 (Elisabethville; "Ndola").

Anthoscopus caroli rhodesiae GRANT AND MACKWORTH-PRAED, 1948, Bull. Brit.

Ornith. Club, vol. 68, p. 76 (Ufipa; Lofu R.; 47 miles northeast of Elisabethville). SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 166 (Tembwe).

Anthoscopus caroli sylviella SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 166 (Elisabethville).

DISTRIBUTION: From the Upper Katanga and Marungu to the vicinity of Abercorn and to Ufipa on the southeast side of Lake Tanganyika.

According to Neave (1910), a small party of these titmice was found hunting for insects through the woodland in company with some white-eyes. Lynes also noted that the type of *rhodesiae* was a member of a party of five. At Kinia (4100 feet) in Marungu, Rockefeller and Murphy collected three adult specimens between April 3 and April 6, all in non-breeding condition. They compared the behavior with that of American wood-warblers.

Anthoscopus caroli winterbottomi White

Anthoscopus caroli winterbottomi WHITE, 1946, Ibis, p. 101 (type locality: Mwinilunga, Northern Rhodesia). GRANT AND MACKWORTH-PRAED, 1948, Bull. Brit. Ornith. Club, vol. 68, p. 76.

DISTRIBUTION OF THE SPECIES: Natal and Damaraland to Northern Rhodesia, Uganda, and the Tana River in East Africa. *Anthoscopus c. caroli* (Sharpe) of Damaraland is a pale grayish form, as is *A. c. hellmayri* Roberts, ranging from Natal to Southern Rhodesia. In eastern Africa there is an increase of cinnamon-buff on underparts, through the races *robertsi, sylviella,* and *sharpei,* ranging to the south end of Lake Victoria. In southeastern Kenya Colony *rothschildi* and *taruensis* become paler.

Anthoscopus c. roccattii is slightly olive above and washed with yellowish, not buff, below. It ranges from the base of Elgon around the north shore of Lake Victoria and then to the Kagera Valley and the country northeast of Lake Edward. The race *winterbottomi* is somewhat washed with greenish above, the abdomen reddish buff. Perhaps it marks a transition to the *ansorgei* group, but I do not think that is proved.

The type locality of *winterbottomi* is so close to the Katanga border that this bird is sure to occur within our limits. White found it living in small groups in *Brachystegia* woodland, often mingling with parties of other birds. This race is known to range from Mwinilunga southward to the Manyinga River and possibly eastward to Lusaka.

Anthoscopus caroli robertsi Haagner

Anthoscopus robertsi HAAGNER, 1909, Ann. Transvaal Mus., vol. 1, p. 233 (type locality: Villa Pereira, Boror, Portuguese East Africa).

Anthoscopus caroli rotschildi SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 288 (near Elisabethville).

Anthoscopus caroli robertsi GRANT AND MACKWORTH-PRAED, 1948, Bull. Brit. Ornith. Club, vol. 68, pp. 75, 76 (Ndola).

DISTRIBUTION: From the lower Zambesi Valley and Liwale in southern Tanganyika Territory to eastern Northern Rhodesia. Reported from Karonga at the northern end of Lake Nyasa and Ndola, close to the southern border of the Katanga. Two birds from northeast of Elisabethville are said to be intermediate in some ways between *A. c. robertsi* and *A. a. rhodesiae*.

Nests of *robertsi* were found in Nyasaland by Benson[1] on November 28 and December 1. One had no eggs, and of three birds that flew out the one collected was considered a full-grown fledgling. The other nest held three white eggs, 14.5–14.7 by 10 mm., but the set was probably incomplete.

Anthoscopus caroli roccattii Salvadori

Anthoscopus roccattii SALVADORI, 1906, Boll. Mus. Zool. Anat. Comp. Torino, vol. 21, no. 542, p. 2 (type locality: Entebbe, Uganda).

Anthoscopus roccatii OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 335, fig. 2 on pl. 13 (Mokia, southwest Uganda).

Anthoscopus roccatii roccatii SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 645 (base of Ruwenzori). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1251 (Mohokyia).

Anthoscopus caroli roccatii GRANT AND MACKWORTH-PRAED, 1948, Bull. Brit. Ornith. Club, vol. 68, p. 75 ("Ruwenzori").

DISTRIBUTION: From Lango and Mt. Elgon across Uganda to Mubendi, the plains northeast of Lake Edward, and southern Ankole; also in the Kagera Valley and the eastern edge of Ruanda. In July, 1907, Rudolf Grauer collected one between the Kagera River and Nsaza.

It seems certain that Roccatti's titmouse will also be found in Congo territory at the southern end of Ruwenzori near the Semliki Plain. Woosnam noted that they were seen in acacia trees.

Both Van Someren and Belcher found nests in Uganda, pear-shaped or spherical pouches made of cotton and similar vegetable fibers, suspended from a twig at a height usually of 6 or 8 feet. The nest has an entrance tube at one side near the top, which evidently closes, for natives say that the bird on leaving stitches it up. Eggs are pure white and number three to six.

[*Anthoscopus musculus* (Hartlaub)]

Aegithalus musculus HARTLAUB, 1882, Ornith. Centralbl., p. 91 (type locality: Lado on Bahr-el-Jebel).

Anthoscopus musculus SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 268.

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[1] 1947, Ibis, p. 563.

The mouse-colored kapok-bird, with whitish breast, ranges from the Bahr-el-Jebel to the Hawash Valley, Somaliland, and Taveta near the base of Kilimanjaro. It is a bird of dry country, and though known to occur about Lado it is scarcely likely to reach the Congo.

FAMILY **CERTHIIDAE.** CREEPERS

Salpornis spilonota emini Hartlaub

Salpornis emini HARTLAUB, 1884, Proc. Zool. Soc. London, p. 415, pl. 37 (type locality: Langomeri in Lado district); 1888, *in* Schweinfurth and Ratzel, Emin-Pascha, eine Sammlung von Reisebriefen, p. 511; 1889, Jour. Ornith., p. 115. SCHWEINFURTH AND RATZEL, 1888, Emin Pasha in Central Africa, p. 520. HELLMAYR, 1903, Das Tierreich, no. 18, p. 218 (Makraka).

Salpornis salvadorii SHELLEY, 1888, Proc. Zool. Soc. London, p. 37 (Tobbo); 1899, Ibis, p. 366. REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 507. SCHOUTEDEN, 1949, Bull. Cercle Zool. Congolais, vol. 19, p. 16 (Faradje).

Certhia EMIN, 1888, *in* Schweinfurth and Ratzel, Emin-Pascha, eine Sammlung von Reisebriefen, pp. 366, 511 (Langomeri); 1921, *in* Schubotz, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, pp. 237, 277.

Salpornis spilonotus emini NEUMANN, 1906, Jour. Ornith., p. 259.

Salpornis spilonota emini HELLMAYR, 1911, *in* Wytsman, Genera avium, pt. 15, p. 10. HARTERT, 1920, Novitates Zool., vol. 27, p. 439. BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 266.

Salpornis salvadori CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 259 (Uelle District).

Salpornis salvadorii emini SCHOUTEDEN, 1927, Bull. Cercle Zool. Congolais, vol. 4, p. 39 (Dramba).

Salpornis spilonota salvadori GRANVIK, 1934, Rev. Zool. Bot. Africaines, vol. 25, p. 143 (in part. Yei). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 139.

SPECIMENS: Faradje, two males, March 24, October 3; female, November 23. Aba, two females, July 16, December 10. Garamba, male, female, June 13; immature male, June 20.

ADULTS OF BOTH SEXES: Iris dark brown; bill dusky brown, more grayish beneath; feet grayish brown to dark bluish gray.

DISTRIBUTION OF THE SPECIES: In India the plains south of the Himalayas, and in Africa in savannas from Portuguese Guinea east to southern Abyssinia and Mt. Elgon, also from southern Tanganyika Territory and the southeastern Congo to Angola and Mashonaland.

Salpornis s. spilonota (Franklin) is Indian; *S. s. erlangeri* Neumann of Abyssinia is distinguished by the rufous color between the spots of the underparts. The race *emini* is of dark general coloration and is believed to range from the vicinity of the Bahr-el-Jebel, north of the equatorial forests, to Portuguese Guinea. *Salpornis s. salvadori* is somewhat lighter

in color and lives in Kenya Colony from Elgon to Londiani, as well as from Tanganyika Territory to Angola and Southern Rhodesia.

Within our limits Emin's spotted creeper has been found only in the northeastern Uelle District. Our first example, near Aba, came flying across the road in the undulating style of a woodpecker, lit on a small dead tree, and started to climb upward with all the ease of a nuthatch. The others seen near Faradje and Garamba were usually in pairs, and often associated with a small bird party, as described under *Sylvietta brachyura carnapi* and *Eremomela canescens canescens*. Large trees in the open were frequented, as well as stunted ones forming the lower growth. I did not hear any note from this creeper, nor could I say at what season it nested, though slight enlargement of the gonads was noted from October to December.

The roof of the braincase, in all our specimens, had a thin transparent area; yet only one male from Garamba in June seemed actually immature. This is paralleled by the condition in *Vidua, Anthoscopus,* and some other passerine birds. Stresemann tells me that *Sitta europaea* does not usually have two complete bony lamina over the whole skull roof.

In two stomachs of *Salpornis* I noted only insects, including several small beetles, two winged ants, and a caterpillar.

Salpornis spilonota salvadori (Bocage)

Hylypsornis salvadori BARBOZA DU BOCAGE, 1878, Jor. Sci. Nat. Lisboa, vol. 6, p. 198 (type locality: Caconda, Angola).

Salpornis salvadori HELLMAYR, 1903, Das Tierreich, no. 18, p. 218 (L. Tanganyika).

Salpornis salvadorii NEAVE, 1910, Ibis, pp. 79, 231 (Kambove, 4500 ft.; upper Lualaba R., 3500 ft.). MOURITZ, 1914, Ibis, p. 34 (Sakania–Mokambo Hills). SCHOUTEDEN, 1927, Bull. Cercle Zool. Congolais, vol. 4, p. 39 (Elisabethville; Kafubu R.); 1932, idem, vol. 8, p. 104.

Salpornis spilonota salvadori SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 714. GRANVIK, 1934, Rev. Zool. Bot. Africaines, vol. 25, pp. 143, 145 (in part). A. W. VINCENT, 1949, Ibis, p. 344.

Salpornis spilonota salvadorii SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 288; 1949, idem, vol. 42, p. 165.

Salpornis spilonotus salvadorii ROBERTS, 1940, The birds of South Africa, p. 221, fig. 532 on pl. 34.

DISTRIBUTION: From the country about Mt. Elgon south to Londiani; also from Liwale in Tanganyika Territory south to the Zambesi and Mashonaland, west to Angola.

In the Congo Salvadori's spotted creeper is restricted to Marungu and the Upper Katanga. Neave noted that it was not uncommon in the savanna woods of the Katanga highlands, singly or in pairs, and almost invaribly in a bird party. Its flight he compared to a woodpecker's. Creeping actively about the tree trunks, it searched for insects in the bark. Rockefeller and

Murphy collected specimens in Marungu at Kasoko (4100 feet) and Kampia (4525 feet) in March, with gonads reduced. They also noted that the creeper was apt to be a member of a bird party.

In the region south of Lake Nyasa Jack Vincent noted the birds that associate with *Salpornis* as *Eremomela, Sylvietta, Hyliota, Nilaus,* and *Phormoplectes olivaceiceps*. He described its calls as a rapid series of shrill, wisping whistles, "sweepy-swip-swip-swip-swip," and, less often, five or six high croaking notes, "keck-keck."

Nesting, in Nyasaland and Southern Rhodesia, is carried on in October.[1] The nest is a cup composed of flower stalks, rootlets, or similar materials, mixed with lichen and bound together by cotton-like fibers. The outside is decorated with lichen, seeds, or pappus, so the nest is well camouflaged, even though placed on a horizontal bough or in a wide fork, 12 feet or much higher above the ground. The eggs are three, pale turquoise blue, heavily zoned with lavender, dotted with black all over, and with a few larger smudges of brown. Dimensions: 17–19.5 by 12–13.5 mm. Near Elisabethville Alfred Vincent found a nest with two young on October 15.

FAMILY **ORIOLIDAE**. ORIOLES

Key to the Species of *Oriolus* in the Congo

1. Forehead, crown, cheeks, and throat black 2
   Crown and throat not black 4
2. Primary-coverts uniform black, or occasionally with very narrow white tips; secondaries all edged with yellow-green, not gray; median rectrices black, often with narrow yellow tips . . . . . *O. nigripennis*
   Primary-coverts broadly tipped with white; outer secondaries have gray or whitish edgings; median rectrices either green or black 3
3. Smaller, wing seldom attaining 125 mm.; innermost secondaries almost wholly green, with inner margin dusky, outer secondaries margined externally with blue-gray; median rectrices always green . . . . *O. brachyrynchus*
   Larger, wing usually 125 mm. or longer; innermost secondaries largely black, though broadly margined with white or gray, not bluish; median rectrices either green or black . . . . . *O. larvatus*
4. Crown, back, and whole under surface bright yellow, not streaked 5
   Not so bright yellow, and usually with blackish streaks on breast 6
5. Secondaries broadly margined with yellow on outer webs; the black of lores extending around and a little behind eye . . . . . *O. auratus*
   Secondaries black without noticeable yellow margins, their tips at most yellow; no black behind eye . . . . . *O. oriolus*
6. Larger, wing length exceeding 145 mm.; wing-coverts and secondaries gray-brown washed with olive, without conspicuous yellow borders . *O. oriolus*
   Smaller, wing length usually less than 145 mm.; greater wing-coverts and secondaries conspicuously edged with yellow or light green . . *O. auratus*

[1] See Priest, 1943, Ostrich, vol. 14, pp. 27–31; Benson, 1947, Ibis, p. 564; Benson and Benson, 1947, Oologists' Rec., vol. 21, p. 9; Benson, 1951, Bull. Brith. Ornith. Club, vol. 71, p. 7.

Oriolus brachyrynchus laetior Sharpe

Oriolus laetior SHARPE, 1897, Bull. Brit. Ornith. Club, vol. 7, p. xvii (type locality: Gaboon). HARTERT, 1900, Novitates Zool., vol. 7, p. 39 (near Mohara). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 268 (north of Beni; Mawambi).

Oriolus brachyrhynchus EMIN, 1894, Jour. Ornith., pp. 166, 170 (old Irumu). FLOWER, 1894, Proc. Zool. Soc. London, p. 597 (Ituri R.; Indekaru; Ipoto). SHELLEY, 1906, The birds of Africa, vol. 5, pt. 1, p. 17 (Ukondju). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 21 (Kartushi; Kampi-na-Mambuti).

Oriolus larvatus laetior REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 661 (Irumu; Karevia; Beni); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 317 (northwest base of Ruwenzori; Avakubi). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 269 (Kilo); 1918, idem, vol. 5, p. 267 (Moera; Kinawa; Masidongo; Zambo; Lesse; Mutiba; Marissawa). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 25 (Beni).

Oriolus brachyrhynchus var. *laetior* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Banalia).

Oriolus monachus laetior MEINERTZHAGEN, 1923, Ibis, p. 79.

Oriolus brachyrhynebus laetior SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 72 (Ukaika).

Oriolus brachyrynchus laetior SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 649. BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 461.

Oriolus brachyrhynchus laetior SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 132 (Kotili; Nava R.; Bondo Mabe; Poko; Medje; Buta; Titule). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 564 (Saidi). BOUET, 1942, Ois. Rev. Française Ornith., new ser., vol. 12, p. 150 (Bangui); 1945, idem, new ser., vol. 14, p. 75. DIRICKX, 1948, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 24, no. 36, p. 13 (Angumu).

Oriolus monacha laetior VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 78 (Butahu R.; near Bombe; Lusilubi R.; Mutsora).

SPECIMENS: Lumatululu (near Stanleyville), male, September 7. Avakubi, two males, November 5, December 8; four females, July 16, September 6, October 15, November 3; three immature males, January 15, August 28, November 25; juvenile male, November 4. Ngayu, three males, December 10, 12, 14. Bafwabaka, female, January 3. Medje, two males, April 13, May 9.

ADULTS OF BOTH SEXES: Iris rather dark carmine, bill brownish pink, feet bluish to dark gray.

IMMATURE: Iris reddish brown, bill dusky brown faintly tinged with pink toward base, feet light blue.

NESTLING: Iris brownish gray, bill very pale pink with grayish tip, feet rather light blue with dusky claws.

DISTRIBUTION OF THE SPECIES: Sierra Leone to Nigeria, the Cameroon, Gaboon, and Lower Congo, thence eastward to the Kasai, Manyema, south-

ern Uelle, forests of Uganda, and Kakamega and Lerundo in the Kavirondo District.

Oriolus b. brachyrynchus Swainson of Upper Guinea is replaced in Southern Nigeria and the whole of Lower Guinea by the race *laetior,* with lighter green upperparts and more conspicuous yellow collar. These two forms are not conspecific with *O. monacha* or *O. larvatus.* We have perfectly normal specimens of *laetior* from Kakamega and Lerundo in Kenya Colony and from Luluabourg in the Kasai District. Although there appear to be no published records from the Lower Congo, I have seen and heard *laetior* myself at Ganda Sundi in the Mayombe Forest.

This commonest oriole of the Ituri and other lowland forests of the Upper Congo is met with from the outskirts of villages and clearings to the most remote parts of the forest. It usually remains rather high in the trees, and seldom will more than two be seen together. They are apt to announce their presence with a mellow call of three whistled syllables, which suggest the French name, "lo-ri-ot!" In addition, there may be a brief introductory syllable, or at times the call might be written "î-yo-kwau," or simply "yo-kwau." The voice of this species always seemed to me more musical than that of *O. nigripennis,* which commonly lives in the very same places.

We never found a nest; it was described by Bates as slung between two horizontal twigs and composed of *Usnea* lichen and cobwebs, no doubt high in a forest tree. Our dissections indicated that in the Ituri breeding went on in May as well as in October–November. The youngest individual, shot by Nekuma at Avakubi on November 4, had the tail barely half-grown, though already out of the nest.

In juvenal dress the crown and cheeks are yellowish olive, the back feathers spotted with dusky and tipped with very pale yellowish, the whole breast and flanks light yellow with broad dusky streaking. In the immature plumage that is quickly acquired, the green head is retained, but the back becomes uniform yellowish green, and the streaking of the breast virtually disappears. The bill is never so black as in the young of *O. nigripennis.*

Eleven stomach examinations showed the food to consist largely of caterpillars. These were found in eight stomachs, as many as seven at a time, and only one was noted as hairy. Five birds had taken other insects: beetles and winged ants; and one a spider. Three had eaten fruit, from which hard seeds remained. In one stomach there were only two feathers.

Oriolus larvatus angolensis Neumann

Oriolus larvatus angolensis NEUMANN, 1905, Jour. Ornith., p. 236 (type locality: Malange, Angola).

Oriolus larvatus SCHALOW, 1886, Jour. Ornith. pp. 412, 415, 430 (Mpala; eastern Marungu; Lufua R.); 1887, idem, p. 241. DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat.

Belgique, vol. 4, p. 148 (L. Tanganyika); 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Mpala; "Ituri"). SHELLEY, 1906, The birds of Africa, vol. 5, pt. 1, pp. 12, 18 (Kibondo). SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 5 (Lukonzolwa). NEAVE, 1910, Ibis, p. 260 (Dikulwe R., 4000 ft.; Mporokoso). MOURITZ, 1914, Ibis, p. 32 (southeastern Katanga near Luapula R.).

Oriolus brachyrhynchus REICHENOW, 1887, Jour. Ornith., p. 309 (Kibondo). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Tanganyika).

Oriolus larvatus rolleti REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 659 (in part); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 317 (L. Kivu). SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 288 (Elisabethville). GRANT AND MACKWORTH-PRAED, 1946, Bull. Brit. Ornith. Club, vol. 66, p. 79 (in part). A. W. VINCENT, 1949, Ibis, p. 318.

Oriolus monachus rolleti MEINERTZHAGEN, 1923, Ibis, p. 76 (northwest shore of L. Tanganyika). SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 165 (many localities in Katanga).

Oriolus larvatus roletti SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 72 (Urundi; Kasindi; Kasindi-Beni).

Oriolus monacha rolleti JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1257 (Katwe; Mohokyia). CHAPIN, 1944, Auk, pp. 290, 291 (Lubilia R. near Kasindi; west of Baraka, 3900 ft.). VERHEYEN, 1947, Exploration du Parc National Kagera, Mission Frechkop, fasc. 2, p. 15 (Gabiro). DIRICKX, 1948, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 24, no. 36, pp. 5, 9, 14 (Ruanda-Urundi; Lualaba).

Oriolus monacha larvatus VERHEYEN, 1940, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 16, no. 2, p. 6 (Kanzenze).

Oriolus larvatus kikuyuensis GRANT AND MACKWORTH-PRAED, 1945, Bull. Brit. Ornith. Club, vol. 65, p. 29.

Oriolus monachi rolleti VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 78 (Luhule R. near Rugetsi).

ADULTS OF BOTH SEXES: Iris crimson; bill brownish pink; feet gray-blue, claws blackish.

DISTRIBUTION OF THE SPECIES: From the upper White Nile and southern Abyssinia southward through eastern Africa to Cape Province, Matabeleland and Ngamiland, and westward again over most of Angola. In view of the distribution in Abyssinia, I do not regard *O. larvatus* as conspecific with *O. monacha* (Gmelin). Intermediates between *larvatus* and *brachyrynchus* are so rare in Uganda and there is no proof of any extensive hybridism between the two species.

Oriolus l. larvatus Lichtenstein is distinguished by its long, straight bill, with culmen 27–31 mm., and ranges north from Cape Province only to Southern Rhodesia, where it begins to intergrade with the race *angolensis,* with culmen 24–28 mm. The name *angolensis* has 17 years' priority over *kikuyuensis,* and I am unable to find any significant difference between specimens from northern Angola and those of the Kikuyu highland. They are all large, with wings 129–143 mm.

Oriolus l. rolleti, on the other hand, of the upper Nile and southern Abys-

sinia, has the wings only 121–133 mm. The status of *reichenowi,* described from Southern Somaliland, is not so clear, but it may be another small race with rump less yellow than in *rolleti.*

The race *angolensis* evidently occupies a vast area, from Angola eastward to Northern Rhodesia, Nyasaland, the southeast Congo, Tanganyika Territory, and the highlands of Kenya Colony. It also occupies the savannas of the eastern Congo and Uganda, though largely replaced there in mountain forests, as it is in the higher levels of Kenya Colony, by *O. l. percivali* with black median rectrices.

In the Upper Katanga Neave found the black-headed oriole ubiquitous; it evidently prefers the wooded savannas. In Marungu Rockefeller and Murphy noted it as common and collected specimens at Kinia, Kasoko, and Lubenga (5650 feet). While not reported from the Kasai, this oriole does occur in the Manyema savanna, in Ruanda-Urundi, and northward in the Kivu District at lower levels to the southern end of Ruwenzori. Grauer and I have both collected specimens near Kasindi, where they frequent acacia trees in the savanna.

From the west side of Lake Albert there is no record; Dubois' "Ituri" specimen was probably obtained in the Lado Enclave and may have been *rolleti.* In Uganda we may expect a diminution in size to the northwest, where the resident race must be *rolleti.*

The call of *O. l. angolensis* is usually a mellow "tok-yo!" or "two-twill," but it may sometimes be more prolonged, and in southern Nyasaland Jack Vincent heard mimicry of several other birds' calls, all in subdued tone.

In the Katanga nesting is to be expected in September and October, but in western Uganda eggs and young have been found in January, February, and April. The nest is suspended in a horizontal fork, 15 to 50 feet above the ground, built as a rule of *Usnea* lichen and lined with fine grass stems or rootlets. The eggs are two, occasionally three, white or creamy, with blotches of red-brown and purplish gray, chiefly in a ring around the blunt end. Their dimensions are about 27–29.5 by 19.7–21 mm.

[*Oriolus larvatus rolleti* Salvadori]

Oriolus rolleti SALVADORI, 1864, Atti Soc. Italiana Sci. Nat. Milano, vol. 7, Riunione a Biella, p. 161 (type locality: White Nile between latitudes 4° and 5° N.); 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 451 ("Uelle district").

Oriolus monacha rolleti BOWEN, 1931, Catalogue of Sudan birds, pt. 2, p. 72 (Ikoto; Opari).

Although there is no reliable Congo record of Rollet's black-headed oriole, a search should be made for it near the north end of Lake Albert. The specimens said to have come from the Uelle and the Ituri were almost

certainly collected in th .ado Enclave during the period when it was under Belgian occupation.

Oriolus larvatus percivali Ogilvie-Grant

Oriolus percivali OGILVIE-GRANT, 1903, Bull. Brit. Ornith. Club, vol. 14, p. 18 (type locality: Kikuyu, Kenya Colony); 1910, Trans. Zool. Soc. London, vol. 19, p. 269 (Mpanga Forest, 5000 ft.). MEINERTZHAGEN, 1923, Ibis, p. 80 (northwest of L. Tanganyika). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 649. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 283 (Lulenga); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 136 (Kamatembe, 2100 m.; Kibumba, 2000 m.; Nyarusambo; Bitashimwa, 1950 m.; Munagana; Kashwa); 1943, Rev. Zool. Bot. Africaines, vol. 37, p. 272 (Gabiro). BERLIOZ, 1936, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 8, p. 492 (Mbwahi). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1259. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 78 (Kianiamakue, Kanyabisika, and Bilati, all near Lutunguru).

Oriolus tanganjicae REICHENOW, 1910, Ornith. Monatsber., p. 161 (type locality: forest northwest of L. Tanganyika); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 318. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 72 (northwest of L. Tanganyika, 2000 m.; eastern border of Rutshuru Plain, 1600 m.).

Oriolus tanganyikae SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 267 (Baraka).

Oriolus nigripennis percivali VERHEYEN, 1940, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 16, no. 2, p. 6.

Oriolus monacha rolleti PETERS AND LOVERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 245 (Idjwi I.).

Oriolus monacha percivali CHAPIN, 1944, Auk, pp. 289–291 (Mt. Nyemilima, 8100 ft.; Mt. Mikeno and Mt. Niragongo, 6000–8000 ft.). DIRICKX, 1948, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 24, no. 36, pp. 5, 16 (Gabiro; "Uvira").

ADULTS OF BOTH SEXES: Iris deep carmine; bill brownish pink; feet gray-blue, with claws blackish gray.

DISTRIBUTION: Forested highlands above 5000 feet from Mt. Kenya and Mt. Elgon westward to Mpanga in west Uganda, the Kivu Volcanoes, highlands west of Lake Edward, Lake Kivu, and southward to the vicinity of Baraka. Also on the Kungwe-Mahare highland east of Lake Tanganyika.

In the Kikuyu highland, where *Oriolus l. angolensis* sometimes invades the evergreen forests, birds of intermediate coloration have been found, with median rectrices green at the base, shading to black toward the tip. But in the eastern Congo *angolensis* usually remains in savannas at lower levels, and *percivali* keeps to the highland forests. It has been taken at 5200 feet in woods just east of the Rutshuru Valley and in the Mpanga Forest near 5000 feet, but is unknown on Ruwenzori or on the highlands west of Lake Albert. I have made sure that Loveridge's four specimens from Idjwi Island are really *percivali*.

While the ranges of *percivali* and *O. nigripennis* must meet in the eastern Congo, I have never seen a bird of intermediate coloration. The wings of

percivali in the Congo measure 126–137 mm.; those of *nigripennis* only 117–123 mm.

In 1927 I collected a half dozen specimens of *percivali* in the Kivu, at altitudes from 5300 feet up to 8100 feet. All were in wooded places and behaved very like *Oriolus larvatus* or *brachyrynchus*. Sometimes the call was a musical "kyu-hu!," sometimes shorter, a half-whistled "ow-k!"

In such an environment, relatively near the Equator, I should not expect any brief season of reproduction. But on the highlands west of the Ruzizi Valley Rockefeller and Murphy collected a young bird, surely not a month old, on August 5. West of Baraka, in November, Grauer secured one young bird that was little older and eight immature specimens that have lost all streaking on the breast. In that southern part of the range there may be a nesting season between July and September.

In five stomachs examined, I found fruits three times, hard remains of insects twice, and caterpillars twice. One caterpillar was 62 mm. long, and sparsely haired.

Oriolus nigripennis nigripennis Verreaux

Oriolus (*Baruffius*) *nigripennis* J. AND E. VERREAUX, 1855, Jour. Ornith., p. 105 (type locality: Gaboon R.).

Oriolus nigripennis REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 661 (Sassa). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 ("Katanga"; Mayombe). ALEXANDER, 1907, From the Niger to the Nile, vol. 2, p. 314 (Gudima). LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 14 (Kingoyi). OGILVIE-GRANT, 1908, Ibis, p. 268 (Ponthierville). SALVADORI, 1909, Ann. Mus. Civ. Genova, ser. 3, vol. 4, p. 324 (Uelle); 1911, idem, ser. 3, vol. 5, p. 451 (Zone of Gurba-Dungu). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 269 (Kilo); 1918, idem, vol. 5, p. 267 (Beni); 1923, idem, vol. 11, p. 344 (Luebo); 1924, idem, vol. 12, p. 421 (Eala); 1926, idem, vol. 13, p. 202 (Butu Polo; Tshela; Temvo; Makaia-Ntete); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 132 (Buta; Titule; Mauda; Abimva; Arebi; Bondo Mabe; Djamba). MEINERTZHAGEN, 1923, Ibis, p. 81. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 72 (Moera; Mawambi; Ukaika). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 649. STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 565 (Ekibondo). BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 462, pl. 8 (Medje). BOUET, 1945, Ois. Rev. Française Ornith., new ser. vol. 14, p. 75. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 78 (Semliki R.). DIRICKX, 1948, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 24, no. 36, p. 13 (Thysville; Stanleyville).

Oriolus nigripennis var. *lucostictus* REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 317 (type locality: forest northwest of Beni).

Oriolus sp. SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, pp. 265, 277 (Bellima; Mangbetu country).

Oriolus nigripennis nigripennis VERHEYEN, 1940, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 16, no. 2, p. 6.

SPECIMENS: Avakubi, male, November 15. Bafwabaka, male, January 2. Medje, female, July 8. Niangara, two males, November 28, December 1;

female, November 30; two immature females, December 2, 6; juvenile female, November 23. Between Faradje and Aba, female, October 4.

ADULTS OF BOTH SEXES: Iris crimson, bill brownish pink, feet leaden gray.

DISTRIBUTION: Lowland forests and gallery forests from Sierra Leone eastward to Fernando Po, the Cameroon, Uelle District, and the Lotti Forest in the southeast Sudan. To the south its range extends to northwestern Angola, the central Kasai, and no doubt the forested Manyema. But though common in the Semliki Forest, *O. nigripennis* seems never to have been found elsewhere in Uganda. There was surely some mistake about Dubois' record attributed to the Katanga.

While no attempt seems to have been made to divide *nigripennis* into races, I believe that adults, usually females, are much more apt to have the median pair of rectrices partially greenish in Sierra Leone and Liberia than they are in Lower Guinea. Wings of Lower Guinea birds are longer, 117–124 mm.[1] In the northern Congo this species seems to range farther out into the gallery forests than *O. brachyrynchus,* although in the central forested region their haunts are exactly the same.

It usually requires a good view with a field glass to distinguish the two species. Yet I believe there is a recognizable difference in their voices. At Ganda Sundi in the Mayombe Forest, where I had an excellent opportunity for comparisons, I noted that the usual call of *nigripennis* was a short "o-ĕk!" or "ko-ĕk!" sounding far less melodious than that of *brachyrynchus.*

In the northeastern Congo the breeding season of *nigripennis* comes between July and November, in the latter part of the rains. At Niangara we obtained a fledgling with rectrices not full grown on November 28, and at Djugu I collected another, only slightly more advanced, on August 18. The juvenal plumage is quite different from that of *O. brachyrynchus,* for the crown and cheeks are black, with scarcely a trace of green edgings. The chest is spotted with dusky, and a bright yellow collar encircles the hind neck. The immature plumage which follows is black-headed and recalls that of *O. larvatus,* save for the color of the wings. The nest and eggs remain to be discovered.

Three out of six stomachs examined held caterpillars, three had other insect remains, and fruits were present in two cases.

Oriolus auratus auratus Vieillot

Oriolus auratus VIEILLOT, 1817, Nouveau dictionnaire d'histoire naturelle, vol. 18, p. 194 (Africa; restricted type locality: Gold Coast). REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 655 (Sassa). OUSTALET, 1905, Bull. Mus. Hist. Nat., Paris,

[1] The Upper Guinea race has been separated as *O. n. alleni* Amadon, 1953, Bull. Amer. Mus. Nat. Hist., vol. 100, p. 436 (Bangah, Liberia).

vol. 11, p. 11 (Krebedje). SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 427 (Mt. Baginzi; Meridi; Yei). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 240 (Mundu); 1921, idem, vol. 6, pt. 2, p. 145 (Djanda; Rimo).

Oriolus auratus auratus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 647. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 132 (Mauda; Mahagi Port; Buta). BANNERMAN, 1939, The birds of tropical West Africa, vol. 5, p. 455, fig. 99. DIRICKX, 1948, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 24, no. 36, p. 10 (Kibali-Ituri; "Baaba in Kwango").

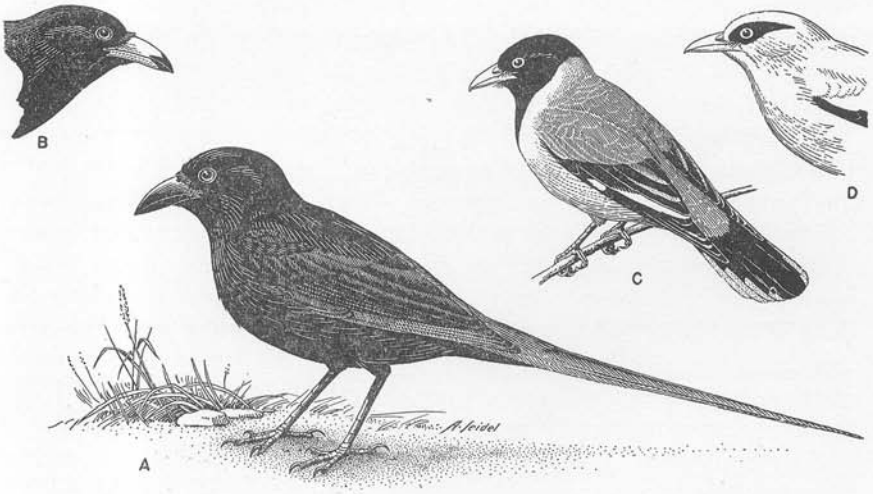

FIG. 9. A. African magpie, *Ptilostomus afer*, adult. B. Head of its young, to show the paler beak. C. Percival's oriole, *Oriolus larvatus percivali*. D. Head of golden oriole, *Oriolus a. auratus*.

SPECIMENS: Faradje, four males, January 15, 26, March 14, April 26; three females, February 2, April 26, October 4; juvenile female, March 18. Aba, male, December 22. Garamba, two males, June 19, July 9.

ADULTS OF BOTH SEXES: Iris rather light red, sometimes a little whitish around inner rim; bill brownish pink; feet bluish or greenish gray.

IMMATURE: Iris dark brownish red, shading to whitish on outer edge; bill pinkish brown, mottled with dusky; feet bluish gray or greenish.

NESTLING: Iris brownish gray, bill very dark brownish, feet green.

DISTRIBUTION OF THE SPECIES: Senegal to the Blue Nile and southern Abyssinia, south through eastern Africa to Portuguese East Africa and Southern Rhodesia, and west across the southern Congo to Angola and Damaraland. Of the two races, nominate *auratus* has the wing quills less broadly margined with yellow, the primary-coverts of adult males almost wholly black, the outermost rectrices of that sex with a black basal area.

It occupies the whole Sudanese belt, east to southern Abyssinia and Mt. Elgon, and south to the northern edge of the equatorial forest.

The southern race, *notatus,* has adult males often more richly yellow; but the broad yellow tips of primary-coverts and wholly yellow outer rectrices of the males are its most reliable characters. From southern Africa *notatus* ranges north to the southern and eastern Congo, central Kenya Colony, and the Juba River.

In the Congo *auratus* appears to be limited to the savannas north of the forest and the country at the north end of Lake Albert. I doubt its occurrence in the Kwango District, because specimens from the Kasai and from northwestern Angola are *notatus*. But the race *auratus* has been reported from the Gaboon.

The northern race of the golden oriole is rather common in the northern Uelle District, frequenting the denser areas of scrub as well as the higher trees near watercourses, often in parties of three or four. Though apparently resident throughout the year in this latitude, they are more apt to be seen in the drier months, for it is then that they are most noisy. Their mellow notes, recalling the words "oriole" and "loriot," bear some resemblance to those of the black-headed species but are often of longer duration. One hears them most in the early hours of the morning. Perhaps there is some movement northward in the Sudan during the rains, after breeding, for Lynes noted *O. auratus* in Darfur only in July and August.

Dissections showed plainly that in the Uelle the season of reproduction extended from December to March, during the driest part of the year. A nestling with tail only one-third grown was brought us on March 18. Farther to the west nests with eggs have been found by Gromier, Fairbairn, Shuel, and Serle, in late December, March, and April. The nest is slung hammock-wise in a forking bough, 9 to 20 feet up, and bound together with gossamer and tendrils. Eggs are either two or three, buffy pink, with dark red-brown spots and streaks in a zone around the blunt end, and a few gray shell markings. Dimensions: 29–33.3 by 19.8–21 mm.

In six of the nine stomachs examined I found caterpillars. Berries or other fruit had been eaten in three cases, and hard-bodied insects only twice.

Oriolus auratus notatus Peters

Oriolus notatus W. PETERS, 1868, Jour. Ornith., p. 132 (type locality: Tete, Zambesi R.). DE SOUSA, 1886, Jor. Sci. Nat. Lisboa, vol. 11, p. 79 (Ntenque). DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika); 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30. REICHENOW, 1887, Jour. Ornith., pp. 308, 309 (Kasongo; Kibondo); 1903, Die Vögel Afrikas, vol. 2, p. 656 (Kwango R.). SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22,

no. 570, p. 5 (Lukonzolwa); 1915, Ann. Mus. Civ. Genova, ser. 3, vol. 6, p. 280 (Kasai District). NEAVE, 1910, Ibis, p. 259 (Kaluli R.). MOURITZ, 1914, Ibis, p. 32 (southeastern Katanga near Luapula R.). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 267 (Lubilu; Mboka; Dogodo R.; Mazondé); 1928, Bull. Cercle Zool. Congolais, vol. 5, p. 15 (north of L. Kivu); 1932, idem, vol. 9, p. 9 (Lomami District). DE RIEMAECKER, 1927, Rev. Zool. Bot. Africaines, vol. 14, p. 277 (Elisabethville).

Oriolus sp. SCHALOW, 1887, Jour. Ornith., p. 241 (Mpala).

Oriolus auratus REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 316 (northwest of L. Tanganyika). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 71 (Rutshuru Plain; Kasindi).

Oriolus auratus notatus MEINERTZHAGEN, 1923, Ibis, p. 62. SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 288; 1933, idem, vol. 22, p. 374 (Kisenyi); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 137 (Kamande); 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 339 (Kirinda); 1949, idem, vol. 42, p. 165 (many localities in Katanga). DIRICKX, 1948, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 24, no. 36, p. 11. A. W. VINCENT, 1949, Ibis, p. 316.

Oriolus oriolus notatus VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 23, p. 13 (Musosa); 1947, idem, vol. 23, no. 9, p. 2 (Sangwa, north of Albertville); 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 78 (Mutsora; Butahu R.).

ADULTS OF BOTH SEXES: Iris bright red, approaching crimson; bill deep brownish pink; feet bluish gray with claws blackish gray.

DISTRIBUTION: Damaraland and Portuguese East Africa north to Duque de Bragança in Angola, Luluabourg and Kasongo in the southern Congo, the upper Semliki Valley, southern Uganda, Meru in Kenya Colony, and the Juba River.

In appearance, haunts, and behavior this southern race is very like *O. a. auratus*. While not a highland bird, it is found commonly up to levels a little above 6000 feet in the Kivu District. I saw two at Lulenga on June 29 and several others on Idjwi Island in early July. Rockefeller and Murphy collected one at Kisale (6000 feet) on the Elila River, August 7.

This race has often been alleged to migrate, particularly near the northern and southern edges of its habitat, which covers a wide range of latitude. In central Angola, Nyasaland, and Southern Rhodesia it is known to nest during October, November, and December. In Damaraland, too, it has been seen only during the rainy season.

Sir Frederick Jackson was convinced that this southern race visited Kenya Colony and Uganda from May to August, and Moreau believed it to be only a seasonal visitor to Zanzibar, Mafia, and Kwale islands in August and September.

In view of the fact that most specimens from the Kivu, Ruanda, and Manyema seem to have been collected between June and August, inclusive, and that six of the seven specimens obtained by Father Callewaert were

taken in May, June, and July, I think there must be a marked northward movement after the nesting season, which occupies the months of October and November.

A nest was found by White at Mwinilunga on October 1, so the breeding range may include the Upper Katanga. Nests are cradled between horizontal forks of trees, 14 to 30 feet from the ground, and constructed of *Usnea* lichen and fine strips of grass, bound together with a little cobweb. Eggs are usually two or three, creamy white or pale pink with spots of dark red-brown and pale lilac, mainly in a zone near the large end. Dimensions are 27.5–32.9 by 20–21.8 mm.

In three stomachs of *notatus* I noted small fruits twice, caterpillars twice, and some insect eggs once.

Oriolus oriolus oriolus (Linnaeus)

Coracias oriolus LINNAEUS, 1758, Systema naturae, ed. 10, p. 107 (type locality: Sweden).

Oriolus galbula EMIN, 1892, Zool. Jahrb., Abth. Syst., vol. 6, p. 148 (Makraka). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Lower Congo).

Oriolus oriolus REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 316 (Kisenyi). JUNGE, 1936, Ardea, vol. 25, p. 159 (Kambala in northern Kasai District). SCHÜZ, 1936, Vogelzug, p. 194.

Oriolus oriolus oriolus GROTE, 1930, Mitt. Zool. Mus. Berlin, vol. 16, p. 5. BOWEN, 1931, Catalogue of Sudan birds, pt. 2, p. 71 (Mt. Baginzi). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1. fasc. 2, p. 132 (Buta; Titule; Kabalo). DROST AND SCHÜZ, 1938, Vogelzug, p. 109. BECQUET, 1942, Bull. Soc. Bot. Zool. Congolaises, year 5, p. 25 (Bunia). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 78 (Luhule R. near Bombe). STRESEMANN, 1948, Ornith. Ber., pp. 126, 128, 138, map 2 (Luluabourg; Kambala). HUTSEBAUT, 1950, Zooléo, new ser., no. 6, p. 33 (Lower Uelle District).

DISTRIBUTION OF THE SPECIES: Breeding from southern England, western Europe, and Northwest Africa to Turkestan, southern Siberia, and India. Four races are recognizable, of which *O. o. oriolus* occupies the greater part of Europe, Morocco, Asia Minor, and countries eastward to Tian-Shan and the Altai.

The winter quarters of nominate *oriolus* are mainly in eastern and southern Africa, as far south as Natal, the Transvaal, and Damaraland. Occasional specimens have been taken in Casamance, the Gambia, and Portuguese Guinea, as well as in forested Cameroon, in the Lower Congo, and at Malange in Angola. So a few must migrate across the Congo forest. One individual banded in Holland was recovered almost four years later at Kambala in the northern Kasai. Father Callewaert collected an adult male at Luluabourg on September 20, 1926, and Father P. Van Assche secured another example at Katombe on March 15, 1951.

By far the greater number travel southward through East Africa and the

eastern border of the Congo. On October 12, 1907, Rudolf Grauer collected four examples at Kisenyi on Lake Kivu. I have seen the European oriole at Luofu and at Kisolo in the Kigezi District, but never in the Uelle District. These orioles are known to reach Khartoum in numbers in early September, to be common in Kenya Colony and Tanganyika Territory in October, and to return northward in March and April. The recent study by Stresemann (1948) shows that the autumn route is through Greece, the islands of the eastern Mediterranean, Egypt, and the Libyan Desert. The return in spring is made by a more westerly course, through Tripolitania, Sicily, and Italy. It appears that the oriole has extended its breeding range into Europe from the east. The southward migration follows an old-established route, whereas the return in spring tends to shorten the distance back to the nesting ground.

While wintering in eastern Africa, the European oriole is a rather restless bird, wandering about in the better wooded places, either singly or in parties. It is said to give liquid, flute-like calls that attract attention, but probably sings less at that time than *Oriolus auratus*.

FAMILY **CORVIDAE.** CROWS, RAVENS, MAGPIES

Key to the Genera of Corvidae in the Congo

1. Smaller, wing less than 180 mm. long; tail much longer than wing, graduated, with pointed feathers . . . . . *Ptilostomus* (p. 127)
   Larger, wing exceeding 300 mm.; tail rounded, shorter than wing 2
2. Bill high and compressed, its depth equaling one-half of exposed culmen; maxilla and mandible both tipped with whitish . . . . . *Corvultur* (p. 130)
   Bill not unusually compressed, its depth less than one-half of culmen; no light tip to bill . . . . . *Corvus* (p. 128)

Ptilostomus afer (Linnaeus)

Corvus afer Linnaeus, 1766, Systema naturae, ed. 12, p. 157 (type locality: Senegal).

Cryptorhina afra Sharpe, 1884, Jour. Linnean Soc. London, zool., vol. 17, p. 427 (Semio). Dubois, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Niam-Niam). Reichenow, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 315 (Katwe).

Ptilostomus senegalensis Emin, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 102 (Nsabé on L. Albert).

Ptilostomus afer Schouteden, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 133 (Aba?); 1938, Bull. Cercle Zool. Congolais, vol. 15, p. 7 (Butiaba). Jackson, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1268 (Katwe). Bannerman, 1948, The birds of tropical West Africa, vol. 6, p. 35 (Nukoja in Semliki Valley).

Distribution: From Senegal across the grasslands of the Sudan to Sennar and southern Abyssinia, reaching Accra and Lagos on the south but scarcely approaching the northern edge of the Cameroon and Congo forests.

It does extend southward around Lake Albert and to Katwe on Lake Edward.

At Semio, on the northern border of the Congo, Bohndorff collected a series, of which three are in the American Museum. Emin noted it as frequenting *Borassus* palms at Nsabé on the west shore of Lake Albert, and it is of regular occurrence at Butiaba, across that lake. Bannerman reports specimens from the Semliki Valley, and Archer secured three at Katwe. The African magpie or piapiac is thus to be expected here and there along the northeastern boundary of the Congo, but it is distinctly local, depending often on the presence of domestic cattle. Brother Joseph Hutsebaut thinks he noticed it once at Niangara, with some cows. Dr. H. Colback is more certain that he saw several at Adia near Aru, close to the border of the West Nile Province of Uganda.

About one-third of the birds seen are apt to have the beaks light red, tipped with black. This character is not sexual (too many of both sexes with wholly black beaks have been collected) but a mark of immaturity. We have a nestling with short tail and remiges far from full-grown; its bill is pale in color, and the blackish tip even more restricted than it is in fully fledged birds. Perhaps a year or more is required for the beak to become wholly black. Adults have the iris purple, with an inner rim of reddish brown.

Piapiacs are sociable, fond of feeding in parties of six to 30 in company with grazing cattle, sheep, or goats. As in the case of *Bubulcus,* there seems to be a psychological bond for the birds toward the animals, though the grasshoppers and other insects disturbed by the latter are a great attraction too. Occasionally the birds alight on the animals' backs, without any serious purpose; their feeding is done on the ground. The voice is a series, or a chorus, of shrill notes like "pee-ip," accompanied by bobbing of heads. A short, rasping "kweer" is also heard.

Breeding is carried on all across the Sudan from March to June. *Borassus* or doleib palms, as well as oil palms and baobabs, provide nesting places. The nest is a substantial cup made of twigs, strips of palm fiber, and grass, with three to seven eggs. These are pale greenish blue, sometimes marked at the end only with lilac-gray, sometimes with additional blotches of tawny brown. Dimensions: 27.5–32.1 by 20.5–23.6 mm.

Corvus albus Müller

Corvus albus P. L. S. MÜLLER, 1776, Des Ritters C. von Linné . . . Natursystems Supplement, p. 85 (type locality: Senegal). MENEGAUX, 1918, Ois. Rev. Française Ornith., vol. 5, p. 259 (Zambi). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 344, 401 (Basongo; Dumbi; Kwamouth); 1924, idem, vol. 12, pp. 273, 421 (Kidada; Eala; Bikoro); 1925, idem, vol. 13, p. 17 (Kunungu; Bolobo); 1932, idem, vol. 21, p. 282 (Kibati); 1932, Bull. Cercle Zool. Congolais, vol. 8, p. 105

(Katana); 1933, Rev. Zool. Bot. Africaines, vol. 22, p. 374 (Tshangerewe); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 133 (Voro; Yakoma; Buta); 1940, Rev. Zool. Bot. Africaines, vol. 33, p. 286 (Mt. Wago); 1949, idem, vol. 42, p. 165 (Kinda; Nyonga). FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 757 (Angi). BLANCOU, 1933, Ois. Rev. Française Ornith., new ser., vol. 3, p. 336 (Mussoka = Mosaka, on middle Congo R.); 1948, idem, new ser., vol. 18, p. 77 (Zémio). VERHEYEN, 1939, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 15, no. 66, p. 6 (Bambesa; Butembo); 1947, idem, vol. 23, no. 10, p. 2 (Musosa); 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 44, 78 (Rutshuru). WHITE, 1944, Ibis, p. 150 (Luapula R.). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 76 (Ouadda; Bangui).

Corvus scapularis LEACH, 1818, *in* Tuckey, Narrative of an expedition to explore the River Zaire, p. 407 (Lower Congo).

Corvus scapulatus JOHNSTON, 1884, The River Congo, p. 23 with fig., pp. 25, 363, 365 (Banana; upper Congo R.). DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika); 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (L. Leopold II; Mayombe). MATSCHIE, 1887, Jour. Ornith., p. 154 (L. Upemba). OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127. REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 315 (Kisenyi). MOURITZ, 1914, Ibis, p. 29 (Mandoko in southeastern Katanga). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 269 (Kilo); 1918, idem, vol. 5, p. 266 (Beni; Bulaimu); 1936, Bull. Cercle Zool. Congolais, vol. 13, p. 8 (northeast shore L. Tanganyika). EMIN, 1919, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 2, p. 78 (Mahagi); 1927, idem, vol. 4, p. 314 (Mutsora). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 143 (Buguera).

Corvultur albicollis SCHOUTEDEN, 1920, Rev. Zool. Bot. Africaines, vol. 7, p. 191 (Malela).

Corvus alba VRIJDAGH, 1949, Gerfaut, vol. 39, p. 93 (Nizi; Bunia; Nioka).

SPECIMENS: Stanleyville, female, November 23. Niangara, two males, March 15, April 24; two females, March 5, April 24.

ADULTS OF BOTH SEXES: Iris dark brown, bill and feet black.

DISTRIBUTION: Senegal, Aïr, and northern Abyssinia south to Cape Province, also Fernando Po, Madagascar, the Comoro and Aldabra Islands. Rare or absent in some dry parts of Southwest Africa and in some sections of the Congo forest.

The pied crow is to be seen in most regions of the Congo except on the higher forested mountains. Its white collar and chest are distinctive. In the central forested districts it is apt to be confined to the banks of the larger rivers; even in the clearings about Avakubi and Medje we never noticed it. At Stanleyville crows were rather numerous, feeding in groups of five or six, especially along the river bank, and in August a considerable flock gathered every evening to roost in a large tree right in the station. At Lukolela in March about 20 crows likewise roosted in company, and at Boma these birds were numerous.

On the northern edge of the forest crows were not common. One was noticed at Pawa, a few more about the post of Niangara, but none at

Faradje. In the eastern Congo the species is of frequent occurrence, especially at lower levels, but also up to 5000 feet at Djugu and to 7800 feet on the plateau northwest of Lake Edward. Usually wanting on mountains that are heavily wooded, *Corvus albus* may nevertheless be seen in some places together with *Corvultur albicollis,* as I noted in the region northeast of Lubero and on the north shore of Lake Kivu. We have several specimens from Luluabourg in the Kasai, and the pied crow is evidently rather common in all the savanna districts of the southern Congo, except on the higher plateaus.

When not persecuted, this crow may become rather familiar about villages. It can circle up on rising air currents, almost like a buzzard. The usual call is a rather low, nasal "kwaw" or "kwawn"; but there is another more protracted note, probably given in the breeding season, always from a perch and with noticeable swelling of the throat. At Lukolela I compared it to a long toad-like croak or rattle, changing its tone in the middle: "k-k-k-k-k-kō-ō, a-ah-h-h. . . ." In the Kivu District the second half became even more nasal and metallic, so that I recalled it as the "tin-horn" note.

Our two specimens from Niangara in March were ready to breed, and the nesting season in that latitude is expected to last from March to June. Along the southern edge of the forest I believe it to begin toward September and to be over before February. In the Kivu there must be far less regularity. The nests are of sticks, lined with grass, roots, and a variety of other materials, placed usually in high trees. Eggs are in sets of five to seven, pale gray-green or bluish green, with streaks and spots of various browns and grayish shell markings; dimensions: 41.5–50 by 29.8–32.5 mm. In many other parts of Africa this crow is often the "fosterer" of *Clamator glandarius,* but the great spotted cuckoo is a rather rare bird in the Congo.

The omnivorous habits of the pied crow are well known. In the four stomachs I examined, the fibrous, oily husk of palm nuts was found in three cases. One bird had eaten a large chrysalis; and another a frog or toad, of which the bones remained.

Two wide-ranging species of *Corvus,* with plumage wholly black, approach to within 110 miles or less of the Congo border but are not expected to reach it. *Corvus rhipidurus* Hartert, with rather stout beak and very short tail, has been taken near Gondokoro on the Bahr-el-Jebel, and *Corvus capensis kordofanensis* Laubmann, with long slender bill, occurs not only at Lake No in the Sudan but also at the south end of Lake Tanganyika near Abercorn.

Corvultur albicollis (Latham)

Corvus albicollis LATHAM, 1790, Index ornithologicus, vol. 1, p. 151 (Africa; restricted type locality: Cape Town).

Corax albicollis SCHALOW, 1886, Jour. Ornith., pp. 412, 413, 417 (Manda; Lufuku R.; Kauè R.); 1887, idem, p. 240 (Mpala).

Archicorax albicollis MATSCHIE, 1887, Jour. Ornith., p. 153.

Corvultur albicollis REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 640; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 315 (Usumbura). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 263 (Mubuku Valley, to 14,000 ft.). MOURITZ, 1914, Ibis, p. 29 (Mandoko, southeastern Katanga). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 24 (Rutshuru). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 266 (Busuenda; Kivu); 1932, idem, vol. 21, p. 282 (Kisenyi); 1933, idem, vol. 22, p. 374; 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 138 (Bitshumbi); 1943, Rev. Zool. Bot. Africaines, vol. 37, p. 272 (Katodjo); 1949, idem, vol. 42, p. 165 (Moba). BERLIOZ, 1921, Rev. Française Ornith., vol. 7, p. 41. EMIN, 1922, *in* Stuhlmann, Die Tagebücher

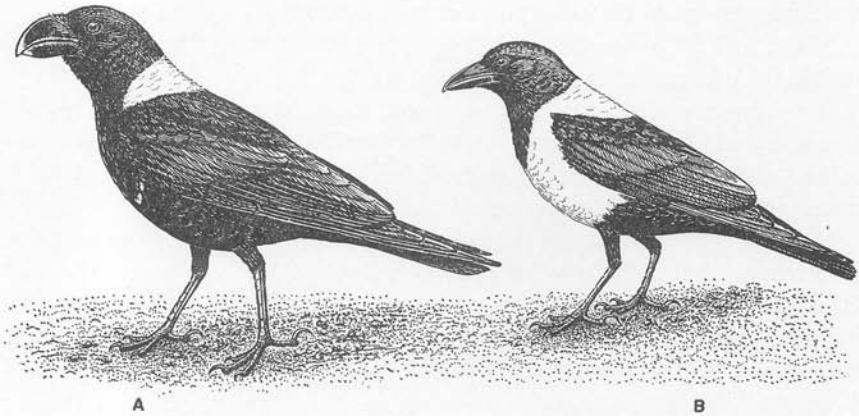

FIG. 10. A. White-necked raven, *Corvultur albicollis*.
B. Pied crow, *Corvus albus*.

von Dr. Emin Pascha, vol. 3, pp. 414, 420, 425 (Mswa on L. Albert). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 19 (Mt. Muhavura, 3100 m.; Ngoma; Burunga; Ituri district). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 73 (Ishangi). MEINERTZHAGEN, 1926, Novitates Zool., vol. 33, p. 96, fig. 29 on pl. 9. CHAPIN, 1928, Nat. Hist., vol. 27, pp. 623, 626 (west Ruwenzori). FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 757 (Kibati). HENDRICKX, 1944, Ostrich, vol. 15, p. 211 (southwest of L. Kivu). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 44, 78; 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 9, p. 2 (Mt. Kabobo). GROMIER, 1948, La vie des animaux sauvages de la région des grands lacs, p. 190 (base of Mt. Muhavura). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 93 (Nioka; Bogoro; Mt. Aboro summit; Mokambo Plain).

Corvultur spec. EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, pp. 34, 42, 67 (A-Lendu).

Corvultur crassirostris EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 314 (Mutsora).

ADULTS OF BOTH SEXES: Iris dark brown, bill black with whitish tip, feet black.

DISTRIBUTION: Highlands of eastern Africa, from the mountains west of Lake Albert, Ruwenzori, Mt. Elgon, the south end of Lake Baringo, Mt. Kenya, and the Taita Hills, south to Mashonaland, Natal, Namaqualand, and Table Mountain. In equatorial Africa, where it lives mainly above 5000 feet, it comes down regularly to near-by lowlands, especially along the open shores of lakes, and it ranges high upon the loftiest peaks. A pair circled overhead, cawing, while I stood on the north margin of the Stanley Glacier, at 15,200 feet on west Ruwenzori. On the very summit of Mt. Louis of Savoy, Synge noted that one soared past and floated on toward Mt. Baker.

White-naped ravens are seen most commonly between 5000 and 11,000 feet, in openings in the mountain forests, on plateaus like that west of Lake Edward, and about camps and villages at suitable levels. They are not shy; indeed the presence of men in unwonted spots actually seems to attract them. Their very long wings enable them to soar most expertly. The voice seemed to me a "caw" rather than a croak, not unlike the usual call of *Corvus albus*—a bit hoarser, but not louder. The raven also has a nasal "tin-horn" note, given occasionally while perching.

Pairs or small groups are the rule, feeding on open ground and perching in low trees, but at the post of Kasindi (4100 feet) I have seen more than 20 in the air at once. At Katwe and on the upper Semliki River (at 3000 feet) they were to be seen in small numbers, as they were also close to the huts of the fishing village of Kabare on Lake Edward, and in the post of Uvira on Lake Tanganyika.

Emin noted many years ago that these ravens came down off the Lendu Plateau to Mswa on the shore of Lake Albert. In Marungu, where Böhm had previously reported the white-naped raven, Rockefeller and Murphy secured specimens at Baudouinville, Kitendwe (6025 feet), and Koni (6300 feet). In the Upper Katanga, on the other hand, it seems to be rare.

The bulky nest of sticks, with a softer lining, is almost invariably placed on an inaccessible ledge of some high cliff. Woosnam noted one on east Ruwenzori at 12,500 feet. In regions close to the Equator the breeding season is not yet understood. Woosnam's nest may have been occupied in February, and our November specimens from west Ruwenzori seemed to be approaching their nesting time. In Nyasaland eggs are known to be laid from September to November. Sets number three to five; the color is blue-green with blotches, streaks, and spots of dark green and browns, forming a cap at the large end. Dimensions: 47–52 by 31.5–34 mm.

The diet of these ravens is quite varied. They take carrion and camp refuse wherever available. At Kalongi they were accused, and justly so, of stripping maize from the plants in the gardens. In the stomachs of two specimens from that locality I found grains of maize, other starchy vegetable matter, and the remains of a large cicada and some beetles. At Kabara

camp on the central Kivu Volcanoes we found a dead hyrax with most of its flesh eaten out by these birds.

FAMILY **STURNIDAE.** STARLINGS, OXPECKERS

Key to the Genera of Sturnidae in and Near the Congo

1. Upper surface mainly or wholly black or purple, usually with metallic luster, or else dark slate-color with a slight gloss 2
   Upper surface not so dark or lustrous, but gray or brown, sometimes varied with buff or rufous 10
2. Lower breast and flanks white, buff, or rufous, or else underparts black with a white area across chest 3
   Underparts entirely black or dark slate-color, often with metallic luster . . 5
3. A broad white band across chest, remainder of underparts black like back . . . . . *Grafisia* (p. 137)
   Abdomen never black, but white, buff, or rufous 4
4. Throat and chest blackish, with green or blue luster; abdomen rufous; metatarsus exceeds 30 mm. . . . . *Spreo* (p. 149)
   Throat metallic purple or buffy white; abdomen and flanks rufous buff or pure white; metatarsus less than 25 mm. long . . . *Cinnyricinclus* (p. 144)
5. Primary-quills of wings with rufous areas, at least on inner webs 6
   No rufous areas on primaries 7
6. Wing less than 105 mm. long; general coloration gray rather than black . . . . . *Poeoptera* (p. 134)
   Wing exceeding 105 mm.; general coloration black, though females are streaked with gray on head and throat . . . . . *Onychognathus* (p. 137)
7. Tail strongly graduated and usually more than 120 mm. long; outermost primary exceeds 45 mm. . . . . *Lamprotornis* (p. 164)
   Tail usually less than 120 mm. long, square, rounded, or graduated; outermost primary less than 45 mm. long 8
8. Both sexes with bright metallic luster almost everywhere, wing-coverts and outer webs of remiges always brightly glossed with green or blue; wing length exceeds 105 mm. . . . . *Lamprocolius* (p. 150)
   Coloration less brilliant; if head and body are black with bluish luster, then wings are duller, blackish or even brownish 9
9. Head, back, and breast black with blue or violet luster; beak slender; wing less than 106 mm. long . . . . . *Poeoptera* (p. 134)
   Throat and breast sooty or dark gray-brown, without pronounced gloss; beak moderately stout, wing more than 110 mm. long . . . *Grafisia* (p. 137)
10. Beak wholly red or red and yellow, not sharply pointed; metatarsus not more than 23 mm. long, claws curved and extremely sharp; tail graduated and its quills rather pointed . . . . . *Buphagus* (p. 171)
    Bill never so brightly colored, only pinkish or black; metatarsus 20–33 mm.; tail not graduated 11
11. Body color uniform light gray or gray-brown, remiges and rectrices blackish brown or black; a narrow line of bare skin at each side of throat, or else most of head bare, with wattles on forehead, crown, and throat . . . . . *Creatophora* (p. 166)
    Body color more variegated, no bare line at side of throat, head never becomes bald 12

12. Head of adult plain light gray, one broad blackish stripe down middle of foreneck, breast otherwise cinnamon buff; a white stripe on outer webs of several outer secondaries . . . . . *Neocichla* (p. 149)
Crown and back dark brown with conspicuous edgings of light brown, becoming more rufous on head; throat, breast, and flanks streaked with black on a whitish ground; no white stripe on wings . . . *Cinnyricinclus* (p. 144)

SUBFAMILY **STURNINAE**

KEY TO THE SPECIES OF *Poeoptera* IN THE CONGO

Tail longer, more graduated, with narrower feathers in both sexes, measuring 87–117 mm., its outermost feathers not half the length of the median pair; greater wing-coverts and secondaries edged with gray-brown, more noticeably in males . . . . . *P. lugubris*
Tail much less graduated, its feathers not narrowed, measuring 70–85 mm., outermost feathers about three-fourths as long as the median; upper surface of wings uniform brownish black . . . . . *P. stuhlmanni*

Poeoptera lugubris Bonaparte

Poeoptera lugubris BONAPARTE, 1854, Compt. Rendus Acad. Sci., Paris, vol. 38, p. 381 (type locality: Gaboon). REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 705 (Kwango R.). NEUMANN, 1904, Jour. Ornith., p. 569. SALVADORI, 1909, Ann. Mus. Civ. Genova, ser. 3, vol. 4, p. 324 (Uelle District). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 269 (Kilo); 1918, idem, vol. 5, p. 268 (Beni; Lesse; Mission St. Gustave; Kokola).

Poeoptera cryptopyrrha SHARPE, 1878, Proc. Zool. Soc. London, p. 803 (Congo district).

Poeoptera lugubris major NEUMANN, 1920, Jour. Ornith., p. 82 (type locality: Ituri forest). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 25 (Kartushi; Kampi-na-Mambuti). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 70 (Mawambi; Ukaika; Mawambi–Irumu). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 667. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 135 (Kotili; Buta; Api; Panga). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 79 (Djelube R.; Nganzi).

Poeoptera lugubris lugubris SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 344 (Basongo; Luebo; Kabambaie); 1926, idem, vol. 13, p. 202 (Temvo). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 98 (Luluabourg; Luebo). BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 95 (Angu).

SPECIMENS: Thysville, two males, female, December 23. Avakubi, four males, October 30, December 4; two immature females, April 30, December 4. Bafwabaka, male, December 29; two females, January 3, December 31; immature female, January 3. Medje, immature male, March 30.

ADULT MALE: Iris cadmium yellow, bill black, feet black with yellowish gray soles.

ADULT FEMALE: Iris bright yellow, but not quite so richly colored as in male; bill and feet similar.

DISTRIBUTION: From Sierra Leone eastward to the Cameroon, Fernando

Po, forested Gaboon and Congo, and the Semliki Valley. On the south it reaches Ndala Tando in northern Angola, the Kasai District, and no doubt the forested Manyema. Male specimens from the eastern Congo in this museum have wings 90–96 mm. long, those from Cameroon to Angola 87–96 mm., so *major* is clearly not a valid race.

In the lowland equatorial forests all across the Congo from the Mayombe to the west base of Ruwenzori, this small, long-tailed starling is of regular and frequent occurrence. It ranges out into the forest patches to the south but is less in evidence in the gallery forests of the Uelle. Flocks of 10 to 30 are the rule, alighting in the higher trees, even those standing in clearings. To the south of Medje late in January a small flock used to come to roost in a tree in a native village, but thereafter the birds became less sociable. For starlings they are unusually silent, but sometimes make a confused, shrill, cheeping chorus as they fly.

In the northern Ituri breeding would seem to be restricted to the first half of the rains, perhaps between April and August. Most of our specimens from there had gonads quiescent. The skull roof of immature birds is slow to attain adult structure; two males in fully adult plumage at the end of October still showed a condition of the skull indicating youth. In four stomachs I found nothing but small fruits.

Nests are in holes in trees, usually in the old nests cut in dead trees by barbets of the genus *Gymnobucco*. At Thysville in late December I found in a wood a large dead tree where *Gymnobucco calvus* had hewed a number of holes and a number of the barbets were perching. Many *Poeoptera* were also there, undoubtedly using some of the barbet holes, for a female I collected was in breeding condition. Here nesting came certainly in the rains. In the Cameroon Bates[1] ascertained that this starling's eggs are pale blue-gray, with small spots and dots of brown, more numerous toward the large end. One of the three eggs laid in a barbet hole measured about 22 by 16 mm.

Poeoptera stuhlmanni (Reichenow)

Stilbopsar stuhlmanni REICHENOW, 1893, Ornith. Monatsber, p. 31 (type locality: Badjua on the plateau west of L. Albert); 1903, Die Vögel Afrikas, vol. 2, p. 706; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 319 (Kwidjwi I.). NEUMANN, 1905, Jour. Ornith., p. 242 (Lendu). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 269 (Kilo); 1918, idem, vol. 5, p. 269 (Loashi). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 70 (northwest of L. Tanganyika, 2000 m.; eastern border of Rutshuru Plain, 1600 m.). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1296.

Poeoptera stuhlmanni SHELLEY, 1906, The birds of Africa, vol. 5, pt. 1, p. 119. OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 266 (Mpanga Forest, 5000 ft.). BERLIOZ, 1932, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 4, p. 379 (near

[1] 1927, Ibis, p. 64, fig. 2, pl. 2.

Mokoto Lakes). SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 138 (Mt. Bisoko in Kibumba, 2000 m.; Kashwa, 2000 m.). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 94 (Loda Forest).

Paeoptera stuhlmanni BERLIOZ, 1936, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 8, p. 492 (Kadjudju).

ADULTS OF BOTH SEXES: Iris yellow, bill and feet black.

DISTRIBUTION: From the Kaffa country in southern Abyssinia to Mt. Elgon, the Kavirondo and Nandi districts, the Lendu highland west of Lake Albert, and thence southward through the Kivu District to the highland west of Baraka. Stuhlmann's starling bears a close resemblance to *P. lugubris,* but is longer winged, with shorter, less graduated tail.

It is a highland bird, scarcely found below 5000 feet, and not yet known from any place in the Congo above 6600 feet. In Abyssinia Neumann found it in dense forests between 8200 and 9200 feet, apparently breeding in March and early April. In the Nandi Forest at 6000 feet Jackson encountered several small flocks, which gave short trilling notes and came to eat the yellow currant-like fruit of a tall tree in a clearing. On the highland northwest of Tanganyika Grauer secured a nestling on July 24 with tail less than half grown. The nest is unknown but likely to be in a cavity in a tree.

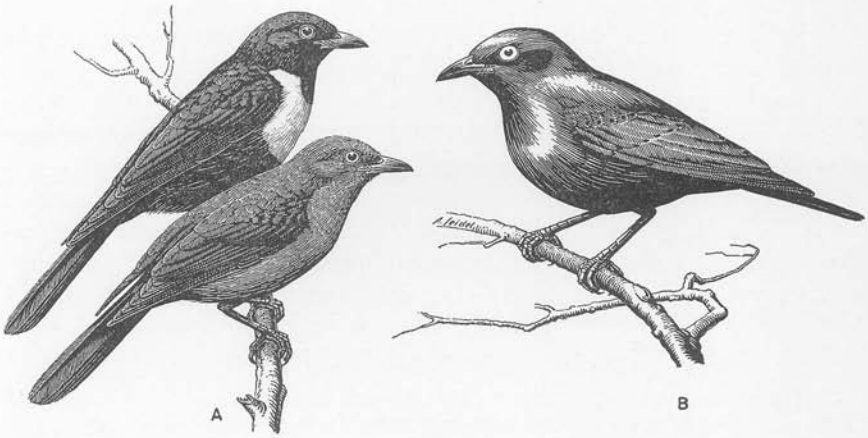

FIG. 11. A. White-collared starling, *Grafisia torquata,* male and female.
B. Purple-tailed glossy starling, *Lamprocolius chalcurus emini.*

Females of both *stuhlmanni* and *lugubris* are distinguished from adult males by their grayish coloration and the deep rufous areas on the inner webs of most of their remiges. But the young males of both species resemble females in being grayish and in having a definite rufous patch on the inner webs of many remiges. This rufous in the wings is lost only when the males molt to fully adult plumage.

Grafisia torquata (Reichenow)

Spreo torquatus REICHENOW, 1909, Ornith. Monatsber., p. 140 (Banjo, northwest Cameroon). AMADON, 1943, Amer. Mus. Novitates, no. 1247, p. 6.

Stilbopsar leucothorax CHAPIN, 1916, Bull. Amer. Mus. Nat. Hist., vol. 35, pp. 23, 25, fig. 1 (type locality: Pawa, in northern Ituri District, Belgian Congo).

Grafisia torquata BATES, 1926, Bull. Brit. Ornith. Club, vol. 46, p. 104; 1930, Handbook of the birds of West Africa, p. 521. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 135 (Mauda; near Api). BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 98.

Stilbopsar torquatus SCHOUTEDEN, 1929, Bull. Cercle Zool. Congolais, vol. 5, p. 76 (Mauda).

Grafsia torquata SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 668.

SPECIMENS: Pawa, male, female, immature female, July 15.

ADULT MALE: Iris deep cadmium yellow; bill black; feet black, a little yellowish on soles.

ADULT FEMALE: Similar, but iris not quite so deep yellow.

IMMATURE FEMALE: Iris rather dark greenish gray.

DISTRIBUTION: Savannas just north of the equatorial forest, from near Bamenda and Banyo in Cameroon eastward to the Upper Uelle and northern edge of the Ituri District. No doubt the range is continuous, for Lucien Blancou collected a male and a female near Ndélé, Ubangi-Shari, and (as he wrote me) watched a party of four males on July 20, 1938, flying over the post of Mongoumba on the Ubangi River in an easterly direction. This starling may thus be expected in all the northern savannas of the Congo.

When describing this species as *leucothorax* in 1916, I overlooked Reichenow's earlier description in the genus *Spreo,* and I still do not think it shows any close relationship with the starlings I should assign to *Spreo.*

My first three specimens were shot from a small flock, in grasslands of the Mabudu country close to the forest border. Some years later Schouteden and Brother Joseph Hutsebaut obtained additional specimens farther north in the Uelle. These white-chested starlings travel commonly in parties of four to 10, keeping to the larger trees and giving chirruping calls or three short whistled notes. They feed on berries, small fruits of a wild fig, and the seed-filled pulp of the fruit of the parasol tree (*Musanga*).

The observations of Robert Newton in the Bamenda district of the British Cameroons suggest that this starling may nest in holes in high trees during February and March, and our finding non-breeding adults with well-grown young in July would thus be normal.

KEY TO THE SPECIES OF *Onychognathus* IN THE CONGO

1. Wing length less than 140 mm. 2
   Wing length exceeding 140 mm. 3
2. Tail relatively short, 75–92 mm., its outermost feathers about three-fourths as long as the median . . . . . *O. walleri*

Tail longer, 120 mm. and more, its outermost feathers little more than half as long as the median . . . . . *O. fulgidus*

3. Bill slender, only 5–6 mm. deep at nostril; the outer primaries rufous tipped with black for at least 45 mm., tail more pointed, its median quills always more than 60 mm. longer than outermost . . . . . *O. tenuirostris*

Bill stout, 9–10 mm. deep at nostril; rufous outer primaries with only narrow blackish tips, about 10 mm., though the blackish color does extend much farther along edge of inner web; tail less pointed, median quills less than 50 mm. longer than outermost . . . . . *O. morio*

Onychognathus walleri elgonensis (Sharpe)

Amydrus elgonensis SHARPE, 1891, Ibis, p. 242 (type locality: Mt. Elgon).

Onychognathus preussi REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 319 (northwest of L. Tanganyika). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 268 (Loashi).

Onychognathus walleri elgonensis GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 24 (west of Lulenga). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 69 (eastern border of Rutshuru Plain, 1600 m.). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 664. BERLIOZ, 1932, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 4, p. 378 (Mokoto); 1935, idem, ser. 2, vol. 7, p. 164 (Mbwahi). FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 338. SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 139 (Kamatembe, 2100 m.; Kashwa, 2000 m.); 1942, Bull. Cercle Zool. Congolais, vol. 17, p. 61 (forest near Astrida); 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 340. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1291 (Kigezi; Kivu). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 79 (Kabakuli R.; Modidi R.; Bwanandeke; Nyabukoko and Kalisia near Lutunguru); 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 9, p. 2 (Mt. Kabobo).

Onychognathes walleri elgonensis VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2. p. 44.

ADULTS OF BOTH SEXES: Iris crimson, bill and feet black.

DISTRIBUTION OF THE SPECIES: Highlands of Fernando Po, Cameroon, and eastern Congo, also of eastern Africa from Kenya Colony to Usambara and northern Nyasaland. Three races are easily recognizable, the eastern birds being much larger than *O. w. preussi* of Cameroon and Fernando Po, with wings only 105–121 mm.

Onychognathus walleri walleri (Shelley) ranges from Nyasaland to Uluguru, Usambara and Kilimanjaro, perhaps to Mt. Kenya and Marsabit. Its wings measure 125–141 mm. Specimens from the highland near Mt. Kenya appear to be largest, and they have been separated as *O. w. keniensis* Van Someren. The race *elgonensis* is intermediate, with wings 118–128 mm. in the Elgon-Kavirondo area, and only 114–124 mm. in the eastern Congo.

Within our limits this small rufous-winged starling is restricted to the lower mountain forests, from about 4400 feet up to 7700 feet. While it is not known from the highland west of Lake Albert, it does occur on the

western base of Ruwenzori up to 6300 feet at least, and there are unpublished records by Grauer from Wau Island in Lake Kivu and the Rugege Forest.

Usually these birds are found in parties of six to 10, feeding on a variety of small fruits in leafy trees. While thus engaged they give low, conversa-

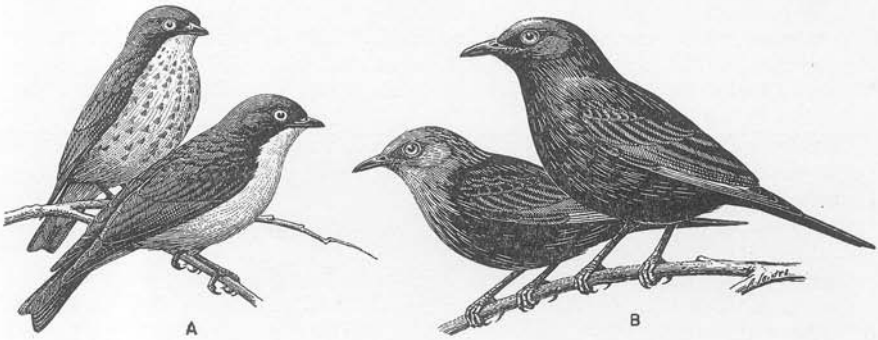

FIG. 12. Starlings. A. *Cinnyricinclus sharpii*, immature and adult males. B. *Onychognathus walleri elgonensis*, adult female and male.

tional "chwee-ing" notes, and Gyldenstolpe mentioned more flute-like calls. In the forest on the east side of the Rutshuru Valley I watched a small flock catching winged termites, at a level of only 4400 feet.

I saw no evidence of their nesting, but Rockefeller and Murphy took a male on Mt. Kandashomwa with gonads enlarged on July 3, during the dry period there. The nest must be in a hole high in a tree, as with the East African race.

In the three stomachs I examined there were small green fruits with flattened pits in two cases, whitish berries in the other. On Mt. Elgon Granvik found *Podocarpus* fruits being eaten.

Onychognathus fulgidus hartlaubii Hartlaub

Onychognathus hartlaubii HARTLAUB, 1858, Proc. Zool. Soc. London, p. 291 (type locality: Fernando Po).

Onycognathus hartlaubi SHARPE, 1884, Jour. Linnean Soc. London, zool., vol. 17, p. 427 (Semio). HARTERT, 1895, Novitates Zool., vol. 2, p. 56. ALEXANDER, 1907, From the Niger to the Nile, vol. 2, p. 309 (Kodja hill near Mt. Gaima).

Onychognathus hartlaubi SHELLEY, 1890, Ibis, p. 164 (Yambuya). REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 702; 1923, Mitt. Zool. Staatsinst. Zool. Mus. Hamburg, vol. 40, p. 63 (Lupungu). SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 452 (Buta). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 269 (Kilo); 1918, idem, vol. 5, p. 268 (Beni; Mutiba; Assumba).

Onycognathus intermedius HARTERT, 1895, Novitates Zool., vol. 2, p. 56 (type locality: Lukolele on Congo R.).

Amydrus fulgidus hartlaubi NEUMANN, 1904, Jour. Ornith., p. 569.

Onychognathus fulgidus intermedius HARTERT, 1919, Novitates Zool., vol. 26, p. 135 (Kindu Forest; 320 km. west of Baraka). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 345 (Luebo; Macaco; Kabambaie; Tshikapa); 1924, idem, vol. 12, p. 422 (Eala; Tondu). BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 86.

Onychognathus fulgidus hartlaubi BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 11, p. 264. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 69 (Mawambi). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 134 (Mauda; Panga; Buta); 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 164 (Luezi).

Onychognathus fulgidus hautlaubi SCHOUTEDEN, 1926, Rev. Zool. Bot. Africaines, vol. 13, p. 202 (Ganda Sundi).

Onychognathus fulgidus hartlaubii SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 663 ("Baraka"). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1289.

Onycognathus fulgidus hartlaubii STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 571 (Saidi).

Onychognathus fulgidus LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 98.

Onychognatus hartlaubii HENDRICKX, 1944, Ostrich, vol. 15, p. 212 (southwest of L. Kivu).

SPECIMENS: Avakubi, two males, April 5, November 14; two females, September 14, November 14; immature male, June 3. Bafwabaka, male, December 28. Babonde, two males, July 18, 20; female, July 20. Niangara, female, December 10; juvenile female, May 18. Nzoro, two males, August 4, 6.

ADULTS OF BOTH SEXES: Iris scarlet (possibly a little deeper in male), bill and feet black.

NESTLING: Iris dark brown, corners of mouth yellowish, bill and feet black.

DISTRIBUTION OF THE SPECIES: Forests of Upper and Lower Guinea from Sierra Leone to Uganda and northern Angola; also on the islands of Fernando Po and São Tomé, but not Principe. *Onychognathus f. fulgidus* Hartlaub of São Tomé is a very large form with big bill and wings 148 to 162 mm. There can be no doubt of the occurrence of *O. f. hartlaubii* on Fernando Po, for the American Museum has 10 specimens taken there.

Inasmuch as Lower Guinea specimens do not differ appreciably from Fernando Po birds, the name *intermedius* is superfluous. Examples from Southern Nigeria are slightly smaller, but they seem merely to be intermediates between *hartlaubii,* with wings 125–136 mm., and *O. f. harterti* Neumann of Upper Guinea, with wing length 118–127 mm.

The range of *hartlaubii* includes Fernando Po and the whole lower Guinea lowland forest, extending out on the north to the Mbomu River, on the east to the Mabira Forest in Uganda, and on the south to the southern Kasai and to Ndala Tando in Angola. In the Upper Congo forest it is most often seen in places where the woods have been partially cleared and is

particularly fond of large dead trees about clearings. Along the northeastern fringe of the forest it is frequent near hills, as in the vicinity of Nzoro. This rufous-winged starling reaches the west base of Ruwenzori at Pakihoma, but I have never seen it above 4000 feet. It certainly does not occur at Baraka on Lake Tanganyika, but Grauer obtained specimens near Kindu and Kasongo.

Single birds may be seen, more often pairs, but never flocks. Both sexes utter a short resonant call, almost metallic, which sounds at a distance like the "peep" of a pullet. Less often one hears a whistled "tw-wee!" of a tone almost mellow enough for an oriole, but the real song seems to be a double "churng-chuzick," repeated again and again.

North of the Equator, dissections and other evidence indicated that breeding went on from April to September at least, mostly during the rainy part of the year. At Angumu, where I was brought a nestling on August 1, it may well continue throughout the year, and along the southern edge of the forest it may be interrupted only between June and September.

The female taken at Avakubi in September was one of a pair perching in a high tree near a knot-hole from which it had emerged. Its breast had a brood spot, and the ovary showed eggs to have been laid, but the nest was far out of reach. At Niangara a nestling was brought us on May 18, with dark brown natal down adhering to the black plumage of its upperparts. While not quite so lustrous as an adult male, this young starling lacked any gray streaking about the head. Yet it proved to be a female, as did another young bird with considerable green gloss about the head which I skinned in 1937 at Angumu. The gray markings are first assumed with the adult feathering of females.

Of 11 stomachs examined, 10 contained fruits or seeds from them. One green drupe was as large as an olive, with a stone of proportionate size. In another case the stomach was two-thirds filled by a single fruit pit. In two cases there were numbers of winged ants, and one bird we watched flying after insects had eaten many winged termites as well as two ants.

Onychognathus morio shelleyi (Hartert)

Amydrus shelleyi HARTERT, 1891, Katalog der Vogelsammlung im Museum der Senckenbergischen Gesellschaft, p. 75 (type locality: Ugogo, Tanganyika Territory).

Amydrus SCHALOW, 1886, Jour. Ornith., p. 411 (Msimu near Kirandu, east shore L. Tanganyika).

Amydrus morio DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Amydrus rüppelii MATSCHIE, 1887, Jour. Ornith., p. 154 (Mpala).

Amydrus blythi SCHALOW, 1887, Jour. Ornith., p. 241 (Lufuku R.).

Amydrus morio rüppelli REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 699 (Mpala).

Amydrus morio var. *ruppelli* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Mommpara).

Onychognathus morio SHELLEY, 1906, The birds of Africa, vol. 5, pt. 1, p. 105 (L. Tanganyika).

Onychognathus morio shelleyi SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 164.

DISTRIBUTION OF THE SPECIES: From Cape Province north to East Africa and Abyssinia, then westward again to Darfur, the highlands of northern Cameroon and Nigeria, to the French Sudan. Half a dozen races have been recognized, *O. m. shelleyi* differing from nominate *morio* of South Africa by its longer wing and tail and stouter bill. The range of *shelleyi* is believed to extend from Nyasaland through Tanganyika Territory to Kenya Colony.

Onychognathus m. rüppellii (Verreaux) of Abyssinia is still a little larger in wing, tail, and bill; *O. m. neumanni* (Alexander) of Darfur, northern Cameroon, and Nigeria has a shorter but very deep bill. Near the upper Niger River lives *O. m. modicus* Bates, with relatively short tail. Specimens from 9000 feet on Mt. Elgon have bills a little slenderer than most Kenya Colony birds and have been separated as *O. m. montanus* Van Someren.

Although the range of the species circles around the Congo to the east and north, only the race *shelleyi* reaches our territory and apparently only in one small area near Mpala on the west shore of Lake Tanganyika. Shelley's rufous-winged starling is usually associated with rocky precipices, whether in lowlands or highlands, as are all the other races of *O. morio*.

Richard Böhm noted that on Tanganyika this species often occurred in flocks on the bare rocks of the lake shore and gave an extremely melodious whistle. Elsewhere the nest is usually placed in crevices on cliffs, only rarely in a tree or the roof of a house. In the region of Mpala nesting would be expected between September and January, and the eggs should be bluish green, sparingly spotted with reddish brown.

Onychognathus tenuirostris theresae Meinertzhagen

Onychognathus tenuirostris theresae MEINERTZHAGEN, 1937, Bull. Brit. Ornith. Club, vol. 57, p. 68 (type locality: Northern Aberdare Mts., 11,000 ft., Kenya Colony). GRANT AND MACKWORTH-PRAED, 1947, Bull. Brit. Ornith. Club, vol. 67, p. 82 (eastern Belgian Congo).

Amydrus tenuirostris NEUMANN, 1904, Jour. Ornith., p. 569 (Ruwenzori): 1905, idem, p. 241.

Cinnamopterus tenuirostris OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 265 (Mubuku Valley, 6000–10,000 ft.). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 320 (Bugoie Forest, 2500 m.). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 26 (Kabare). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 269 (Moenda, at the foot of west Ruwenzori); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 138 (Kibumba; Ruhengeri, 1800 m.; Kanyabayongo, 1760 m.; Nyabirehe, 2400 m.;

Rutshuru; west shore L. Edward). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 24 (Tamohanga). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 69 (Kisenyi). CHAPIN, 1928, Nat. Hist., vol. 27, p. 623 (west Ruwenzori).

Onychognathus tenuirostris SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 666. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 282 (Lulenga); 1933, idem, vol. 22, p. 374 (Kayombo). FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 340. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1293. PETERS AND LOVERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 263 (Idjwi I.). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 79 (Butahu R.; Kalonge; south of Katuka).

ADULTS OF BOTH SEXES: Iris very dark brown, with sometimes a little red on outer rim above pupil; bill black, a little gray at extreme tip; feet black, with pads on soles yellowish.

DISTRIBUTION OF THE SPECIES: Highlands from Eritrea and Abyssinia southward to Kenya Ruwenzori, the Kivu District, and the mountainous regions just north and northwest of Lake Nyasa. The nominate race of Abyssinia has a green luster about the head; specimens from Ruwenzori southward are more bluish there. Examples from the Aberdares and Mt. Kenya are rather intermediate in this respect, and since the race *theresae* was described as violaceous on the top of the head, this name may be applied to the southern form. But *raymondi* Meinertzhagen from Mt. Kenya is really not separable from *theresae*.

On Ruwenzori this is a common bird, behaving much as it does on Mt. Kenya, flying down the mountain to feed during the day and returning in the late afternoon to the cold Alpine zone. Around Kalongi, near 7000 feet, we used to see them gather in flocks of 20 to 30 toward 4 P.M. and then fly off up the valley a quarter of an hour later. On a ridge at 11,000 feet I saw one of these flocks go by at 4:55 P.M.; and at Itereré, on another occasion, a single bird took off at 13,800 feet at 5:30 P.M. in the direction of the Stanley Glacier. It is evident that this starling is well protected against cold by the thick down growing on all its apteria. Its calls are loud and almost explosive, so that the flock produces a chatter which all but suggests some kind of parrot.

In December at Kalongi their principal food consisted of the fruit of a creeper growing high in the trees, *Urera hypselodendron,* which looked like a small orange-red mulberry. On east Ruwenzori Woosnam found that they ate numbers of *Podocarpus* berries, and other fruits must also be taken.

On the Kivu Volcanoes we did not see this starling near the higher peaks, but in early March, at 4 P.M., I watched a flock of 24 flying by near Kabiabo, 4900 feet, just south of Beni. In the first half of April a couple of pairs were noted close to a small waterfall of the upper Rutshuru River, at 5900 feet, just southeast of Kinanira. Many may also be seen at the falls of the

Lwiro River, 6800 feet, southwest of Lake Kivu. Grauer collected several specimens on the highlands northwest of Baraka.

The breeding season of the nominate race in Abyssinia, to judge from fledglings, comes in December and January. From the Kenya highlands I have seen similar young of *theresae* taken in December and in late July. Mackinder reported nesting on Mt. Kenya at 12,000 feet in August. South of the Equator, Grauer collected one very young bird on July 24, northwest of Lake Tanganyika, while near Njombe in Tanganyika Territory Lynes[1] reported nests with young and eggs in November and January. It seems possible that on Ruwenzori breeding may take place also at two opposite seasons of the year. In any case, we did collect a breeding female at Kalongi on December 25 and an immature female in virtually adult plumage on the same day. The majority of our 11 specimens in November and December were definitely non-breeding.

Lynes described nests as cup-shaped and placed in colonies of about 10 in water-sprayed recesses close to rocky cascades. One clutch of eggs numbered four; the color was white marked with reddish. Near the base of Mt. Kenya, L. H. Brown found nests behind waterfalls down to 4600 feet. They held three eggs, blue spotted with reddish.

Of the seven stomachs I examined at Kalongi, six held only the fruits of *Urera,* and the seventh a single small whitish snail, with elongate spiral shell measuring 13 mm. Meinertzhagen thought that on Mt. Kenya near 13,000 feet these birds searched for small snails on the giant lobelias, and on the Aberdares he found only wild olives in their stomachs.

KEY TO THE SPECIES OF *Cinnyricinclus* IN THE CONGO

Plumage of whole upper surface black, with a smooth sheen that is usually violet on back, bluish on wings, and somewhat bronze on crown; throat buffy whitish, color of underparts deepening to pale rufous on abdomen and under tail-coverts; sexes not very different . . . . . *C. sharpii*

Sexes very unlike: adult males with head, fore-neck, and upper surface purple or purple-bronze with scaly texture; remaining under surface white. Females and young males dark brown above, with light brown or rufous edgings on nearly every feather, entire under surface white with blackish streaks. . . . . *C. leucogaster*

Cinnyricinclus sharpii (Jackson)

Pholidauges sharpii JACKSON, 1898, Bull. Brit. Ornith. Club, vol. 8, p. 22 (type locality: Ravine Station, Mau Plateau, Kenya Colony).

Pholidauges sharpei OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 263 (Mubuku Valley, 7000–8000 ft.).

Pholia sharpei REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 320 (west Ruwenzori, 2000 m.; northwest of L. Tanganyika). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 69. SCHOUTEDEN, 1933, Bull. Cercle Zool.

[1] 1934, Jour. Ornith., Sonderheft, p. 111.

Congolais, vol. 10, p. 17; 1935, Rev. Zool. Bot. Africaines, vol. 27, p. 403 (Kibumba). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 44, 79 (Kamatembe; Semliki Valley).

Pholia sharpii SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 655. SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 140 (Kamatembe, 2100 m.; Bitashimwa, 1950 m.; Tshamugussa, 2250 m.). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1276. VRYDAGH, 1949, Gerfaut, vol. 39, p. 94 (Mt. Aboro; Loda Forest).

Cinnyricinclus (Pholia) sharpii VON BOETTICHER, 1940, Anz. Ornith. Gesellsch. Bayern, vol. 3, p. 87.

ADULTS OF BOTH SEXES: Iris chrome yellow, bill black, feet black with soles dull yellowish.

DISTRIBUTION: Highlands from southern Abyssinia to Kenya Colony and the Mbulu district of Tanganyika Territory, Imatong Mountains, Elgon, Ruwenzori, the Kivu District, and the country north of Lake Nyasa. Vrydagh found it on the mountains west of Lake Albert and I collected it on Mt. Nyemilima, northwest of Lake Edward. Rockefeller and Murphy obtained three specimens at Luvumba near the upper Ulindi River, and Grauer half a dozen on the mountains northwest of Baraka. Moreau reported it from Kungwe-Mahare on the other side of Tanganyika.

This small broad-billed starling is usually seen in the eastern Congo between altitudes of 6000 and of 8500 feet, either perching on treetops or gathering in parties of a dozen or two in trees with ripening fruit. Their flight is swift, sometimes slightly undulating, but flocks shows no great unity in movement. From the trees they give low conversational calls, some short, some more protracted and metallic. The fruits I found being eaten were those of a creeper (*Urera hypselodendron*) and of a small tree (*Rapanea pulchra*), but no doubt many other kinds are also taken.

The adult female is very like the male; the young are much duller on crown and back, and have triangular dusky spots all over the breast. A young specimen from Abyssinia seems far browner above than three from the eastern Congo and Usambara and has decidedly smaller spots on the breast.

Although Fülleborn believed he saw these small starlings going to their nests in holes in a rocky cliff, one would rather expect them to use holes in trees. On east Ruwenzori Woosnam noted a pair as ready to breed in early March; I found no other evidence as to any definite season for nesting.

Cinnyricinclus leucogaster leucogaster (Boddaert)

Turdus leucogaster BODDAERT, 1783, Table des planches enluminéez, p. 39, pl. 648 (type locality: Whidah, Dahomey).

Pholidauges leucogaster SHARPE, 1884, Jour. Linnean Soc. London, zool., vol. 17, p. 427 (Semio). EMIN, 1922, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 3, p. 365; 1927, idem, vol. 4, p. 233 (Kavalli).

Pholidauges verreauxi OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127.

Cinnyricinclus leucogaster REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 679 (Sassa). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 268 (Uvira; Kabambaré). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 148 (Mangbetu country; Buguera; near Boki). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 78 (Mutwanga; Bombe; Nganzi).

Cinnyricinclus leucogaster leucogaster SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 432 (Mt. Baginzi). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 23 (Masidongo). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 655. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 134 (Abimva; Dramba; Faradje; Dika; Mauda; Buta; Niangara; Dungu; Aba; Mahagi). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 570 (Ekibondo). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 76 (Bouenza; Brazzaville; upper Kemo R.). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 94 (Abok).

SPECIMENS: Stanleyville, male, 1914. Twenty miles northeast of Medje, male, female, October 16. Niangara, male, November 17. Garamba, male, May 7.

ADULTS OF BOTH SEXES: Iris dark brown with yellow outer rim, bill black, feet blackish with yellowish gray soles. Corners of mouth noted as yellow in female.

DISTRIBUTION OF THE SPECIES: Senegal to Abyssinia and western Arabia, south through eastern Africa to Natal and to Southwest Africa, but usually absent from heavy rain forests in western and central Africa. Nominate *leucogaster,* distinguished by the wholly dark outer web of the outermost tail quills, occupies the grasslands north of the equatorial forest belt. Its females have feather edges of crown and back light rufous brown. The range is from Senegal east to the Nile Valley, Uganda, and Semliki Valley; occasional specimens are reported even beyond those limits.

In western Arabia and northern Abyssinia females of the amethyst starling are very uniform earthy brown above, though the males are like those of the nominate race; thus *C. l. arabicus* Grant and Mackworth-Praed is a well-established race. In southern Abyssinia the coloration of females is somewhat intermediate, and as the wing length seems to exceed 104 mm., *C. l. friedmanni* Bowen appears to be recognizable.

From South Africa to the southern Congo, the Kivu, and Kenya Colony there is but one race, *verreauxi.* Its males have white on the outer web of outermost rectrix; females are colored much like those of the nominate race. Examples of *C. l. leucogaster* are also reported from the Manyema and Stanley Pool. Whether this overlap is due to wandering or to mere variability, we cannot yet say.

Along the northeastern edge of the Congo forest *Cinnyricinclus leucogaster* is occasionally seen in large flocks, which suggests the probability of migration. Our specimen from Stanleyville was given me by Dr.

V. A. Grossule; its occurrence there was exceptional. Between Medje and Pawa, on October 16, we first saw a flock of 75 to 100, alighting in tall dead trees. Years later, on September 28, in forest not far to the south of Irumu, I again saw a similar flock. In West Africa there is good evidence of flocking and of a slight southward movement by the nominate race at that same season and a northward movement toward May.

In the Upper Uelle we found smaller flocks during November just south of Niangara, plainly not breeding, and feeding on fruit amid scrub and second growth. They never descended to the ground but were sometimes accompanied by *Lamprocolius chloropterus*. At the post of Faradje we noted none, although others were seen near Nzoro and about the hills near Aba. Not until early May did I hear them give any call, and then only a softly whistled "tĭ-tee-tee." What little evidence I had pointed to that as the time of nesting. Nearer the Sudan frontier on July 24 a flock of 15 or more was again noticed.

There is reliable evidence of nesting in holes in trees from Southern Nigeria to Sierra Leone between March 18 and April 10, but eggs have yet to be collected. The food we noted in four stomachs consisted almost wholly of berries and yellow fruit pulp. One bird had also eaten a few ants.

Cinnyricinclus leucogaster verreauxi (Bocage)

Pholidauges verreauxi BARBOZA DU BOCAGE, 1870, *in* Finsch and Hartlaub, Die Vögel Ost-Afrikas, p. 867 (type locality: Caconda, Angola). REICHENOW, 1887, Jour. Ornith., p. 305 (Leopoldville). SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 5 (Lukonzolwa). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 263 (60 miles north of Beni).

Pholidauges leucogaster DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Cinnyricinclus verreauxi REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 680; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 318 (Kwidjwi I.); 1923, Mitt. Zool. Staatsinst. Zool. Mus. Hamburg, vol. 40, p. 63 (Lupungu). NEAVE, 1910, Ibis, p. 260 (upper Lufupa R.; southeast Katanga). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 25 (Rutshuru). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 267 (Zambo; Uvira; Mboka; Kabambaré; Dogodo R.; Mutum-Peke; Kibati; Manakwa; Loashi). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 68 (Ruzizi Valley; Kisenyi; Rutshuru Plain; Moera).

Pholidauges leucogaster var. *verreauxi* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Lower Congo; Tanganyika).

Cinnyricinclus leucogaster verreauxi MOURITZ, 1914, Ibis, pp. 27, 34 (Sibokwa; Muniengashi R.). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 345, 401 (Kabambaie; Tshikapa; Tshisika; Kwamouth); 1930, idem, vol. 18, p. 288; 1932, idem, vol. 21, p. 282; 1933, idem, vol. 22, p. 374; 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 139 (Molindi R.; Rutshuru; west shore L. Edward); 1943, Rev. Zool. Bot. Africaines, vol. 37, p. 272 (Gabiro); 1949, idem, vol. 42, p. 164 (many localities in Katanga). BERLIOZ, 1925, Bull. Mus. Hist. Nat., Paris, vol. 31, p. 346 (Luluabourg). VERHEYEN, 1940, Bull. Mus. Roy.

Hist. Nat. Belgique, vol. 16, no. 2, p. 7 (Kanzenze); 1947, idem, vol. 23, no. 9, p. 2 (Sangwa); 1947, idem, vol. 23, no. 10, p. 3 (Musosa). HENDRICKX, 1944, Ostrich, vol. 15, p. 204 (southwest of L. Kivu). A. W. VINCENT, 1946, Ibis, p. 326 (Elisabethville); 1949, idem, p. 321. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 94 (Niarembe escarpment). MACKWORTH-PRAED AND GRANT, 1950, Ibis, p. 402.

Pholidauges leucogaster verreauxi DE RIEMAECKER, 1927, Rev. Zool. Bot. Africaines, vol. 14, p. 277 (Elisabethville).

Cinnyricinclus leucogaster ? subsp. BERLIOZ, 1941, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 13, p. 404 (Brazzaville).

SPECIMENS: Leopoldville, male, July 6. Dungu, subadult male, immature female, June 24.

ADULT MALE: Iris yellow, bill and feet black.

DISTRIBUTION: Damaraland and Natal north to the southern edge of the Gaboon-Congo forest, the Semliki Valley, Karamoja, the highlands of Kenya Colony, and Lamu on the East Coast. I find no significant difference in size between birds of Angola and Kenya Colony, and therefore do not recognize *C. l. lauragrayae* Bowen.[1]

The seasonal occurrence in southern Africa shows this race of amethyst starling to be a regular migrant there, and perhaps even in Northern Rhodesia, present mainly from September to April, inclusive. It has been found nesting from the Katanga to the Transvaal between mid-September and late December, in Natal once in February. That much seems sure, but the dates of occurrence in the northern part of the range are less easily interpreted. Van Someren tells me he has seen two nests of *C. l. verreauxi* in Karamoja in July and young being fed by their parents at Sokoke on the Kenya Coast. Jackson was positive that he had found a nest of *verreauxi* at Eldama Ravine in early March. I have seen young, evidently not long out of the nest, from Pungo Andongo in northern Angola (June 13, 14), Moshi near Kilimanjaro (December 27), and Embu, Kenya Colony (January 23).

There would seem to be an influx of off-season birds into the Kasai District, the Kivu, and Kenya Colony toward April and May. In the Upper Katanga Alfred Vincent reported that they returned in mid-August, nested in October, and disappeared again at the end of December. Breeding is scarcely to be expected in the Kivu, where specimens have been collected mainly from early April to late September, sometimes at altitudes up to 6800 feet. In the Bwamba District near Ruwenzori the Van Somerens found *C. l. verreauxi* in flocks of a hundred and more during the month of July in three different years. Most of our Kenya Colony specimens are dated from April to December.

In the eastern Kasai, Father Windmolders informs me, amethyst starlings are numerous from early May to late September, but we have a series also from Luluabourg in December, January, and February. From Manyanga

[1] 1930, Proc. Acad. Nat. Sci. Philadelphia, vol. 82, p. 166 (Meru, Kenya Colony).

and Stanley Pool I have seen examples taken in March, April, July, and October. Near Landana, Petit stated, the amethyst starling was present only from November to June, and I doubt that these could be migrants of the northern race.

My male example from Dungu on June 24 has the tail markings of *verreauxi* and perhaps was a wanderer from the south. The young female taken with it must be included here. So migrants from the south may even come around the northeast corner of the Congo forest.

In behavior this southern race is exactly like *leucogaster;* it gives a few chippering notes followed by a slurred whistle, "tipu-tipu-teeuu," as Jack Vincent wrote it. Nests are in cavities in stumps or trees, often no more than a yard or two from the ground, but occasionally up to 10 yards. The bottom of the cavity may be lined with feathers, wool, or dry cow dung, and above that small green leaves are added. The eggs, usually two to four, are pale greenish blue with scattered reddish brown spots and purplish shell marks mostly at the large end. Dimensions: 23–26 by 16.5–18.5 mm.

[*Spreo superbus* (Rüppell)]

Lamprocolius superbus RÜPPELL, 1845, Systematische Uebersicht der Vögel Nord-Ost-Afrika's, pp. 65, 75, pl. 26 (type locality: Shoa, Abyssinia).

Notauges superbus DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 ("Uelle").

Spreo superbus BOWEN, 1931, Catalogue of Sudan birds, pt. 2, p. 76 (Kajo-Kaji). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 135 (Uelle ?).

The superb starling, with lower breast rufous and tail relatively short, is an East African species, ranging from Somaliland and Abyssinia south to southwestern Tanganyika Territory. It does not reach our eastern border, and the specimen reported from the Uelle was probably collected by Millo-Ribotti in the Lado district.

Another species of duller coloration, *Spreo pulcher* (Müller), ranges from Senegal across the entire Sudan to Eritrea and has been found on the Shari River near latitude 10° N. But is is not at all likely to reach the northern frontier of the Congo.

[*Neocichla gutturalis angusta* Friedmann]

Neocichla gutturalis angustus FRIEDMANN, 1930, Jour. Washington Acad. Sci., vol. 20, p. 434 (type locality: Muhalala, Kilimatinde, Tanganyika Territory).

Neocichla gutturalis REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 678 (Kakoma). NEAVE, 1910, Ibis, p. 137 (Loangwa Valley). WINTERBOTTOM, 1938, Ibis, p. 273; 1939, idem, p. 723 (Lundazi District).

Neocichla gutturalis angusta WHITE, 1947, Bull. Brit. Ornith. Club, vol. 67, p. 73. CHAPIN, 1948, Auk, pp. 289–291.

Though ranging from southern Angola through Northern Rhodesia to the central part of Tanganyika Territory, this light-colored starling has not

been found anywhere in the southern Congo. Specimens from the Loangwa Valley belong to the eastern race, with only narrow whitish tips at most on the outer rectrices. Despite its unusual coloration, *Neocichla* is rather closely allied to the glossy starlings, and often forms flocks that frequent open savanna woods. Its young have the breast heavily spotted with black.

KEY TO THE SPECIES OF *Lamprocolius* IN THE CONGO

1. Crown rather velvety, with purplish reflections, sharply divided from the glossy greenish back; tail deep violet with bronze gloss; wing 106–126 mm., tail 59–67 mm. . . . . *L. purpureiceps*
   Crown glossy like back, though not always of exactly the same hue 2

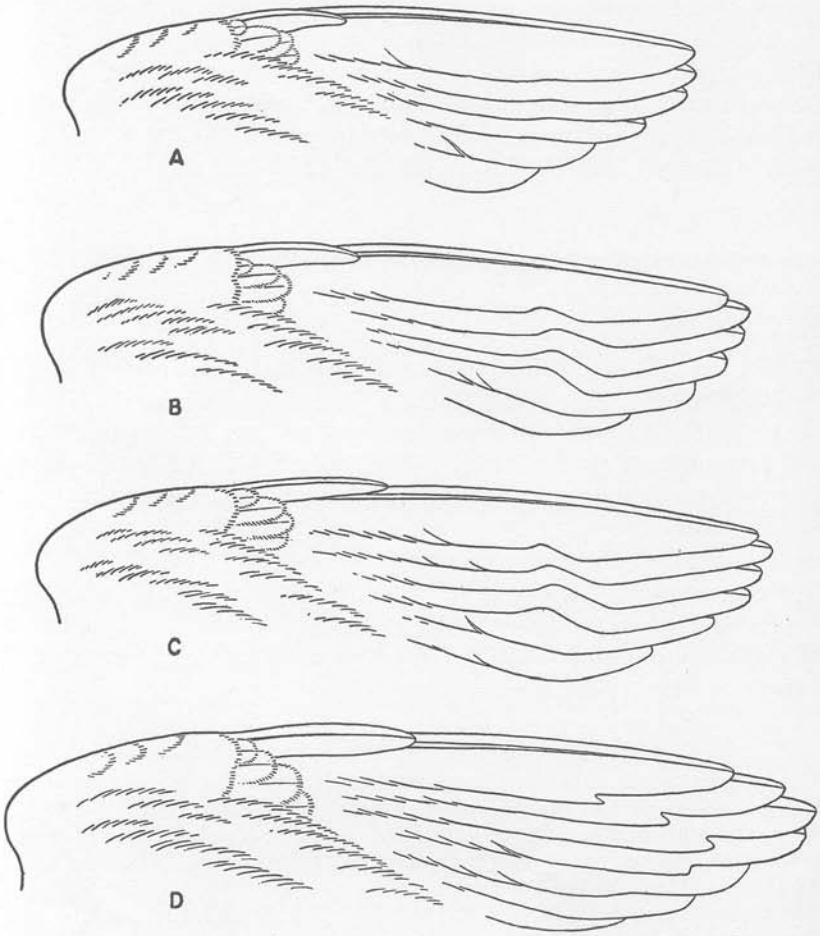

FIG. 13. Outlines of inner edges of primaries distinguishing some species of *Lamprocolius*. A. *L. c. chloropterus*. B. *L. chalcurus emini*. C. *L. chalybaeus sycobius*. D. *L. s. splendidus*. All × 2/3.

2. Tail quills velvety black over part of their length, lustrous green or blue toward tip, inner secondaries also with a dull black mark in the middle; sharp notches in inner webs of four of the longer primaries at 20–25 mm. from tip; wing 132–168 mm. long . . . . . *L. splendidus*
   Tail quills with metallic sheen over their whole length; no sharp notches in primaries, though there may be a sinuate indentation 3
3. Whole throat and breast, like fore-crown, rich glossy violet or purple, primaries only very slightly sinuate on inner webs; wing 140–162 mm.. *L. purpureus*
   Throat, chest, and fore-crown glossy green, or with only a wash of steel-blue . 4
4. Tail pointed, median quills 18–32 mm. longer than outermost, tail length 89–110 mm.; blue iridescence on underparts, if present, limited to lower flanks . . . . . *L. acuticaudus*
   Tail only slightly rounded, median quills not more than 10 mm. longer than outermost; tail length 62–95 mm. 5
5. Outermost primary only 17–20 mm. long, the longer primaries show no perceptible sinuation of inner edge; wing 110–127 mm.; tail 66–75 . . . . . *L. chloropterus*
   Outermost primary 23–36 mm. long, three or four of the longer primaries show a decided sinuate indentation of inner edge, at 30–40 mm. from tip; wings may be from 113 to 156 mm. long 6
6. Middle and inner rectrices with conspicuous purple reflections over most of their length, rump more blue or violet than the back; wing length 124–141 mm.; tail 70–83 mm. . . . . *L. chalcurus*
   Tail and rump sometimes green, sometimes more bluish than back, but not purple 7
7. Patch on lesser wing-coverts decidedly bronze; wing length 113–130 mm.; tail 62–81 mm. . . . . *L. nitens*
   Patch on lesser wing-coverts blue, violet, or even purple, but not bronze; wing length 122–156 mm.; tail 82–96 mm. . . . . *L. chalybaeus*

Lamprocolius chloropterus chloropterus (Swainson)

Lamprotornis chloropterus SWAINSON, 1838, Animals in menageries, p. 359 (type locality: western Africa).

Lamprocolius chloropterus DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Uelle). SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 452. SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 242 (Mundu).

Lamprocolius chalybaeus chalybaeus SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 429 (Mt. Baginzi).

Lamprocolius chalybaeus chloropterus SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 150 (Niam-Niam; Mangbetu country).

Lamprocolius chloropterus chloropterus STRESEMANN AND GROTE, 1928, Verhandl. VI. Internatl. Ornith. Kongr., Copenhagen, for 1926, pp. 365, 366. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 134 (Dungu). VERHEYEN, 1939, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 15, no. 66, p. 6 (Kutunda on Ueré R.). BLANCOU, 1948, Ois. Rev. Française Ornith, new ser., vol. 18, p. 76 (Zémio). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 94 (Mahagi Port; Ishwa Plain; Niarembe escarpment).

SPECIMENS: Niangara, three males, November 7, 10, 17; female, November 7. Faradje, five males, March 19, May 12, 14, November 11, 17; two

females, May 13, November 11; two immature males, May 13, October 27; two immature females, May 12, November 17.

ADULTS OF BOTH SEXES: Iris chrome yellow, bill and feet black.

IMMATURE: Iris at first dark grayish brown, later becoming dull yellowish.

DISTRIBUTION OF THE SPECIES: Senegal to Abyssinia and northern Uganda; also from the southern coast of Kenya Colony and Lake Victoria to the Katanga, Nyasaland, and Mozambique. The nominate race extends from Senegal to the upper Nile Valley and the north end of Lake Albert. It is replaced in Eritrea, Abyssinia, and perhaps northern Uganda by *L. c. cyanogenys* Sundevall, with somewhat bluer gloss above, and from Mombasa and Lake Victoria southward by *L. c. elisabeth*. This third race resembles the nominate form when adult, but has a deeper purple patch on the lesser wing-coverts, and its young are surprisingly rufous on the lower surface.

This smaller glossy starling, represented by its nominate race, is a common bird in the Upper Uelle District, from the Bomokandi River northward. Gathering in flocks of 15 to 50 individuals, the birds fly in a compact body, alighting in the low trees, and not infrequently dropping down to the ground to feed. Their voice has none of the brilliance of their plumage; the calls are rather loud chirpings and whistles, with no melody.

In the latter part of the dry season the flocks break up, for nesting time plainly comes toward March in the Uelle. It was evident that hollows in trees were being used, but I have no notes on the eggs or the young before they learned to fly. During May the young in juvenal dress have the upperparts glossy, but the lower surface of a dull grayish brown, less blackish than that of young *L. chalybaeus*.

In West Africa this starling has been seen eating fruits and even flowers. But in the 11 stomachs I examined during May, October, and November nothing was noted save remains of beetles and other insects.

Lamprocolius chloropterus elisabeth Stresemann

Lamprocolius chloropterus elisabeth STRESEMANN, 1924, Ornith. Monatsber., p. 173 (type locality: South Ufipa, Tanganyika Territory); 1925, Jour. Ornith., p. 159 (Buddu; Kakoma). WHITE, 1948, Ibis, p. 137 (Kasempa).

Lamprocolius chalybaeus sycobius DE RIEMAECKER, 1927, Rev. Zool. Bot. Africaines, vol. 14, p. 277 (in part. Elisabethville–Kambove).

Lamprocolius chloropterus elizabeth VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 23, p. 14 (Pweto).

Lamprotornis chloropterus elisabeth WHITE AND WINTERBOTTOM, 1949, Check list of birds of Northern Rhodesia, p. 116 (Ndola; east of Solwezi). DIRICKX, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 306 (Musosa; Lukonzolwa; Kilwa; Plateau de Biano; Kansenia; Lubumbashi).

DISTRIBUTION: From the East Coast near Mombasa and Buddu on the western shore of Lake Victoria south through Tanganyika Territory to

Nyasaland and the lower Zambesi. In Northern Rhodesia it ranges west to Kasempa, and in the collection of J. De Riemaecker I have seen three specimens from the vicinity of Elisabethville. Their wings measured 120–127 mm., no sinuation was visible on the inner webs of the primaries, and the outermost primary measured only 20 mm. in length. There are now additional records, and I suspect that some other supposed occurrences of *L. chalybaeus sycobius* from the Katanga were really based on *L. chloropterus elisabeth.*

In behavior the race *elisabeth* is no doubt similar to nominate *chloropterus.* White noted that in the off season it flocked together with *L. acuticaudus.* Nesting is to be expected in September or October, and Austin Roberts believed that eggs from Nyasaland measuring 25.5–26 by 18.5–19.5 mm. were of this race.

Lamprocolius acuticaudus Bocage

Lamprocolius acuticaudus BARBOZA DU BOCAGE, 1870, Jor. Sci. Nat. Lisboa, vol. 2, p. 345 (type locality: Huilla, Mossamedes); 1887, idem, vol. 12, p. 85 (Lui R., affluent of upper Kwango R.). WHITE, 1948, Ibis, p. 136 (Mwinilunga). SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 164, in part (Kinda; Funda Biabo; Kapiri; Kiambi; Tembwe; Mpala).

Heteropsar acuticaudus REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 696 (Kwango R.). GRANT AND MACKWORTH-PRAED, 1943, Bull. Brit. Ornith. Club, vol. 63, p. 58 (upper Lufira Valley).

Lamprocolius chloropterus acuticaudus STRESEMANN, 1925, Jour. Ornith., p. 160.

Lamprocolius chalybaeus sycobius DE RIEMAECKER, 1927, Rev. Zool. Bot. Africaines, vol. 14, p. 277 (in part. Elisabethville; Munama R.).

Lamprocolius chloropterus elisabeth WHITE, 1946, Ibis, p. 211 (Mwinilunga).

Lamprotornis acuticaudus WHITE AND WINTERBOTTOM, 1949, Check list of birds of Northern Rhodesia, p. 116 (Mwinilunga; Solwezi).

Lamprotornis acuticaudus katangae DIRICKX, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 302 (type locality: Funda Biabo, Katanga; also from Kabalo; Kasepa R., Lubumbashi; Nieuwdorp).

ADULT MALE: Iris bright red, inner rim dusky brown (but outer rim became more orange after death), bill black, feet black with soles gray.

ADULT FEMALE: Iris may be either blood-red or orange, according to labels by W. J. Ansorge.

DISTRIBUTION: From the Cuanza Valley in Angola south to Ovamboland and eastward to Northern Rhodesia, the Upper Katanga, Marungu, and Tembwe on Lake Tanganyika. It may possibly reach the southern Kwango District, and this certainly is the common glossy starling of the region about Elisabethville.

H. G. Dirickx (1949) believed that specimens from the Katanga had shorter tails than those of Angola. I have, however, measured six males from the Katanga and Mwinilunga and found their tail length 92–98 mm.,

whereas the same measurement of 19 males from Angola is 91–103 mm. The difference is too slight for any practical subspecific recognition.

I have examined three of De Riemacker's specimens which were previously reported as *L. chalybaeus sycobius* and have myself found the species in flocks of about a dozen in the savanna woods near Kipushi. The voice was very like that of *L. chloropterus* and of *L. chalybaeus*. Rockefeller and Murphy secured an adult female at Lubenga (5650 feet) in Marungu and noted the species as common there, going in flocks, and feeding on the ground. White has found this to be the common glossy starling near Mwinilunga and Solwezi in Northern Rhodesia.

A male I collected on August 14 had gonads already enlarged, so nesting may be expected to begin by September at the latest. The nest is still unknown but will doubtless be found in a hole in a tree. In juvenal dress the young of this species have the feathers of the under surface dusky gray fringed with grayish buff, so that they are distinguishable at once from those of *L. chloropterus* or *L. chalybaeus*.

Lamprocolius nitens nitens (Linnaeus)

Turdus nitens LINNAEUS, 1766, Systema naturae, ed. 12, vol. 1, p. 294 (type locality: Angola).

Lamprocolius nitens HARTLAUB, 1857, System der Ornithologie West-africa's, opposite p. lix ("Congo").

Lamprocolius phoenicopterus SHARPE AND BOUVIER, 1878, Bull. Soc. Zool. France, vol. 3, p. 74 (San Antonio).

Lamprocolius phoenicopterus bispecularis REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 686 (in part).

? *Lamprocolius chalcurus* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (in part. Lower Congo).

Lamprocolius phoenicopterus var. *bispecularis* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Mateba I.).

? *Lamprocolius* sp. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 401 (Kwamouth).

Lamprocolius nitens nitens STRESEMANN, 1925, Jour. Ornith., p. 158. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 656.

DISTRIBUTION OF THE SPECIES: From the Gaboon coast south through Angola and Southwest Africa to the eastern Cape Province, Transvaal, and Natal. The nominate race, with wings 113–130 mm. long, is the northernmost, and extends to northern Mossamedes Province in Angola. The southern edge of Angola and Southwest Africa are occupied by *L. n. phoenicopterus* (Swainson), with wings 123–137 mm. and more blue reflections about the head. That race extends eastward to Southern Rhodesia, Transvaal, and Natal. The largest and bluest race, *L. n. decoratus* Hartlaub, with wings 136–150 mm., is restricted to eastern Cape Colony and part of Natal.

This glossy starling is not at all common in the Lower Congo, except

possibly near the seacoast. Hartlaub's record from the "Congo" was plainly based on a specimen from Angola, mentioned on page 118 of the same volume. I recall seeing a single flock from the Congo Railway in July, but during a whole month of January spent at Boma I failed to find any more. Perhaps the glossy starlings seen by Schouteden in the savanna near Kwamouth were *nitens,* but it is strange that none have been reported from the Kasai District. The general appearance and behavior are certain to be exactly like those of *Lamprocolius chalybaeus,* to which this species is so very closely allied.

Ansorge is reported to have taken a female about to lay at Ndala Tando in northwestern Angola on October 25, and the nest of the more southern race, *phoenicopterus,* is placed in holes in trees. Sets are of three or of four eggs, pale blue, sparingly specked with light reddish.

Lamprocolius chalybaeus sycobius Hartlaub

Lamprocolius sycobius HARTLAUB, 1859, Jour. Ornith., p. 19 (type locality: Tete, Zambesi R.). NEAVE, 1910, Ibis, p. 262 (Kaluli R.; Kambove, 4500 ft.). MOURITZ, 1914, Ibis, p. 27 (Tshinsenda). VAN SOMEREN, 1916, Ibis, p. 402 ("Lake Kivu"; Kagera R.).

Lamprocolius chloropterus DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Lamprocolius chalybeus DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Mpala).

Lamprocolius chalybeus var. *sycobius* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Katanga).

Lamprocolius sycobius sycobius SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 70 (Kisaka; Urundi). STRESEMANN AND GROTE, 1928, Verhandl. VI. Internatl. Ornith. Kongr., Copenhagen, for 1926, pp. 359, 360 (southeastern Congo).

Lamprocolius chalybeus sycobius SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 657. SCHOUTEDEN, 1938, Bull. Cercle Zool. Congolais, vol. 15, p. 60 (Kinia near L. Bangweolo). VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 23, p. 14 (Musosa).

Lamprocolius chalybaeus sycobius SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 288 (Elisabethville); 1949, idem, vol. 42, p. 165 (Kashobwe; Kakyelo; Lukafu; upper Lufira R.).

Lamprocolius chalcurus SCHOUTEDEN, 1938, Bull. Cercle Zool. Congolais, vol. 14, p. 97 (near Bukama).

Lamprocolius acuticaudus SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 164 (in part. Kole; Bukama).

Lamprotornis chalybaeus sycobius DIRICKX, 1949, Rev. Zool. Bot. Africaines, vol. 47, p. 306.

DISTRIBUTION OF THE SPECIES: From Senegal across the drier northern part of the Sudan to Abyssinia, south through eastern Africa to Mozambique, the northern Transvaal, and the region of Huilla in southern Angola.

Nominate *chalybaeus* was described by Ehrenberg from Dongola and appears to be a rather small race (wings of males 135–147 mm.; of females

128–134 mm.), which may extend from Darfur and the White Nile to Eritrea and perhaps Somaliland. The western Sudan has usually been said to be occupied by *L. c. hartlaubi* Neumann, greener on the rump, but the validity of some of the races has been questioned.

I find that the birds of the Abyssinian highland and Kenya Colony are larger (wings of male 144–156 mm.; of females 133–140 mm.), so I shall recognize *L. c. massaicus*. A slightly smaller, brightly colored race, *L. c. sycobius* (wings of males 134–139 mm.; of females 121–129 mm.), extends from Mombasa and the west shore of Lake Victoria through Tanganyika Territory to the Katanga, Nyasaland, and northern Transvaal. A closely allied form, *nordmanni,* seems to represent the species in southern Angola.

Although there has been considerable confusion in the past between the various species of this group in the Katanga, *Lamprocolius c. sycobius* certainly does occur in the vicinity of Lakes Upemba, Moero, and Bangweolo and perhaps near Elisabethville. The records from Kisaka and Urundi are undoubtedly correct; we too have several of Grauer's specimens from the valley of the Kagera.

In appearance and behavior this glossy starling is very similar to *L. chloropterus* and *L. acuticaudus,* going in flocks and giving much the same throaty whistles or trills. The nesting season in Nyasaland begins in September or October; the nest is placed in hollows in trees. Three to five eggs are laid, bluish green spotted with rufous, measuring 26.6–28 by 19–19.8 mm.

Lamprocolius chalybaeus massaicus Neumann

Lamprocolius massaicus NEUMANN, 1900, Jour. Ornith., p. 200 (type locality: Guaso Masai, near Mau, Kenya Colony).

Lamprocolius chalybaeus REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 319 (Ruzizi R.). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 268 (Luvungi; Sanghé-Ruzizi; Uvira; Bigoisagua).

Lamprocolius sycobius pestis VAN SOMEREN, 1922, Novitates Zool., vol. 29, p. 131 ("Lake Kivu"; L. Tanganyika).

Lamprocolius chalybaeus massaicus SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 71 (Ruzizi Valley).

Lamprocolius chalybaeus chalybaeus STRESEMANN, 1925, Jour. Ornith., p. 155 (southwest Uganda; Ruzizi R.).

DISTRIBUTION: Highlands of Kenya Colony and Abyssinia, also the Ruzizi Valley just north of Lake Tanganyika. It is possible that *cyaniventris* Blyth or *abyssinicus* Hartlaub should take precedence over the name *massaicus*. But specimens from Kenya Colony and southern Abyssinia are certainly more bluish than those of the White Nile and larger in average dimensions. Two males collected by Grauer in the Ruzizi Valley have wings 152 and 156 mm. long; two females 138, 142 mm. All four specimens were noted as having the iris red, whereas for his specimens of *L. c. sycobius* from the

Kagera Valley he indicated the iris as yellow or golden yellow. All across the Sudan, in Northeast and East Africa, the iris of the various forms of *L. chalybaeus* has been described as yellow or orange.

In southern Kenya Colony in June I found *L. c. massaicus* in flocks numbering 40 or more, the majority being young of the year. They gave loud conversational "cheeping" calls like those of *chloropterus* and *chalcurus*. At Eldama Ravine Jackson found nests in March, in holes in trees from 4 to 20 feet up. Eggs were two or three, pale blue, almost spotless or sparsely marked with dirty rufous. In the Ruzizi Valley nesting might be expected toward September.

Lamprocolius chalcurus emini Neumann

Lamprocolius chalcurus emini NEUMANN, 1920, Jour. Ornith., p. 81 (type locality: Fatiko, Nile Province, Uganda). STRESEMANN, 1924, Jour. Ornith., p. 154. STRESEMANN AND GROTE, 1928, Verhandl. VI. Internatl. Ornith. Kongr., Copenhagen, for 1926, pp. 359, 360. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 134 (Dramba).

Lamprocolius chalcurus DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (in part. "Province Orientale"; "Umangi"). SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 431 (Tembura; Yambio; Yei).

Lamprocolius sycobius elberti NEUMANN, 1920, Jour. Ornith., p. 80 (type locality: Bakari, northern Cameroon).

Lamprocolius chalcurus orientalis SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 148 (Tunguru).

SPECIMENS: Faradje, three males, November 11, 13, 15; three females, February 10, November 11, 17; immature male, November 13; immature female, November 23; juvenile female, March 23.

ADULTS OF BOTH SEXES: Iris deep cadmium yellow or orange, bill and feet black.

DISTRIBUTION OF THE SPECIES: From Casamance and Portuguese Guinea east to the Bahr-el-Ghazal, Bahr-el-Jebel, and the Kavirondo District. At first glance *L. chalcurus* may seem to be little more than a richly colored race of *L. chalybaeus,* occupying the better-watered belt close to the northern edge of the equatorial forests. But its tail is relatively short, conspicuously purplish above, and the tail length varies in a curious way. It is shortest from the Gold Coast westward, equaling 48.6 to 53.8 per cent of the wing length. That is the most distinctive feature of the nominate race.

From the Uelle to the Kavirondo District the length of the tail is 58.1 to 62.4 per cent of that of the wing. Birds from the Shari River region and northern Cameroon show proportions that are somewhat intermediate: 54.4 to 59.2 per cent. But they scarcely deserve a subspecific name, and since they are so like the eastern birds I shall regard *elberti* as a synonym of *L. c. emini.* It should be noted that Neumann, when describing *emini,* extended

the range west to the Benue River. The "page priority" of *elberti* is unimportant. The range of *emini* may thus be given as from northern Cameroon across the Ubangi-Shari to the Bahr-el-Jebel and the Kavirondo District. Wings of our specimens from Faradje measure 130–134 mm. in males, 124–129 mm. in females; tails of males 80–83, of females 75–77 mm. Males from northern Uganda and Kavirondo have wings 138–141 mm.

We met with Emin's glossy starling only in the vicinity of Faradje and Aba, in flocks in the scrubby grasslands, often mingling with the more abundant *L. chloropterus* and alighting frequently on the ground to feed. The larger species has much more richly colored eyes and often makes considerable noise with the wings in flight. Its voice seemed somewhat harsher, but of the same nasal chattering type.

The breeding season is short and comes at the same time as that of *chloropterus,* in February and March. The nestling we collected was the sole occupant of a nest made of dry leaves and grass in the bottom of a cavity of an old tree stub, amid high grass at the edge of a swamp. The opening was 12 feet above the ground. Four eggs of the nominate race found by William Serle in Northern Nigeria were described as pale blue, lightly speckled with light orange-brown, measuring 26.5–27.7 by 19.8–20.2 mm.

Of six stomachs of adults which I examined, four held the remains of insects, and only two contained berries.

Lamprocolius purpureus amethystinus (Heuglin)

Lamprotornis amethystinus HEUGLIN, 1863, Jour. Ornith., p. 21 (type locality: Bahr-el-Abiad, or White Nile).

Lamprocolius auratus SHARPE, 1884, Jour. Linnean Soc. London, zool., vol. 17, p. 427 (Semio).

Lamprocolius purpureus amethystinus REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 692. SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 429 (Yei). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 149 (Djanda). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 134 (Faradje ?). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 95 (Ishwa Plain).

Lamprocolius purpureus BERLIOZ, 1939, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 11, p. 530. BLANCOU, 1948, Ois. Rev. Française Ornith., new ser., vol. 18, p. 76 (Semio).

SPECIMEN: Garamba, female, May 10.

ADULT FEMALE: Iris orange, bill and feet black.

DISTRIBUTION OF THE SPECIES: Senegal and Portuguese Guinea eastward to Darfur, the Bahr-el-Ghazal, Mt. Elgon, and Kavirondo. The nominate race, described from Dahomey, inhabits grasslands from Nigeria westward and has a relatively short tail (63–78 mm.) with its upper surface very

purplish. *L. p. amethystinus,* with tail 79–90 mm. long and more bluish as a rule, ranges from northern Cameroon eastward to Uganda and Kavirondo.

This purple-breasted glossy starling extends very little into the northeastern borderland of the Congo, and I never saw it in the immediate vicinity of Niangara or Faradje. A little farther north in the Sudan it is a common and conspicuous bird of the savannas, usually going in flocks of 10 to 100, except when busy with nesting. They keep up a chorus of squeaky chattering, feed on a variety of fruits in trees, and frequently walk on the ground. Bates remarked that the yellow eyes were unusually conspicuous because the edge of the sclerotic coat showed yellow as well as the iris.

In West Africa the breeding season is supposed to be from April to July, and the nest is placed in hollows in trees and stumps. Eggs from western Africa were described by Nehrkorn as blue, with numerous red-brown markings and paler flecks, measuring 26–29 by 19–21 mm.

Lamprocolius splendidus splendidus (Vieillot)

Turdus splendidus VIEILLOT, 1822, Tableau encyclopédique et méthodique . . . ornithologie, vol. 2, p. 653 (type locality: Malimbe, Enclave of Cabinda).

Lamprocolius purpureus JOHNSTON, 1884, The River Congo, p. 365 (lower Congo R.).

Lamprocolius splendidus SHARPE, 1884, Jour. Linnean Soc. London, zool., vol. 17, p. 426 (Semio). REICHENOW, 1885, Jour. Ornith., p. 217 (Stanley Pool); 1887, idem, p. 300 (Manyanga). SHELLEY, 1888, Proc. Zool. Soc. London, p. 37 (Tingasi). EMIN, 1894, Jour. Ornith., p. 170 (old Irumu). FLOWER, 1894, Proc. Zool. Soc. London, p. 600 (Ipoto). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Bumba; Umangi; Kisantu). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 264 (Beni). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 269 (Kilo); 1918, idem, vol. 5, p. 268 (Zambo; Alimasi; Irumu; Marissawa; Assumba; Mutiba). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 25. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 70 (eastern border of Rutshuru Plain, 1600 m.; Moera).

Lamprocolius glaucovirens OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127. HARTERT, 1900, Novitates Zool., vol. 7, p. 39 (east of Olinga). SALVADORI, 1915, Ann. Mus. Civ. Genova, ser. 3, vol. 6, p. 280 (Kasai District).

Lamprocolius splendidus glaucovirens REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 693 (Kwango R.; Songa in Lendu). LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 14 (Kingoyi; Mukimbungu). MENEGAUX, 1918, Rev. Française Ornith., vol. 5, p. 259 (Zambi).

Lamprocolius splendidus var. *glaucovirens* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Bumba; L. Leopold II).

Lamprocolius sp. ALEXANDER, 1907, From the Niger to the Nile, vol. 2, p. 312 (Gudima). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 277 (Bellima).

Lamprocolius lessoni LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 25.

Lamprotornis splendidus splendidus SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 431 (Mt. Baginzi).

Lamprocolius splendidus splendidus SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 345 (Luebo; Kamaiembi); 1924, idem, vol. 12, pp. 274, 421 (Kidada; Kisantu; Eala; Bikoro); 1925, idem, vol. 13, p. 18 (Bolobo region); 1926, idem, vol. 13, p. 202 (Butu Polo); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 134 (Dramba; Mahagi Port; Arebi; Medje; Mauda; Poko; Buta; Dungu; Faradje; Niangara); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 140 (Rutshuru). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 25 (Simbo). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 659. STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 570 (Saidi). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1283 (Ruwenzori, below 6000 ft.). VERHEYEN, 1939, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 15, no. 66, p. 6 (Bambesa; Alipago); 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 79 (Semliki R.; Irunga R.; Butahu R.; Lusilubi and Biangolo rivers). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 76 (Brazzaville; Bangui). BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 66 (Aruwimi R.; Uelle R.). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 95.

SPECIMENS: Coquilhatville, male, July 21. Barumbu, male, July 31. Gamangui, female, February 10. Bafwabaka, male, December 31; female, December 28. Medje, ten males, January 17, June 1, 21, 24, July 5, 7, 8. Niangara, male, January 9; female, April 14. Faradje, male, November 29.

ADULTS OF BOTH SEXES: Iris very light yellow, bill and feet black.

DISTRIBUTION OF THE SPECIES: From the Gambia River to the forests of Upper and Lower Guinea, and thence to southwest Abyssinia, the Nandi District in East Africa, the Upper Katanga, adjacent parts of Northern Rhodesia, and Bailundo in Angola. Also on the islands of Fernando Po and Principe.

Lamprocolius s. chrysonotis (Swainson) of Upper Guinea west of Nigeria has the hind crown glossy green almost exactly like the hind neck and is slightly smaller than nominate *splendidus*. The latter, with hind crown more blue-green, ranges from Nigeria and Principe Island eastward to southwest Abyssinia, the vicinity of Lakes Victoria and Tanganyika. On the south it reaches northwestern Angola and the Kasai District, but in the more central part of Angola, the Upper Katanga, and Northern Rhodesia it is replaced by *L. s. bailundensis,* with less purple on the breast and hind crown greener.

There can be no doubt of the occurrence of *L. s. splendidus* on Principe, living alongside the allied *L. ornatus* (Daudin), for in 1928 José Correia collected six specimens there. But the birds of Fernando Po may be slightly larger, separable perhaps as *L. s. lessoni* Pucheran.

All across the Congo, wherever there are suitable woods, this large glossy starling or "merle métallique" is a common and familiar bird. In the forest area it is much in evidence amid high trees in and about clearings and along river banks. In the savanna districts it haunts the strips of forest along watercourses, but it does not ascend the higher mountains. Largely a fruit eater,

it never comes to the ground, and only occasionally does it gather in flocks of any size.

The voice is striking, usually very nasal or metallic. Some of the most characteristic calls I wrote down as "nyă-au," "spi-yonk!," also a shorter "kau" or "kahn." Indeed these birds seem to try for the most marvellous discords and then go on practising them. The noise of their wings, as they launch forth from a tree, is out of all proportion to their size and suggests the churning of some sternwheel steamer in the distance.

Right in the equatorial forest belt, where one expects birds to be sedentary, we noted that in certain places this splendid starling would disappear for several months of the year. At Avakubi in 1909 it was not seen from October to December, at least; and in 1913–1914 it disappeared by the beginning of October and reappeared only on February 24. At Stanleyville the same thing seemed to happen. In the Mayombe, at Ganda Sundi, I failed to see one individual in April, though I know they are present at Boma in January, and I was assured it was often a common bird at Ganda Sundi. Marked seasonal changes in abundance have also been reported in the Gaboon.

From Medje and Bafwabaka to the northeastern Uelle these starlings are resident through the whole year, and from Luluabourg in the Kasai we have specimens taken at virtually all seasons. On the northern edge of the forest we took individuals ready to breed in April, June, and July. Near Medje, beginning about June 10, some 40 to 50 birds of this species used to gather nightly in a group of dense young oil palms. Of eight specimens taken there from time to time every one was a male with gonads enlarged. This roost was used for at least a month, evidently during the breeding period.

In the forested Cameroon Bates found eggs and young in August, September, and October. Nests are in holes in trees, usually high above the ground, and contain two or three eggs, pale greenish blue sparingly marked all over with pale reddish brown and lilac gray; they measure 29–31.5 by 21.5–24.5 mm.

Near the southern edge of the forest, at Lukolela, it seemed that the species was beginning to breed by mid-September, and in late December I watched a pair at a hole in a tall dead tree. The female was carrying in small twigs. From Luluabourg we have three young, not very long out of the nest, taken in late December and the first days of January. Closer to the Equator the breeding season is probably less well defined. At Coquilhatville I shot a male with gonads enlarged on July 21, and at the new post of Beni had a nestling with tail less than half-grown brought to me on October 18.

Seven of the nine stomachs I examined held fruits of various kinds and sizes or their seeds. One red drupe was so large as to fill the gizzard; its stone could only have been disposed of by regurgitation. Only one stomach

was filled with insect remains. In another were pieces of a wasp or winged ant, a third held some winged termites, and I have watched these starlings taking insects in flight. Still another stomach held a few bones of a small frog.

Lamprocolius splendidus bailundensis Neumann

Lamprocolius splendidus bailundensis NEUMANN, 1920, Jour. Ornith., p. 81 (type locality: Ngungo, Bailundo District, Angola). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 659. WHITE, 1943, Ibis, p. 131 (Mwinilunga). SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 165 (Kinda).

Lamprocolius glaucovirens NEAVE, 1907, Mem. Proc. Manchester Lit. Phil. Soc., vol. 51, no. 10, p. 102 (Ndola; Kapopo, Northern Rhodesia); 1910, Geogr. Jour., London, vol. 35, p. 139 (forest patches on Katanga Plateau).

Lamprocolius splendidus glaucovirens NEAVE, 1910, Ibis, p. 261 (Lofu Valley; Kalungwisi Valley; L. Young).

Lamprotornis splendidus bailundensis WHITE AND WINTERBOTTOM, 1949, A check list of the birds of Northern Rhodesia, p. 117.

DISTRIBUTION: From the Bailundo District eastward to the northern part of Northern Rhodesia, the Upper Katanga, and the southern end of Lake Tanganyika. Males of this race have the whole crown glossy green like the hind neck, and the purple of the throat separated by blue from the purple-bronze patch on the middle of the breast. Females are more greenish below than those of the nominate race.

According to Neave and to White, this race is migratory and comes to forest patches in the Upper Katanga, at Mwinilunga and near Balovale in Northern Rhodesia toward August and September. It remains there only about four months and nests in October, the early part of the rainy season. I have seen two male specimens, taken by J. De Riemaecker at the Kafubu River, September 30 and October 7. Such a movement has not been proved for the Bailundo region, where C. H. Pemberton took three specimens on July 31 and August 9. Nor has the off-season habitat of the Katanga birds been discovered, though it should be somewhere in the Lower Katanga or Lomami District. I have looked carefully at our skins from the Kasai without finding any *bailundensis*.

In behavior and voice this southern race must be closely similar to the nominate form. A nest found by White near Mwinilunga on October 6 was in a natural hole in a dead branch, which had been lined with a few twigs and stems of creepers. The two eggs were bright blue, speckled with light umber.

Lamprocolius purpureiceps Verreaux

Lamprocolius purpureiceps J. AND E. VERREAUX, 1851, Rev. Mag. Zool., ser. 2, vol. 3, p. 418 (type locality: Gaboon). OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127. FLOWER, 1894, Proc. Zool. Soc. London, p. 600 (Ipoto). REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 685 (Atyanga in Awamba); 1911, Wiss. Ergeb. Deut-

schen Zentral-Afrika Exped., vol. 3, p. 319. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (L. Leopold II). SALVADORI, 1909, Ann. Mus. Civ. Genova, ser. 3, vol. 4, p. 324 (Buta–Dungu); 1911, idem, ser. 3, vol. 5, p. 452 (Zone of Gurba-Dungu). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 269 (Kilo); 1918, idem, vol. 5, p. 268 (Moera); 1923, idem, vol. 11, p. 345 (Basongo; Luebo; Kamaiembi; Kabambaie; Makumbi; Ngombe in Kasai); 1924, idem, vol. 12, p. 421 (Bikoro; Eala); 1925, idem, vol. 13, p. 18 (Bolobo region); 1926, idem, vol. 13, p. 202 (Lundu; Butu Polo; Ganda Sundi); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 134 (Buta; Rungu; Bondo Mabe). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 25 (Beni). BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 263 (Angu; Poko); 1948, The birds of tropical West Africa, vol. 6, p. 74. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 71 (Ukaika; Mawambi–Irumu). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 26 (Kartushi; Lesse). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 660. STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 570 (Saidi). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 98. BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 76 (Bangui). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 79 (Luhule R.; Bwanandeke; south of Katuka; Nganzi).

SPECIMENS: Stanleyville, male, November 15. Banalia, female, September 23. Avakubi, five males, January 20, February 12, May 18, June 8, December 21; two females, January 20, November 24. Bafwabaka, male, January 2; immature male, December 31; immature female, January 10. Medje, two males, August 14, September 2; female, August 14.

ADULTS OF BOTH SEXES: Iris dark brown, bill and feet black.

DISTRIBUTION: From the vicinity of Lagos in Southern Nigeria eastward across the whole forest of Lower Guinea to the wooded areas of Uganda and the base of Mt. Elgon. On the south it reaches the Mayombe, the central Kasai, and the vicinity of Kasongo.

Everywhere in the Congo forest this purple-headed starling is fairly common, except where the elevation exceeds 4500 feet. Of strictly arboreal habits, it is most often seen flying over in pairs or in parties of four or five. The wing area seems large as compared with the body, and the wing beats are noiseless. A metallic "twink" is given frequently while on the wing, and I have heard perching individuals utter low notes that reminded me of *L. chloropterus* of the savannas. Unless one finds a tree where fruit is being eaten, it is no easy matter to secure specimens.

On the northern edge of the forest we did not see this starling north of Kongoli's village, between Rungu and Niangara. It is fairly numerous in the lowland Semliki Forest, and Rockefeller and Murphy obtained specimens in the lowland forest of the Manyema. Father Wijnants has collected it at Boende.

In the Avakubi–Medje area our dissections indicated breeding from June to October, the rainy part of the year. A female with a soft egg in the oviduct was taken on August 14. Immature birds in December and

January were assuming adult plumage. North of the new post of Beni, on October 4, we watched a bird with a twig entering a knot-hole high up in a tree in a clearing. Toward the southern edge of the forest belt, in the Manyema, Rockefeller and Murphy took two birds in breeding condition on September 4 and October 12.

In the forest of the Tshuapa District at Yokolo, close to the Equator, P. Herroelen tells me that he watched a pair in late June preparing to nest in a hollow of a *Musanga* tree. On July 13 the tree was cut down. The nest materials were found to consist of green leaves cut in small bits by the birds. One egg was obtained, blue with brown spotting, which measured 23.5 by 18 mm. Another nest examined on July 7 contained three young, without down, indicating that the normal set of eggs may be three.

The contents of 13 stomachs which I examined consisted wholly of berries and other fruit, except for a single small snail.

KEY TO THE SPECIES OF *Lamprotornis* IN OR NEAR THE CONGO

1. Head and throat with much the same blue or violet lustrous color as the chest and back . . . . . *L. mevesii*
   Head and throat of deep bronze color, contrasting with the violet, purple, or green of chest and back 2
2. Smaller: wing length 132–162 mm., tail 120–162 mm.; chest greenish blue to purplish, back blue, violet, or purple, and hind neck usually purple . . . . . *L. purpuropterus*
   Larger: wing length 160–201 mm., tail 205–360 mm.; chest and back very glossy, and varying from deep green to violet . . . . . *L. caudatus*

[*Lamprotornis mevesii mevesii* (Wahlberg)]

Juida mevesii WAHLBERG, 1857, Jour. Ornith., p. 1 (type locality: Doughe R. = Okavango R.).

Lamprotornis mevesi NEAVE, 1907, Mem. Proc. Manchester Lit. Phil. Soc., vol. 51, no. 10, p. 101 (east bank of Loangwa R.); 1910, Ibis, p. 260 (Lundazi R., upper Loangwa Valley).

Lamprotornis mevesii mevesii WINTERBOTTOM, 1939, Revised check list of the birds of Northern Rhodesia, p. 67.

Of southern distribution, this long-tailed starling ranges from Ovamboland, Southern Rhodesia, and Nyasaland north to the Loangwa Valley and to Quillengues and Catengue in western Angola. Most of the range is occupied by the nominate race, with head, back, and breast violet-purple; *L. m. purpureus,* with those parts much more bronzed, is restricted to the region from Capangombe and Quillengues northward.

In the Loangwa Valley *L. m. mevesii* keeps to the mopane woods on the flats, and although the river passes within 80 miles of the southeast border of the Katanga, this starling is not expected to reach the Congo.

Lamprotornis purpuropterus purpuropterus Rüppell

Lamprotornis purpuropterus RÜPPELL, 1845, Systematische Uebersicht der Vögel Nord-Ost-Afrika's, pp. 64, 75, pl. 25 (type locality: Shoa, Abyssinia). HARTERT, 1899, *in* Ansorge, Under the African sun, app., p. 341 (Pongo in Lur country); 1900, Novitates Zool., vol. 7, p. 39 (Karimi). REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 710; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 320 (west shore of L. Edward; Kirk Falls; Semliki Plain on L. Albert; Ruzizi R.). SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 452 ("Uelle District"). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 26 (Kasindi). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 269 (Mission St. Gustave; Luvungi; Molekera; Ivi R.; Sanghé-Ruzizi; Bigoisagua); 1935, idem, vol. 27, p. 403 (Gabiro; Katanda). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 150 (Fanjimoro). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 69 (Urundi; Usumbura; Rutshuru Plain).

Lamprotornis brevicaudus SHARPE, 1897, Bull. Brit. Ornith. Club, vol. 6, p. xlviii (type locality: Elgeyu, Kenya Colony).

Lamprotornis purpuropterus purpuropterus GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 23 (Makora). FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 757. STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 571 (Kasenyi). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 134 ("Dungu"; Mahagi Port); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 140 (Rwindi; Kamande); 1940, Rev. Zool. Bot. Africaines, vol. 34, p. 60 (Kawa Forest); 1941, idem, vol. 34, pp. 267, 365; 1943, idem, vol. 37, p. 272 (Gabiro). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 79 (old Radiadia); 1947, Exploration du Parc National Kagera, Mission Frechkop, fasc. 2, p. 15 (Kihinga).

Lamprocolius purpuropterus purpuropterus SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 282 (Lulenga; Ngoma); 1933, idem, vol. 22, p. 374 (Kisenyi; Kamonyi). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 95.

ADULTS OF BOTH SEXES: Iris very pale yellow or yellowish white, bill and feet black.

DISTRIBUTION OF THE SPECIES: Kordofan, Sennar, and Eritrea, south through eastern Africa to Kilimanjaro and to Ufipa in western Tanganyika Territory. A larger northern race, *L. p. aeneocephalus* Heuglin, with tails of males 170–217 mm. long, ranges from Kordofan to Eritrea. Nominate *purpuropterus,* with tails of males in Abyssinia 146–171 mm., is usually said to occupy the remainder of the range, but from the Bahr-el-Jebel through the eastern grasslands of the Congo south to the Ruzizi Valley I find that tails of males measure only 134–153 mm. Females of course are smaller. Specimens from western Uganda and the upper Kagera Valley are not larger, so the race *brevicaudus* Sharpe may yet come to be recognized.

The haunts of these long-tailed glossy starlings are the rather open savannas at relatively low levels near Lake Albert, Lake Edward, the Kagera River, and the lower Ruzizi. Parties of four to eight are the rule.

I usually did not see any *Lamprocolius* in the same places with them. The semi-musical cheeping of *L. purpuropterus* resembles that of *Lamprocolius chalybaeus* and its near allies and is audible for a hundred yards and more. Most of the time they perch in low trees, but also descend to the ground to feed.

From the Uelle I have never seen a specimen, and that reported by Salvadori was almost certainly collected in the Lado district. On the cooler highlands of the Kivu District *L. purpuropterus* is scarcely to be seen either. In Uganda nests have been found in April, and in the Ruzizi Valley breeding may be expected toward October.

Nests were found by Jackson in East Africa in small colonies, built of rough or thorny twigs in the open, on the branches of acacias and baobabs. Paget-Wilkes noted others in the region of Turkana in natural holes in trees, with a rough lining of cow dung or other rubbish. The eggs may be either two or three, pale blue-green, often with rusty spotting, their dimensions about 28.5 by 21 mm.

[*Lamprotornis caudatus* (Müller)]

Turdus caudatus P. L. S. MÜLLER, 1776, Des Ritters C. von Linné . . . Natursystems Supplement, p. 144 (type locality: Senegal).

Lamprotornis caudatus SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 432 (Raffali and Kojali in Bahr-el-Ghazal).

This very large glossy starling ranges from Senegal and Casamance across the Sudan to the Bahr-el-Ghazal, Kordofan, and the White Nile at El Dueim. It has been taken at Kojali, only about 80 miles north of the boundary of the Congo but is not expected to reach the Uelle District. It prefers country a little drier than any to be found in the northern Congo and has often been said to be fond of the neighborhood of rocky hills.

Creatophora cinerea (Meuschen)

Rallus cinereus MEUSCHEN, 1787, Museum Geversianum sive index rerum naturalium, p. 40, no. 17 (type locality: Cape of Good Hope).

Dilophus carunculatus DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Perissornis carunculatus DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 30 (Mpala; L. Kivu). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 68 (Ruzizi Valley; Kisenyi; Rutshuru Plain).

Creatophora carunculata NEAVE, 1910, Ibis, p. 261 (upper Lualaba R., 3500 ft.; Chishi I., L. Bangweolo). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 267 (old Mission St. Gustave); 1930, idem, vol. 18, p. 288 (near Elisabethville); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 133. DE SCHAUENSEE, 1928, Auk, p. 217. STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 570 (Saidi). WEBB, 1951, Avicult. Mag., vol. 57, pp. 79–82, 1 pl.

Creatophora cinerea FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2,

p. 328. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 95 (Ishwa Plain). CRANDALL, 1949, Zoologica, New York, vol. 34, pp. 103–106, pl. 1. SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 165 (Kabalo; Kiambi; Kando; Kakyelo; Tembwe; Albertville).

SPECIMENS: Faradje, five males, November 13, 14, 16, 23; four females, November 14, 15, 16; immature male, November 15; immature female, November 23.

ADULT MALES (WITH HEAD FEATHERED) AND FEMALES: Iris dark brown, naked skin behind eye yellow; bill pale pinkish; naked skin at sides of throat bluish gray; small wattles on crown (in males only) dark gray; feet brown.

Bare-headed males retain the colors of iris and bill, but the base of the bill, the lores, and the skin of throat with its wattle are dull black, and this distinct black area extends back to the middle of the crown, including the two smaller wattles. Between the eye and the ear the skin is cadmium yellow; this yellow area extends across the hind crown and is narrowly bordered behind, at the edge of the feathering, by black. The feet may remain flesh-brown or become pale gray mottled with dusky brown, or even grayish pink. The primary-coverts are usually all white in adult males.

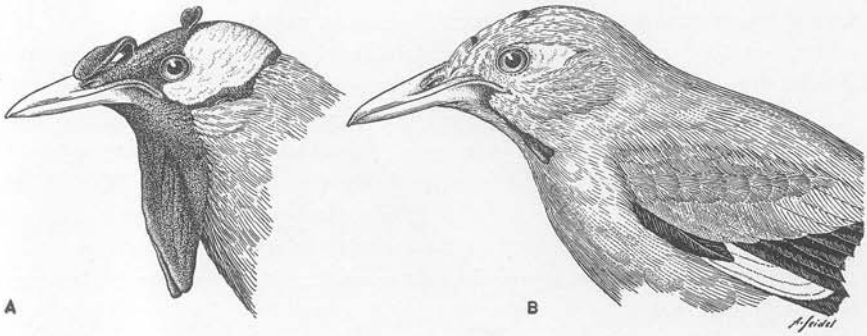

FIG. 14. Wattled starlings, *Creatophora cinerea*. A. Adult male in breeding condition, with head bare. B. Adult male in the off season, head feathered.

DISTRIBUTION: From southwestern Arabia, Somaliland, Eritrea, and Kordofan south through eastern Africa to Cape Province and westward again to Damaraland and most of Angola. Within our limits the wattled starling may be expected with some frequency in the lowlands near the Kagera River, Lake Albert, Lake Edward, Tanganyika, the Lualaba, and in Marungu and the Upper Katanga. In the Upper Uelle District it is erratic; we saw it near Faradje only in November, 1911. The occurrence at Saidi in the Ituri Forest is surprising, but we have an adult male with feathered head from the vicinity of Irumu, secured by Camburn on July 31.

The birds I collected at Faradje were all in non-breeding condition, the

males with fully feathered heads, members of a party that varied from four to 14. They accompanied a flock of *Lamprocolius chalcurus* in a bush-grown pasture, mingling with the glossy starlings and often alighting on the ground to feed. The light-colored *Creatophora* seemed quite silent. Every one of the 10 stomachs I examined there contained berries or other small fruits. Two also held one grasshopper apiece, and one a cricket. Some small termites and a single tiny snail completed the list of food.

In regions where the wattled starling breeds, however, it is much more dependent on the abundance of grasshoppers or, more correctly, locusts. It well deserves its South African name of "locust bird." In Southwest Africa Hoesch[1] found the presence of these starlings to be linked with that of migratory locusts and the success of their nesting dependent on the supply of young locusts. If the rains were abundant, most nests would contain four eggs; if insufficient, the sets were normally of three. A shortage of locust nymphs might cause the death of young in the nests, even though other insects were available and berries were the customary diet in the dry season.

Collectors have usually found that only a small minority of males were bare-headed. Van Someren[2] dissected over a hundred examples and could find no correlation between the state of the wattles and the condition of reproductive organs. He kept several males in captivity for two years and more, but they never shed their head feathering, so he concluded at first that baldness and wattles were marks of age.

The experience of de Schauensee (1928) was quite different. Each year the head of his captive male became bare in June and feathered again in November. These findings have since been confirmed at the New York Zoological Park by L. S. Crandall (1949) with four males. Over a period of several years, their heads were first noted as completely bare on dates varying from January 6 to June 24, but mostly in March or April. It seems that during the second year of life there is no loss of head feathering, although the throat wattle may enlarge. During the third year seasonal baldness begins, and the crown wattles enlarge. One of Crandall's males tended to become bald in January, about two months earlier than the others. C. S. Webb (1951) in London watched a male become bald each spring and quoted some excellent notes on nesting behavior in East Africa by Raymond Hook.

In the wild state there is certainly far more irregularity, especially in equatorial East Africa. Although I shot one bald male in breeding condition from a flock of 40 or more in the Kidong Valley, Kenya Colony, on June 6, I doubt that there were more than two such birds in the lot. Second-year males with black primary-coverts retain their crown feathering. Failure of

[1] 1936, Jour. Ornith., pp. 13–15, 20, fig. 5.
[2] 1922, Novitates Zool., vol. 29, p. 128.

the rains or a shortage of locusts may well cause actual nesting to be postponed. Outside the breeding season these birds are notorious wanderers.

The location of breeding colonies is all but unpredictable. Domed nests with side entrances made of twigs and lined with grass are built in hundreds on low thorn trees, often so closely packed that there may be two or three nest chambers in one mass. Sets of eggs vary from three to five. These are very pale blue, occasionally white, and sometimes speckled very finely with red-brown. They measure 25–31.9 by 18–23 mm.

On the breeding grounds nestlings give a high squeak, Hugh Elliott tells me, and the parents answer with a harsh grating note. Flocks often keep up a continuous clinking chatter, and the voice of the male has been compared with that of the European starling, though it is harsher and even more squeaky.

Nesting colonies have been found in South Africa from August to early January, in Damaraland in February and March, in northern Tanganyika Territory in December, April, and May. In central Angola W. W. Bowen collected six adult males in mid-October, all with gonads enlarged and one with head virtually bare. The others have crowns still mostly feathered, although four of them have throats partly bare. They would seem about ready to breed, but from other places in Angola we have adult males with feathered heads in September and October and two young in complete juvenal dress in June.

In southern Kenya Colony Van Someren noted nesting colonies in June-July and between Nakuru and Lake Hannington in July. Hugh Elliott and Van Someren both assure us that a brood of young locusts is not absolutely essential, though some unusually abundant insect life is. Elliott found that an infestation of caterpillars of *Laphygma exemta* might suffice. Without rains there will be no such generous supply of the proper food. Examinations of nestlings have shown that locust hoppers form by far the greatest part of their food.

From a series of specimens taken near Nairobi and Naivasha in Kenya Colony it appears that heads there become bare toward April or May, feathered again in November and December. Farther north in Kenya Colony bareheaded males have been taken near the Northern Guaso Nyiro and Koroli in December, March, and May; females with ovaries enlarged in March; and young but a month or two old in March and June. From Somaliland I have seen three bareheaded males taken in March and June, and one in December. The December bird might seem exceptional, but a male from Ailet, Eritrea, on March 31 is already renewing the feathers of its crown.

Temporary increase in the secretion of male sex hormone may be the cause

of the seasonal baldness of *Creatophora,* and that hormone is known to have an important influence in human baldness. In north temperate latitudes increasing periods of daylight may perhaps stimulate sexual activity in this starling, but field observations in tropical Africa point to the very great influence of alternating rains and drought.

Within our limits I scarcely expect the wattled starling to nest, unless possibly in the vicinity of the Kagera Valley or Lake Moero. In Ankole, a little north of the Kagera, Captain Pitman informs me, *Creatophora* builds widely scattered nesting colonies during the months of March and April. In 1940 at that same season, when the red migratory locusts were breeding there, these starlings established a colony that covered many square miles of country to the south of Lake Nakavali. As far as one could see, every bush was loaded down with dozens of nests; the birds must have been numbered by the tens of thousands. In eastern Ruanda near the Kagera, Grauer collected a male *Creatophora* on July 20, still partly bald but growing new feathers on crown and throat. In the Rutshuru Valley, where I saw two small parties in August with none bareheaded, Grauer took an adult male with freshly feathered head in January. From the Ruzizi Valley Sassi (1924) mentioned one bareheaded male collected by Grauer during May. All I saw there in July had feathered heads.

In southern Marungu Rockefeller and Murphy obtained a female with throat largely bare and ovary slightly enlarged at Lake Suzi on March 21.

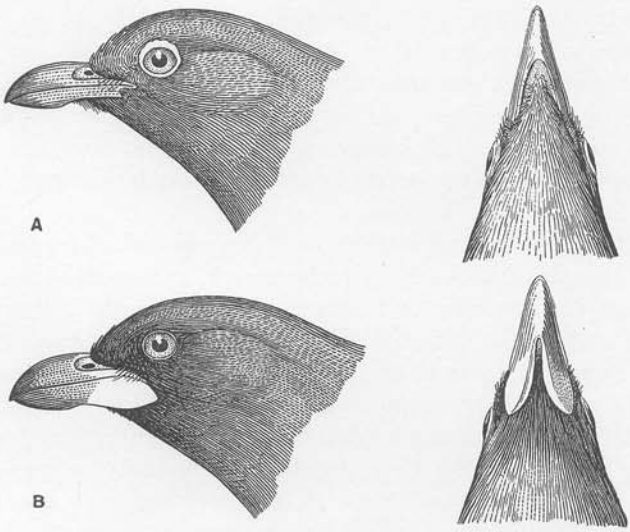

FIG. 15. Heads of the two species of *Buphagus*, and their beaks as seen from below. A. *B. erythrorynchus*. B. *B. africanus*.

Its condition suggests possible breeding toward that date. A subadult male at Baudouinville, May 17, had feathered head and was not breeding, yet its gular wattle is quite conspicuous. From the region of Lake Moero to eastern Ruanda, therefore, the birds may perhaps be in condition to breed from March to June, yet much will depend on the rains and the presence of young locusts. Different populations within a given country may not all agree in their breeding cycles, and there may perhaps be considerable variation in successive years.

SUBFAMILY **BUPHAGINAE**

KEY TO THE SPECIES OF *Buphagus*

Rim of eyelids without any expansion of bare skin; sides of mandibular rami widened, more than 4 mm. broad in young, attaining 6 mm. in many adults, which in life have beak yellow at base, scarlet toward tip . . . . . *B. africanus*

Rim of eyelids somewhat expanded, forming a narrow bare wattle around the eye; mandibular rami not broadened, width near base about 3.5 mm.; bill of adults in life is bright red to base . . . . . *B. erythrorynchus*

Buphagus africanus africanus Linnaeus

Buphaga africana LINNAEUS, 1766, Systema naturae, ed. 12, p. 154 (type locality: Senegal). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 256 (Mbiambana). EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 268 (Madjamboni).

Buphagus africanus REICHENOW, 1903, Die Vögel Afrikas, vol. 2, p. 666 (Urundi; Buesa); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 318 (Kisenyi). VAN SACEGHEM, 1924, Rev. Zool. Bot. Africaines, vol. 12, p. 101; 1925, Bull. Cercle Zool. Congolais, vol. 2, p. 115 (Ngoma). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 71 (Usumbura; Ruzizi Valley). CHAPIN, 1931, Nat. Hist., vol. 31, p. 604, fig. 609 (Lukolela). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 135 (Mauda; Faradje). BECQUET, 1942, Bull. Soc. Bot. Zool. Congolaises, year 5, p. 25 (Astrida).

Buphaga SCHOUTEDEN, 1927, Bull. Cercle Zool. Congolais, vol. 4, p. 84 (Upper Uelle; Shangugu; L. Leopold II ?).

Buphagus africanus megarhynchus GROTE, 1927, Ornith. Monatsber., p. 12 (type locality: Kisenyi on L. Kivu). FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 757 (Luvungi). SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 141 (Kibati; Mugunga; Nzulu; Kibumba, 2000 m.; Bitashimwa; Ruhengeri); 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 340 (Kibingo; Kirinda); 1943, idem, vol. 37, p. 272 (Gabiro). VERHEYEN, 1947, Exploration du Parc National Kagera, Mission Frechkop, fasc. 2, p. 16.

Buphaga africanus megarhynchus VAN SACEGHEM, 1927, Bull. Cercle Zool. Congolais, vol. 4, p. 84.

Buphagus africanus africanus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 670. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 282 (Lulenga; Ngoma); 1933, idem, vol. 22, p. 373 (Nyundo). BERLIOZ, 1936, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 8, p. 492 (Costermansville).

SPECIMENS: Faradje, male, November 27; female, November 16.

ADULTS OF BOTH SEXES: Iris bright orange or scarlet; outer half of beak scarlet, basal half yellow; tongue and whole interior of mouth blood-red; feet dusky brown.

DISTRIBUTION OF THE SPECIES: Senegal to Darfur and southwest Abyssinia, then southward through the interior of eastern Africa to Natal, and westward also to Ovamboland, Angola, and the grasslands of the Gaboon. Normally absent from the heavy rain forests of Upper and Lower Guinea, yet present occasionally on their borders, where forest buffalo graze in small grassy patches. In East Africa this "yellow-billed" oxpecker reaches the base of Mt. Kenya but is much less common than *B. erythrorynchus*.

Grote (1927) believed that birds from the lake region of central Africa and probably those of Abyssinia could be separated from Senegal specimens by their generally darker color and larger bills. This I have not been able to confirm, nor have I been able to note any important difference in examples from Angola, save that a few from the Mossamedes District have wings 127–130 mm., whereas in the remainder of its vast range the wing length of *B. a. africanus* is usually 116–126 mm. South African specimens may also have wings 129 and 130 mm.

Buphagus a. langi, on the other hand, is smaller, with wings 107.5–116 mm., and is of much darker coloration throughout, with gray instead of yellowish rump and no rufous on the inner webs of the rectrices. The race *langi* is known only from the Lower Congo and French Congo but would seem to extend northward into the Gaboon, where oxpeckers have often been reported. Three birds from the vicinity of Lobito Bay in Angola are a little grayish on the rump but closer to *africanus* than to *langi*.

Nominate *africanus* is therefore regarded as ranging all across the Sudan, south through the Kivu and Ruanda-Urundi to Angola, and probably southern Africa as well. To my surprise I found this race near Lukolela on the middle Congo River, although it seems to be unknown in the Kasai. Likewise in the region of Stanley Pool *Buphagus* appears to be lacking, and it would seem to have crossed the equatorial forest from the north by way of the open grassy marshes along the Likwala-Esobé and Ngiri rivers. There buffaloes are numerous, and oxpeckers have frequently been seen with them by European hunters.

Buphagus a. africanus is widely distributed in the northern savannas of the Congo, on the highland west of Lake Albert, in the grasslands of the Kivu and Ruanda-Urundi, and probably also in the Upper Katanga. It is surprising that none has been reported from the Manyema grasslands or from the highlands of Marungu. In some places it is frequently seen with domestic cattle, as in the eastern Ituri, Kivu, and Ruanda, but in the Upper Uelle it never came near the considerable herd of cows at Faradje. At Kisenyi

Grauer even collected one with the sheep. The animals preferred by yellow-billed oxpeckers in the Uelle were the white rhinoceros, buffalo, giant eland, and wart hog.

On the Rutshuru Plain they are attracted to buffalo especially, and a few may be seen alighting on the hippopotamuses which rest in numbers on the banks of the Rutshuru River. Ernest Hubert told me that occasionally they are to be seen on the topi and wart hog, but they never remain long on elephants when they do happen to alight there. The elephant is reputed to

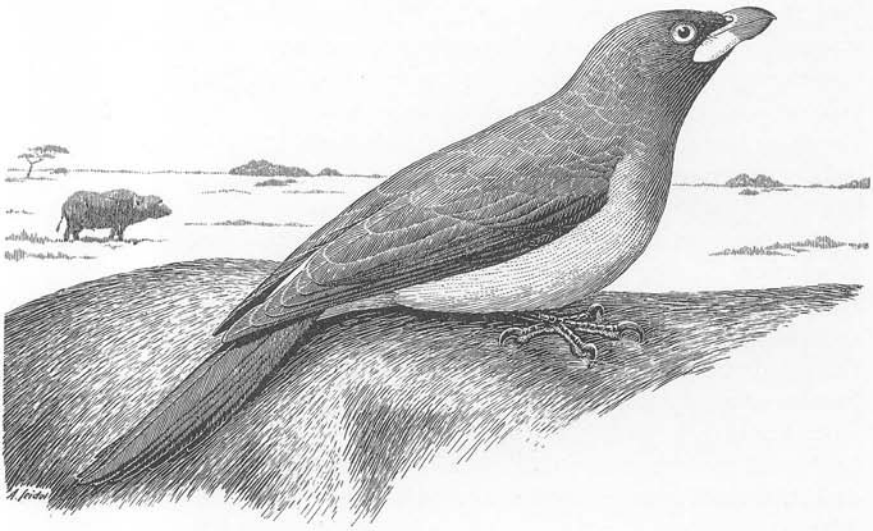

FIG. 16. Yellow-billed tick bird, *Buphagus a. africanus*, on the back of a buffalo.

have a very sensitive skin and will not tolerate these sharp-clawed birds.

In the region of the Kagera National Park, R. Verhulst tells me, the favorite hosts are cows, eland, zebra, and buffalo. One was even seen to alight on a large bustard. At Usumbura and Uvira they are usually in attendance on cattle.

The presence of buffalo and other large game animals is often betrayed to the hunter by the actions of these tick-birds, as they rise with slow, flapping flight, the wings appearing large, and the rump showing light yellowish. They go in parties of four to a dozen or more, and at times will fly off and perch in upright attitudes on some tree. But they keep repeating a high-pitched sibilant "krissss, krissss, . . ." which is certain to alarm the quadrupeds and can be heard for 80 yards and more. So strong is the bond between bird and beast that I have known groups of three to eight to return to a dead buffalo or eland.

With domestic cattle it is easier to observe the behavior of *Buphagus africanus* as it clambers about all parts of the animals searching for ticks, even more freely and actively than a woodpecker on a tree, resting on its pointed tail-feathers and holding without effort by its sharp claws. If birds that are scattered out amid a herd become alarmed by a man, the whole party may assemble on the back of one cow and then take off in a body. When on the alert the oxpecker holds its beak aloft, the back of the head depressed, and by its attitude reminds one somehow of a wryneck.

Sometimes it happens that a tick-bird stays so long on a buffalo that it is pinned under the animal when it has been shot. At Lukolela an immature example was thus captured and brought to me alive. When first received it had the iris bright red, but during the next two days I noticed that the eye color was sometimes scarlet, sometimes a rather dull orange-ocher, as though the color varied with blood supply. After death the iris of adults may be either orange or scarlet, and I believe the latter color to be normal during life.

Our two specimens from the Uelle were in non-breeding condition in November. Nesting there seems to be carried on during the first half of the rainy season. In Senegal Millet-Horsin[1] found nests in holes in tree trunks, containing bluish white eggs. In South Africa nests were said by Stark to be thick pads of hair on a foundation of straws and dried grasses, with sets of four to five very pale bluish white eggs, averaging 29.2 by 22.8 mm. But from Kano, Nigeria, Shuel[2] reported a set of three eggs in July as white, fairly well spotted and blotched with rust-brown and lilac. In Southern Rhodesia Alfred Vincent[3] found a nest in a hollow of a tree on November 3. The two eggs were white, spotted with chestnut brown and violet gray, measuring 26 by 18 and 26.6 by 18 mm.

At Uvira Brother Joseph Hutsebaut reported these birds nesting with *Columba guinea* in the tower of the church, while at Astrida they did so under the sheet-iron roof of a mission building.

The native names for this oxpecker may be of some interest. The Azande of the Uelle call it "zeregbe," literally buffalo-bird; the Bahavu and Baniabungu near Lake Kivu, "nshima"; and the Wafulero and Warundi near the north end of Tanganyika, "shimwa." At Lukolela among the Bobangi it is known as "ntshempinga." Other peoples along the Likwala-Esobé and Ngiri call it simply "dzè."

Hunters find it helpful at times, otherwise an annoyance. Native herders show no particular fondness for it. Although a potential vector of disease among cattle, since it pecks at wounds, it does keep down the tick popula-

[1] 1920, Rev. Française Ornith., vol. 4, pp. 151, 152.
[2] 1938, Ibis, p. 478, pl. 9, fig. 14.
[3] 1949, Ibis, p. 324.

tion, and ticks are certainly carriers of disease. Under primitive conditions, thinks H. R. F. Colback, a veterinarian of long experience, the oxpeckers are very useful in minimizing the number of ticks, especially females gorged with blood. They do not cause sores, although they will remove scabs from those already present. The practice of dipping cattle is of course much more effective and may yet force the birds to depend altogether on wild game.

The four stomachs I have examined each contained some four to eight ticks, together with coagulated blood, and many short hairs which were evidently swallowed with the ticks. One bird had eaten a small insect of some sort, another some small slender seeds. It seems evident that the blood in the ticks is the main source of nourishment, and quite natural therefore that the birds should take blood or scabs from wounds. On the label of a specimen from Angola C. H. Pemberton noted that the oxpeckers also went into the ears of cattle, and, he thought, "judging from the contents of the stomachs, fed on the wax found there." It may be wondered what oxpeckers seek on the hippopotamuses along the Rutshuru River. These mammals are known to be afflicted with leeches, which would contain blood, and they have been reported also to harbor ticks in their ears.

Buphagus africanus langi Chapin

Buphagus langi CHAPIN, 1921, Amer. Mus. Novitates, no. 17, p. 4 (type locality: Zambi, Lower Congo). VAN SACEGHEM, 1924, Rev. Zool. Bot. Africaines, vol. 12, p. 100 (Moanda). SCHOUTEDEN, 1942, Bull. Cercle Zool. Congolais, vol. 17, p. 15 (Mayombe).

Buphagus africanus MENEGAUX, 1918, Rev. Française Ornith., vol. 5, p. 259 (Zambi).

Buphaga langi SCHOUTEDEN, 1926, Rev. Zool. Bot. Africaines, vol. 13, p. 202. VAN SACEGHEM, 1927, Bull. Cercle Zool. Congolais, vol. 4, p. 84.

Buphagus africanus langi GROTE, 1927, Ornith. Monatsber., p. 13. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 670. BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 112. MALBRANT AND MACLATCHY, 1949, Faune de l'Equateur Africain Français, vol. 1, p. 382.

SPECIMENS: Zambi, two, sex unknown, July 4; male, July 25; female, immature female, January 16.

ADULT MALE AND FEMALE: Iris yellow, probably red in life; bill bright yellow at base, changing abruptly to scarlet distally; feet blackish.

IMMATURE FEMALE: Iris brownish gray; outer portion of bill scarlet, base of maxilla blackish above, remainder of bill yellow.

DISTRIBUTION: Lower Congo, near Zambi and Moanda, north to Madingo-Kayes in the adjacent French Congo, and no doubt in the grasslands of the Gaboon. Oxpeckers are certainly not rare in the Gaboon,[1] and

[1] Maclatchy, 1937, Ois. Rev. Française Ornith., new ser., vol. 7, pp. 360, 361.

it is scarcely possible that they could be of the nominate race. We may expect *langi* to extend also to the northwest coast of Angola.

At Zambi this small dark form of *B. africanus* is numerous and climbs about on cows, horses, and asses. Dr. E. Dartevelle tells me that it is to be seen also at Kanga and Mateba Island and is especially abundant at Moanda on the coast. In the latter region it visits the herds of domestic cattle and also accompanies wild ruminants in the grasslands.

Dr. R. Malbrant has sent us an adult female of *langi* from Madingo-Kayes on the coast of the French Congo, and in the southern Gaboon, according to Maclatchy, oxpeckers are well known to hunters of buffalo. He described their call as a "tsrr," whistled and prolonged. The sibilant voice of the species is difficult to express with letters, and I doubt that the calls of *langi* differ from those of *africanus*. Malbrant and Dartevelle both assure me that they have seen no oxpecker in the vicinity of Stanley Pool or at Kisantu.

Lang collected an immature bird in complete juvenal dress on June 26, so breeding may be expected in the rainy season. The nest and eggs have not been described. Although the eye color of dead adult birds was noted as yellow, in life it is probably orange or red.

The two stomachs I examined were both filled with ticks and short hairs. The hairs were doubtless pulled from the animals' hides, but they may remain much longer in the stomach than ticks. Colback noted at Moanda that the ticks on a herd of Dahomey cattle, not dipped, were quickly reduced to a very low level by the attentions of these birds.

Buphagus erythrorynchus (Stanley)

Tanagra erythroryncha STANLEY, 1814, *in* Salt, A voyage to Abyssinia, app., p. lix (type locality: Abyssinia).

? *Buphaga erythrorhyncha* MATSCHIE, 1887, Jour. Ornith., p. 154 (L. Itambe).

Buphaga erythrorhyncha MOURITZ, 1914, Ibis, p. 30 (southeastern Katanga).

? *Buphagus erythrorhynchus* SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 146 (L. Albert).

? *Buphagoides erythrorhynchus* GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 22 (Ngoma).

Buphagus erythrorhynchus caffer BOWEN, 1931, Catalogue of Sudan birds, pt. 2, p. 78 (Mongalla). VERHEYEN, 1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 586 (Ganza, 860 m.; Kibara Plateau).

ADULTS OF BOTH SEXES: Iris yellow to red, narrow bare wattle around eye chrome yellow; bill entirely bright red, interior of mouth scarlet; feet blackish brown.

DISTRIBUTION: Eritrea, Abyssinia, and Somaliland south through Eastern Africa to the Transvaal and Natal. The western limits seem to be along

the Bahr-el-Jebel, the northern shore of Lake Victoria, the Kagera Valley, Abercorn, Lake Upemba, the upper Loangwa Valley, Blantyre in Nyasaland, and Livingstone in Southern Rhodesia.

Abyssinian specimens have wings 105–120 mm., South African 111–123 mm. Such a slight average difference, of 3 to 6 mm., spread over such a vast distance makes it hard to draw any subspecific line. Nor do I find any constant difference in color between northern and southern birds, unless those of Abyssinia average lighter. But the coloration varies greatly with age and as a result of feather abrasion. So I am unwilling to recognize *B. e. caffer* Grote.[1]

The red-billed oxpecker has been said to occur at various places along the eastern edge of the Congo, but in most such cases there are no specimens to prove it. The only skins I have seen from close to our limits there are three obtained by Rudolf Grauer between Usuvi and the Kisaka district of Ruanda. These must have come from very close to the Kagera where it forms the boundary of Ruanda. Their wings measure 115, 117, 117 mm. So *erythrorynchus* must reach southeastern Ruanda.

Emin was evidently familiar with both species of *Buphagus* and noted that he had seen only *erythrorynchus* on Lake Albert, but that in Makraka *africanus* was the more common. The supposed occurrence at Ngoma is very questionable; only *africanus* has since been found there. Near Lake Itambe Reichard observed an oxpecker, but it was Matschie who thought it *erythrorynchus*. Neave saw none in the Upper Katanga, while Mouritz, who mentioned seeing *erythrorynchus* there, added that there were a good many *Buphagus* between the East Luembe River and the Luapula. I suspect that all the oxpeckers seen in the western parts of Northern Rhodesia will prove to be *africanus*, yet *B. erythrorynchus* is reported by Verheyen to be common on the Kibara Plateau in the Katanga.

The red-billed oxpecker in general behavior is very like the yellow-billed, and in East Africa it has a wide variety of large mammals on which to gather ticks and other food. Sometimes 18 or 20 birds will be resting on a single zebra or black rhinoceros. Giraffe, buffalo, many kinds of large antelopes, wart hogs, and hippopotamuses along the Tana River are all attractive, as are cows, horses, and donkeys.

As the birds take wing they usually give "churring" calls somewhat reminiscent of *Sturnus* and with a hissing or sibilant quality. Sometimes they alight in trees, usually at a safe distance. The few stomachs I have examined contained only ticks, blood, and short hairs. Moreau's extended investigation of *B. erythrorynchus*[2] showed that great numbers of ticks are eaten and

[1] 1927, Ornith. Monatsber., p. 13 (Palala R., Transvaal).

[2] 1933, Bull. Ent. Res., vol. 24, pp. 325–335; 1933, Ibis, p. 209.

also some blood-sucking flies, largely *Stomoxys*. He concluded that any harm done in pecking at sores, or possibly spreading infectious disease, must be outweighed by the benefits in removing ticks.

Nests are made of grass, with an upper layer of hair, in hollows in trees, rocks, stone walls, or under eaves of houses. Eggs are usually three, creamy white, evenly spotted all over with dark purple, pale lilac, and dark red-brown, and measure 23.5–25.2 by 17.5 mm. Breeding is carried on mostly during the rains. Nests have been reported from Abyssinia from late March to June; in the Kavirondo District in June-July and again in December; in Natal from November to January.

FAMILY **ZOSTEROPIDAE**. WHITE-EYES

Key to the Species of *Zosterops* in the Congo[1]

White eye-ring narrow, scarcely ever more than 1 mm. in width; wings usually shorter, varying from 50 to 61 mm.; tail measuring only from 30 to 44 mm. . . . . *Z. senegalensis*

White eye-ring somewhat broader, from 1.5 to 2 mm. wide; wings vary from 58 to 64 mm.; tail usually longer, measuring 39 to 48 mm. . . . . *Z. virens*

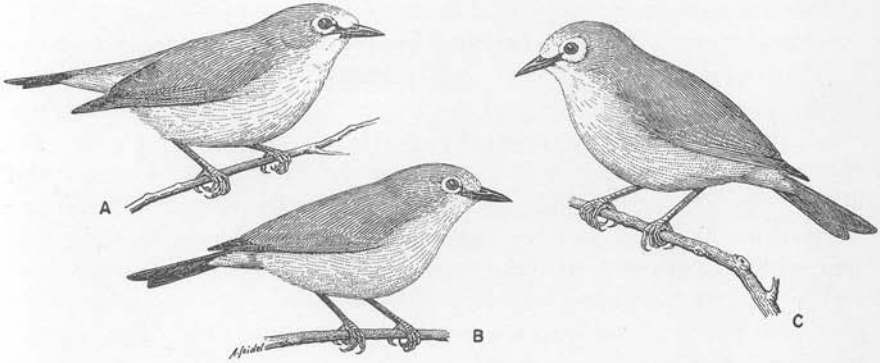

Fig. 17. Three white-eyes of the Congo. A. *Zosterops senegalensis superciliosa*. B. *Zosterops senegalensis kasaica*. C. *Zosterops virens scotti*.

[1] Greenness or yellowness of the flanks does not appear to be a reliable specific character in the Congo region. General coloration varies according to race, as does the exact width of the eye-ring. It is well to remember that *Z. virens* is supposed to be restricted to highlands in the eastern and southeastern Congo and that *Z. senegalensis* ranges more widely over the lowlands. In the eastern Congo *senegalensis* ascends to at least 5000 feet, and there the tail length will be found more diagnostic than wing length or general coloration. It must be admitted that all the forms of *Zosterops* in the Congo look as though they might be races of a single species; possibly they are.

Zosterops senegalensis senegalensis Bonaparte

Zosterops senegalensis BONAPARTE, 1850, Conspectus generum avium, vol. 1, p. 390 (type locality: Senegal). OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 126. SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 455 (Uelle District).

Zosterops senegalensis senegalensis SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 672 (Uelle R.). VON BOETTICHER, 1931, Vögel ferner Länder, vol. 5, p. 207, map 1. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 136 (Mauda; Buta). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 63 (upper Kemo R.). BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 121.

DISTRIBUTION OF THE SPECIES: Senegal to Eritrea and south to Ovamboland, northern Transvaal, and northeast Zululand. This species is usually found in savannas well provided with trees, but here and there it invades the edges of lowland rain forests, living mainly in second growth at the edges of clearings. Some of the races living in the wooded lowlands of western and central Africa have frequently been referred to the species *Z. virens;* that I feel to be an error. They have narrow eye-rings and form what might be called a *stenocricota* group, which virtually intergrades with other races of *Z. senegalensis.*

Of the dozen or more races which may be recognizable the Congo has six or seven. *Zosterops s. senegalensis* is a rather light yellowish form, with wings 54–59 mm., tail 34–39 mm. It inhabits savannas north of the Guinean forests, from Senegal and Portuguese Guinea east to Darfur, the Ubangi-Shari, and perhaps the Uelle. The race *superciliosa* is only a little deeper yellow and is very close to the preceding in size, having wings 52–58 mm., tail 34–39 mm. It occupies the region of the Bahr-el-Jebel and probably the Upper Uelle District.

Zosterops s. stuhlmanni of Uganda averages larger: wings 56.5–61 mm., tail 39–42 mm. While the validity of *Z. s. toroensis* has often been doubted, I find that birds from the borders of the Congo forest between Irumu and the Semliki Valley are slightly more greenish, with wings 52–57 mm., tail 34–39 mm. Likewise along the northern fringe of the Ituri forest there is a small, rather greenish form with wings 50.2–54.5 mm., tail 30.5–35 mm. This I call *Z. s. pusilla,* for it probably ranges west to beyond the bend of the Ubangi.

In all the central parts of the Upper Congo forest white-eyes appear to be lacking. But in the central Kasai they are represented by the form *Z. s. kasaica,* with wings 52–54, tail 32–36 mm., dull in color and without bright yellow on forehead, the eye-ring very narrow. This race may extend from Luluabourg west to the Kwango River. The savannas of the Katanga have a larger, yellower race, usually called *anderssoni,* with wings 58–61 mm., tail 39–44 mm. It must be admitted that far more collecting and study will

be needed before geographic variation in the present species becomes clearly understood.[1]

The nominate race of *Z. senegalensis* is usually assumed to range eastward to the vicinity of the Ubangi River and even the Uelle, so I have accepted the published records. This white-eye is usually seen in small parties or pairs, wandering through the trees in savanna country.

Nests found by Shuel and by Serle in Nigeria in late May and in June were small cups of grass, suspended with cobweb and cottony fibers between two divergent twigs at a height of 5 to 12 feet. The two eggs were white or pale blue, unspotted, measuring 14–16.7 by 10.6–12 mm.

Zosterops senegalensis superciliosa Reichenow

Zosterops superciliosa REICHENOW, 1892, Jour. Ornith., p. 193 (type locality: "Wadelai," but specimens came from Kiri and Fadjulli); 1904, Die Vögel Afrikas, vol. 3, p. 429 (Fadjulli; Wandi; Kiri). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, pp. 16, 27 ("Lake Dilolo").

Zosterops senegalensis superciliosa NEUMANN, 1904, Ornith. Monatsber., p. 111 (north of L. Albert). HARTERT, 1920, Novitates Zool., vol. 27, p. 433.

Zosterops senegalensis superciliosus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 673 (L. Albert). VON BOETTICHER, 1931, Vögel ferner Länder, vol. 5, p. 207, map 1. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 136 (Mahagi Port). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 572 (Ekibondo). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1307.

? *Zosterops senegalensis stuhlmanni* VRIJDAGH, 1949, Gerfaut, vol. 39, p. 96 (Andoga, 1200 m.).

SPECIMENS: Faradje, three males, February 16, October 14, December 22; two females, May 13, December 22.

ADULTS OF BOTH SEXES: Iris rather light brown ("hazel"), bill blackish with base of mandible light blue, feet bluish gray.

DISTRIBUTION: Vicinity of the Bahr-el-Jebel and the north end of Lake Albert, extending eastward perhaps toward the Turkwell River and westward to the Upper Uelle District. It differs at most from the nominate race by its slightly deeper color above, with a more conspicuous yellow forehead. The bird listed by Dubois as from "Lake Dilolo" was undoubtedly one of several formolized specimens received by the Congo Museum from Millo-Ribotti, and there is every reason to believe that it came from the Lado district.

In the Uelle we found this white-eye only in the vicinity of Faradje, where it lives in the savannas and in the rather narrow gallery forests. Forming parties of up to 10 or more, it feeds amid leafy branches in places where trees or scrub grow thickly, and utters weak, sibilant calls. On one occasion

[1] See especially Neumann, 1904, Ornith. Monatsber., pp. 109–118; Mackworth-Praed and Grant, 1945, Ibis, pp. 1–11, 575, 576.

in February, toward dusk, I shot a bird which had been delivering a low but rich warbling song lasting about three seconds. This was so unfamiliar that I made a point of securing the singer, a male already in condition to breed. Other birds with gonads enlarged were collected in May and October, but three in December were plainly non-breeding. In three stomachs I found nothing save small fruits.

Zosterops senegalensis stuhlmanni Reichenow

Zosterops stuhlmanni REICHENOW, 1892, Jour. Ornith., p. 54 (type locality: Bukoba, west shore of L. Victoria); 1905, Die Vögel Afrikas, vol. 3, p. 432.

Zosterops senegalensis SHELLEY, 1900, The birds of Africa, vol. 2, p. 173 (L. Edward).

Zosterops senegalensis stuhlmanni NEUMANN, 1904, Ornith. Monatsber., p. 111 (Sconga in Lendu ?; Mpororo).

? *Zosterops eurycricota* SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 284 (Biogo).

Zosterops virens stuhlmanni SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 675 ("Ruwenzori"). VON BOETTICHER, 1931, Vögel ferner Länder, vol. 5, p. 207, map 1.

DISTRIBUTION: From the northern and western sides of Lake Victoria, as well as Ukerewe and other islands in that lake, to the lowlands near Lakes Albert and Edward. There has been considerable confusion between this race and *Z. virens scotti,* and I cannot be sure of the correct allocation of some of my references.

Most of the specimens I have seen from low elevations in this section of the northeast Congo seem a little smaller, a trifle greener, than *stuhlmanni* from Uganda. Even a female I took at Djugu, 5400 feet, west of Lake Albert, is probably *Z. s. toroensis.* Another female from 5300 feet on the eastern side of the Rutshuru Valley is more likely to be *stuhlmanni;* its wing measures 59 mm., tail 41 mm.

The haunts and behavior in Uganda are such as one would expect of a race of *Z. senegalensis* rather than of *virens.* Nests of the usual white-eye construction were found near Entebbe by Jackson in January and March, with eggs usually two, occasionally three. The color varied, being either very pale blue or pure white; dimensions around 15.5 by 12 mm. According to Van Someren and to Belcher, nesting goes on in Uganda from January to May, also in July.

Zosterops senegalensis toroensis Reichenow

Zosterops toroensis REICHENOW, 1904, Jour. Ornith., p. 133 (type locality: Kitimba in Awamba, Semliki Valley); 1904, Die Vögel Afrikas, vol. 3, p. 432. SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 271 (Kilo); 1918, idem, vol. 5, p. 284 (Assumba). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 33 (Ukaika). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 108 (Kartushi; Bopu; Kampi-na-Mambuti; Simbo). SNOUCKAERT VAN

SCHAUBURG, 1931, Alauda, vol. 3, p. 24. GRANT AND MACKWORTH-PRAED, 1937, Bull. Brit. Ornith. Club, vol. 57, pp. 137, 159. V. AND G. VAN SOMEREN, 1949, The birds of Bwamba, p. 88 (lowland Bwamba, 2500–3500 ft.).

? *Zosterops virens* FLOWER, 1894, Proc. Zool. Soc. London, p. 604 (Ulike in Urumbi).

Zosterops senegalensis stuhlmanni NEUMANN, 1904, Ornith. Monatsber., p. 111 (in part).

Zosterops virens stuhlmanni MACKWORTH-PRAED AND GRANT, 1945, Ibis, p. 6 (in part. Ruwenzori; L. Edward).

Zosterops stenocricota toroensis VRIJDAGH, 1949, Gerfaut, vol. 39, p. 96 (Nioka).

ADULTS OF BOTH SEXES: Iris rather light to medium brown; bill black with some gray at base of mandible; feet rather light bluish gray.

DISTRIBUTION: Wooded areas in the Semliki Valley, possibly also in Toro, and along the northeastern margin of the lowland Congo forest northward to the region of Kilo. I find that the white-eyes in this area differ from *stuhlmanni* by their smaller size and slightly greener coloration, yet they appear to be conspecific with *stuhlmanni* and not with *Z. virens*.

The variation in yellowness of the underparts may depend on sex or age. Four specimens were collected by me, two of them at the village of Nganzi, 3800 feet, at the west base of Ruwenzori, one north of the new post of Beni, and one at Djugu, 5400 feet. At Nganzi I also collected another male which is much larger and agrees best with *Z. virens scotti*.

My experience with *toroensis* was the same as Gyldenstolpe's, though I should scarcely call it plentiful. Two or three might be seen amid a mixed bird party, usually rather high up in trees in clearings or second growth. Gyldenstolpe took a male in breeding condition at Simbo in June, while I collected another at Nganzi with testes enlarged in January. So the nesting season is not likely to be short or well defined. One bird I collected had eaten four small caterpillars.

Zosterops senegalensis pusilla Reichenow

Zosterops pusillus REICHENOW, 1921, Jour. Ornith., p. 48 (type locality: between Nola and Mbaiki, French Equatorial Africa).

Zosterops stenocricotus pusillus CHAPIN, 1932, Amer. Mus. Novitates, no. 570, p. 15 (Medje).

Zosterops stenocricota stenocricota SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 136.

Zosterops virens pusillus MACKWORTH-PRAED AND GRANT, 1945, Ibis, p. 8.

SPECIMENS: Medje, six males, January 24, March 21, May 22, August 16, September 18, 28; female, March 21; female ?, June 24; immature male, July 26; juvenile male, September 28.

ADULT MALE: Iris of a medium brown, bill black, feet dark gray.

DISTRIBUTION: The northern part of the Lower Guinea forest, perhaps from Efulen in Cameroon, the Gaboon, and the region of Mbaiki in French

Equatorial Africa eastward to Medje in the northern Ituri District. There are very few published records, and some of Bates's specimens from the Ja River in the Cameroon are distinctly brighter yellow than mine from Medje. On the other hand it must be admitted that examples of *Z. s. stenocricota* from Mt. Cameroon itself do not differ greatly from *pusilla*.

In Emin's last notebook *"Zosterops virens"* is mentioned from Ulike, a village about 75 miles south of Avakubi; possibly it was *Z. s. toroensis*. During more than a year spent near Avakubi I never saw any white-eyes. About Medje they were noticed only at intervals, in second growth or trees along the borders of clearings. In pairs or small parties they hopped about the leafy boughs, coming low down in bushes bordering banana groves, or less often stayed in high trees. But I never could hear any call note.

Breeding must continue through the greater part of the year; birds with enlarged gonads were taken in January, March, May, August, and September. On September 28 I found a nest containing a single youngster, with tail still very short. This light cup, 42 mm. in diameter inside, was built of green moss bound together with silk and lined with fine, hair-like, vegetable fibers, and hung by its edges from some small twigs and the stout petioles of two leaves. It was in a small tree close to the end of a bough.

Three of the four stomachs examined contained small green fruits or seeds from fruit. The fourth held only pieces of small insects, while two of the others had three small caterpillars as well.

Zosterops senegalensis kasaica Chapin

Zosterops stenocricotus kasaicus CHAPIN, 1932, Amer. Mus. Novitates, no. 570, p. 15 (type locality: Luluabourg, Kasai District).

Zosterops sp. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 345 (Macaco).

DISTRIBUTION: The Kasai District in the vicinity of Luluabourg and Luebo, and westward to the Kwango River. The dull coloration, very narrow eye-ring, and small size of *kasaica* are quite distinctive. At Kasanga, a village near Kasongo-Lunda, J. Schwetz collected a white-eye for the Congo Museum which I believe belongs to this race. But a specimen from Quicolungo in northwestern Angola is brighter yellow, and others from Pungo Andongo and Canhoca are very like *anderssoni*.

Nothing has been put on record as to the haunts or behavior of the white-eyes of the Kasai, but they are sure to resemble those of *Z. s. pusilla*. Father Callewaert obtained no fewer than 14 specimens near Luluabourg, and Father Windmolders has taken others, a little farther east in the Sankuru District. We probably do not know the eastern limit of this race.

Some other small race of *Z. senegalensis* evidently inhabits the southeastern margin of the Upper Congo forest. At Kamituga A. Prigogine

secured a single specimen, sexed as a male, with wing 53 mm., tail 32 mm., which is now in the Congo Museum. Its general coloration is deeper and greener than that of *kasaica,* a little greener than in most specimens of *toroensis,* and the white eye-ring appears to have been very narrow.

Zosterops senegalensis anderssoni Shelley

Zosterops anderssoni SHELLEY, 1892, Bull. Brit. Ornith. Club, vol. 1, p. 5 (type locality: Ovamboland). NEAVE, 1910, Ibis, p. 231 (Kanshanshi–Kambove; Luwingu; Chambezi R.).

Zosterops virens NEAVE, 1910, Ibis, p. 232 (Bunkeya, 3000 ft.; Lufupa R., 3500 ft.).

Zosterops sp. MOURITZ, 1914, Ibis, p. 36 (southeast Katanga).

Zosterops senegalensis anderssoni SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 673 (Katanga). VON BOETTICHER, 1931, Vögel ferner Länder, vol. 5, p. 207, map 1. DE SCHAUENSEE, 1932, Proc. Acad. Nat. Sci. Philadelphia, vol. 84, pp. 197, 198 (5 miles west of Elisabethville). PRIEST, 1936, The birds of Southern Rhodesia, vol. 4, p. 167, fig. 50 (Katanga). MACKWORTH-PRAED AND GRANT, 1945, Ibis, p. 4. A. W. VINCENT, 1949, Ibis, p. 325. SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 164 (Sakania; Kinda; Kansenia).

Zosterops senegalensis niassae SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 289 (Elisabethville).

DISTRIBUTION: Southern Rhodesia, Ovamboland, and Angola northwest to the region of Ndala Tando, also to Northern Rhodesia, the Katanga, and Moba on Lake Tanganyika. This is usually a bird of lowlands, ranging up to 4000 feet and more, but apt to be replaced by some slightly greener form in wooded montane areas.

In behavior *anderssoni* is very like the other races of *Z. senegalensis,* living mainly in savannas thickly studded with trees, from an altitude of 2500 feet up to 4500 feet. In Northern Rhodesia Neave found it generally in flocks, often in company with sunbirds. Winterbottom estimated that it occurred there in 17 to 20 per cent of the mixed bird parties. At Moba on Lake Tanganyika Rockefeller and Murphy found this white-eye with a bird party; near Elisabethville I noted a male *Hyliota f. barbozae* in the same tree with a party of four *Zosterops.* In addition to twittering call notes, a more melodious "jingling" song may be expected in the nesting period.

Breeding appears to continue from August to January or even March. The nest is a small cup of grass and rootlets, bound with spider silk and sometimes decorated with lichen or moss. Suspended in a fork, within 10 feet of the ground, it holds two or three unspotted eggs, either white or light blue, measuring 15.6–18 by 11.5–12.5 mm.

Zosterops virens quanzae de Schauensee

Zosterops senegalensis quanzae DE SCHAUENSEE, 1932, Proc. Acad. Nat. Sci. Philadelphia, vol. 84, p. 198 (type locality: upper Cuanza River, 4170 ft., Angola).

Zosterops virens stierlingi MACKWORTH-PRAED AND GRANT, 1945, Ibis, p. 6

(southeastern Belgian Congo). SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 164 (Dilolo).

Zosterops virens quanzae VERHEYEN, 1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 587 (Upemba Park, 1000–1810 m.).

DISTRIBUTION OF THE SPECIES: Eastern Cape Province and Transvaal north to the highlands in Angola and through the eastern half of Africa to Shoa in Abyssinia, living mainly in wooded places and especially on forested highlands. Within our limits the species seems confined to the Katanga and the eastern highlands as far north as Ruwenzori. On the highlands of East Africa *Zosterops virens* breaks up into a half dozen or more well-marked subspecies, some with very wide white eye-rings. The three races believed to inhabit the eastern Congo are much less distinctive.

Described from the Benguella Plateau, *Zosterops virens quanzae* extends to the Kibara Mountains in the Upemba National Park and the highlands of Marungu. It is just a little greener than *Z. senegalensis anderssoni* and has wings measuring 58–64 mm., tail 39–45 mm.

A much more greenish form, *Z. virens reichenowi,* occupies the highlands from northwest of Lake Tanganyika to west of Lake Kivu; its wings are 59–62 mm. long, tail 43–46 mm. This race really looks as though it were conspecific with *virens* of South Africa.

The white-eye that inhabits the higher levels on the Kivu Volcanoes and Ruwenzori, *Z. virens scotti,* is quite yellowish above and below. Its wings measure 57.5–64 mm., tail 41–48. Its coloration is like that of *Z. senegalensis stuhlmanni,* but its tail is usually longer and its white eye-ring wider.

It has often been claimed that *scotti* is synonymous with *stuhlmanni,* an opinion from which I dissent, but I do admit the real difficulty in separating *quanzae* from *anderssoni* in the Katanga. It might have been expected that somewhere on the mountains in that region there would be a white-eye similar to *Z. virens sarmenticia* Bangs and Loveridge,[1] of distinctly deeper coloration. Instead, the two supposed species *Z. virens* and *Z. senegalensis* seem almost to intergrade in the Katanga and Angola. Were it not for the very distinct forms on many of the mountains in East Africa and the very green *reichenowi* in the southern Kivu District, I should hesitate to refer *quanzae* to the species *virens.*

At Sambwe, 6100 feet, in Marungu Rockefeller and Murphy collected two specimens of *Z. v. quanzae,* and R. Verheyen has kindly lent us a series of 12 similar birds which he collected at the upper levels in the Upemba National Park. He tells me that they were always found along the margins of stream-side woods on the plateau or in the adjacent trees of the savanna. One may expect their behavior to agree with that of *Z. s. anderssoni* near

[1] 1931, Proc. New England Zool. Club, vol. 12, p. 95 (Igale, Poroto Mts., southwest Tanganyika Territory).

Elisabethville. To decide whether or not *quansae* is rightly included among the races of *Z. virens* will require a broad investigation such as the one now being made by R. E. Moreau.

Zosterops virens reichenowi Dubois

Zosterops virens var. *reichenowi* DUBOIS, 1911, Rev. Française Ornith., vol. 2, p. 18 (type locality: Baraka, eastern Belgian Congo).

Zosterops toroensis REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 346 (northwest of L. Tanganyika).

Zosterops reichenowi SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 285. GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 110 (Sake).

Zosterops scotti ? SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 33 (Urundi ?; northwest of L. Tanganyika, 2000 m.).

Zosterops virens reichenowi SNOUCKAERT VAN SCHAUBURG, 1931, Alauda, vol. 3, p. 24. SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 142.

Zosterops virens ? *jacksoni* HENDRICKX, 1944, Ostrich, vol. 15, p. 205 (southwest of L. Kivu).

DISTRIBUTION: Highlands from the vicinity of Baraka and Uvira northward to the west side of Lake Kivu. This is a relatively greenish race, of which we have six of Grauer's specimens from the type locality, northwest of Baraka at levels of 1900 to 2000 meters. I obtained one myself at 8900 feet on a mountain west of the Ruzizi Valley, and Gyldenstolpe first supplied evidence of its occurrence west of Lake Kivu. F. L. Hendrickx has lent me a half dozen specimens from Mulungu, and they agree well with Grauer's birds.

As for intergradation with *scotti,* which one might expect near the north shore of Lake Kivu, I can say only that some specimens of Grauer's, labeled "Foothills of the Western Volcanoes, 2400 meters," look rather greenish below, although others from the central volcanoes are referable to *scotti.*

Little need be said of *reichenowi* in life save that it inhabits woods between 5000 and 9000 feet and sometimes is seen in groups. It resembles *scotti* very closely in behavior.

Zosterops virens scotti Neumann

Zosterops scotti NEUMANN, 1899, Ornith. Monatsber., p. 24 (type locality: Yeria Forest, 8000 ft., on east Ruwenzori). REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 431. GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 109 (Mt. Muhavura, 3200 m.; Kibati; Burunga; Lulenga; Mt. Mikeno, 2800–4000 m.; Mt. Karisimbi, 3600–3800 m.). SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 142 (Kabara; Mt. Sabinyo, 3000 m.).

Zosterops jacksoni SHELLEY, 1900, The birds of Africa, vol. 2, p. 184 (east Ruwenzori). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 333 (Mubuku Valley, 6000–8000 ft.; Butahu Valley, 7000 ft.; ? Mpanga Forest, 5000

ft.). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 347 (Butahu Valley).

Zosterops virens scotti NEUMANN, 1904, Ornith. Monatsber., p. 115 (Ruwenzori). SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 281 (Ngoma; Nya-Muzinga); 1933, idem, vol. 22, p. 373 (Kisenyi). FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 373. PETERS AND LOVERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 267 (Idjwi I.).

Zosterops schubotzi REICHENOW, 1908, Ornith. Monatsber., p. 160 (type locality: western base of Ruwenzori): 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 347 (Ruwenzori; Rugege Forest; Mt. Niragongo). V. AND G. VAN SOMEREN, 1949, The birds of Bwamba, p. 89 (northwest Ruwenzori, 5600–9000 ft.).

Zosterops stuhlmanni REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 346 (Mt. Niragongo, 2800 m.).

? *Zosterops eurycricota* REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 347 (L. Kivu).

Zosterops virens schubotzi SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 675 (west Ruwenzori). VON BOETTICHER, 1931, Vögel ferner Länder, vol. 5, p. 208, map 1.

Zosterops virens stuhlmanni SCHOUTEDEN, 1935, Rev. Zool. Bot. Africaines, vol. 27, p. 403 (Kansenze near Mt. Nyamlagira; Kako bridge). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1310 (in part). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 79 (forest of Kamuneyu).

ADULTS OF BOTH SEXES: Iris rather light, warm brown; bill black with a little bluish gray at very base of mandible; feet bluish gray, often tinged in part with greenish.

DISTRIBUTION: Mountain forests of Ruwenzori, the highland west of Lake Edward, the Kivu Volcanoes, Kigezi District, and Ruanda south at least to the Rugege Forest. I am doubtful of the record from the Mpanga Forest. Specimens from east Ruwenzori agree with those from the west, and *schubotzi* need not be recognized.

My own specimens from the region of Lubero and Luofu at 7400 to 7700 feet are plainly *scotti,* and most birds from the Kivu Volcanoes and Behungi in the Kigezi District do not differ appreciably. Single examples from Wau and Idjwi islands are quite yellowish, too, and only a few from near the western Volcanoes may show a slight divergence toward *reichenowi.*

Below 5000 feet one does not expect to find *scotti,* yet at Nganzi, 3900 feet, at the west base of Ruwenzori, I did obtain one male with wing 61 mm., tail 44 mm., and body length 30.5 mm. It must be *scotti,* of which the body length, measured from nine other specimens, is 30–33 mm. But at Nganzi I also shot a male and a female *Z. s. toroensis* with wings 55.5 and 52.3 mm., tails 38 and 34 mm., and body length 29 and 28.5 mm. There the two species evidently occurred together. A female white-eye from the wooded area east of the Rutshuru Valley, at 5300 feet, is barely large enough for *scotti* and is probably referable to *Z. s. stuhlmanni.*

Scott's white-eye is a common bird on Ruwenzori, the Kivu Volcanoes, and the highland west of Lake Edward. On east Ruwenzori Woosnam noted it up to 10,000 feet. On the west side I found it numerous up to 9000 feet, at the lower edge of the heath zone, but not higher. West of Lake Edward it was rather common in woods and sometimes wandered well out into areas of scrub or bracken. On the central Kivu Volcanoes, where the heath zone is poorly developed, these white-eyes were fairly numerous up to 11,400 feet.

They are seen in pairs or parties of six to a dozen or more, not noisy, yet responsible at times for a rather brief series of notes like "cheer-cheer-chwee-chwee." The rhythm seemed irregular, as though two birds might be calling simultaneously. Not infrequently they are seen in the same tree with *Parus fasciiventer* or *Cyanomitra alinae.*

On west Ruwenzori we took six adults in breeding condition between November 18 and February 8, but the season of reproduction may be still longer. In the region of the Volcanoes we had similar evidence of breeding in April and June. Dr. V. van Someren found a nest on Ruwenzori, a cup slung in a creeper about 6 feet up. It measured about 55 mm. across the rim and 40 mm. in depth, was built of long-strand tree moss and cobweb and lined with fibers from bark and fern roots. The eggs of *scotti,* he tells me, may be either blue or white.

I kept notes on the contents of five stomachs. Three contained only the pulp and seeds from small fruits; one held a green caterpillar as well as fruit; the fifth had insect remains. Thus the diet is varied exactly as with the white-eyes of the lowlands.

FAMILY **NECTARINIIDAE.** SUNBIRDS

Key to the Genera of Nectariniidae in the Congo
(Adult males in breeding plumage only)

1. Bill relatively short and straight, not longer than rest of head, lower border of gonys nearly a straight line 2
   Bill longer or more curved, gonys forming a decurved line, or if rather straight, then bill much longer than rest of head 3
2. Tail square or rounded, shorter than wing; median rectrices not prolonged beyond adjacent quills . . . . . *Anthreptes* (p. 189)
   Two middle tail-feathers greatly prolonged, much longer than wing, lower breast and abdomen bright yellow . . . . . *Hedydipna* (p. 203)
3. Tail not longer than wing, sometimes wedge-shaped or emarginate, mostly square or rounded; median rectrices not greatly elongated 4
   Tail with two median quills elongated, exceeding length of wing . . . . . *Nectarinia* (p. 265)
4. Whole back with metallic luster . . . . . *Cinnyris* (p. 228)
   Back plumage not metallic, but olive, brown, gray, or dull black 5
5. Body plumage olive, olive and gray, or more rarely dusky brown on back; abdomen gray, olive, or even yellowish; head and throat may have metallic luster . . . . . *Cyanomitra* (p. 204)

Body plumage black or dark brown; on head, throat, or other parts there are sharply defined areas of metallic color, on breast sometimes a large patch of bright red . . . . . *Chalcomitra* (p. 218)

KEY TO THE SPECIES OF *Anthreptes* IN THE CONGO

1. Back gray or dull dark brown 2
   Back with metallic luster, or at least greenish in color, if not glossy 5
2. Forehead and throat black with dark blue gloss; breast red in mid-line, yellow at sides . . . . . *A. anchietae*
   No metallic luster on forehead or throat 3
3. Wing less than 61 mm. long; tail dull and grayish . . . . . *A. gabonicus*
   Wing more than 61 mm. long; tail with blue or violet luster 4
4. Abdomen and under tail-coverts pale yellow . . . . . *A. longuemarei*
   Abdomen and under tail-coverts whitish, with only the faintest wash of yellow . . . . . *A. orientalis*
5. Back olive-green without metallic sheen 6
   Back darker and with distinct metallic luster 7
6. Wing less than 62 mm. long, culmen to base less than 18 mm. long . . . . . *A. tephrolaema*
   Wing 62 mm. or longer, culmen more than 18 mm. long, crown may be gray, or green like back . . . . . *A. fraseri*
7. Crown, throat, and back burnished purple or violet, with a patch of green at most on lower back; fore-neck and breast white or lightly washed with buff; pectoral tufts yellow 8
   Upperparts glossy green, or varied with green and blue or violet 9

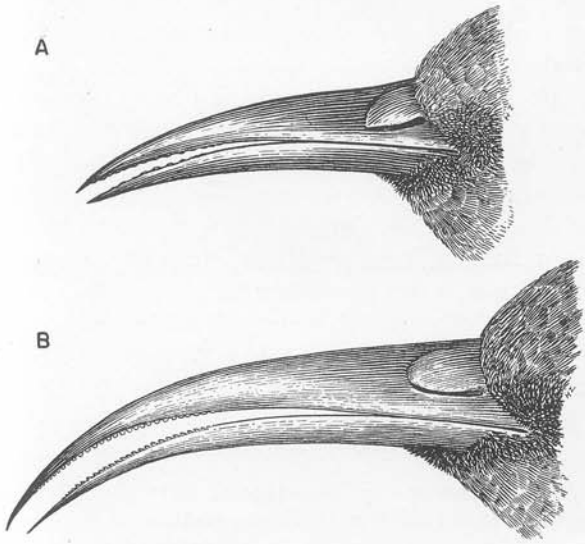

FIG. 18. Beaks of two sunbirds, enlarged about four times, to show serration of the tomia. A. *Hedydipna platura*. B. *Cinnyris regius*.

8. Wing 62 mm. or longer; upperparts show some blue luster on hind-neck and base of tail; male has orange-red pectoral tufts . . . . . *A. aurantium*
   Wing less than 62 mm. long; hind-neck and upper back glossy green 9
9. Upper throat gray, fore-neck glossy green, bordered below by an ochreous band, lower breast gray . . . . . *A. tephrolaema*
   Throat entirely glossy green, or else the yellowish color of breast extends up to throat . . . . . *A. collaris*

Anthreptes gabonicus (Hartlaub)

Nectarinia gabonica HARTLAUB, 1861, Jour. Ornith., pp. 13, 109 (type locality: Gaboon).

Anthreptes tephrolaema BÜTTIKOFER, 1888, Notes Leyden Mus., vol. 10, p. 211 (Banana).

Anthreptes gabonicus BÜTTIKOFER, 1889, Notes Leyden Mus., vol. 11, p. 118. REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 441. DELACOUR, 1944, Zoologica, New York, vol. 29, p. 22.

Stiphrornis alboterminata REICHENOW, 1891, Jour. Ornith., p. 68 (Banana).

Anthothreptes gabonica SHELLEY, 1900, The birds of Africa, vol. 2, p. 158.

Anthreptes gabonica SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 712. BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 258 (Landana).

DISTRIBUTION: West Coast from the Gambia to the mouth of the Congo River. This very dull grayish sunbird, with pale underparts, is restricted to the mangrove vegetation and the banks of rivers and lagoons near the seacoast. Reichenow remarked that it looked much like a warbler. It goes up the Ogowé River to Lake Onangué, but in the Congo has thus far been found only at Banana. Not at all conspicuous by color or behavior, it may have been overlooked higher up the stream.

The nests are hung from some projecting bough or twig, only a yard above high-water level, and they have been noted in Sierra Leone from July to September, in Liberia from late December to the end of March. On the Cameroon coast Sjöstedt reported nesting in January and February, and at Lake Ogemwe in the Gaboon Ansorge found a nest with one egg on June 15. At Banana, Van der Kellen obtained a nest with an egg in September. In Liberia, according to Büttikofer, nests usually held two eggs, ashy gray somewhat washed with violet and marked with dark streaks and spots. Serle[1] found them greenish gray with dense cloudy markings and streaks of gray and brown, measuring 16.8–18 by 12.2–12.7 mm.

Anthreptes fraseri cameroonensis Bannerman

Anthreptes fraseri cameroonensis BANNERMAN, 1921, Bull. Brit. Ornith. Club, vol. 41, p. 137 (type locality: River Ja, Cameroon).

DISTRIBUTION OF THE SPECIES: Sierra Leone to Southern Nigeria, Fernando Po, and Cameroon to Uganda, the forest of the Manyema, and

[1] 1949, Ostrich, vol. 20, pp. 119–120.

the northern Kasai. The nominate race, restricted to Fernando Po, is much larger than *A. f. idius* Oberholser of Upper Guinea and a little larger than *A. f. cameroonensis* of southern Nigeria and the Cameroon, Gaboon, and Mayombe. The wing length of *cameroonensis* is 58–73 mm. *Anthreptes f. axillaris* of the Upper Congo and Uganda has head and throat gray when adult, instead of green; its wings measure 61–74 mm.

Although there have been no published records, this green sunbird is of regular occurrence in the forest of the Belgian Mayombe. At Ganda Sundi, on April 18 and 20, 1931, I noted two to four individuals as members of mixed bird parties and collected one adult male. It has also been taken at Pangala in the French Congo, but along the middle Congo River is replaced by the gray-headed *axillaris*.

In its feeding behavior there is little suggestion of a typical sunbird; one rarely sees *A. fraseri* except with a mixed group of other small insect-hunting birds. I have never heard it sing, and the nest seems to be unknown.

Anthreptes fraseri axillaris (Reichenow)

Camaroptera axillaris REICHENOW, 1893, Ornith. Monatsber., p. 32 (type locality: Uvamba, in Semliki Valley).

Anthreptes axillaris REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 442; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 347 (Avakubi; Lenda R.). COTTEREAU, 1919, Les souïmangas ou sucriers de l'Afrique, p. 9. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 345 (Basongo); 1925, idem, vol. 13, p. 18 (Kunungu); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 138 (Medje; Bondo Mabe; Kotili; Nava R.). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 104 (Malisawa). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 38 (eastern border of Rutshuru Plain, 1600 m.; Beni; Moera; Mawambi; Ukaika). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 711. STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 571 (Saidi). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1367. MACKWORTH-PRAED AND GRANT, 1945, Ibis, p. 156. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 80 (near Biangolo R.).

Anthothreptes axillaris OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 320 (20 miles northwest of Beni; Irumu).

Camaroptera caniceps REICHENOW, 1915, Jour. Ornith., p. 128 (type locality: Duma, near Ubangi R.).

Anthreptes fraseri cameroonensis GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 104 (Kartushi; Lesse; Kampi-na-Mambuti; Simbo).

SPECIMENS: Avakubi, male, October 12. Ngayu, two males, July 27, December 25; three immature males, July 29, December 16, 25.

ADULT MALE: Iris red-brown to dull red; maxilla dark gray, mandible light pinkish gray; feet gray with under surface of toes yellowish.

IMMATURE MALE AND FEMALE: Similar, but iris of a rather light brown.

DISTRIBUTION: From the neighborhood of the Ubangi River south of

Bangui and Bolobo on the middle Congo eastward to the Ituri, eastern Rutshuru Valley, forested Manyema, and the forest patches of Uganda. On the north it reaches Api in the Uelle District, to the southward Basongo on the Kasai.

Immature examples of *axillaris* have the head green; one of our males from Ngayu is partly green there and partly gray. This species appears to represent an early stage in the development of the sunbird family. The horns of the hyoid are rather short, reaching up behind the head only to the edge of the muscular area that covers the occiput. The tip of the tongue is slightly bifid, and the tomia of beak finely serrated. The gizzard seems larger and more muscular than in most of the longer-billed sunbirds.

In heavy forests from Lukolela to the Ituri and Semliki Valley I found this gray-headed green sunbird rather common, but always with mixed flocks of insectivorous birds. Flowers seemed not to attract them at all, nor do they come out in sunlit clearings. Less active than most other sunbirds, they search the leafy boughs and lower growth in the forest shade, often in groups of three or four, and are relatively silent. I am sure I never heard one sing.

The nest is yet to be found, and we must assume that it is not built very low down. Breeding appears to go on through most of the rainy part of the year, perhaps most often in the early rains. I have taken males in breeding condition in the Ituri in July and at Lukolela in October, but do not expect any brief season of nesting, for adults with gonads somewhat enlarged and young birds in juvenal dress are too widely scattered through the year.

In seven stomachs I found always the remains of insects, including small beetles, an orthopter, and two small caterpillars. Two of the birds had also eaten spiders, and another two small fruits.

Anthreptes tephrolaema (Jardine and Fraser)

Nectarinia tephrolaemus JARDINE AND FRASER, 1851, Contrib. Ornith., p. 154 (type locality: Fernando Po).

Anthothreptes tephrolaema REICHENOW, 1887, Jour. Ornith., p. 306 (Leopoldville). SHELLEY, 1900, The birds of Africa, vol. 2, p. 157. OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 321 (northwest of Beni).

Anthreptes tephrolaema SHELLEY, 1888, Proc. Zool. Soc. London, p. 39 (Tingasi); 1890, Ibis, p. 163 (Yambuya). REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 445; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 347 (Lenda R.) DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28. SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 271 (Kilo); 1925, idem, vol. 13, p. 18 (Kunungu); 1926, idem, vol. 13, p. 202 (Tshela; Temvo). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 39 (Moera; Mawambi). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 108 (Kartushi). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 709.

Anthreptes tephrolaema tephrolaema SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 138 (Mauda; Kotili; Buta). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1364.

Anthreptes rectirostris MACKWORTH-PRAED AND GRANT, 1945, Ibis, p. 155 (in part).

Anthreptes rectirostris tephrolaema BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 245.

SPECIMENS: Avakubi, immature female, January 15. Ngayu, female, December 10. Medje, female, July 6.

ADULTS OF BOTH SEXES: Iris brownish red, bill and feet black.

DISTRIBUTION: Southern Nigeria and Fernando Po, the whole Lower Guinea forest, northwestern Angola and Uganda, east to Mt. Elgon and the Nandi Escarpment. This sunbird is often regarded as conspecific with *A. rectirostris* (Shaw) of Upper Guinea, from which it differs in having a gray instead of a lemon-yellow throat in the male plumage. Another ally is *A. rubritorques* Reichenow of Usambara.

It has been claimed that specimens from North Kavirondo are larger, with wings of males 59–64 mm., and should be separated as *A. t. elgonensis* Van Someren. But males from Fernando Po have wings 61–65 mm., and those from the Belgian Congo are 58–61 mm. Four males from Southern Nigeria are surprisingly small, their wings only 53–58 mm. long.

Within our limits this is not a very common sunbird, and it has been reported more often from the fringes of the Upper Congo forest than from its central areas. At Luluabourg in the Kasai Father Callewaert collected seven specimens; in the Uelle it extends a little north of Niangara. Near Medje the gray-chinned sunbird was found in second growth or in trees near the borders of clearings; at the west base of Ruwenzori I shot one from a tall forest tree. The species is not seen in the forest undergrowth, nor does it come to flowers near houses.

Breeding may go on through most of the year. South of Medje I found a nest on July 6 being visited by both male and female. There were no eggs as yet, and the female was collected. The nest was attached to the leafy end of a thorny acacia-like vine hanging from a tree, at 30 feet above the ground. On the outside the principal material was green moss, the lateral entrance was 4 cm. in diameter, with no projection above it, and the whole structure was globular, 13 cm. high and 10 cm. through. From the bottom hung some loose moss, while the lining was of soft brown material, perhaps from ferns, with a few rootlets.

In two stomachs which I examined there were only tiny red fruits, probably from a creeper, similar to those often eaten by *Anthreptes collaris* and the tiny barbets. Others have noted spiders, small insects, and caterpillars as well.

Anthreptes longuemarei haussarum Neumann

Anthreptes longmari haussarum NEUMANN, 1906, Ornith. Monatsber., p. 6 (type locality: Agome Tongwe, Togoland); 1906, Jour. Ornith., p. 245. ZEDLITZ, 1916, Jour. Ornith., p. 73.

Anthothreptes longuemarii SHELLEY, 1900, The birds of Africa, vol. 2, p. 144 (Bongeré; Sassa).

Anthreptes longuemarei REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 446 (Nyangabo); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 348 (Ndussuma).

Anthothreptes longuemarei SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 456 (Uelle District).

Anthreptes longuemairei SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 285 (in part. Boga).

Anthreptes, like *orientalis* EMIN, 1919, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 2, p. 436 (Mundu).

Anthreptes orientalis SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, pp. 240, 243.

Nectarinia longuemari EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 12 (Tunguru).

Anthreptes longuemarii EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, pp. 233, 234 (Kavalli).

Anthreptes longuemarei haussarum SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 710. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 138 (Mahagi Port; Faradje; Mauda). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 571 (Ekibondo). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 96 (Niarembe escarpment; Bogoro).

SPECIMENS: Niangara, male, November 17. Dungu, two males, February 2, June 2. Faradje, two males, September 9, 21; female, September 9; two immature females, February 4, October 10. Garamba, male, immature male, July 16.

ADULT MALE: Iris dark brown, bill brownish black, feet black.

ADULT FEMALE: Iris dark brown, bill and feet dusky greenish.

DISTRIBUTION OF THE SPECIES: Senegal and Portuguese Guinea eastward to the Bahr-el-Ghazal, Bahr-el-Jebel, northern Uganda, the savannas west of Lake Albert, and North Kavirondo. South of the equatorial forest other races extend from the Gaboon and northwestern Angola, Stanley Pool, and the southern Congo to the country just east of Lake Tanganyika, to Nyasaland, Portuguese East Africa, and Southern Rhodesia.

The nominate race inhabits Senegal and near-by countries. *Anthreptes l. haussarum* is very like it, save for a little more glossy green on the bend of the wing in males. This race ranges from the savannas north of the Ivory Coast to Uganda and Kavirondo. On the southern side of the Congo forest, *A. l. angolensis* has still more green on the wing of the male and a light wash of buff on the breast. The upperparts of the female are lighter grayish. In southern Nyasaland it is replaced by *A. l. nyassae,* of which the male

again has a whiter breast and the female very little yellow on the abdomen.

Anthreptes orientalis Hartlaub of southern Abyssinia and East Africa is perhaps to be regarded as specifically distinct from *A. longuemarei,* and *A. neglectus* Neumann of eastern Tanganyika Territory seems still more different.

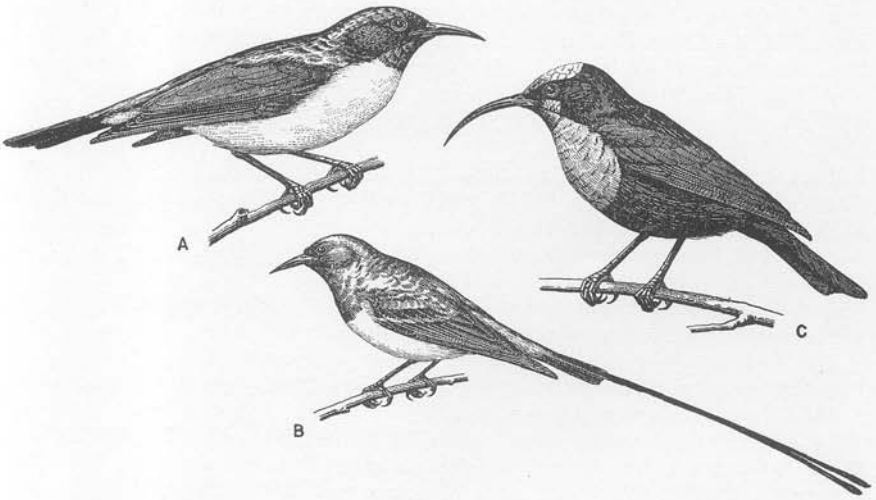

FIG. 19. Sunbirds. A. *Anthreptes longuemarei haussarum,* male. B. *Hedydipna platura,* male in breeding dress. C. *Chalcomitra senegalensis acik,* male.

The white-breasted *Anthreptes l. haussarum* is fairly common in the high-grass savannas of the Uelle and has even been taken at Buta by Brother Joseph Hutsebaut. It occurs also in grasslands from Mahagi to Boga. Single birds or pairs are the rule, but I once noted a party of six or seven in a tall savanna wood at Garamba.

Feeding among the stunted trees in the open, they seem not to be specially attracted by flowers and are anything but noisy. On one occasion, in June, a male accompanied by two females kept drooping his wings and spreading the tail, as though courting. But I think that nesting is carried on mainly in the dry season. Between Dungu and Faradje on February 4 a nest was found attached to a thin upright branch of a nearly leafless thorn tree, only 4 yards from the ground. Though woven of fine vegetable fibers and a delicate silky substance, it was covered externally with pieces of dry brown leaves. The form was bag-like, with the entrance at one side of the top. Two young birds in it were still nearly naked; both parents came to the nest, the female with food in her bill.

Three stomachs which I examined all contained bits of small insects such as beetles, and in addition there were small spiders in two cases, and one caterpillar as well.

Anthreptes longuemarei angolensis Neumann

Anthreptes longmari angolensis NEUMANN, 1906, Ornith. Monatsber., p. 6 (type locality: Duque de Bragança, Angola); 1906, Jour. Ornith., p. 246. ZEDLITZ, 1916, Jour. Ornith., p. 74. SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 623. BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 342. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 345, 401 (Ngombe in Kasai; Kwamouth). VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 16, p. 8 (Kiambi).

Nectarinia longuemarii SCHALOW, 1886, Jour. Ornith., p. 417 (Lufuku R.); 1887, idem, p. 242.

Anthothreptes longuemarii MATSCHIE, 1887, Jour. Ornith., p. 155. SHELLEY, 1900, The birds of Africa, vol. 2, p. 144 (in part). NEAVE, 1910, Ibis, p. 236 (south Kaluli R., 2500 ft.; Lufupa R., 4000 ft.).

Anthreptes longuemarei REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 446 (in part).

Anthothreptes carruthersi OGILVIE-GRANT, 1907, Bull. Brit. Ornith. Club, vol. 19, p. 106 (type locality: west shore of L. Tanganyika, 3000 ft.); 1908, Ibis, p. 285, pl. 5.

Anthreptes longuemairei SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 285 (in part. Milumba; Mawagongo).

Anthreptes longuemarei angolensis SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 88, p. 39 (Baraka). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 710. SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 289 (Elisabethville); 1949, idem, vol. 42, p. 163 (Funda Biabo; Kansenia; Dilolo; Kando; Tembwe; Kasaji). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 102 (Biano). BERLIOZ, 1941, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 13, p. 403 (Brazzaville). A. W. VINCENT, 1949, Ibis, p. 342 (near Elisabethville).

DISTRIBUTION: The middle Congo River, Stanley Pool, and Angola southward to Mossamedes Province, eastward also to the Manyema, the Katanga, western Tanganyika Territory, and Lake Nyasa. It does not extend into the Kivu highlands, so the race *angolensis* is completely isolated from *haussarum*.

I once saw a male of *angolensis* at Kunzulu on the middle Congo, a few specimens have been taken in the Kasai, and Grauer obtained several just west of Baraka. In the Upper Katanga Neave noted that it occurred only sparingly, usually in small parties. Rockefeller and Murphy collected four examples at Lubenga, 5650 feet, in Marungu, where they noted that it searched for insects together with other birds in mixed parties, in savanna woods. Two of their male specimens had gonads enlarged in March.

Farther south, in Nyasaland, the breeding season appears to come toward late September and to last perhaps until early January. Near Ncheu on September 24 Benson found a nest near the top of a tree in *Brachystegia* woodland. It was a domed structure with side entrance near the top, com-

posed of fine grass and covered on the outside with leaves of *Brachystegia*. The two eggs were pale gray with striking hairline markings of sepia; dimensions 19.5 by 13 mm. In the Katanga, near Elisabethville, Alfred Vincent noted three nests, all in September. The eggs, two in each set, measured 18.1–20.2 by 12–12.9 mm. Their ground color was sometimes greenish white or even pale buff, with scribbled markings of very deep brown or black.

[*Anthreptes orientalis* Hartlaub]

Anthreptes orientalis HARTLAUB, 1880, Jour. Ornith., p. 213 (type locality: Lado, on Bahr-el-Jebel).

Sometimes regarded as another race of *A. longuemarei,* this sunbird ranges from British Somaliland and Abyssinia to northern Uganda and through East Africa south to Ugogo in Tanganyika Territory. There may be three subspecies, distinguished by size. Along the Bahr-el-Jebel, where it meets with *A. l. haussarum,* no intermediate examples are found, and birds of both sexes are readily separated. The males of *orientalis* have much more green on lesser wing-coverts and rump, the females lack yellow on the abdomen.

At Fatiko and Masindi, according to Van Someren (1922), both species have been collected, so there is a possibility that *orientalis* may reach our territory near the north end of Lake Albert.

Anthreptes aurantium Verreaux

Anthreptes aurantium J. AND E. VERREAUX, 1851, Rev. Mag. Zool., ser. 2, vol. 3, p. 417 (type locality: Gaboon). REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 445 (Ngombe; Leopoldville). CHAPIN, 1921, Amer. Mus. Novitates, no. 17, p. 16 (Stanleyville; Panga; Bomili; Avakubi; Gamangui; Gada R.). BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 343; 1948, The birds of tropical West Africa, vol. 6, p. 250 (Ubangi R.; Luma I.; Voro on Uelle R.; Gurba R.). SCHOUTEDEN, 1924, Rev. Zool. Bot. Africaines, vol. 12, p. 422 (Tondu; Bikoro). BERLIOZ, 1941, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 13, p. 403 (Brazzaville). DELACOUR, 1944, Zoologica, New York, vol. 29, p. 22.

Anthothreptes aurantia REICHENOW, 1887, Jour. Ornith., p. 301 (Manyanga). SHELLEY, 1900, The birds of Africa, vol. 2, p. 147.

Anthreptes aurantia SHELLEY, 1890, Ibis, p. 163 (Yambuya). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (L. Leopold II). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 710. SCHOUTEDEN, 1935, Bull. Cercle Zool. Congolais, vol. 12, p. 62 (Buta); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 138. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 102.

Antothreptes aurentia OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 126.

Anthreptes aurantium aurantium SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 345 (Tshikapa).

SPECIMENS: Near Lisha, female, July 13. Stanleyville, female, October 25. Panga, male, September 12. Bomili, male, September 11. Avakubi, five males, January 3, 15, March 3, 5, July 16; three females, January 6, April

27, July 16; immature female, May 22. Gamangui, male, female, February 2.

ADULT MALE: Iris dark brown, bill black, feet dark gray.

ADULT FEMALE: Iris dark brown, bill and feet dark gray.

DISTRIBUTION: From Ondo Province in Southern Nigeria and the base of Mt. Cameroon south to the lower Congo River and the Kasai District and eastward to the Ubangi, Uelle, and Ituri. Thus it occupies most of the Lower Guinea forest, but seems not to reach its eastern edge, near the Semliki.

Its distribution must be affected by its fondness for forested river banks. In my experience it is scarcely to be seen elsewhere, except that on the northern and southern edges of the range a rather narrow strip of trees along a river may suffice. There are of course other small passerine birds with similar preferences, among them *Nectarinia congensis, Hirundo nigrita, Muscicapa cassini,* and *Brachycope anomala.*

The most northern place where I saw *Anthreptes aurantium* was along the Gada River, just south of Niangara. On the Ituri, Aruwimi, and Lindi rivers we found this sunbird fairly common and resident, as it must be along most of the rivers in the central Congo basin. At Lukolela I did not see it often, but specimens have been obtained in the Kasai by Father Callewaert at Luluabourg and by Father Windmolders at Mérode.

Males from the Gaboon and Lower Congo seem to be more heavily washed with buff on the breast and possibly have a more violaceous luster on the throat than mine from the Ituri. As compared with the longer-billed sunbirds, *A. aurantium* has short hyoids. In a female I found that their tips reached only to the edge of the muscles covering the occiput; those of a male were but slightly longer.

Like the other species of this genus already discussed, *aurantium* is a rather silent bird, living in pairs amid leafy boughs, mostly right above the water. It must nest at virtually all times of the year, for we took males with testes enlarged at Gamangui on February 2 and at Avakubi on March 5, besides finding nests along the Ituri in April and June.

Both nests were hung on leafy boughs of small-leaved trees (*Cynometra alexandri*) projecting far out over the water, and only 2 or 3 yards above it. They were of typical pear shape, with a slight projection above the entrance and some strands of loose material hanging from the bottom. Built mainly of pieces of dead leaves, strips of brown fiber, and black thread-like fungi, their strength was further increased by fine silky material. The lining was of white plant down.

In both cases the female was seen to leave the nest as we approached by canoe. One nest held a single fresh egg; the other had two eggs, heavily incubated. Of rather elongate shape, 18–19.2 by 12–13.1 mm., they were dull light blue with curious long scrawls of purplish black. These markings

were darkest and thickest around the large end, forming a ring, and elsewhere somewhat clouded. In the Gaboon Ansorge found a nest with two eggs on December 24.

On only one occasion I noticed a pair of these birds returning to a small acacia tree draped with a flowering vine (*Mussaenda erythrophylla*). In eight out of 11 stomachs I found small hairless caterpillars, sometimes as many as four or five. Five stomachs contained small fruits or seeds from fruits. Other insect remains, including two chrysalids and a winged ant, were present in five instances, and a single small spider closed the list.

Anthreptes collaris somereni Chapin

Anthreptes collaris somereni CHAPIN, 1949, Bull. Brit. Ornith. Club, vol. 69, p. 83 (type locality: Anda, L. Azingo, Gaboon).

Nectarinia subcollaris SHARPE, 1873, Proc. Zool. Soc. London, p. 717 (Congo R.).

Anthothreptes subcollaris REICHENOW, 1887, Jour. Ornith., pp. 301, 306 (Manyanga; Leopoldville).

Anthreptes hypodila SHELLEY, 1888, Proc. Zool. Soc. London, p. 39 (Tingasi); 1890, Ibis, p. 162 (Yambuya).

Anthothreptes hypodila SHELLEY, 1900, The birds of Africa, vol. 2, p. 151 (in part). OGILVIE-GRANT, 1908, Ibis, p. 286 (Kasongo–Ponthierville).

Anthreptes collaris hypodilus REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 443 (Bolobo; Uvamba); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 348. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 346, 401 (Basongo; Luebo; Kamaiembi; Macaco; Kabambaie; Makumbi; Tshikapa; Ngombe in Kasai; Tshisika; Kwamouth); 1924, idem, vol. 12, pp. 274, 422 (Kidada; Bikoro); 1926, idem, vol. 13, p. 202 (Moanda; Makaia-Ntete; Temvo; Tshela; Ganda Sundi); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 138 (Bondo Mabe; Kotili; Panga; Djamba; Mauda; Nava R.; Poko; Buta). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 708. STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 571 (Saidi; Ekibondo). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 102 (Kilembe). BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 240 (Tingasi; Pompari on Uelle R.; Luma I. in Ubangi R.). WHITE, 1950, Bull. Brit. Ornith. Club, vol. 70, p. 42.

Anthreptes collaris var. *hypodila* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (in part. Kisantu).

Anthothreptes zambesiana OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 320 (in part. Beni; Mawambi).

? *Nectarinia collaris* EMIN, 1922, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 3, p. 365 (L. Albert; Mangbetu country).

Anthreptes hypodila hypodila GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 107 (Molemba; Kartushi; Kampi-na-Mambuti). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 39 (in part. Moera; Ukaika).

Anthothreptes collaris hypodilus BERLIOZ, 1925, Bull. Mus. Hist. Nat., Paris, vol. 31, p. 349 (Luluabourg).

Nectarinia collaris EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 233 (Kavalli).

Anthreptes collaris MACKWORTH-PRAED AND GRANT, 1945, Ibis, p. 155.

SPECIMENS: Leopoldville, immature male, July 3. Banalia, female, Sep-

tember 23. Bomili, female, September 10. Avakubi, two males, June 10, November 11; immature male, April 16. Ngayu, three males, December 10, 19, 20; female, December 12; immature male, December 19; juvenile female, December 13. Gamangui, immature male, February 2. Medje, male, female, March 19; juvenile female, September 3. Niangara, male, April 30; immature female, March 16. Madrapili's, near Faradje, male, November 30.

ADULTS OF BOTH SEXES: Iris dark brown, bill and feet black.

DISTRIBUTION OF THE SPECIES: Gambia to southern Abyssinia and southward to northern Angola, the Zambesi Valley, and southeastern Africa to the eastern Cape Province. It may be divisible into nine or more subspecies.

Anthreptes c. collaris (Vieillot) of Natal and adjoining regions has wing-coverts and inner secondaries conspicuously margined with metallic green, while these edgings are duller in all the other races. Size and varying shades of yellow on the underparts are distinguishing marks of the latter. Upper Guinea and Southern Nigeria have *A. c. subcollaris* (Hartlaub), small and very bright yellow below. The birds of Fernando Po, *A. c. hypodilus* (Jardine), are paler beneath and much larger, wings of males 56–59 mm. Those of the Cameroon and Gaboon are dull-colored beneath, and males have wings only 49–52 mm. long, so they cannot be called *hypodilus*. In the northeastern Congo wings of males measure 51–55 mm., but the coloration remains dull below. These mainland birds are *A. c. somereni*.

This small form of the Lower Guinea forest ranges southward to Canhoca and Roça Congulu in Angola, to Tshisika in the southern Kasai, and on the east to the Uelle, Lake Albert, and the Semliki Valley. The race *ugandae* replaces it on the east side of Lake Albert, at higher levels on Ruwenzori and in the Kivu District, also in Marungu and the Upper Katanga. It is richer yellow below and slightly larger, males with wings 52–57 mm. I doubt that *A. c. zambesianus* (Shelley) even approaches the southeastern Congo; it is a little paler yellow below than *ugandae,* as are *elachior* and other small forms living near the coast in East Africa.

In the heavy forests of equatorial Africa this species lives mainly in second growth and along the borders of clearings, whereas in the more open regions it is partial to the densest tree growth available. Thus in the Ituri *A. c. somereni* is quite common in thickets and old farmlands, though it does not visit flowerbeds near houses. It is active and restless and gives the usual excited call-notes of a sunbird, but I did not hear it sing. In the northern Uelle one finds it only in the heavier gallery forests; this is probably true in the Kasai also.

Breeding must go on in the Ituri through the whole year, for adults with gonads enlarged were collected in March, April, June, September, and December. A nest found at Banalia on September 23 was of the accustomed pear shape and hung from a creeper, 6 yards up, and directly over a path

through second-growth woods. It was composed of strips of dry grass and other plant materials, lined with plant down, bound together outside with silk, and adorned with a small amount of caterpillar excrement. The two nestlings, on the point of leaving their home, had metallic green plumage on the upperparts. Eggs of this race seem not to have been described but are expected to be two, white or pale blue, with dark specks and scrawls near the large end.

Examination of six stomachs showed the diet to be mixed. Three held small fruits, some of them small and orange colored, such as are so often consumed by *Pogoniulus*. Four held insects of various kinds, including small naked caterpillars in two cases, and once a couple of large termites, doubtless of the winged brood.

Anthreptes collaris ugandae Van Someren

Anthreptes collaris ugandae VAN SOMEREN, 1921, Bull. Brit. Ornith. Club, vol. 41, p. 113 (type locality: Marakwet, Kenya Colony); 1922, Novitates Zool., vol. 29, p. 203. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 708. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 102 (Kayoyo; Sandoa). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1363. CAVE, 1938, Sudan Notes, vol. 21, p. 185 (Bendere near Doruma). PETERS AND LOVERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 267 (Idjwi I.). SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 163 (Kansenia; Kasenga; Dilolo; Kasaji).

Nectarinia collaris SCHALOW, 1886, Jour. Ornith., pp. 417, 420, 433 (Lufuku R.; Luvua R.; Likulwe R.); 1887, idem, p. 242.

Anthodiaeta collaris MATSCHIE, 1887, Jour. Ornith., p. 155.

Anthothreptes hypodila SHELLEY, 1900, The birds of Africa, vol. 2, p. 151 (in part). NEAVE, 1910, Ibis, p. 236 (Kambove, 4000 ft.).

Anthreptes collaris hypodilus REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 443 (in part). BERLIOZ, 1936, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 8, p. 492 (Mbwahi).

Anthreptes collaris var. *hypodila* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (in part. Katanga).

Anthodiaeta hypodila SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 7 (Lukonzolwa).

Anthothreptes zambesiana OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 320 (Mubuku Valley, 6500–7000 ft.; Mokia, 3400 ft.).

Anthreptes hypodila zambesiana BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 346 (Semliki Valley; Ruwenzori).

Anthreptes hypodila hypodila SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 39 (in part. Northwest of L. Tanganyika, 2000 m.).

Anthreptes collaris chobiensis WHITE AND WINTERBOTTOM, 1949, A check list of the birds of Northern Rhodesia, p. 122 (Ndola).

Anthreptes collaris phillipsi WHITE, 1950, Bull. Brit. Ornith. Club, vol. 70, p. 41 (type locality: Lofu River, Northern Rhodesia. Also from Katanga).

DISTRIBUTION: Western Kenya Colony and Uganda to Ruwenzori, the highlands of the Kivu District, Ruanda, Marungu, Upper Katanga, and Northern Rhodesia. I cannot see any marked difference in specimens from

Mwinilunga, and doubt the validity of *A. c. chobiensis* (Roberts) and *phillipsi* White.

It seems that the small *somereni* extends east to the forested Semliki Valley and the wooded lowlands of the Manyema but is replaced on the slopes of Ruwenzori and the highlands of the Kivu by *A. c. ugandae*. The latter is not altogether restricted to mountains. We have a specimen from 4950 feet on the west slope of Ruwenzori, where it ranges up to 7000 feet, and one also from the Rutshuru Plain. Others come from Idjwi Island, from Mt. Kandashomwa, west of the Ruzizi, at 7650 feet, and from the Rugege Forest in southwest Ruanda. This is the race which Neave noted as common everywhere in the Upper Katanga, especially in the wooded river valleys, and no doubt is the one reported from Marungu.

In behavior *ugandae* is similar to *somereni* of the Congo lowlands. At 7000 feet on east Ruwenzori Woosnam found a nest in January placed among the leaves of *Lobelia gibberoa*. In the lower parts of Uganda nests were found by Seth-Smith, Jackson, and Belcher in May, June, and September, often in young trees, 5 to 15 feet up, where they were concealed by drooping leaves. They measured about 9 cm. in length and had a pendant "beard" below of some 7.5 cm. The materials included dry grass blades, fibers, and bark, with a small amount of silk, and a lining of plant pappus. Eggs were two, bluish white spotted with brown and gray, 16 by 11 mm. At Mwinilunga, just south of the Katanga border, White found the months for nesting to be September and October.

Anthreptes anchietae (Bocage)

Nectarinia anchietae BARBOZA DU BOCAGE, 1878, Jor. Sci. Nat. Lisboa, vol. **6**, p. 208 (type locality: Caconda, Benguella).

Anthothreptes anchietae NEAVE, 1910, Ibis, p. 236 (Chambezi Valley).

Anthreptes anchietae SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 711. SCHOUTEDEN, 1937, Bull. Cercle Zool. Congolais, vol. 13, p. 67; 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 163.

Cinnyris regius SCHOUTEDEN, 1933, Bull. Cercle Zool. Congolais, vol. 10, p. 33 (Dilolo).

DISTRIBUTION: From the region of Caconda in Angola eastward to Lake Nyasa, the Chambezi Valley, and the country on the southeast side of Lake Tanganyika. Neave remarked that this sunbird occurs sparingly in pairs or small parties throughout the plateau country near the Katanga-Rhodesia border, yet the only specimen actually recorded from Congo territory is the male from Dilolo, which I have examined.

In Nyasaland Benson noted Anchieta's sunbird usually in *Brachystegia* woodlands between 3500 and 5500 feet. Its monosyllabic call note is loud and distinctive; the male has also a typical sunbird "jingle" as its song. Male and female are alike in their bright coloration. Two nests found by Benson

on September 29 and October 18 were domed, with side entrance, and made partly of seeds and floral parts of a *Protea.* They were 4 and 8 feet from the ground, one placed in a *Protea* bush. The earlier one was still without eggs, and a fledgling was just leaving the October nest. In a third nest found near Dedza by Benson on October 5 there were two eggs, bluish white with black spots and scrawls on underlying gray, mostly around the large end. Dimensions were 17.5 by 11.5 and 18 by 11.5 mm.

In Northern Rhodesia this sunbird is suspected of seasonal movements. Pitman reported it as plentiful at Broken Hill during the rains, yet not seen during the dry season. On the Muchinga Escarpment he found it particularly abundant in June–July. In the Mwinilunga district White noticed it only in March and April. There is every reason to expect this handsome sunbird in the southeastern Katanga.

Hedydipna platura platura (Vieillot)

Cinnyris platurus VIEILLOT, 1819, Nouveau dictionnaire d'histoire naturelle, vol. 31, p. 501 (type locality: Senegal).

Hedydipna platura CHAPIN, 1916, Nat. Hist., vol. 16, p. 543 (Uelle District). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 136. BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 153. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 96 (Ishwa Plain).

Hedydipna platura platura SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 616 (Meridi).

Anthreptes platura DELACOUR, 1944, Zoologica, New York, vol. 29, p. 22.

SPECIMENS: Faradje, seven males, January 18, February 20, March 14, December 23; female, February 20; immature female, March 17; juvenile male, March 14. Aba, male, December 20.

ADULT MALE: Iris dark brown, bill and feet black.

YOUNG IN JUVENAL PLUMAGE: Iris blackish, bill dusky brown, feet dark greenish gray.

DISTRIBUTION: Senegal and Portuguese Guinea eastward across the Sudan to the Nuba Mountains, the Bahr-el-Jebel, and Karamoja; also supposedly to northern Abyssinia. It has often been said that *H. metallica* (Lichtenstein) is merely a northeastern race of *H. platura,* with violet chest band and rump, but I do not think this has been proved. The ranges may possibly overlap in Darfur and Kordofan.

Whether it be a species or only a race, *platura* shows little variation from Senegal to northern Uganda, and the birds of Karamoja seem not to be separable. From the Adiabo Plain in northern Abyssinia Zedlitz[1] described *H. p. adiabonensis,* said to be like *platura,* but with wings only 53–54 mm. long. In other parts of its range *H. platura* has the wings of males 55–61 mm.

This yellow-bellied sunbird visits the northeastern Uelle District only in

[1] 1910, Ornith. Monatsber., p. 59.

the dry season, mainly from December to March, and we never noticed it southwest of Dungu. At that time the males are in full breeding dress, with two long median rectrices, and they nest during their stay.

All across the Sudan *H. platura* seems to be migratory, many birds moving southward to spend the dry months. George L. Bates[1] first called attention to the off-season or eclipse plumage worn by males toward June and July in the western Sudan. They become drab and yellow, with short tails, and while some may start to molt again into breeding plumage in July or August, breeding is deferred until the dry season. The long rectrices have been found growing in late October and November. In Turkana likewise Granvik saw numbers during July but not one male in nuptial dress.

In the region of Faradje *Hedydipna* was found in the dry scrub, rather shy, and often making extended flights, so that specimens were not easily secured. Instead of coming often to flowers, they seemed to prefer places that had recently been burned over. At such a spot on a hillside near Aba, on December 20, I once saw five or six males. They had doubtless just come in from the north, and the following year the first bird was observed on December 22. After the end of March all disappeared again. Heuglin reported this sunbird in the Bahr-el-Ghazal in September and October, and it is found north to Aïr and Darfur even in January and February.

All our adult specimens seemed ready to breed, but a nest was not located until February 19. On the road from Faradje to Dungu a female was seen carrying vegetable down in her beak, and a few miles farther on a nest was discovered, hanging in a thorny acacia from a bare branch, 4 yards above the ground. It was an oval pouch only 10 cm. from top to bottom, with lateral opening, composed mainly of fine strips of vegetable material, bound together with caterpillar silk and lined with plant down. A quantity of caterpillar droppings and two cocoons ornamented the outer surface. The nest was still empty, but both its owners were about, the male drooping his wings and raising the tail. The song is described by Serle as silvery and trilling.

In Nigeria nests have been reported from late December until mid-March, in shrubs or small trees, 7 to 10 feet up. Serle[2] found the eggs to be two, immaculate white, measuring 14.7–15.4 by 10.4–11 mm.

In two stomachs I counted four very small spiders, an ant, a tiny green caterpillar, and a stamen from a flower.

Key to the Species of *Cyanomitra* in the Congo

1. Throat greenish or gray, without metallic luster 2
   Throat wholly black with bluish or greenish luster 6
2. Crown and ear-coverts metallic green . . . . . *C. verticalis*
   Crown and sides of head greenish or brownish, without luster 3

[1] 1927, Ibis, p. 53; 1934, idem, p. 699.

[2] 1940, Ibis, pp. 31–33.

3. Bill shorter, culmen to base less than 20 mm., maximum wing length 56 mm . 4
   Bill longer, culmen to base exceeding 21 mm., wings 55–73 mm. 5
4. Rectrices entirely olive, without distinct blackish areas . . . . *C. seimundi*
   Rectrices mainly blackish, though fringed externally with green, and with distinct olive areas toward tips of the outer ones . . . . . *C. batesi*
5. Throat and breast gray, more or less washed with olive, no distinct superciliary stripe; male with chrome yellow pectoral tufts . . . . . *C. olivacea*
   Throat and breast grayish, not washed with olive; throat and fore-neck with a brownish tinge, and chest feathers with dark gray centers; a pale gray line below eye, and another above it . . . . . *C. cyanolaema*
6. Back dusky brown or blackish, not tinged with green; fore-neck, throat, and a separate patch on forehead and fore crown dark steel-blue; pectoral tufts very pale yellow . . . . . *C. cyanolaema*
   Back olive, golden green, or dusky with a distinct wash of green 7
7. Culmen less than 20 mm. long; under tail-coverts yellow, outer rectrices with gray tips . . . . . *C. reichenbachii*
   Culmen more than 21 mm. long, under tail-coverts gray or grayish green . . 8
8. Culmen to base always exceeding 26 mm., back deep golden olive, fore-neck and throat always with violaceous luster . . . . . *C. alinae*
   Culmen to base seldom over 27 mm., back more green, fore-neck and throat steel-blue to glossy green . . . . . *C. verticalis*

Cyanomitra seimundi minor (Bates)

Anthreptes seimundi minor BATES, 1926, Bull. Brit. Ornith. Club, vol. 46, p. 107 (type locality: Sanaga R., north of Yaunde, Cameroon). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 711. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1368. BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 256. V. AND G. VAN SOMEREN, 1949, The birds of Bwamba, p. 78 (Bwamba).

Cinnyris seimundi OGILVIE-GRANT, 1908, Bull. Brit. Ornith. Club, vol. 23, p. 19 (in part. Semliki Valley). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 349.

Anthreptes seimundi BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, pp. 347, 348 (10 miles northwest of Beni). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 108 (Beni).

DISTRIBUTION OF THE SPECIES: Forested regions from Sierra Leone to the Cameroon, Fernando Po, eastward to Uganda and southward to northern Angola. The nominate race is restricted to Fernando Po and is large and rather yellowish, with wings 51–59 mm. *Cyanomitra s. kruensis* (Bannerman) of Upper Guinea is smaller, wings 48–52 mm., and more grayish green below. In Lower Guinea lives *C. s. minor,* somewhat intermediate in color between the foregoing, with wings 47–56 mm. This race has not been reported from the central regions of the Upper Congo forest, yet it extends to Ndala Tando and Canhoca in northwest Angola, the Semliki Valley, the Budongo Forest, and Entebbe in Uganda.

This is one of the sunbirds most easily overlooked; I myself have collected only three specimens, all adult males. One, at Ganda Sundi in the Mayombe, was feeding quietly amid some vines hanging in a parasol tree.

Another, near Irumu, was in a thick patch of woods, and the third, at Nganzi near the west base of Ruwenzori, sat in a small tree at the edge of the forest where it gave way to elephant grass. One might well expect the species in the northern Kasai, and Father Windmolders believes he has collected it near Lusambo.

In the Cameroon Bates found this sunbird characteristic of dense second growth in old clearings. My specimens from Irumu and the Semliki Valley were ready for breeding on September 21 and February 5, but no short breeding season is to be expected there. In near-by Bwamba the Van Somerens watched a nest being built in August. Bates reported four nests from the southern Cameroon, small structures of the usual sunbird style with a lining of plant down and no hanging streamers. Two eggs formed a set, cream-color almost covered by fine brown freckling. Measurements: 14.5–15 by 11–11.5 mm.

Cyanomitra batesi (Ogilvie-Grant)

Cinnyris batesi OGILVIE-GRANT, 1908, Bull. Brit. Ornith. Club, vol. 23, p. 19 (type locality: River Ja, Cameroon).

Nectarinia batesi DELACOUR, 1944, Zoologica, New York, vol. 29, p. 24.

Cyanomitra batesi SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 163 (Kinda).

DISTRIBUTION OF THE SPECIES: The island of Fernando Po, and from Warri and Degema in Southern Nigeria to the forested Cameroon and Gaboon. It must also reach the Upper Congo forest, for the Congo Museum has a specimen taken at Kinda in the Lower Katanga. Bouet mentioned one from Yukaduma in the eastern Cameroon, so it may also be expected near the Ubangi River.

The only specimen I have seen from Fernando Po is a male secured by J. G. Correia at Basoala. It has the wing 54 mm. long, tail 30, culmen to base 18 mm., and thus seems a little larger than most mainland males, which have wings 46–53 mm., tails 23–30 mm., culmen to base 17–18 mm.

In the Congo this small green sunbird may yet turn up almost anywhere in wooded country from the Mayombe to the Semliki Valley[1] and the forested Manyema. It can scarcely be identified in life, but once in the hand is to be distinguished from *C. seimundi* by its dusky rectrices, with dull olive areas toward the tips of the outer ones.

In the Cameroon Bates found *C. batesi* rather common in second growth and planted land, where there was considerable sunshine, feeding at flowers and taking small spiders as well as nectar. Several nests, found in thickets, were hanging pockets of moss mixed with plant down; they contained two

[1] Prigogine (1953) reports one female from Lubena, west of Beni.

eggs each. These were pale pink with small markings of dark brown, measuring about 15 by 11 mm.

Cyanomitra olivacea cephaëlis (Bates)

Cinnyris (*Cyanomitra*) *olivaceus cephaëlis* BATES, 1930, Bull. Brit. Ornith. Club, vol. 51, p. 52 (type locality: Bitye, southern Cameroon).

Cinnyris obscurus SHELLEY, 1890, Ibis, p. 162 (Yambuya). OGILVIE-GRANT, 1908, Ibis, p. 284 (Kasongo–Ponthierville; Beni).

Cyanomitra obscura SHELLEY, 1900, The birds of Africa, vol. 2, p. 125 (Tingasi). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (L. Leopold II). SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 621 (Mt. Baginzi).

Chalcomitra obscura REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 450; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 348 (Beni; Avakubi); 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 37 (Moera; Mawambi; Ukaika; Mawambi-Irumu). BERLIOZ, 1925, Bull. Mus. Hist. Nat., Paris, vol. 31, p. 348 (Luluabourg).

Chalcomitra obscura ragazzii REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 451 (Awamba; Kinyawanga); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 348.

Chalchomitra obscura LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 17 (Mukimbungu).

Cyanomitra obscura guineensis BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 334.

Cyanomitra obscura obscura SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 346, 401 (Basongo; Luebo; Kamaiembi; Macaco; Belenge; Kabambaie; Ngombe in Kasai; Tshikapa; Kwamouth); 1924, idem, vol. 12, pp. 274, 422 (Kidada; Eala); 1925, idem, vol. 13, p. 18 (Kunungu); 1926, idem, vol. 13, p. 202 (Banana; Makaia-Ntete; Temvo; Ganda Sundi; Kai Bumba).

Cyanomitra obscura ragazzii SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 346 (Tshisika). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 100 (Kartushi; Malisawa; Bopu; Abeli; Kampi-na-Mambuti; Simbo).

Cyanomitra olivacea guineensis SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 705 (in part). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 138 (Medje; Mauda; Abimva; Dika; Bondo Mabe; Kotili; Poko; Panga; Buta). BERLIOZ, 1941, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 13, p. 403 (Brazzaville).

Cyanomitra olivacea cephaëlis VINCENT, 1934, Ibis, pp. 89, 92 (Upper Congo; northern Angola). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 571 (Saidi). SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 143 (east of Rutshuru Plain); 1940, Rev. Zool. Bot. Africaines, vol. 34, p. 61 (Kawa Forest).

Cyanomitra olivacea ragazzii CAVE, 1938, Sudan Notes, vol. 21, p. 185 (Bendere near Doruma). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1358 (Semliki Valley). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 80 (Kalisia near Lutunguru). BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 224.

Cyanomitra olivacea MACKWORTH-PRAED AND GRANT, 1945, Ibis, p. 155 (northern Congo).

SPECIMENS: Bengamisa, male, September 29. Near Risimu, male, September 8. Avakubi, two males, November 9, December 8; female, October 12; immature female, December 31. Ngayu, five males, December 17, 20, 22. Gamangui, two females, February 15, 18. Medje, two males, March 29, April 1; three females, May 19, September 28; three immature males, September 12, 16, 23; juvenile female, September 6. Niangara, male, May 4; immature female, November 10; juvenile male, June 8.

ADULTS OF BOTH SEXES: Iris dark brown; bill blackish, except for a yellow area on each side of lower mandible near the base; feet dark brown or dark brownish gray.

Nestlings have the corners of mouth deep orange.

DISTRIBUTION OF THE SPECIES: Portuguese Guinea and Sierra Leone eastward in forested regions to southern Abyssinia, and southward to Angola, Rhodesia, and eastern Cape Province. Also on the islands of Fernando Po, Principe, Pemba, Zanzibar, and Mafia.

This wide-ranging green sunbird has been divided into a dozen or more races, of which only a few are discussed here. *Cyanomitra o. olivacea* (Smith) of Natal is a large, deeply colored form, of which the female, as well as the male, has yellow pectoral tufts. Some of the smaller races in eastern Africa also have tufted females, but those occurring in the Congo do not.

Cyanomitra o. guineensis Bannerman, of Upper Guinea to the west of the Gold Coast, is rather deep in color, with bill almost wholly black. On Fernando Po and Principe lives *C. o. obscura,* larger, wings 57–69 mm., with grayer underparts, and base of mandible paler. The mainland bird, *C. o. cephaëlis,* has the same pale base to the mandible, averages only slightly smaller, and is a little more greenish beneath. Its wings measure 55–66 mm. This is the race occupying virtually all of Lower Guinea and intergrading with *guineensis* in the Gold Coast. From Southern Nigeria it extends to the forested Cameroon, Gaboon, and northwest Angola; also eastward to the Upper Congo, Kasai, and Semliki Valley.

As Gyldenstolpe pointed out, the birds of the northeastern Congo are slightly more greenish gray below than those of the Lower Congo and Cameroon. This may be a step in the direction of *C. o. vincenti,* a rather large and deeply colored form of Uganda, with wings 57–73 mm. It must be admitted that *cephaëlis* looks very like *C. o. ragazzii* (Salvadori) of southern Abyssinia. The Upper Katanga has still another race, *lowei,* very little lighter than *cephaëlis,* and with wings 59–68 mm. long.

From the Mayombe to the Kasai, Manyema, and Ituri *cephaëlis* is found commonly everywhere in the forest. Sometimes it seems to be a member of the mixed bird parties, and it may also be seen in the clearings, coming even to the staminate flowers of papaw trees. *Loranthus* flowers also attract it.

The usual call note is short and harsh. Its simple song is a series of short,

distinct notes, not loud, at first in an ascending scale. Near the middle the notes begin to descend again. Only occasionally are they run together into a sort of warble; even that is not melodious.

In the savanna districts this plain greenish sunbird is restricted to strips or patches of heavy forest. While it does not occupy the higher mountains, it is known to ascend to about 5000 feet near Lutunguru and the Elila River. On the eastern side of the Rutshuru Valley, at that same level, I collected two examples which agree with *cephaëlis* rather than with *vincenti.*

Nesting, in the Ituri, goes on irregularly throughout the year. Adults with enlarged gonads were taken at all seasons, nestlings in June and September. The same conditions seem to prevail near the southern border of the forest. The pensile pear-shaped nest is hung from a low twig in the shade of the forest, and made from light vegetable materials such as old dry leaves, twiglets, a little moss, and a little plant down or grassy fibers as lining. The whole is bound together and attached to the support with the fine black fungus threads which grow commonly on trees and bushes in the forest.

The eggs, usually two, are greenish white to gray-green, mottled and spotted with yellowish brown, dark brown, and gray. According to Bates the measurements are 16–18 by 12–12.5 mm.

In six stomachs I found small berries or seeds from fruit three times, bits of small insects twice, and one tiny green spider. Bates considered the food to consist mainly of nectar and small spiders, although he had noted some small green seeds and parts of flowers as well.

[*Cyanomitra olivacea vincenti* Grant and Mackworth-Praed]

Cyanomitra olivacea vincenti GRANT AND MACKWORTH-PRAED, 1943, Bull. Brit. Ornith. Club, vol. 64, p. 18 (type locality: Kapenguria, West Suk District, Kenya Colony).

Cyanomitra ragazzii OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 321 (Mpanga Forest).

The range of this race is supposedly from the Imatong Mountains and West Suk District to North Kavirondo, Uganda, Ankole, and Ukerewe Island. It appears to be just a little larger than *cephaëlis* and deeper green-gray beneath.

The differences between these two races are slight, but I think the birds of the Budongo and Mpanga forests are *vincenti,* so it may reach the eastern Congo border in the vicinity of Lake Albert or Ruwenzori. Some intergradation at least may be expected there.

Cyanomitra olivacea lowei Vincent

Cyanomitra olivacea lowei J. VINCENT, 1934, Ibis, p. 91 (type locality: Kafulafuta R., Northern Rhodesia). WHITE, 1946, Ibis, p. 214 (Mwinilunga). SCHOUTEDEN,

1949, Rev. Zool. Bot. Africaines, vol. 42, p. 163 (Dilolo; Kasaji; Pweto; Baudouinville).

Nectarinia olivacea SCHALOW, 1886, Jour. Ornith., pp. 417, 421 (Lufuku R.; Luvua R.); 1887, idem, p. 243.

Cinnyris olivacea MATSCHIE, 1887, Jour. Ornith., p. 155.

Cyanomitra olivacea SHELLEY, 1900, The birds of Africa, vol. 2, p. 123 (in part).

Eleocerthia ragazzii SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 7 (Lukonzolwa).

Chalcomitra obscura NEAVE, 1910, Ibis, p. 235 (upper Lufupa R., 4000 ft.; Lufupa R., 3500 ft.).

DISTRIBUTION: Western Tanganyika Territory, Upper Katanga, and the northern part of Northern Rhodesia. Supposedly also in Marungu.

The race *lowei* differs but slightly from *cephaëlis*. It averages a few millimeters more in length of wing, and the outer edgings of remiges and rectrices may be just a trifle yellower green. Its behavior is like that of the central Congo bird, but *lowei* is localized in the relatively few strips of dense evergreen woods, as Neave noted on the Lufupa River and White near Mwinilunga. In the Upemba Park Verheyen found it common in gallery forests from 685 up to 1840 meters.

Cyanomitra cyanolaema cyanolaema (Jardine)

Nectarinia cyanolaemus JARDINE, 1851, Contrib. Ornith., p. 154 (type locality: Fernando Po).

Cinnyris cyanolaemus REICHENOW, 1887, Jour. Ornith., p. 301 (Manyanga).

Cinnyris cyanolaema REICHENOW, 1887, Jour. Ornith., p. 306 (Leopoldville). OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 126.

Cyanomitra cyanolaema SHELLEY, 1900, The birds of Africa, vol. 2, p. 130. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Mayombe; Upper Congo). OGILVIE-GRANT, 1908, Ibis, p. 284 (Ponthierville); 1910, Trans. Zool. Soc. London, vol. 19, p. 322 (northwest of Beni; Avakubi). BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 340. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 346, 401 (Basongo: Kamaiembi; Kwamouth); 1924, idem, vol. 12, pp. 274, 422 (Kidada; Bikoro; Eala); 1926, idem, vol. 13, p. 203 (Temvo; Moanda); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 138 (Arebi; Bondo Mabe; Rungu; Medje; Poko; Angodia; Buta). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 103 (Kartushi; Lesse; Kampi-na-Mambuti). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 704. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1357. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 80 (Butahu R.; Djelube R.).

Chalcomitra cyanolaema REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 456 (Bundeko; Kitimba); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 349 (Lenda R.). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 272 (Kilo); 1918, idem, vol. 5, p. 285. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 38 (Moera).

Cyanomitra cyanolaema cyanolaema BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 62 (Mayombe Forest). BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 218 (upper Congo R.).

SPECIMENS: Avakubi, two males, April 18, August 15; immature male, June 6. Ngayu, male, December 16. Gamangui, male, February 1. Medje, male, July 31. Rungu, male, June 24. Niangara, female, June 8.

ADULTS OF BOTH SEXES: Iris dark brown, bill and feet black, soles of the latter yellowish gray.

DISTRIBUTION OF THE SPECIES: Sierra Leone and French Guinea eastward through forested countries to Uganda, and south to northern Angola; also on Fernando Po. Birds from Sierra Leone and Liberia have the bill 2–3 mm. longer than those of Fernando Po, and somewhat straighter in outline. They have been separated as *C. c. magnirostrata* (Bates).

In other parts of the range there is appreciable variation in wing length, which has not yet been used for subspecific division. Birds of both sexes from Fernando Po have wings 66–74 mm.; those of Southern Nigeria, Cameroon, and Gaboon are distinctly smaller, wings 63–69. But size increases again in northwest Angola, the Ituri, and Uganda. Nine birds from the Ituri have wings 64–71 mm.[1]

Disregarding these minor differences, we may accept nominate *cyanolaema* as ranging from the Gold Coast and Fernando Po to the Mabira Forest in Uganda, and south to Canhoca and Ndala Tondo in Angola. In the Congo it occupies the lowland equatorial forest, extending north in the gallery forests of the Uelle, southward in the Mayombe, and to Luluabourg in the Kasai District. It has been taken in the Manyema by Grauer and by Rockefeller and Murphy. I have seen it at 4400 feet on the eastern side of the Rutshuru Valley, but never on mountains above 5000 feet.

In its choice of haunts this sunbird resembles *C. olivacea* but is seen less often in virgin forest. Usually it is in second growth or near naturally open spots in forest and occasionally ventures out to flowers in a clearing. About Niangara in the Uelle it kept more strictly to the woods. I have found birds visiting some bright red blossoms to have the forehead covered with pollen; many sunbirds must play an important part in the fertilization of flowers. The male gives a characteristic sunbird song, shrill, slightly musical, and not loud.

In the Ituri breeding went on through the whole year; males with gonads enlarged were obtained in all four seasons. The nest of this sunbird is remarkable, for it is placed in the middle of a long mass of short dry twigs and bits of dry leaves, draped for about 4 feet along the end of some hanging vine, usually acacia-like and thorny. The whole is interlaced with the fine, black, thread-like fungus (*Marasmius*) so common in the forest undergrowth. At first glance it may seem a mere accumulation of rubbish, but somewhere

[1] Because females from Fernando Po are less yellowish above, Amadon has named the mainland birds of Lower Guinea *C. c. octaviae* (1953, Bull. Amer. Mus. Nat. Hist., vol. 100, p. 427, type locality: Efulen, Cameroon).

near the middle will be found a typical sunbird nest, with a lining of fine shreds of bark and a little bunch of the same material projecting above the oval entrance.

The first one, shown me by my helper Nekuma, hung 5 yards above the water of the Ituri River, on August 15. Both the owners were near it, but the vine had to be cut by a shot from the gun. When lifted from the water, the nest had lost its eggs, if any. Two abandoned nests of the same sort, swinging on the same kind of creeper, were later found near Avakubi, one over a small open spot in the forest, the other above a pathway.

Some years later I noticed another old nest of exactly the same sort near Irumu and also one in swampy woods at Eala attached to the drooping end of a frond of a rattan palm and anchored by the hooklets. Nekuma assured me in 1913 that this was the regular method of nest building, and George Bates in the Cameroon found the same thing to be true.

Bates obtained two sets of two eggs each, cream-colored or buff, heavily mottled or spotted with dark brown and sometimes purplish gray. The dimensions were 18–20 by 13–14 mm.

Small fruits enter to a considerable extent into the diet of this sunbird; three of our specimens had no other food in their stomachs. But it does visit flowers; and Bates noted that it took small spiders and even swallowed pieces of flowers.

Cyanomitra verticalis cyanocephala (Shaw)

Certhia cyanocephala SHAW, 1811, General zoology, vol. 8, p. 203 (type locality: Malimba, Enclave of Cabinda).

Nectarinia cyanocephala HARTLAUB, 1884, Jour. Ornith., p. 11 (Congo).

Cinnyris bohndorffi REICHENOW, 1887, Jour. Ornith., pp. 215, 301, 306 (type locality: Leopoldville; also from Manyanga).

Cinnyris verticalis REICHENOW, 1887, Jour. Ornith., p. 306 (Leopoldville). OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 126. DEL PRATO, 1893, Le raccolte zoologiche fatte nel Congo dal Cav. Giuseppe Corona, p. 8.

Cyanomitra verticalis SHELLEY, 1900, The birds of Africa, vol. 2, p. 127 (in part). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Upper Congo; Ngombe).

Chalcomitra verticalis REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 454; 1923, Mitt. Zool. Staatsinst. Zool. Mus. Hamburg, vol. 40, p. 65 (Lupungu). LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 17 (Mukimbungu).

Cyanomitra verticalis cyanocephala SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 346, 402 (Macaco; Ngombe in Kasai; Kwamouth); 1924, idem, vol. 12, p. 274 (Kidada; Kisantu). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 103. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 703. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 102 (in part. Banda).

Cyanomitra verticalis cyaneocephala SCHOUTEDEN, 1924, Rev. Zool. Bot. Africaines, vol. 12, p. 422 (Tondu; Bikoro).

Cyanomitra verticalis cyanoecephala SCHOUTEDEN, 1926, Rev. Zool. Bot. Atricaines, vol. 13, p. 203 (Vista; Kifuku on Banana Bay; Tshela; Ganda Sundi; Temvo).

Cyanomitra verticalis böhndorffi GRANT AND MACKWORTH-PRAED, 1943, Bull. Brit. Ornith. Club, vol. 63, p. 63. BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 214 (Kemo R.; Kasai Province).

Cyanomitra verticalis cyanomitra BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 62 (Brazzaville; upper Kemo R.).

SPECIMEN: Boma, male, January 2.

ADULT MALE: Iris dark brown, bill and feet black.

DISTRIBUTION OF THE SPECIES: From the Casamance River and Gambia to Nigeria, the Cameroon, northern Congo and Bahr-el-Ghazal, Uganda, and the vicinity of Mt. Kenya. Absent from most of the Upper Congo forest, but extending from the Gaboon to northern Angola and eastward again to the southern and eastern Congo, Tanganyika Territory, Northern Rhodesia, and Nyasaland. It may be divisible into five or even six races.

The nominate race of Upper Guinea is rather yellowish green on back and wings, a trifle smaller than *C. v. cyanocephala,* which replaces it along the coast of Lower Guinea. I am not convinced that *bohndorffi* is a valid race, and thus I shall consider *cyanocephala* as ranging from the Cameroon south to northwestern Angola, and eastward to the Ubangi-Shari District and to the Kasai and Sankuru districts in the southern Congo.

Some male specimens from Southern Nigeria and the coast of the Gaboon have very violaceous reflections on throat and chest, but one which I collected myself at Boma, only 75 miles southeast of Malimba, is like others from Ngombe Lutete and the Kasai. In the Upper Katanga males have the throat steel-blue with less luster than in the other races and are separated as *C. v. bannermani.* The race *viridisplendens* of the Uelle, Uganda, Karagwe, and the Kivu, has males with head and throat more lustrous and greenish. Similar birds extend eastward to the base of Mt. Kenya and to Oldeani in Tanganyika Territory. On the highlands near the north end of Lake Nyasa the reflections on the throat are a little more brassy green, so that *C. v. niassae* Reichenow would seem to be valid.

The clearings in the Mayombe Forest and the savannas of the Lower Congo and Kasai are occupied by the race *cyanocephala.* It is usually seen in the shadier spots and often feeding at flowers of the papaw. A nest found by Bates in the southern Cameroon was like that of *Cyanomitra olivacea* but more bulky, with streamers a foot long hanging from the lower lip of the entrance. Its two eggs were pale pink marked sparingly with dots and short dashes of deep chocolate-brown and shell marks of lilac-gray. In one case they formed a zone around the blunt end. Dimensions were 18–18.5 by 13.5 mm.

Cyanomitra verticalis bannermani Grant and Mackworth-Praed

Cyanomitra verticalis bannermani GRANT AND MACKWORTH-PRAED, 1943, Bull. Brit. Ornith. Club, vol. 63, p. 63 (type locality: Kayoyo, southeast Belgian Congo). SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 163 (Kinda; Luwingu).

Cyanomitra verticalis NEAVE, 1910, Ibis, p. 235 (between Dikulwe and Lualaba rivers, 4000 ft.; upper Lufupa R., 4000 ft.).

Cyanomitra verticalis cyanocephala LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 102 (in part. Kayoyo).

Nectarinia verticalis bannermani WHITE AND WINTERBOTTOM, 1949, Check list of the birds of Northern Rhodesia, p. 121 (north Mwinilunga District).

DISTRIBUTION: Upper Katanga and probably the Mwinilunga district of Northern Rhodesia. It may even extend westward to Angola. I have seen one male from the Mombolo district which is rather dull bluish on the throat.

Neave found this sunbird essentially a woodland bird in the Katanga, not uncommon in the strips of heavy woods along streams. Near Mwinilunga White also remarked on its fondness for the thicker savanna woods and the fringes of riparian cover.

Cyanomitra verticalis viridisplendens (Reichenow)

Cinnyris viridisplendens REICHENOW, 1892, Jour. Ornith., pp. 54, 132 (type locality: Bukoba on L. Victoria). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 322 (Mubuku Valley, 6000 ft.; Mokia; Butagu Valley, 4500 ft.).

Nectarinia cyanocephala SCHWEINFURTH AND RATZEL, 1888, Emin-Pascha, eine Sammlung von Reisebriefen, p. 403 (Mangbetu country). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, pp. 258, 278 (Bellima). EMIN, 1922, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 3, pp. 377, 418; 1927, idem, vol. 4, pp. 31, 41, 233, 261 (Kavalli; Madjamboni).

Cynnyris verticalis SHELLEY, 1888, Proc. Zool. Soc. London, p. 38 (Tingasi).

Nectarinia verticalis HARTLAUB, 1891, Abhandl. Naturwiss. Ver. Bremen, vol. 12, p. 28 (Mswa; Buguera).

Cyanomitra verticalis SHELLEY, 1900, The birds of Africa, vol. 2, p. 127 (in part).

Chalcomitra verticalis viridisplendens REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 454 (Buesa); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 349 (Wau I.; L. Mohasi; Kisenyi). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 272 (Kilo); 1918, idem, vol. 5, p. 285 (Kamabo; Munie Mboka; Molekera; Lufungula; Beni; Talia-Semliki; Kinabe; Lesse; west Ruwenzori, 2200 m.). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 188 (Mswa). HENDRICKX, 1944, Ostrich, vol. 15, p. 203 (southwest of L. Kivu).

Chalcomitra verticalis viridisplendeus SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 38 (Uvira; Rutshuru Plain).

Cyanomitra verticalis viridisplendens GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 102 (Burunga; Tabaro). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 703. VAN SOMEREN, 1932, Novitates Zool., vol. 37, p. 356 (Kigezi). SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 279 (Lulenga; Kibati; Ngoma); 1933, idem, vol. 22, p. 373; 1935, idem, vol. 27, p. 403 (in part. Katana); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 138

(Buta; Dika; Mauda; Aru; Adra; Faradje; Niarembe; Rungu); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 143 (Nzulu; Rutshuru); 1940, Rev. Zool. Bot. Africaines, vol. 33, p. 286 (Mt. Wago); 1942, idem, vol. 36, p. 340 (Kirinda; Kibingo). BERLIOZ, 1936, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 8, p. 491 (Kadjudju). FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 340. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1355. PETERS AND LOVERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 266 (Idjwi I.). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 96 (Nioka; Djugu; Bogoro).

SPECIMENS: Bafwabaka, immature male, January 8. Medje, two males, January 12, July 19; three females, January 26, March 9, July 19; immature male, July 19. Niangara, two immature males, May 5, November 28. Nzoro, male, August 8. Faradje, male, October 10; female, May 4; two immature males, April 12, May 4.

ADULTS OF BOTH SEXES: Iris dark brown, bill and feet black, the latter with soles gray.

DISTRIBUTION: Bahr-el-Ghazal Province and Uelle District, eastward across Uganda to the base of Mt. Kenya, also southward through the Kivu to Baraka, to Mt. Kungwe, the Ngorongoro area and Dabaga in Uhehe. In the Congo it is mainly a lowland bird and comes into clearings along the northeastern and eastern edges of the forest belt. But in all the eastern highlands it is also found up to about 6400 feet where the woods are not too dense, and this seems to be the race found at Uvira, Baraka, and near the forest border in the Manyema District.

From the Nepoko River northward across the Uelle to the Sudan border this olive-backed sunbird is rather common, both in forest clearings where it feeds commonly at the staminate flowers of the papaw and in shady groups of trees in the savannas about Faradje. The usual call is a plaintive "chi-u-wee," or a harsher "chee . . ." when disturbed. Heavy woods and open savannas are both avoided.

Dissections in the Uelle gave proof of breeding in May and August. Nesting there probably stops during the dry season, but near Medje a female with ovary enlarged was taken in late January. In Uganda Jackson found nests suspended from small trees and bushes, 5 to 20 feet from the ground, sometimes well screened by drooping foliage. They were built of dry banana bark and fibers, had a long beard hanging from beneath the entrance, and were lined with fine grass and fiber. Eggs were normally two, whitish to pinkish brown, spotted or mottled with darker brown, and measured 19 by 14 mm.

A female taken near Medje in May was found holding eight small spiders in her beak, food intended no doubt for young in the nest. In three other stomachs I found only small spiders, while a fourth held remains of small insects. Fruit is apparently not taken, though nectar may be.

Cyanomitra alinae alinae Jackson

Cyanomitra alinae JACKSON, 1904, Bull. Brit. Ornith. Club, vol. 14, p. 94 (type locality: Ruwenzori); 1906, Ibis, p. 558.

Chalcomitra alinae REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 841; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 349 (in part. West Ruwenzori). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 285.

Cinnyris alinae OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 323 (Mubuku Valley, 6000–9000 ft.; north Ruwenzori, 7700 ft.).

Cyanomitra verticalis alinae SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 622,

Cyanomitra alinae alinae SCLATER, 1930, Systema avium Aethiopicarum, pt. 2. p. 704. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1356. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 80 (in part. Kalonge). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 96 (Mt. Aboro, 2200 m.; Lekwa near Djugu, 1750 m.).

ADULTS OF BOTH SEXES: Iris brownish red, bill black, feet olive-black.

DISTRIBUTION OF THE SPECIES: Mountains of the eastern Congo border, from Aboro and Wago near Lake Albert to Ruwenzori, the highlands west of Lake Edward and around Lake Kivu, and thence to the mountains near Baraka. The nominate race may be restricted to Ruwenzori; males have a deep blue luster on the crown, where females are glossy green. The latter lack the light yellow pectoral tufts. Wings of both sexes measure 58–68 mm., culmen to base 28–31.5 mm.

Males from northwest of Lake Tanganyika, the type locality of *C. a. tanganjicae,* are glossy blue-green on the crown and thus differ less from females. Dimensions are mostly close to those of *alinae.* This race certainly extends northward to the highland west of Lake Edward and has been reported even from west of Lake Albert. The males from the Kivu Volcanoes are like those of *tanganjicae,* but perhaps a trifle less green on the crowns, while a male and female from the Rugege Forest have unusually long bills, 33 and 32 mm. to base of culmen, and wings 70 and 63 mm. The male is more bluish on the crown than most specimens of *tanganjicae. Cyanomitra alinae* is rather closely allied to *C. oritis* of Fernando Po and the highlands of Cameroon.

On Ruwenzori the nominate race, *alinae,* is fairly common in the mountain forest, mainly from 6000 feet up to 8000 feet, and not in the heath zone. It may be seen in the thick woods and also on *Erythrina* and other flowering trees in open spots. Seldom is there more than a pair together. Nothing is known of its nest and eggs or even of its breeding season. The only solid food I noted in stomachs was small spiders.

Cyanomitra alinae tanganjicae (Reichenow)

Chalcomitra verticalis tanganjicae REICHENOW, 1915, Jour. Ornith., p. 128 (type locality: forest northwest of L. Tanganyika).

Chalcomitra alinae REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 349 (in part. Northwest of L. Tanganyika).

Cinnyris alinae vulcanorum HARTERT, 1920, Novitates Zool., vol. 27, p. 426 (type locality: western Kivu Volcanoes, at 2400 m.).

Cinnyris alinae VAN SOMEREN, 1922, Novitates Zool., vol. 29, p. 200 (Kigezi).

Chalcomitra alinae vulcanorum SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 38.

Cyanomitra alinae vulcanorum SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 704. VAN SOMEREN, 1932, Novitates Zool., vol. 37, p. 357. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 279 (Nya-Muzinga). BERLIOZ, 1936, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 8, p. 491 (Mbwahi). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1357.

Cyanomitra verticalis viridisplendens SCHOUTEDEN, 1935, Rev. Zool. Bot. Africaines, vol. 27, p. 403 (in part. Tshibinda).

Cyanomitra alinae tanganyicae SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 143 (L. Gando, 2300 m.).

? *Cyanomitra alinae tanganykae* SCHOUTEDEN, 1940, Rev. Zool. Bot. Africaines, vol. 33, p. 286 (Mt. Wago); 1940, idem, vol. 34, p. 61 (Kawa Forest).

Cyanomitra alinae tanganjicae SCHOUTEDEN, 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 340 (forest west of Astrida; Nyongwe).

Cyanomitra alinae alinae VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 80 (in part. Kalehe; Nyabukoko; Bilati—all near Lutunguru).

DISTRIBUTION: Highlands west of Lake Edward and supposedly those west of Lake Albert, forested mountains on both sides of Lake Kivu and in Ruanda, also the mountains northwest of Lake Tanganyika. As stated above, two specimens from Rugege are relatively large, the male rather bluish on the crown.

Like the Ruwenzori race, *tanganjicae* lives in mountain forests from 5500 to 8500 feet. I have taken specimens at Mulu and Mohanga, west of Lake Edward, which are certainly referable to *tanganjicae*. Rockefeller and Murphy secured a female on Mt. Kandashomwa, west of the Ruzizi Valley. On the higher central Kivu Volcanoes this sunbird appears to be relatively scarce. Northwest of Tanganyika Grauer obtained two young in juvenal dress in June, but nothing is accurately known of the breeding season.

Cyanomitra reichenbachii (Hartlaub)

Nectarinia reichenbachii HARTLAUB, 1857, System der Ornithologie Westafrica's, p. 50 (type locality: Gaboon).

Cinnyris reichenbachi REICHENOW, 1887, Jour. Ornith., pp. 301, 306 (Manyanga; Leopoldville).

Cyanomitra reichenbachi SHELLEY, 1900, The birds of Africa, vol. 2, p. 137. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28.

Anabathmis reichenbachi REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 468. SCHOUTEDEN, 1929, Bull. Cercle Zool. Congolais, vol. 5, p. 75 (Buta; Panga); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 138; 1937, Bull. Cercle Zool. Congolais, vol. 13, p. 67 (Eala).

Anabathmis reichenbachii SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 707. BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 229.
Nectarinia reichenbachi DELACOUR, 1944, Zoologica, New York, vol. 29, p. 24.

DISTRIBUTION: Gold Coast and Southern Nigeria to Cameroon, Gaboon, and Loango Coast, eastward into the Congo to Eala, Buta, and even Panga on the Aruwimi River.

Because of its graduated tail this sunbird has often been referred to the genus *Anabathmis*. The adult female is very like the male in color, often having similar yellow pectoral tufts.

Over most of its range *C. reichenbachii* seems not very numerous, and this is particularly true in the Upper Congo. In heavily forested country it is found in clearings, while along the lower Congo River it is likely to seek shady spots near woods. Along the coast of Gaboon and Cameroon, where it is perhaps most common, it feeds at the flowers of coconut palms.

Two nests found by Bates at Bitye, Cameroon, both in June, were of normal purse shape, built of fine strips of plantain leaf or grass and fibers, without downy lining. In each a single egg was being incubated. One egg was grayish buff dusted with deeper color toward the large end; the other was light chocolate, also becoming much darker at the end. Dimensions: 17.5 by 12.5 and 13 mm.

KEY TO THE SPECIES OF *Chalcomitra* IN THE CONGO
(Adult males only)

1. Chest with a large red patch, the feathers of which usually have half-concealed bars of metallic blue or green . . . . . *C. senegalensis*
   No red on chest; throat and fore-neck with an area of metallic green, blue-green, or purplish bronze 2
2. Throat and fore-neck metallic green, with a narrow purplish border below; forehead burnished green, with a band of purple on crown . *C. rubescens*
   Throat and fore-neck burnished purplish bronze; forehead deep blue, or forehead and crown green 3
3. Forehead dark steel-blue, body plumage very dark brown, light yellow pectoral tufts present . . . . . *C. fuliginosa*
   Forehead metallic green or blue-green, body plumage blackish, no pectoral tufts . . . . . *C. amethystina*

Chalcomitra rubescens rubescens (Vieillot)

Cinnyris rubescens VIEILLOT, 1819, Nouveau dictionnaire d'histoire naturelle, vol. 31, p. 506 (type locality: kingdom of Congo and Cacongo).

Cinnyris angolensis LESSON, 1830, Traité d'ornithologie, p. 295 (type locality: coast of Angola). SHARPE, 1884, Jour. Linnean Soc. London, zool., vol. 17, p. 428 (Semio). REICHENOW, 1887, Jour. Ornith., p. 306 (Leopoldville). SHELLEY, 1890, Ibis, p. 162 (Yambuya). OGILVIE-GRANT, 1908, Ibis, p. 284 (north of Kasongo). SALVADORI, 1915, Ann. Mus. Civ. Genova, ser. 3, vol. 6, p. 280 (Kasai). GYLDEN-

STOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 100 (Kartushi). GROTE, 1924, Jour. Ornith., p. 497 (Ulegga).

Nectarinea rubescens HARTLAUB, 1857, System der Ornithologie West-africa's, p. 49 (Congo).

Nectarinia angolensis HARTLAUB, 1891, Abhandl. Naturwiss. Ver. Bremen, vol. 12, p. 28 (Mssukali; Uvamba).

Cinnyris angolensis minor OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 126 (type locality: Brazzaville; also from Batéké country).

Chalcomitra angolensis SHELLEY, 1900, The birds of Africa, vol. 2, p. 112. REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 461. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Ituri). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 286 (Kamabo; Moera); 1923, idem, vol. 11, p. 346 (Luebo; Kamaiembi; Belenge; Kabambaie; Makumbi; Tshikapa); 1924, idem, vol. 12, pp. 271, 422 (Kidada; Eala; Bikoro); 1925, idem, vol. 13, p. 18 (Kunungu); 1926, idem, vol. 13, p. 203 (Temvo; Makaia-Ntete). BERLIOZ, 1925, Bull. Mus. Hist. Nat., Paris, vol. 31, p. 348 (Luluabourg); 1936, idem, ser. 2, vol. 8, p. 492 (Mbwahi). MACKWORTH-PRAED AND GRANT, 1945, Ibis, p. 152.

Chaleomitra angolensis SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 37 (Beni; Mawambi; Ukaika).

Chalcomitra angolensis angolensis SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 700. SCHOUTEDEN, 1935, Rev. Zool. Bot. Africaines, vol. 27, p. 403 (Rutshuru bridge); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 137 (Rungu; Panga; Buta). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 101 (Sandoa; Idiofa). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 80 (Nyabukoko near Lutunguru).

Chalcomitra rubescens SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 144 (east of Rutshuru Valley); 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 163 (Kinda; Dilolo). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 97 (Mahagi Port).

Chalcomitra rubescens rubescens BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 196 (Avakubi).

Nectarinia rubescens DELACOUR, 1944, Zoologica, New York, vol. 29, p. 25.

SPECIMENS: Malela, near Monsembe, male, July 22. Stanleyville, two males, November 22, 29. Batama, two males, September 16, 18; female, September 16. Avakubi, two males, February 17, July 3; female, September 3; immature male, February 17. Ngayu, male, December 11. Medje, four males, March 14, 25, May 22, July 20; immature male, September 14; immature female, March 21. Madrapili's, near Faradje, male, December 2.

ADULTS OF BOTH SEXES: Iris dark brown, bill and feet black.

DISTRIBUTION: Fernando Po; and from the base of Mt. Cameroon south to northwestern Angola, eastward to the Ubangi, Mbomu River, Uganda, and the Nandi District. In the southern Congo it extends to Sandoa and the Manyema, but it does not invade the Kivu highlands.

It has been claimed that birds from the Kavirondo and Nandi districts are separable as *kakamegae* because of slightly larger size and more blackish coloration, but I do not find the differences sufficiently marked. Specimens

from northwestern Angola and Fernando Po have wings equally long. On the other hand, adult females from Fernando Po differ from those of the mainland by having the fore-neck much more blackish.[1]

In the Congo this black sunbird is common in the clearings and second growth of the whole lowland forest belt, while near the northern and southern borders of its range it is restricted to heavy gallery forests. Near Faradje we found it only in heavy woods near the road toward Aba. Likewise at the eastern edge of the Congo I have found it in the Semliki Forest and on the eastern edge of the Rutshuru Valley near the Mai-na-Ivi, at 4600 feet.

It frequently visits flowers, finding those of bananas very attractive, and coming with *Cinnyris chloropygius* and other sunbirds to blossoming patches of *Leonotis nepetaefolia*. Rather often, too, it is seen hovering persistently about the trunks of trees, presumably in search of spiders.

For nesting this species seems to show a preference for the drier months of the year. In the Ituri District we took adults with gonads enlarged in December, February, and March. Those collected from May to September, inclusive, were all non-breeding. Near the Elila River Rockefeller and Murphy took males in breeding condition in August and October. A nest discovered at Stanleyville on November 22 was suspended in a rather large tree along a road, at a height of 7 yards. Of the usual sunbird shape, it was built of fine shreds of dry vegetable material and pieces of dry leaves, lined with plant down and decorated outside with bits of bark, lichens, and caterpillar droppings. Both parents came to the tree; only the female was seen to enter the nest, where there were two newly hatched young. Two eggs from the Cameroon described by Bates were creamy white, covered almost entirely by longitudinal streaks of lavender-gray and dark brown. Dimensions: 17–17.5 by 11.5–12.5 mm.

Eight of the nine stomachs I examined contained insect remains, usually small bits of insect shell, but in two instances there were small caterpillars. In two cases the food seemed to be of ants; one bird had swallowed about 30 abdomens, without heads or legs. Only twice were spiders noted, five in all. One bird had swallowed a hard round seed, no doubt from fruit; another stomach contained a flattened ball of rubber, orange in color, 4.5 by 2.5 mm. Latex is sometimes ingested with other plant juices and then coagulates in sunbird stomachs.

Chalcomitra fuliginosa fuliginosa (Shaw)

Certhia fuliginosa SHAW, 1811, General zoology, vol. 8, p. 222 (type locality: Malimba, Enclave of Cabinda).

Cinnyris fuliginosa REICHENOW, 1887, Jour. Ornith., p. 306 (Leopoldville).

[1] For this reason Amadon (1953, Bull. Amer. Mus. Nat. Hist., vol. 100, p. 429) separates the Fernando Po population as *C. r. stangerii* Jardine.

Cinnyris fuliginosa nigrescens OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 126 (type locality: Brazzaville, French Congo).

Chalcomitra fuliginosa SHELLEY, 1900, The birds of Africa, vol. 2, p. 109. REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 457. LÖNNBERG, 1907, Arkiv. Zool., vol. 3, no. 21, p. 17. BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 333; 1948, The birds of tropical West Africa, vol. 6, p. 194. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 402 (Kwamouth); 1926, idem, vol. 13, p. 203 (Banana; Moanda; Vista; Makaia-Ntete; Tembo; Kai Bumba). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 699.

Chalcomitra fuliginosus DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Lower Congo; Mayombe; Kisantu).

? *Chalcomitra fuliginosa* SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 286 ("Makojoba").

Cinnyris fuliginosus BATES, 1930, Handbook of the birds of West Africa, p. 455.

Chalcomitra fuliginosa nigrescens BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 62.

SPECIMENS: Boma, male, January 8. Leopoldville, two males, December 21; female, July 6.

ADULTS OF BOTH SEXES: Iris dark brown, bill and feet black.

DISTRIBUTION OF THE SPECIES: Liberia and the Gold Coast to Southern Nigeria, coastal regions of Cameroon and Gaboon, and the Lower Congo, inland to Stanley Pool and Kwamouth, and south also to Ngara in the Amboim district of Angola.

It seems certain that the Carmelite sunbird is divisible into races. Much of the pale brownish color on crowns and backs of males from Southern Nigeria is admittedly the result of wear. But even in fresh plumage they are not so dark as males from the Lower Congo, close to the type locality of *fuliginosa*. Females from Southern Nigeria are lighter in color on the hind-neck than those of the Lower Congo, and have a brownish area on throat and fore-neck that is wanting in the Congo. Birds of both sexes from the Gaboon are intermediate.

The only male I have seen from Ngara in Angola was very deeply colored, a little blacker on the breast than males from Leopoldville. From Ngabe near the middle Congo Malbrant has sent us an adult male, very deep in color, and with the forehead bluish green. It might almost be taken for *C. amethystina deminuta,* but shows weakly developed pale yellow pectoral tufts. Most likely it is a hybrid between *fuliginosa* and *deminuta,* and shows that the species *fuliginosa* and *amethystina* are closely allied. Females of the two from the Lower Congo and from Angola are very much alike.

A male specimen from Boma is so similar to males of Leopoldville that the race *nigrescens* cannot be valid. The birds of Southern Nigeria, however, cannot be kept with the nominate race, and even those from the Gaboon differ somewhat from it.

The Carmelite sunbird is of common occurrence along the Congo coast,

in the Lower Congo, and about Stanley Pool in the small trees and bushes in relatively open country and in the clearings of the Mayombe Forest. It feeds at the flowers of bananas, cannas, and coffee bushes, and no doubt those of coconut palms near the coast.

Nesting time seems to be early in the rains, for males taken at Leopoldville in the latter part of December had gonads enlarged. The female taken in the dry season was not breeding.

A nest of *C. fuliginosa* in the British Cameroons, October 28, was described by Serle as a typical domed pouch with a projection above the entrance. It was made of fibers, leaf skeletons, and a little moss, bound together with gossamer and fine black fiber, decorated with bits of bark. The lining was of plant down. It was hung from the end of a bough of a rubber tree, 10 feet up. The two eggs were brownish white with streaky markings of pale browns, and with gray shell marks. They measured 19 by 13.1 and 19.6 by 13.3 mm.

Chalcomitra amethystina deminuta Cabanis

Chalcomitra deminuta CABANIS, 1880, Ornith. Centralbl., p. 143 (type locality: Angola). SHELLEY, 1900, The birds of Africa, vol. 2, p. 106. REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 459. NEAVE, 1910, Ibis, p. 234 (Kambove, 4500 ft.; Dikulwe R.; Lualaba R., 2500 ft.). COTTEREAU, 1919, Les souïmangas ou sucriers de l'Afrique, p. 16.

Nectarinia amethystina SCHALOW, 1886, Jour. Ornith., pp. 413, 417, 425 (Mpala; Lufuku R.; L. Itambe); 1887, idem, p. 242.

Cinnyris amethystinus DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Cinnyris amethystina MATSCHIE, 1887, Jour. Ornith., p. 155 (Luvule R.).

Chalcomitra amethystina DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Katanga; Pweto).

Chalcomitra amethystina deminuta SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 346 (Kabambaie); 1930, idem, vol. 18, p. 289; 1949, idem, vol. 42, p. 163 (Katanga localities, north to Albertville and west to Dilolo). DE RIEMAECKER, 1927, Rev. Zool. Bot. Africaines, vol. 14, p. 281 (Elisabethville). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 699. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 101 (Katofio; upper Lufira R.; Biano). VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 16, p. 8 (Kiambi); 1941, idem, vol. 17, no. 23, p. 15. A. W. VINCENT, 1949, Ibis, p. 338.

Chalcomitra amethystina diminuta VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 9, p. 2 (Sangwa).

DISTRIBUTION OF THE SPECIES: From Cape Province north through eastern Africa to Lamu and the Juba River, and to the Didinga Mountains in the southeastern Sudan; also to Marungu, the Katanga, central Kasai, and the greater part of Angola. Five or six races are recognizable.

The nominate form in South Africa has metallic upper tail-coverts in the male breeding plumage, as also does *C. a. deminuta* in Angola and the south-

ern Congo. The East African races are usually dull black on upper tail-coverts, so that *C. a. kirkii* used to be regarded as specifically distinct. But males of both kinds have been found together in the southeastern Congo and more rarely in East Africa.

The range of *deminuta,* which is shorter-billed and slightly smaller than *amethystina,* extends from Victoria Falls and southern Angola north to the Cuanza Valley, Kasai District, and the Manyema District. Perhaps it may be expected in the Kwango District. From Kinda the Congo Museum has males with and without metallic tail-coverts, and the range of *kirkii* seems to extend from Beira and Southern Rhodesia to the region of Lake Bangweolo and Tanganyika Territory north to the Pangani River and the country southwest of Lake Victoria.

In the Upper Katanga *C. a. deminuta* is a fairly common bird in wooded savannas, especially in the more open spots. At Luluabourg in the Kasai Father Callewaert collected six males, in May, August, and November, but none in fully adult dress. Just west of Baraka Grauer secured two fully adult males in October and January.

I can find no evidence of an eclipse plumage, even though Delacour observed it in a captive male of the nominate South African race. Eggs are laid in the Katanga, according to A. W. Vincent, in September, October, and even early November. The nest is suspended from drooping twigs of some tree, at a height of 8 to 20 feet, is oval or pear-shaped, with a projecting porch above the entrance. It is built of fine dry grass and plant fibers, bound with cobweb and covered with lichen, tiny dead leaves, bark, and wood splinters. There is a thick lining of plant down. Eggs are usually two, deep cream to light fawn-color, spotted or mottled with dark brown and gray. Dimensions: 16.8–19 by 12.3–13.5 mm.

Chalcomitra amethystina kirkii (Shelley)

Cinnyris kirkii SHELLEY, 1876, A monograph of the Nectariniidae, p. 273, pl. 85 (type locality: Zambesi district).

Cinnyris amethystinus DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Chalcomitra kirkii DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Mpala).

Chalcomitra kirki NEAVE, 1910, Ibis, p. 234 (Bunkeya R., 3000 ft.). Mouritz, 1914, Ibis, p. 29 (Mandoko in southeastern Katanga).

DISTRIBUTION: Portuguese East Africa south to Beira, the eastern parts of Southern and Northern Rhodesia, northward in Tanganyika Territory to the Pangani River, Unyamwezi, and Usuvi to the southwest of Lake Victoria. Thus the range approaches the eastern border of Ruanda and includes the eastern part of the Katanga.

I have seen male specimens from Kinda which agree with *kirkii,* though

deminuta also occurs there. White has reported *kirkii* from Lusaka, Fort Jameson, and Isoka in Northern Rhodesia, so I hesitate to question its occurrence even at Mpala.

In ways of life there is no difference between this bird and *deminuta*. The nest and eggs, as described by Swynnerton and by A. W. Vincent, are very much the same.

Chalcomitra senegalensis acik (Hartmann)

Nectarinia acik HARTMANN, 1866, Jour. Ornith., p. 205 (type locality: Djur, Bahr-el-Ghazal Province). ANTINORI, 1868, Boll. Soc. Geogr. Italiana, vol. 1, p. 116 (Niam-Niam land). EMIN, 1919, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 2, p. 429 (southwest of Kuterma).

Nectarinia azic HARTLAUB, 1882, Abhandl. Naturwiss. Ver. Bremen, vol. 8, p. 206 (Langomeri).

Cinnyris acik SHELLEY, 1888, Proc. Zool. Soc. London, p. 38 (Tingasi).

Chalcomitra acik SHELLEY, 1900, The birds of Africa, vol. 2, p. 92 (in part). REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 464. SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 189 (in part. Mbiundsu; Tobbo).

Chalcomitra senegalensis var. *acik* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Uelle).

Chalcomitra aequatorialis SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 455.

Chalcomitra senegalensis acik SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 137 (Faradje; Niarembe; Mahagi Port). GRANT AND MACKWORTH-PRAED, 1948, Bull. Brit. Ornith. Club, vol. 68, p. 152 (northeastern Belgian Congo). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 97 (Ishwa Plain).

Chalcomitra senegalensis MACKWORTH-PRAED AND GRANT, 1945, Ibis, p. 153.

SPECIMENS: Nzoro, immature male, August 1. Faradje, 10 males, February 8, 13, 22, April 19, May 2, August 11, September 9, November 23; four females, February 6, April 1, 2, December 28; six immature males, April 13, 19, May 2, 30, September 9.

ADULTS OF BOTH SEXES: Iris dark brown, bill and feet black.

DISTRIBUTION OF THE SPECIES: Savanna countries from Senegal to the Bahr-el-Ghazal, Darfur, and the coast of Kenya Colony, south through eastern Africa to Natal, and westward again to Damaraland, Angola, and Stanley Pool. Within those limits there are about seven recognizable races, while *C. cruentata* (Rüppell) and *C. hunteri* (Shelley) of northeastern Africa are also regarded by some as conspecific.

The presence or absence of a metallic patch on the lesser wing-coverts of males is only a subspecific character. It is wanting in nominate *senegalensis,* which ranges eastward to Nigeria, and in the races *acik, aequatorialis,* and *lamperti.* Three more southern races have the metallic patch.

Chalcomitra s. acik differs from nominate *senegalensis* by the lighter red of the chest of the male, the metallic blue barring being much less pronounced. It extends from northern Cameroon eastward to the upper White

Nile, northern Uganda, and the northern end of Lake Albert. The race *aequatorialis* of Uganda and adjacent regions, which reaches the eastern Congo, is a little larger than *acik*. The southeastern Congo is occupied by *C. s. gutturalis,* while *saturatior,* a somewhat deeper-colored race of Angola, is believed to range northward to Stanley Pool.

In the Uelle District *acik* is restricted mainly to the more open, northern parts. At Faradje it was very common, feeding amid the small trees of the savanna and gathering in some numbers in a grove of Ceará rubber trees when they were in flower. In many cases the young males quickly acquire red feathers on the fore-neck, but the rest of the body remains largely brownish until they are more than a year old.

The voice of this sunbird is loud, audible for 80 yards or more, and sounds like "cheep, chew, cheep, chew . . . ," often continuing over a considerable period. A single short note is also given and occasionally a weak but continuous song of cheeping and metallic notes, which may even approach warbling, as the singer perches motionless.

Dissections showed that breeding went on from February to May inclusive. A nest which was almost complete on March 22 was hung from the end of a branch of a leafless thorn bush, about 8 feet above the ground. The female was bringing some downy white material and may well have done most of the building. This nest was fig-shaped rather than pyriform, with the lateral entrance shaded by projecting material, and its whole exterior was rough and ragged. The strips of fine bark and grass of which it was fashioned were held together by spider silk, and caterpillar droppings adhered to the outside.

The male was seldom seen in the vicinity, and after five days, when there was one egg in the nest, his mate came only occasionally during the daytime. We waited, but no second egg was added. The color of the egg was light green, finely marked all over with brownish gray, the dark color densest in a ring around the blunt end. It measured 17.8 by 12.3 mm.

Farther north, in Darfur, Lynes found new nests in July and August, but eggs only in September. One nest held two eggs, pale fawn-color with darker longitudinal smudges and other still darker spots and streaks. The color of eggs may be expected to vary widely.

Of seven stomachs examined, four contained remains of small insects, including one leaf-hopper and a tiny caterpillar. Several small spiders were also noted. Occasionally this sunbird would be seen hovering beneath the roofs of verandahs, plainly in search of spiders.

More remarkable were the round balls of rubber, sometimes as large as a small pea, whitish or greenish white in color, which were present in five of the seven stomachs. The attraction by flowers of *Manihot glaziovii* has already been mentioned. These introduced rubber trees were in bloom toward April, May, and June; it was evident that the rubber was taken in

with juices sucked from the flowers, some part of which might be pricked by the sharp beak.[1] The rubber seemed to remain in the stomachs for months, since the little balls were found not only in April and May, but twice in August, and once even on December 28, long after the trees had ceased flowering and had even dropped most of their leaves.

Chalcomitra senegalensis aequatorialis (Reichenow)

Cinnyris aequatorialis REICHENOW, 1899, Ornith. Monatsber., p. 171 (type locality: Bukoba on L. Victoria).

Chalcomitra acik SHELLEY, 1900, The birds of Africa, vol. 2, p. 92 (in part. Nyangabo). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 189 (in part. Buguera).

Chalcomitra gutturalis DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 ("Ituri"). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 286 (Beni; Luvungi; Baraka).

Chalcomitra aequatorialis REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 464 (Gundulei; Buesa); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 349 (Kisenyi; Beni; Usumbura). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 272 (Kilo); 1918, idem, vol. 5, p. 285 (Biogo; Kamabo; Lisasa; Kibati; Molekera; old Mission St. Gustave; Luvungi). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 29 (Kabare; Rutshuru). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 36 (Urundi; Uvira; Rutshuru Plain).

Cinnyris senegalensis aequatorialis GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 95 (Ngoma; Irumu).

Nectarinia acik EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 261 (Madjamboni).

Chalcomitra senegalensis aequatorialis SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 701. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 279 (Lulenga); 1933, idem, vol. 22, p. 373 (Mutura); 1935, idem, vol. 27, p. 403 (Rutshuru bridge); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 144 (Mugunga, 1500 m.; Nzulu); 1940, Rev. Zool. Bot. Africaines, vol. 34, p. 61 (Kawa Forest); 1941, idem, vol. 34, pp. 267, 365: 1942, idem, vol. 36, p. 340 (Astrida; Kibingo); 1943, idem, vol. 37, p. 272 (Gabiro). BERLIOZ, 1935, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 7, p. 163 (Kadjudju). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 571 (Kasenyi). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1350. HENDRICKX, 1944, Ostrich, vol. 15, p. 203 (southwest of L. Kivu). VERHEYEN, 1947, Exploration du Parc National Kagera, Mission Frechkop, fasc. 2, p. 16; 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 46, 80 (Semliki R.). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 97 (Bogoro).

Chalcomitra senegalensis lamperti GRANT AND MACKWORTH-PRAED, 1948, Bull. Brit. Ornith. Club, vol. 68, p. 152 (in part).

DISTRIBUTION: Kenya Colony west of the Rift Valley, central Uganda, Karagwe, Ruanda-Urundi, and the savannas of the eastern Congo from Lake Albert south to Uvira. This race is noticeably larger than *acik,* and wings of males usually exceed 70 mm.

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[1] See Swynnerton, 1908, Ibis, p. 38; Blancou, 1939, Ois. Rev. Française Ornith., new ser., vol. 9, pp. 444, 445.

In the eastern Congo it is found mainly in the open savannas at levels below 5500 feet, where it behaves very much like *acik*. In these equatorial latitudes nesting is likely to go on during the greater part of the year. There are said to be two nesting periods in Uganda, from February or April to July, and from October to December or January. The interruptions come only during the two short dry seasons.

Nests are hung on the outer branches of bushes and trees, 7 to 20 feet up, and contain either one or two eggs. These vary in ground color from creamy white to bluish, greenish, or olive-brown, mottled, streaked, or spotted with dark brown or gray-brown, measuring 18–21 by 13 mm.

Chalcomitra senegalensis gutturalis (Linnaeus)

Certhia gutturalis LINNAEUS, 1766, Systema naturae, ed. 12, vol. 1, p. 186 ("Brazil"; corrected type locality: South Africa).

Nectarinia gutturalis SCHALOW, 1886, Jour. Ornith., p. 425 (L. Itambe).

Cinnyris gutturalis MATSCHIE, 1887, Jour. Ornith., p. 155 (Luvule R.).

Chalcomitra gutturalis SHELLEY, 1900, The birds of Africa, vol. 2, p. 93. REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 464 (Luvua R.; Mpala). SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 7 (Lukonzolwa). NEAVE, 1910, Ibis, p. 234 (upper Lualaba R., 3600 ft.). DE RIEMAECKER, 1927, Rev. Zool. Bot. Africaines, vol. 14, p. 281 (Elisabethville). SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 289.

Chalcomitra senegalensis LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 101 (Sandoa).

Cinnyris senegalensis gutturalis VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 16, p. 8 (Kiambi).

Chalcomitra senegalensis gutturalis VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 23, p. 15 (Musosa). A. W. VINCENT, 1949, Ibis, p. 340.

Chalcomitra gutturalis gutturalis SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 163 (many localities in Katanga).

DISTRIBUTION: From Natal northward to the Katanga, Kabinda in the Sankuru District, Kongolo on the Lualaba, Marungu, and central Tanganyika Territory. This race looks very like *aequatorialis,* but males are a little darker red on the chest and have a small patch of metallic violet on the lesser wing-coverts.

In the Upper Katanga *C. s. gutturalis* is not uncommon, frequenting open spots near the savanna woods. I have examined specimens from Kabinda, Kongolo, and Lake Suzi, but this species seems not to reach the central Kasai. At the north end of Lake Tanganyika *gutturalis* is replaced by *aequatorialis.*

Near Elisabethville A. W. Vincent found eggs from about August 10 to mid-October. Nests are frequently placed near water, or on the trees or bushes growing thickly on large termite hills. They are of the usual oval or pear shape, dry and brownish, with dead and skeleton leaves on the out-

side, and above the entrance fine grass stems. The female does all the work of construction. Sometimes they are placed close to wasps' nests, and in the more southern parts of Africa this is one of the sunbirds most apt to have its nest surrounded by a mass of spider webs. Eggs are usually two, whitish or cream-color, even tinged with greenish, marked in a variety of ways with brown and gray, and sometimes with spots or twirls of chocolate. Dimensions are 17.9–20.2 by 12.2–13.9 mm.

[*Chalcomitra senegalensis saturatior* (Reichenow)]

Cinnyris gutturalis saturatior REICHENOW, 1891, Jour. Ornith., p. 160 (type locality: Angola).

Cinnyris gutturalis JOHNSTON, 1884, The River Congo, p. 365 (Vivi).

Chalcomitra gutturalis saturatior REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 467 (Leopoldville). COTTEREAU, 1919, Les souïmangas ou sucriers de l'Afrique, p. 18 (Congo).

This Angola race is just a little deeper red on the chest of adult males than *gutturalis*. White[1] found that in Northern Rhodesia specimens from Kasempa and Balovale were referable to the western form, those from Mwinilunga rather variable, and the birds taken farther east like *gutturalis*. While *saturatior* has been reported from Leopoldville, it certainly is not of frequent occurrence there or in the Lower Congo.

KEY TO THE SPECIES OF *Cinnyris* IN OR NEAR THE CONGO
(Adult males only)

1. Lower breast, flanks, and under tail-coverts white; head, back, and chest with metallic luster 2
   Lower breast not white 3
2. Chest crossed by a lustrous purple band, with no reddish fringe below it; pectoral tufts yellow . . . . . *C. talatala*
   Chest with lustrous purple band and just below that a fringe of deep brownish red; pectoral tufts yellow mixed with reddish orange . . . . . *C. oustaleti*
3. Lower breast, flanks, and under tail-coverts yellow or light red, or a combination of those two colors; wing not longer than 59 mm. 4
   Lower breast and abdomen not yellow or light red, though sometimes deep dark red, more often olive-gray to blackish, and under tail-coverts never wholly red 6
4. Under tail-coverts yellow, lower breast yellow or light scarlet, chest with a broad area of lustrous purple; pectoral tufts orange or orange-scarlet . . . . . *C. venustus*
   Under tail-coverts light red, a narrow band of purple, at most, below the glossy green of fore-neck 5
5. Lower breast red in middle, flanks conspicuously yellow; culmen to base not more than 21 mm. . . . . *C. regius*

[1] 1949, Ibis, p. 213.

Lower breast red all across, pectoral tufts yellow, flanks red; culmen to base exceeding 23 mm. . . . . *C. rockefelleri*

6. A conspicuous band of light red across the upper breast; lower underparts dark gray to blackish 7

Breast not crossed by a band of light red, though it may be fringed with red, or have a band of dull dark reddish or maroon color, or whole lower breast may be dark red or black 12

7. Pectoral tufts wanting . . . . . *C. shelleyi*

Yellow pectoral tufts present 8

8. Wing less than 58 mm. long 9

Wing more than 58 mm. long 11

9. Upper tail-coverts violet, quite distinct from glossy green of rump, and a distinct violet border below the green of fore-neck . . . . . *C. reichenowi*

Upper tail-coverts metallic green or blue-green, not sharply differentiated from green of rump 10

10. Wing length not more than 48 mm., culmen to base less than 19 mm., red feathers of breast have brilliant blue bars, under wing-coverts whitish . . . . . *C. minullus*

Wing length usually exceeds 48 mm., culmen to base more than 19 mm., metallic barring scarcely noticeable in red of breast, under wing-coverts gray . . . . . *C. chloropygius*

11. Scarlet breast band rather narrow, measuring about 10 mm. from front to rear . . . . . *C. chalybeus*

Scarlet breast band broader, 17–20 mm. wide . . . . . *C. afer*

12. Breast crossed by a dark red or deep maroon band, or its feathers narrowly tipped with bright red in that region, or whole lower breast and flanks dark red 13

No red or red-brown on breast 18

13. Whole lower breast dark red 14

Upper breast crossed by a dark purplish red or maroon band, or its feathers merely tipped with red; abdomen black or sooty 15

14. Yellow pectoral tufts present, crown and throat glossy green, chest purple . . . . . *C. johannae*

No pectoral tufts; throat and fore-neck violet or purple, a distinct green-blue crown patch . . . . . *C. superbus*

15. Feathers of upper breast only tipped with red, so their steel-blue color shows through; most of crown, cheeks, throat, and fore-neck purple . . . . . *C. coccinigaster*

Breast has a distinct band of brownish red, sometimes rather narrow; head mostly glossy green 16

16. Pectoral tufts present, yellow and orange-scarlet . . . . . *C. bouvieri*

Pectoral tufts lacking 17

17. Wing length less than 60 mm.; culmen usually less than 22 mm. long . . . . . *C. bifasciatus*

Wing length more than 60 mm.; culmen usually more than 22 mm. long . . . . . *C. mariquensis*

18. Head, neck, and back coppery, tinged either with purplish or with greenish; pectoral tufts lacking . . . . . *C. cupreus*

Head and back glossy green; pectoral tufts present, of orange-red and yellow . . . . . *C. osea*

[*Cinnyris oustaleti* (Bocage)]

Nectarinia oustaleti BARBOZA DU BOCAGE, 1878, Jor. Sci. Nat. Lisboa, vol. 6, p. 254 (type locality: Caconda, Angola).

Cinnyris oustaleti GRANT AND MACKWORTH-PRAED, 1943, Bull. Brit. Ornith. Club, vol. 63, p. 70 (Mwenzo in northeastern Northern Rhodesia).

While evidently a close ally of *C. venustus* and *talatala,* this sunbird must be regarded as a distinct species. It ranges from Bailundo, the Cuval River, and Humpata in Angola eastward across the Bihé Province, and even eastward to Northern Rhodesia.

The male from Mwenzo was not in breeding dress but showed maroon tips on the chest feathers. In view of this extension of the known range, *C. oustaleti* should certainly be looked for on the plateaus of the Katanga.

[*Cinnyris talatala anderssoni* (Strickland)]

Nectarinia anderssoni STRICKLAND, 1852, Contrib. Ornith., p. 153 (type locality: Okavango R., Angola).

Cinnyris leucogaster NEAVE, 1910, Ibis, p. 233 (Luangwa Valley).

Nectarinia talatala WHITE AND WINTERBOTTOM, 1949, Check list of the birds of Northern Rhodesia, p. 119 (Ndola).

This white-breasted sunbird is probably not conspecific with *C. venustus,* since both have occasionally been found in the same places. *C. talatala* ranges from Natal northward to Mozambique, Northern Rhodesia, and the coast of Angola. Northern and western birds are smaller than those from the extreme south and are separable as *C. t. anderssoni.* This is the race which approaches the Katanga in the Loangwa Valley and at Ndola. There is still no record from Congo territory, though Button reported it as common at Ndola.

Cinnyris venustus kuanzae Reichenow

Cinnyris affinis kuanzae REICHENOW, 1899, Ornith. Monatsber., p. 192 (type locality: Malange, Angola).

Cinnyris venustus kuanzae SCHOUTEDEN, 1924, Rev. Zool. Bot. Africaines, vol. 12, p. 274 (Kidada).

DISTRIBUTION OF THE SPECIES: Senegal to Sierra Leone, Liberia, and Nigeria, thence eastward to Eritrea and Somaliland. Eastern Africa south to Portuguese East Africa and Southern Rhodesia, also westward across the southern Congo to Angola and southern Gaboon. About seven races are to be recognized.

Over the greater part of the range males are yellow-bellied, but that color changes gradually to white in Somaliland, the home of *C. v. albiventris* (Strickland). In western Uganda and the adjacent eastern Congo, on the other hand, the middle of the breast becomes reddish. In Nyasaland and

Angola there is no intergradation between the yellow-bellied *venustus* and the white-bellied *talatala* and *oustaleti;* the ranges really overlap.

Nominate *venustus* has males that are pale yellow below, with brighter pectoral tufts, and ranges from Upper Guinea to the Ubangi-Shari, though not expected to reach the northwest Congo. *Cinnyris v. kuanzae* is deeper yellow beneath and extends from the Mossamedes Province of Angola north to the Lower Congo and even to the grasslands of the Gaboon. Eastward it reaches the Sankuru District, where Father Windmolders collected it at Kabinda.

Little has been learned of the behavior or nesting. This is one of the sunbirds of which the male has been said to assume a duller dress in the off season.[1] Of more than 20 specimens collected by Ansorge in western and northwestern Angola, only one, taken on February 14, is in full male breeding plumage. In this same series there are several juveniles, dated June and July, so that nesting may have begun in February or March.

Eight males during June, July, and August were in a very characteristic dress, either subadult or eclipse, with scattered metallic feathers on upperparts, blue-green upper tail-coverts, and a blue-black stripe down the foreneck. Five of these seem to me not fully adult; three may be adult males in eclipse. In support of that view, I find one other male from Pungo Andongo, June 11, which appears to be molting from adult breeding dress into eclipse, without changing remiges or rectrices. Still another male from Capala, September 24, seems to be an adult changing from eclipse to breeding dress and also renewing primaries and median rectrices. This evidence, added to that of a few other males from Angola in full dress, may well indicate that the males of *kuanzae* wear breeding plumage from October to April or May.

Cinnyris venustus falkensteini Fischer and Reichenow

Cinnyris falkensteini Fischer and Reichenow, 1884, Jour. Ornith., p. 56 (type locality: L. Naivasha, East Africa). Ogilvie-Grant, 1908, Ibis, p. 282 (northwest of L. Tanganyika, 4000 ft.). Neave, 1910, Ibis, p. 233 (Kambove, 4500 ft.; Chirui I. in L. Bangweolo).

Cinnyris affinis Salvadori, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 7 (Lukonzolwa).

Cinnyris venustus falkensteini Reichenow, 1911, Wiss. Ergeb. Deutschen Central-Afrika Exped., vol. 3, p. 350. Schouteden, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 286 (in part. Munie Mboka); 1943, idem, vol. 37, p. 272 (Gabiro). Lynes, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 101 (Kayoyo; Sandoa; Elisabethville; Kasenga). Verheyen, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 23, p. 15 (Musosa). A. W. Vincent, 1949, Ibis, p. 333.

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[1] See Delacour, 1944, Zoologica, New York, vol. 29, p. 37; Mackworth-Praed and Grant, 1945, Ibis, p. 150.

Cinnyris venustus niassae SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 692. SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 164 (many localities in Katanga).

DISTRIBUTION: East Africa from the vicinity of Mt. Elgon, Mt. Kenya, and Machakos south through Tanganyika Territory to Northern Rhodesia and the Katanga. *Cinnyris v. niassae* Reichenow of Nyasaland, Mozambique, and Southern Rhodesia is apparently not separable, so the range may well extend to southern Africa.

This wide-ranging subspecies is similar to *kuanzae* in color but a little larger and longer-billed. In the southern part of its range one might expect that the males would have a duller off-season plumage, but the evidence in eastern equatorial Africa seems to me inconclusive or even negative.

While not restricted to highlands, this yellow-bellied sunbird is characteristic of the plateau countries in East Africa and the Katanga. It feeds in the open amid bushes and at many kinds of flowers and ascends even to 7050 feet at Kasangala in Marungu. Rockefeller and Murphy collected this sunbird there, as well as at Moba near the shore of Tanganyika, where males were in breeding condition in February. Although once reported from near Baraka, it seems to be replaced by *igneiventris* near the northwest corner of Lake Tanganyika.

Neave found *falkensteini* common in the Upper Katanga, and A. W. Vincent noted that it frequented open grassy stretches and marshy ground. The warning call sounds like "cheer-cheer"; the male has a short rippling song. In the Katanga this sunbird breeds before the arrival of the rains, in August and early September, when everything is dried up.

The nest is usually hung 3 to 5 feet up, on some dry weedy plant or sapling in a place where the annual fires have left a patch of high grass. It is more or less oval, constructed of coarse grass blades, softer grasses, and sometimes dead leaves or weed stems. The outside is bound with cobwebs, and the lining is of plant down, more rarely a few feathers. Two eggs are the rule, white or pale cream, dusted or freckled with fawn-color or pale olive and some ashy gray. Dimensions: 13.9–16.8 by 10.4–11.7 mm.

Cinnyris venustus igneiventris Reichenow

Cinnyris igneiventris REICHENOW, 1899, Ornith. Monatsber., p. 171 (type locality: Karagwe, Tanganyika Territory). OGILVIE-GRANT, 1908, Ibis, p. 282 (L. Kivu): 1910, Trans Zool. Soc. London, vol. 19, p. 325 (Fort Portal; Mubuku Valley, 5000–8000 ft.).

Nectarinia affinis HARTLAUB, 1891, Abhandl. Naturwiss. Ver. Bremen, vol. 12, p. 29 (Buguera).

Cinnyris venustus igneiventris REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 350 (L. Mohasi; Rugege Forest; Nyangiro; Wau I.; west Ruwenzori). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 272

(Kilo); 1918, idem, vol. 5, p. 286 (Beni; Biogo; Kibati; Muhavura-Sabinyo Pass; Bulaimu); 1932, idem, vol. 21, p. 280 (Kisenyi; Lulenga); 1933, idem, vol. 22, p. 373 (Mutura; Kisenyi–Ruhengeri); 1935, idem, vol. 27, p. 403 (Katana; Nyanza on L. Tanganyika; Tshibinda); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 137 (Mahagi Port; Djalasinda); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 145 (Nzulu; Mugunga; Ngesho; Kamatembe; Kanyabayongo; Mt. Bisoke, 2800–3300 m.; Kibga, 2400 m.; Kibumba; Bweza); 1940, Rev. Zool. Bot. Africaines, vol. 33, p. 287 (Mt. Wago); 1942, idem, vol. 36, p. 340 (Bimba; Kibingo). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 29 (Rutshuru). BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 330. GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 90 (Mt. Sabinyo, 2600 m.; Tamohanga; Burunga; Tabaro; Irumu). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 35 (Urundi; Usumbura; northwest of L. Tanganyika, 2000 m.). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 692. FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 357. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1341. PETERS AND LOVERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 264 (Idjwi I.). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 46, 79 (Gango–Kamatembe). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 98 (Nioka; Mt. Mé; Mahagi; Rethy; Nizi).

Cinnyris venustus falkensteini SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 286 (in part. Boga; Kilo).

Eucinnyris venustus igeiventris HENDRICKX, 1944, Ostrich, vol. 15, p. 204 (southwest of L. Kivu).

DISTRIBUTION: From near Entebbe and Masindi in Uganda, and the highland west of Lake Albert southward through the Kivu, Karagwe, and Ruanda to the north end of Lake Tanganyika.

Males of this race are easily recognized by the scarlet wash over the whole middle of the chest and their red pectoral tufts. In the Kivu District it is largely a highland bird, rarely seen below 4000 feet and ascending Ruwenzori to 8000 feet wherever it can find open spaces with bracken. On the Kivu Volcanoes it has been noted up to 8500 feet.

On the Lendu Plateau I saw it at the top of Mt. Avu, 6000 feet, to the northwest of Nioka, at Bunia, and at Bogoro. On west Ruwenzori it was very common in open spots about Kalongi, near 7000 feet, as it was also on the highland west of Lake Edward, and on the lower slopes of the Kivu Volcanoes. Near the top of Mt. Kandashomwa, west of the Ruzizi Valley, I collected an adult male at 9000 feet, and Grauer secured specimens on the mountain slope west of Baraka.

In behavior it is not unlike *Cinnyris regius,* alongside which it often lives. Breeding probably goes on irregularly through most of the year, unless at the northern and southern ends of the range there may be a more definite season. I took males in breeding condition on Ruwenzori in November, at Luofu in March, and on Kandashomwa in July. Drier months may be preferred. I doubt that males change to an eclipse plumage, for the few specimens that looked as though they might be in such a dress gave other evidence

of immaturity. Nest and eggs are likely to resemble those of *falkensteini,* but the nest may be placed higher above the ground.

Cinnyris regius regius Reichenow

Cinnyris regia REICHENOW, 1893, Ornith. Monatsber., vol. 1, p. 32 (central Africa; restricted type locality: Ruwenzori); 1894, Jour. Ornith., pl. 1, fig. 1. WOOSNAM, 1907, Geogr. Jour., London, vol. 30, p. 628.

Cinnyris regius REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 491; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 351 (in part. West Ruwenzori, 2500 m.). JACKSON, 1906, Ibis, p. 557 (Ruwenzori); 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1346 (in part). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 331 (in part. Mubuku Valley, 6000–10,000 ft.; Butahu Valley, 7000 ft.). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 287 (in part). GRANT AND MACKWORTH-PRAED, 1943, Bull. Brit. Ornith. Club, vol. 64, pp. 10, 11.

Cinnyris regius regius SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 698 (in part). V. AND G. VAN SOMEREN, 1949, The birds of Bwamba, p. 75 (northwest Ruwenzori, 6000–9000 ft.).

DISTRIBUTION OF THE SPECIES: Highlands from Ruwenzori and the vicinity of Lubero, south through the Kivu District and Ruanda-Urundi to Mt. Kungwe on the eastern side of Lake Tanganyika and the vicinity of Baraka on the northwest. The nominate race of Ruwenzori has the bill slightly longer than does *C. r. kivuensis* of the Kivu Volcanoes and the region to the southward. I find that the culmen to base, in Ruwenzori males, measures 19–21 mm., whereas males from the Kivu Volcanoes, Rugege Forest, and mountains northwest of Tanganyika have this measurement 17–19 mm. Although I have seen this sunbird on the higher mountains west of Lake Edward, I have no specimen to give proof as to which race is found there.[1]

From the highland of Kungwe and the Mahari Mountains J. G. Williams[2] has described *Cinnyris regius anderseni,* differing from *kivuensis* mainly by the duller, olive-yellow abdomen and orange under tail-coverts of males.

On Ruwenzori the nominate form is numerous and conspicuous on both eastern and western slopes, from about 6000 feet up to 9000 feet near the lower edge of the heath zone. On the east the British Museum party noted it up to 10,000 feet, but I never saw it amid the tree heaths. It is an active, sprightly bird, often visiting flowers, and seen in pairs both in the forest and in the open spots around 7000 feet where *Cinnyris venustus igneiventris* also lives. These two species are not very closely related. The male of *regius* gives a short song, "sparkling," as Woosnam described it. The female of *regius* resembles that of *igneiventris* but is more olive above and more uniformly yellow-olive beneath, including the throat.

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[1] A. Prigogine informs me that it is *C. r. kivuensis.*

[2] 1950, Ibis, p. 644.

None of us has found the eggs. On Ruwenzori I took several males that seemed ready for breeding in late July and in November. I certainly do not expect this sunbird on such a wet equatorial mountain mass to have any short season of reproduction. The Van Somerens watched one nest being built at the tip of a fern frond, and old ones likewise were securely attached to similiar fronds. They were of the usual *Cinnyris* shape, made of fibers, moss, and tendrils with a thick lining of plant down and feathers.

Cinnyris regius kivuensis Schouteden

Cinnyris regius kivuensis SCHOUTEDEN, 1937, Rev. Zool. Bot. Africaines, vol. 30, p. 166 (type locality: Kivu Volcanoes); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 145 (Ngesho, 1500 m.; Tshumba, 2100 m.; Kamatembe, 2100 m.; Mt. Karisimbi, 3100 m.; Kibumba); 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 340 (Muse; Nyongwe); 1942, Bull. Cercle Zool. Congolais, vol. 17, p. 61.

Cinnyris regius OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 331 (in part. Mufumbiro Volcanoes, 8000 ft.). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 351 (in part. Bugoie Forest, 2500 m.; Kisenyi; foot of Mt. Karisimbi; Mt. Niragongo, 2800 m.; Tshingogo; northwest of L. Tanganyika). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 287 (in part. Kibati); 1933, Bull. Cercle Zool. Congolais, vol. 10, p. 33 (in part. Summit of Mt. Nyamlagira); 1938, idem, vol. 15, p. 86 (near Astrida). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 94 (Mt. Muhavura, 2900 m.; Mt. Sabinyo, 2600 m.; Kibati; Burunga). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 36 (northwest of L. Tanganyika, 2000 m.). CHAPIN, 1932, Amer. Mus. Novitates, no. 570, p. 16 (Mt. Kandashomwa, 7650 ft.; Kivu District). BERLIOZ, 1936, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 8, p. 491 (Mbwahi). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1346 (in part. Kigezi; Kivu Volcanoes).

Cinnyris regius regius SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 698 (in part. Kivu Volcanoes). SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 280 (Lulenga; Nya-Muzinga); 1933, idem, vol. 22, p. 373; 1935, idem, vol. 27, p. 403 (Kansenze near Mt. Nyamlagira).

Notiocinnyris regius HENDRICKX, 1944, Ostrich, vol. 15, p. 204 (southwest of L. Kivu).

DISTRIBUTION: Highlands of the Kigezi and Kivu districts, south to the mountains northwest of Baraka. Although reported from above 10,000 feet on Mt. Karisimbi, this regal sunbird is much more common in the Kivu between 5000 and 8000 feet. On Mt. Niragongo I found it up to 9300 feet. Near Behungi, at 8000 feet in Kigezi, Pitman saw a female putting the finishing touches to a nest suspended near the tip of a bamboo, alongside a path and about 12 feet from the ground. This nest was rather small, oval in form, built of shredded grasses mixed with other materials, and thickly lined with plant silk and pappus. The male bird was much concerned and obstructed her efforts rather than helping. No eggs had yet been laid.

The fact that four adult specimens from the Kivu in June and July are marked as non-breeding may indicate that nesting ceases during the dry

period of the year. J. G. Williams found birds in condition to breed in October.

Cinnyris rockefelleri Chapin

Cinnyris rockefelleri CHAPIN, 1932, Amer. Mus. Novitates, no. 570, p. 16 (type locality: 9000 ft. on Mt. Kandashomwa, west of Ruzizi Valley). HENDRICKX AND MASSART-LIS, 1952, Ibis, p. 531 (Mt. Kahusi; Mt. Kabushwa).

Nectarinia rockefelleri DELACOUR, 1944, Zoologica, New York, vol. 29, p. 30.

DISTRIBUTION: Restricted, so far as known, to the high mountains west of the Ruzizi Valley and Lake Kivu at levels around 8500 to 10,000 feet. On those same mountains lives the slightly smaller *Cinnyris regius,* and the relationships of *C. rockefelleri* are likely to be with *C. loveridgei* Hartert of the Uluguru Mountains.

For almost 20 years the only known specimens were the two males from Kandashomwa. Then F. L. Hendrickx found that he had collected a male and a female on Mt. Kahusi, and A. Prigogine secured several males and a female from Mt. Muhi and Lake Lungwe for the Congo Museum.

It is easy to distinguish the male of *C. rockefelleri* from that of *C. regius* by its longer bill and the fact that its breast is red across its entire width. There are small yellow pectoral tufts; the under tail-coverts are red. Wing 55.5–58 mm.; culmen to base 24.5–26 mm. The female of *C. rockefelleri* is greenish, with a faint metallic luster above; wing 52 mm.; culmen to base 22.

According to the field notes of Rockefeller and Murphy, who secured their birds in July, 1929, they appeared to be common in the valleys of streams near 9000 feet on Kandashomwa, where tall bamboos clothe most of the slopes. They were noisy and active, frequenting thickets near the streams rather than the groves of bamboos. That was not their breeding season; indeed both birds were molting some outer primaries.

Cinnyris cupreus cupreus (Shaw)

Certhia cuprea SHAW, 1811, General zoology, vol. 8, p. 201 (type locality: Malimba, Enclave of Cabinda).

Cinnyris cupreus SHARPE, 1884, Jour. Linnean Soc. London, zool., vol. 17, p. 428 (Semio). SHELLEY, 1900, The birds of Africa, vol. 2, p. 36 (in part). REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 475 (in part). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (in part. Lower Congo; L. Leopold II; "Bumba"). SALVADORI, 1909, Ann. Mus. Civ. Genova, ser. 3, vol. 4, p. 325 (Uelle); 1911, idem, ser. 3, vol. 5, p. 455. SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 190 (Dongu; Bongeré; Mbiambana). MACKWORTH-PRAED AND GRANT, 1945, Ibis, p. 149.

Cinnyris cuprea REICHENOW, 1887, Jour. Ornith., p. 306 (Leopoldville). SHELLEY, 1888, Proc. Zool. Soc. London, p. 38 (Mundu). OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 126.

Nectarinia cuprea SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, pp. 240, 254, 256 (Makraka Sugaïre).

Cinnyris cupreus cupreus BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 328. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 402 (Kwamouth); 1924, idem, vol. 12, p. 274 (Kisantu; Kidada); 1925, idem, vol. 13, p. 18 (near Bolobo); 1926, idem, vol. 13, p. 203 (Moanda; Lower Congo); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 137 (Mahagi Port; Mauda; Dika; Dramba; Aru; Niangara; Niarembe; Faradje; Djalasinda; Poko; Buta). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 687. VINCENT, 1936, Ibis, pp. 59–61. STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 571 (in part. Ekibondo). GRANT AND MACKWORTH-PRAED, 1943, Bull. Brit. Ornith. Club, vol. 64, p. 9. BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 63 (Brazzaville; upper Kemo R.).

SPECIMENS: Boma, male, January 12. Pawa, male, October 18. Niangara, two males, January 20, May 23; two females, May 15, June 5; immature male, May 21; immature female, June 4. Faradje, six males, March 10, 23, April 13, September 7, October 20; four females, May 13, September 28, 30, October 20; immature male, August 28; immature female, September 1; three juvenile females, September 5, October 15, 20.

ADULTS OF BOTH SEXES: Iris dark brown, bill and feet black.

NESTLING: Iris very dark brown, bill blackish brown with corners of mouth pale yellow, feet black.

DISTRIBUTION OF THE SPECIES: Senegal to western Abyssinia, southward through inner East Africa and the eastern Congo to the Zambesi, and westward again to the southern Congo, Angola, and the savannas in the Gaboon. Absent from heavy forests in both Upper and Lower Guinea, but approaching the edges of these forests closely.

The nominate race extends from Senegal eastward to the Uelle District, Bahr-el-Ghazal and western Abyssinia, reappearing south of the forest belt in the Gaboon and Lower and Middle Congo. A slightly larger race, of much the same purplish copper coloration, *C. c. septentrionalis,* replaces it from Uganda and the adjacent districts of Kenya Colony and the Congo to Ruanda, the Manyema, and the central Kasai. The third race, *C. c. chalceus,* is of greener, bronzier coloration in the male, long-winged like *septentrionalis.* It ranges from Angola to Northern Rhodesia, the Katanga, Marungu, and Nyasaland.

Jean Delacour kept in his aviary a male of this coppery sunbird which was believed to have come from the Cameroon, and it molted into a dull eclipse plumage with great regularity. Whether this happens throughout the whole range of the species will be worth knowing, and particularly in an equatorial region like Uganda.

When a sufficient series of male specimens is available from any one region, and they are laid out in order of date, it will generally be found that there is one period of the year when none is in full metallic breeding plumage. From Senegal to the Cameroon this is from about November to

January; in Uganda (exclusive of Ankole) approximately the same; but in Karagwe, a little south of the Equator, June to September; and in northwestern Angola June to October.

Unfortunately it is just at this same season that immature males are beginning to acquire their adult plumage, so that it is not always easy to determine just which examples are truly adult males in eclipse. By pressing with the finger nail on the middle of the crown, one finds that a fair proportion have the skull still in the immature state.

That there is a real change of plumage in the dry season, at least in the regions mentioned above, is certain. I have examined a few specimens which were plainly molting from metallic to dull olivaceous plumage on head and body. Close to the borders of the Congo forest, however, I believe the eclipse may often be omitted. In the Uelle District I never noticed any adult males in eclipse, and I collected one in breeding dress on January 20 at Niangara. From the southern edge of the forest I have seen fully plumaged males taken at Lusambo and at Luluabourg in August. Two other males from Luluabourg, June 17 and August 16, show a glossy plumage with an admixture of dull greenish feathers on crown and hind-neck which probably represents a vestigial eclipse plumage.

In the Congo the small nominate race, *cupreus,* is found in the Lower Congo and eastward probably to Kwamouth and Lukolela, also in the savannas on the northern side of the equatorial forest. It is true that this sunbird inhabits grassy areas right on the edge of the solid forest, but the record from Bumba seems questionable, and another from Avakubi [1] is certainly erroneous.

The savannas of the Uelle have no more abundant sunbird than this one, and much the same is true for the grasslands near the lower Congo River. It flits from bush to bush, uttering a hoarse "chit-chit" as its call note. Feeding largely at flowers, it was a frequent visitor to a bed of cannas in the post of Faradje. I noticed that it regularly inserted the beak into a small hole pierced at one side of the base of the flowers and held it there for a second or more. Inspection showed that about half the blossoms, all indeed that were being visited, showed similar tiny punctures. Insects would not be caught in that way; nectar must be the attraction. In the case of a common bush or small tree in the savannas, a *Markhamia* bearing pink and white flowers in the dry season, I found that many of the flowers were likewise pierced at the sides by sunbirds. This aids in understanding how sunbirds get the rubber we found in their stomachs. It comes from the blossoms of *Manihot glaziovii.*

About Niangara the breeding season of *Cinnyris cupreus* begins in May, and at Faradje breeding adults were taken from July to October inclusive.

[1] Reichenow, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 350.

The two nests we found were placed within a yard or two of the ground, amid tall grass, on bushes of *Bauhinia*. Of normal pensile type with lateral doorway and overhanging portico, they were built of strips of dry grass, bound round with silk, and lined with vegetable down. One had long streamers of grass hanging from the under side. In both there were two eggs, very light gray in ground color, marbled with brown and spotted with dark purplish brown, a few scrawls of the latter color also showing. The dimensions of one set were 16.7 by 11.1 and 16.8 by 11.5 mm. In West Africa Serle found the eggs of this same race to measure 15.3–16.5 by 11.3–11.6 mm.

Both parents visit the nest. Once a male feeding well-grown young was found carrying in its beak an ant, a young leaf-hopper, and a small spider with legs removed. In three out of five stomachs I found remains of tiny insects, also one small caterpillar. Balls of rubber were found in three of the stomachs, on May 21, June 4, and October 29. That of June was largest, 9 by 7 mm., but the retention of the rubber until October, several months after the *Manihot* trees had ceased flowering, shows that it is neither disgorged nor soon digested.

Cinnyris cupreus septentrionalis Vincent

Cinnyris cupreus septentrionalis J. VINCENT, 1936, Ibis, p. 60 (type locality: Mpumu, Uganda). GRANT AND MACKWORTH-PRAED, 1943, Bull. Brit. Ornith. Club, vol. 64, p. 9.

Nectarinia cuprea HARTLAUB, 1891, Abhandl. Naturwiss. Ver. Bremen, vol. 12, p. 28 (Nyangabo). EMIN, 1922, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 3, pp. 375, 377, 379; 1927, idem, vol. 4, pp. 41, 233.

Cinnyris cupreus REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 475 (in part. Karevia; Kavalli); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 350 (L. Mohasi; Beni; west base of Ruwenzori; Kisenyi; Usumbura). OGILVIE-GRANT, 1908, Ibis, p. 283 (Mfumbiro Volcanoes, 5000 ft.; L. Kivu). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 272 (Kilo); 1918, idem, vol. 5, p. 286 (Kamabo; Biogo; Karimi; Kibati; Mutum-Peke; Boga; Ikanga; Bulaimu; Buwissa; Lufungula; Munie-Mboka; Kalembelembe; Nya-Luindja). SALVADORI, 1915, Ann. Mus. Civ. Genova, ser. 3, vol. 6, p. 280 (Kasai District). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 190 (in part. Mswa). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 34 (Urundi; Uvira; Baraka). BERLIOZ, 1925, Bull. Mus. Hist. Nat., Paris, vol. 31, p. 348 (Luluabourg): 1935, idem, ser. 2, vol. 7, p. 163 (Kadjudju). DE REIMAECKER, 1927, Rev. Zool. Bot. Africaines, vol. 14, p. 281 (Kongolo).

Cinnyris cupreus chalceus NEUMANN, 1906, Jour. Ornith., p. 252 (in part). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 87 (Ngoma; Tabaro; Irumu). FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 759 (Luvungi). FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 335. SCHOUTEDEN, 1940, Rev. Zool. Bot. Africaines, vol. 34, p. 61 (Kawa Forest); 1941, idem, vol. 34, p. 267 (Kasenyi); 1942, idem, vol. 36, p. 340 (Kibingo); 1943, idem, vol. 37, p. 272 (Gabiro). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 98 (Nioka; Mahagi).

Cinnyris cupreus cupreus SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11,

p. 347 (Luebo; Ka alembi; Macaco; Kabambaie; Tshikapa; Ngombe in Kasai); 1932, idem, vol. 21, p. 280; 1935, idem, vol. 27, p. 403 (Nyanza on L. Tanganyika). BANGS AND LOVERIDGE, 1933, Bull. Mus. Comp. Zool., vol. 75, p. 211. STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 571 (in part. Bunia). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 100 (Idiofa; Bandundu; Lusambo). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1333. VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 16, p. 7 (Kiambi; Albertville). PETERS AND LOVERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 264 (Idjwi I.).

Aidemonia cuprea HENDRICKX, 1944, Ostrich, vol. 15, p. 203 (southwest of L. Kivu).

DISTRIBUTION: Kavirondo District, Uganda, and savannas west of Lake Albert, southward through Karagwe, the Kivu, and Ruanda to Kigoma on the east shore of Tanganyika, the Manyema, and the central Kasai. Abyssinian birds, in my opinion, are closer to nominate *cupreus;* the one adult male we have from Nyasaland is colored like *chalceus.*

This race of the coppery sunbird is common in the grasslands of the eastern Congo, from Lake Albert to the northern shores of Lake Tanganyika, but it lives mainly below 5500 feet. Then from Lake Tanganyika it extends westward to the central Kasai. Its behavior is like that of nominate *cupreus,* and in central Uganda and the region of Lake Albert its breeding season lasts from March to November. I have taken males with gonads enlarged in the Semliki Valley in October and November. South of the Equator, in Karagwe, near Lake Tanganyika, and the Kasai, breeding must begin toward November, after the dry season of June–August.

A nest found by Woosnam at Mokia, northeast of Lake Edward, on June 5 was suspended from an acacia bough about 5 feet from the ground and built of fine grass and plant down. Jackson found that a pendant beard below the lower edge of the entrance was characteristic. The eggs are two in number, yellowish white obscurely clouded and smeared with gray, sparingly marked with rounded spots and short irregular streaks of brownish black. Dimensions are 16.8–19 by 12.5–13.2 mm.

Cinnyris cupreus chalceus (Hartlaub)

Nectarinia chalcea HARTLAUB, 1862, Ibis, pp. 337, 341 (type locality: Cambambe, Cuanza R., Angola).

Cinnyris cupreus DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika); 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (in part. L. Tanganyika). NEAVE, 1910, Ibis, p. 232 (between Dikulwe and Lualaba rivers, 4000 ft.; Lufupa R., 4000 ft.).

? *Cinnyris cupreus chalceus* SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 347 (Kasai ?).

Cinnyris cupreus chalceus J. VINCENT, 1936, Ibis. p. 60 (Congo-Zambesi divide). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 100 (Kasenga). GRANT AND

MACKWORTH-PRAED, 1943, Bull. Brit. Ornith. Club, vol. 64, p. 9 (Elisabethville). SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 164 (many localities in Katanga).

Cinnyris cupreus cupreus ≷ *chalceus* LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 100 (Nasondoye; Kayoyo; Sandoa).

Cinnyris cupreus vaughan-jonesi WHITE, 1944, Ostrich, vol. 15, p. 137 (type locality: Kasempa, Northern Rhodesia).

Cinnyris cupreus septentrionalis A. W. VINCENT, 1949, Ibis, p. 330.

DISTRIBUTION: Angola from the Cuanza Valley to Humpata and eastward to Northern Rhodesia, the Upper Katanga, Moba on Lake Tanganyika, Nyasaland, and the lower Zambesi. I do not find specimens from Northern Rhodesia sufficiently different to be called *vaughan-jonesi.*

In Angola this race undoubtedly has an eclipse plumage of males, worn between June and October, and in Northern Rhodesia White found that there seemed to be an eclipse, perhaps from April to August. Likewise in the Katanga and Nyasaland males may be expected to have a dull off-season dress in the dry season.

At Moba in February Rockefeller and Murphy collected three males, all in condition to breed. Near Elisabethville A. W. Vincent noted that the coppery sunbird was found mainly about the open marshy dambos. Nests with eggs were found from December 18 to April 19, hung only 3 to 5 feet above the ground near the ends of branches of shrubs and small trees. In form like those of the other races, they were built of more varied materials. Eggs were always two, cream-colored, marked with longitudinal streaks, smears, and spots of various browns, with darker centers and tiny twirls and some underlying gray. Dimensions: 15.6–17 by 11–12.2 mm.

Cinnyris minullus Reichenow

Cinnyris minullus REICHENOW, 1899, Ornith. Monatsber., p. 170 (type locality: Yaunde, Cameroon).

Cinnyris marginatus OGILVIE-GRANT, 1907, Bull. Brit. Ornith. Club, vol. 19, p. 106 (type locality: Lualaba R. below Kasongo, 2000 ft.); 1908, Ibis, p. 283. GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 92 (Beni; Kampi-na-Mambuti).

Cinnyris chloropygius orphogaster SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 272 (Kilo); 1918, idem, vol. 5, p. 287 (in part. Kilo; Zambo; Kamabo).

Cinnyris chloropygius luhderi SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 347 (in part. Macaco near Luebo).

Cinnyris minullus marginatus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 698. VAN SOMEREN, 1946, Bull. Brit. Ornith. Club, vol. 67, p. 36 (Bwamba district in Semliki Valley). BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 193 (Ituri district).

Nectarinia minulla DELACOUR, 1944, Zoologica, New York, vol. 29, p. 30.

SPECIMEN: Ngayu, female, December 21.

ADULT MALE: Iris very dark brown, bill black, feet brownish black.

DISTRIBUTION: From the Gold Coast, Warri and Degema in Southern Nigeria, Fernando Po, and forested southern Cameroon eastward to the Ituri and Semliki forests, and on the south to the Gaboon, the Middle Congo, Kasai District, and Kindu on the Lualaba. It seems likely that this small red-breasted sunbird will yet be found in the Mayombe Forest.

An adult male and a young female of *C. minullus* were collected by J. G. Correia at Basoala, Fernando Po, in May, 1929. The wing of the male measures 51 mm., that of the female 48, so that these island birds are perceptibly larger than those of the mainland, where the wings measure 43–48 mm. I cannot find any sufficient reason for separating the eastern Congo birds as *marginatus*.

Males of *C. minullus* are distinguished from those of the commoner *C. chloropygius* by their shorter bills and white under wing-coverts. But subadult males of *chloropygius* sometimes retain the white under wing-coverts of the immature plumage after most of the metallic adult feathering has been acquired. The female of *minullus* has a shorter bill and is less yellowish beneath than that sex of *chloropygius*.

Since collecting the female at Ngayu, I have become better acquainted with this sunbird along the edge of the Ituri forest near Irumu, where it is not at all rare. In July, 1906, C. F. Camburn also secured two males in that same region, and the Rothschild Collection contains a male from Kindu, collected by Grauer. The Congo Museum has a young female from Macaco in the Kasai and a male from Kunungu near Bolobo. Malbrant sent us a male from Etoumbi in the French Congo. The range thus turns out to be very extensive.

It frequents second-growth woods and the borders of rain forest and in most regions is much less common than *chloropygius,* which it resembles in appearance and behavior. If there is any preference as to season for nesting, we may expect it to be during the rains, which continue for the greater part of the year. The two males which I collected near Irumu in late September were both in breeding condition, and two females, accompanied by their mates, were gathering cobweb and carrying it off to some place where nests were under construction.

A nest secured by Lang at Medje in June was exquisitely constructed and hung from the tip of a leafy branch. It was built mainly of fine, dark-colored rootlets, probably from some epiphytic plant, and had a soft lining of slender vegetable fibers and a little brown vegetable down. The outer covering was largely of flat pieces of gray-green lichen and a binding of silk. This nest contained two tiny eggs, measuring 13.8 by 10.3 and 14.1 by 10.8 mm. On a pale blue ground color they showed rather bold spots of

dull dark brown, thickest in a zone around the large end. Bates [1] found similar nests and eggs in the Cameroon.

Cinnyris chloropygius lühderi Reichenow

Cinnyris chloropygius lühderi REICHENOW, 1899, Ornith. Monatsber., p. 169 (type locality: Bipindi, Cameroon); 1905, Die Vögel Afrikas, vol. 3, p. 486 (in part. Leopoldville; Lukula R.). LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 17. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 402 (Kwamouth); 1924, idem, vol. 12, pp. 274, 422 (Kidada; Eala; Bikoro). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 697. BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 189.

? *Certhia cincta* LEACH, 1818, *in* Tuckey, Narrative of an expedition to explore the River Zaire, p. 407 (Lower Congo).

Certhia chalybea LEACH, 1818, *in* Tuckey, Narrative of an expedition to explore the River Zaire, p. 408 (Lower Congo).

Nectarinia puchella JOHNSTON, 1884, The River Congo, p. 365.

Cinnyris chloropygia REICHENOW, 1887, Jour. Ornith., p. 306 (Leopoldville). OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 126. MACKWORTH-PRAED AND GRANT, 1945, Ibis, p. 154.

Cinnyris chloropygia lühderi HARTERT, 1900, Novitates Zool., vol. 7, p. 51 (in part).

Cinnyris chloropygius DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (in part. Lower Congo). SCHOUTEDEN, 1926, Rev. Zool. Bot. Africaines, vol. 13, p. 203 (Moanda; Ganda Sundi; Makaia-Ntete).

Cinnyris chloropygius luhderi SCHOUTEDEN, 1925, Rev. Zool. Bot. Africaines, vol. 13, p. 18 (Kunungu; Mongende). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 63 (Brazzaville; Ouadda; upper Kemo R.).

SPECIMENS: Leopoldville, three males, July 3, 5; female, July 3; juvenile male, July 3. Coquilhatville, male, July 21.

ADULT MALE: Iris dark brown, bill and feet black.

DISTRIBUTION OF THE SPECIES: Portuguese Guinea to Nigeria, Fernando Po, Cameroon to northern Angola, and across the Congo to Uganda and to Binesho in southwest Abyssinia. Six races are usually recognized, differing slightly in size and in the coloration of the underparts of males.

The birds of Sierra Leone and adjacent areas, *C. c. kempi* Ogilvie-Grant, are small and the males most olivaceous on the abdomen. *Cinnyris c. chloropygius* (Jardine), described from the lower Niger, is less greenish below, with wings 43–48 mm. The Fernando Po race, *insularis,* has wings 43–53 mm. Males of *C. c. lühderi* are a little duskier on abdomen and under tail-coverts and usually have smaller bills than in *insularis.* That race ranges from the Cameroon south to the Lower Congo and eastward to the vicinity of the lower Ubangi. Its wings measure 45–52 mm., and it is not readily separated from *C. c. orphogaster* of the eastern Congo and Uganda, with wings

[1] 1911, Ibis, p. 611, pl. 11, fig. 23 (egg).

47–55 mm. The type of *C. c. bineschensis* Neumann differs by the very sooty color of its abdomen, so there is doubtless a valid race in Abyssinia.

One has to be very arbitrary in drawing a line between the races *lühderi* and *orphogaster* in the Congo. Specimens from northwestern Angola and the Kasai agree better with *orphogaster* than with *lühderi,* while those of the Lower and Middle Congo may still be referred to *lühderi.*

FIG. 20. *Cinnyris chloropygius*, male, at flowers of *Clerodendron.*

In the Mayombe Forest and about Leopoldville I found this species common. It comes into gardens and feeds at flowers, frequents areas of scrub and second growth, but is scarcely to be expected either in very open grasslands or in primary forest. Bates found that it nests in the Cameroon at all seasons except perhaps at the period of heaviest rains. At Leopoldville it seemed not to stop in the dry season, for I took one male ready for breeding on July 5. Food and nesting are discussed below under *orphogaster.*

Cinnyris chloropygius orphogaster Reichenow

Cinnyris chloropygius orphogaster REICHENOW, 1899, Ornith. Monatsber., p. 169 (type locality: Bukoba, L. Victoria); 1905, Die Vögel Afrikas, vol. 3, p. 487; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 351 (Wau I.; Avakubi; "west Ruwenzori, 2500 m."; northwest of L. Tanganyika). SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 618. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 287 (in part. Beni); 1923, idem, vol. 11, p. 347 (Luebo; Kamaiembi); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 137 (Poko; Panga; Bomili; Buta; Titule; Ibembo; Kotili); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 146 (east of Rutshuru Plain). BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 332. GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl.,

ser. 3, vol. 1, no. 3, p. 93 (Kartushi; Malisawa; Kampi-na-Mambuti; Simbo; Irumu). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 36 (Moera; Mawambi; Ukaika). FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 759 (Bumba). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 697. STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 571 (Saidi; Ekibondo). BERLIOZ, 1936, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 8, p. 491 (Kadjudju ?). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1345. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 101 (Kilembe; Banda; Lusambo). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 80 (Djelube R.).

Cinnyris chloropygia SHELLEY, 1888, Proc. Zool Soc. London, p. 38 (Tingasi).

Cinnyris chloropygius SHELLEY, 1890, Ibis, p. 162 (Aruwimi R.). FLOWER, 1894, Proc. Zool. Soc. London, pp. 603, 605 (Urumbi; Muyoméma). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (in part. L. Leopold II; Nouvelle-Anvers). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 328 (Beni). THONNER, 1910, Vom Kongo zum Ubangi, p. 47 (eastern Bangala District). BERLIOZ, 1925, Bull. Mus. Hist. Nat., Paris, vol. 31, p. 348 (Luluabourg).

Nectarinia chloropygia HARTLAUB, 1891, Abhandl. Naturwiss. Ver. Bremen, vol. 12, p. 29 (Djanda; Uvamba).

Cinnyris chloropygia lühderi HARTERT, 1900, Novitates Zool., vol. 7, p. 51 (in part. Stanley Falls).

Cinnyris chloropygia orphogaster HARTERT, 1900, Novitates Zool., vol. 7, p. 51 (Mohalla; Kitima).

Cinnyris chloropygius lühderi REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 486 (in part).

Cinnyris chloropygius uellensis REICHENOW, 1912, Jour. Ornith., p. 321 (type locality: Uelle R.; specimens from Koloka, Angu, and Amadi). SCHUBOTZ, 1912, Ber. Senckenbergischen Naturf. Gesellsch., vol. 43, p. 356.

Cinnyris chloropygius luhderi SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 347 (in part. Basongo; Ngombe in Kasai).

SPECIMENS: Stanleyville, two males, August 6, 16; female, August 10; juvenile female, August 16. Batama, male, September 15. Avakubi, five males, March 6, April 8, October 6, 13, 20; female, October 27; juvenile male, October 28; juvenile female, October 1. Ngayu, three males, December 14, 15, 22; two females, December 12, 19; juvenile female, December 10. Medje, male, January 21; two juvenile females, June 7. Rungu, male, October 29. Niangara, male, November 25; immature female, June 5. Dungu, male, June 25. Faradje, three males, February 28, September 12, November 3.

ADULTS OF BOTH SEXES: Iris dark brown, bill and feet black.

NESTLINGS: Iris brownish gray, bill and feet pinkish gray, corners of mouth yellow.

DISTRIBUTION: Uganda and the vicinity of Bukoba, westward to the southern Bahr-el-Ghazal Province, the Uelle, upper Congo River near Lisala, the Kasai District, and the wooded areas in northwestern Angola. In the Kivu District it is usually wanting above 5000 feet, but it has been found on the northwest shore of Lake Tanganyika and in the Manyema

District. I doubt the exactness of Reichenow's records from Wau Island and from west Ruwenzori at 2500 meters.

Throughout the forested areas of the Upper Congo no other species of sunbird is so frequently seen. It dwells in the clearings, not in the true forest, and comes to feed at flowers close to houses, a sprightly bird that cannot be overlooked. In the northeastern Uelle, on the other hand, it avoids the open grasslands or the villages. It must be sought in the swampy woods. In the Kasai it is evidently a common bird near Luluabourg, no doubt near the edges of woods.

The call note is thin and squeaky, appropriate for a nervous, excitable temperament, and the song is a more agreeable attempt at trilling and warbling. Where flowers are numerous this sunbird may gather in small numbers, though males are anything but sociable in their behavior.

The breeding season is greatly prolonged. In the forest, from Medje southward, we took breeding adults or young fresh from the nest in January, March, April, June, September, October, and December. Most adult males had gonads enlarged, as though the condition might be permanent. In the Uelle, too, dissections gave evidence of breeding in February, the driest season, as well as in September–November, the period of heaviest rains.

Nests are suspended from the end of a leafy bough in some well-shaded spot, up to 20 feet above the ground. Of the usual form with lateral entrance, they measure 12–13 cm. from top to bottom and are made of strips of soft bark and similar materials, lined with plant down like that from the *Funtumia* rubber tree. The female appears to do all the incubation. Eggs are two, pale gray or whitish with spots or clouded streaks of darker grayish, thickest about the large end. Dimensions: 15 by 11 mm.

Only five stomachs were examined with care. Three contained bits of small insects like beetles, one held two tiny green caterpillars, and three had a number of small spiders or pieces of spiders. In one I noted also a small piece of glass or quartz, and Bates wrote that sometimes tiny shells and grains of sand were found.

We must not overlook the nectar that is imbibed. This sunbird shares the habit of pricking holes in flowers to obtain it. At Avakubi I noticed that cannas visited only by this one species had their bases pierced at one side. Even the more open red flowers of *Spathodea nilotica* are treated in the same way by some kind of sunbird, if I may judge by the holes in the bases of most of the blossoms when they fall to the ground.

Cinnyris reichenowi reichenowi Sharpe

Cinnyris reichenowi SHARPE, 1891, Ibis, pp. 444, 593, pl. 12 (type locality: Sotik, East Africa). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 330 (Mubuku Valley, 6000–8000 ft.). REICHENOW, 1911, Wiss. Ergeb. Deutschen

Zentral-Afrika Exped., vol. 3, p. 351 (northwest of L. Tanganyika). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 272 (Kilo); 1918, idem, vol. 5, p. 287; 1942, Bull. Cercle Zool. Congolais, vol. 17, p. 61. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 36. BERLIOZ, 1936, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 8, p. 491 (Mbwahi).

Nectarinia ericksoni HARTLAUB, 1891, Abhandl. Naturwiss. Ver. Bremen, vol. 12, p. 28 (Buguera).

Cinnyris chloropygius var. *pauwelsi* DUBOIS, 1911, Rev. Française Ornith., vol. 2, p. 17 (type locality: Baraka, L. Tanganyika).

Cinnyris chloropygia pauwelsi SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 619.

Cinnyris pauwelsi SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 287.

Cinnyris reichenowi reichenowi GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 92 (Sake; Burunga). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 696. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 280 (Lulenga); 1935, idem, vol. 27, p. 403 (Tshibinda); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 146 (Mt. Sabinyo, 3000 m.); 1940, Rev. Zool. Bot. Africaines, vol. 33, p. 287 (Mt. Wago; Djugu); 1942, idem, vol. 36, p. 340 (forest west of Astrida). FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 362. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1343. PETERS AND LOVERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 265 (Idjwi I.). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 80 (Kianiamakue near Lutunguru). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 99 (Kwandruma; Nioka; Mt. Aboro, 2200 m.; Loda Forest).

Notiocinnyris reichenowi HENDRICKX, 1944, Ostrich, vol. 15, p. 203.

DISTRIBUTION OF THE SPECIES: Highlands of Fernando Po, Mt. Cameroon, and other elevations to the northward; also those of eastern Africa from the Imatong Mountains, Mt. Gargues, and Mt. Kenya southward to the northern end of Lake Tanganyika.

On Fernando Po and Mt. Cameroon the species is represented by the race *preussi,* and on other highlands a little farther north by the closely allied *genderuensis.* Then the species reappears again on the highland west of Lake Albert and on the Imatong Mountains. These eastern birds, with shorter bills and abdomen a little more olivaceous, are usually united under the name *reichenowi.* It has been claimed that the population to the east of the Great Rift differs slightly, but I do not find *kikuyuensis* separable. In East Africa *reichenowi* often lives side by side with *C. mediocris* Shelley, a slightly larger species with abdomen still more yellowish olive.

This small red-breasted sunbird is rather common at levels around 5000 and 6000 feet, especially near the lower edge of mountain forests, from northwest of Lake Albert to the Rugege Forest and the vicinity of Baraka. Fond of visiting flowers, it comes right out to trees in the open, especially *Erythrina.* It is numerous near Djugu, and Vrydagh noted it up to 7200 feet on Mt. Aboro. I have seen it also at Karebumba, and Grauer obtained specimens on the highland west of Lake Edward. On Ruwenzori one finds it mostly in clearings between 4900 and 6000 feet, though occasionally it

ascends to 8000 feet, avoiding the heavier forest. Relatively few specimens have been taken on the slopes of the Kivu Volcanoes. We have some from the Rugege Forest, Idjwi Island, and Mt. Kandashomwa. In the region northwest of Lake Tanganyika the altitudinal range is from 4300 to 7900 feet. I have examined the type of *pauwelsi;* it belongs certainly to this species.

On west Ruwenzori some of the males had gonads enlarged in February, but there is not likely to be any short breeding period. J. M. Vrydagh tells me he found a nest at Nioka on November 11. It was placed in the top of a cypress not far from a house, built of fine grasses mixed with spider silk, and well lined with plant down and feathers. This nest measured but 9.5 cm. in height and 7 cm. across. The two eggs were lilac-gray with a few sepia freckles; their dimensions, 14.5 by 11 and 15 by 11 mm.

Cinnyris chalybeus manoensis Reichenow

Cinnyris manoensis REICHENOW, 1907, Ornith. Monatsber., p. 200 (type locality: Missale in the Mano area, Tukuyu District, Tanganyika Territory).

Cinnyris chalybeus manoensis SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 164 (Kasiki).

DISTRIBUTION OF THE SPECIES: Cape Province, Natal, and eastern Transvaal, northward to the highlands near the southern part of Lake Tanganyika, the Upper Katanga, Northern Rhodesia, and the highland of Angola. There appear to be about six valid races, of which two are to be expected in the highlands of the southeastern Congo.

Of these two, *C. c. manoensis* is not strikingly different from nominate *chalybeus* of Cape Province, though it is a little deeper grayish on lower breast and flanks, also longer-winged, this length being 58–64 mm. The upper tail-coverts of males have broad violet tips. This subspecies was described from the highland north of Lake Nyasa, and it extends into the Marungu highland on the southwest side of Lake Tanganyika. In the southern Katanga its place seems to be taken by *C. c. intermedius,* with slightly shorter bill, paler gray underparts, and upper tail-coverts of males only narrowly tipped with glossy green. Its wing measures 54–61 mm. The range of *intermedius* extends to Angola and to Mzimba in Nyasaland.

The first Congo records of *manoensis* were those of two males and a female collected by Rockefeller and Murphy in Marungu in 1929. The specimens are from Sambwe and Pande, at 6100 feet, and Matafali, 6225 feet. They were found in a thick tangle and in a cornfield, not far from streams. This is plainly a montane bird, not usually seen in open grasslands. Two of the birds were in condition to breed, in late February and in April. Gaston de Witte is reported also to have secured this sunbird at Kasiki.

Cinnyris chalybeus intermedius (Bocage)

Nectarinia intermedia BARBOZA DU BOCAGE, 1878, Jor. Sci. Nat. Lisboa, vol. 6, p. 210 (type locality: Caconda, Angola).

Cinnyris chalybeus (? *ludovicianus*) LYNES, 1934, Jour. Ornith., Sonderheft, p. 115 (southeastern Belgian Congo).

Cinnyris chalybeus MACKWORTH-PRAED AND GRANT, 1945, Ibis, p. 152.

Cinnyris chalybaeus ludovicensis WHITE, 1946, Ibis, p. 213 (Mwinilunga).

Cinnyris chalybeus intermedius GRANT AND MACKWORTH-PRAED, 1947, Bull. Brit. Ornith. Club, vol. 67, p. 84 (Elisabethville).

Cinnyris chalybeus ludovicensis SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 164 (Sakania; Kimbundji).

DISTRIBUTION: Rather widely distributed in the highlands of Angola and extending eastward to Mwinilunga in Northern Rhodesia, Elisabethville in the Katanga, and Mzimba in Nyasaland. Suprisingly enough, it has also been reported from Iringa in Tanganyika Territory.

In the Katanga this sunbird seems to be decidedly scarce, and near Mwinilunga White found it in denser growths of *Brachystegia* trees as well as in good cover near the banks of streams. He has sent us two males, both *intermedius,* one of them from Congo territory, north of Mwinilunga.

Cinnyris afer ludovicensis (Bocage)

Nectarinia ludovicensis BARBOZA DU BOCAGE, 1868, Jor. Sci. Nat. Lisboa, vol. 2, p. 41 (type locality: Biballa, Mossamedes Province, Angola).

? *Cinnyris ludovicensis* NEAVE, 1910, Ibis, p. 233 (upper Lualaba R., 3800 ft.). MOURITZ, 1914, Ibis, p. 29 (Mandoko, southeastern Katanga).

Cinnyris chalybeus ludovicensis SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 694. PRIEST, 1936, The birds of Southern Rhodesia, vol. 4, p. 192, fig. 57 (Katanga).

? *Cinnyris chalybeus ludovicus* SCHOUTEDEN, 1938, Bull. Cercle Zool. Congolais, vol. 15, p. 60 (Kinia near L. Bangweolo).

DISTRIBUTION OF THE SPECIES: Southern Cape Province to Natal and Transvaal; then from Southern Rhodesia to the highlands of Northern Nyasaland, the Katanga supposedly, and the eastern Congo north to Ruwenzori. Also westward from the Katanga to Angola, where it ranges from Humpata north to Pungo Andongo in the Cuanza Valley. There may be five races, most of them well marked.

Nominate *afer,* from the Transvaal south, is a large bird with very long bill, 27–33 mm. The race *ludovicensis,* on the other hand, in Angola is short-billed, culmen to base only 19–22 mm. Benson [1] has separated the birds of the Nyika Plateau in Nyasaland as *C. a. whytei,* because of the somewhat lighter belly color.

On the Kivu Volcanoes lives *C. a. graueri,* with the bill almost as short

[1] 1948, Bull. Brit. Ornith. Club, vol. 69, p. 19.

as in *ludovicensis* and *whytei,* while on Ruwenzori *C. a. stuhlmanni* again has the bill somewhat longer, but not equaling that of nominate *afer.* In this species the coloration does not vary greatly; all races have upper tail-coverts broadly tipped with violet, the red breast band far wider than in *C. chalybeus.*

Because of confusion in the past between *C. a. ludovicensis* and *C. c. intermedius,* I cannot be sure that all the published references are correctly allocated. Neave reported *ludovicensis* as rather scarce in the Katanga, only met with in woodland, but he may have been mistaken. I have not seen one specimen from the Katanga.

Cinnyris afer graueri Neumann

Cinnyris afra graueri NEUMANN, 1908, Bull. Brit. Ornith. Club, vol. 21, p. 55 (type locality: western Kivu Volcanoes, 2400 m.). HARTERT, 1920, Novitates Zool., vol. 27, p. 425. GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 91 (Mt. Muhavura, 3100 m.; Mt. Sabinyo, 2700 m.; Mt. Mikeno, 3400 m.; Mt. Karisimbi, 3400–3800 m.).

Cinnyris schubotzi REICHENOW, 1908, Ornith. Monatsber., p. 47 (type locality: Rugege Forest); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 351 (Rugege Forest; Mt. Niragongo, 2800–3000 m.; Mt. Karisimbi, 2400–3000 m.; southern Bugoie Forest, 2500 m.). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 287 (Korongo; Tsisirongo; Muhavura–Sabinyo Pass; "Kinzi").

Cinnyris chalybeus graueri SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 694. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, pp. 271, 279 (Lulenga; Burunga; Nya-Muzinga; Ngoma); 1933, Inst. Roy. Colonial Belge, Bull. Séances, vol. 4, p. 150; 1935, Rev. Zool. Bot Africaines, vol. 27, p. 403 (Kansenze near Mt. Nyamlagira); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 147 (Kibumba; Kabara; Tshamugussa, 2250 m.; Burambi; Kundhuru-ya-Tshuve; Mt. Gahinga, 3475 m.; Kibga; Mt. Visoke; Mt. Vuga; L. Ngando); 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 340 (forest west of Astrida).

Cinnyris chalybacus graueri SCHOUTEDEN, 1933, Bull. Cercle Zool. Congolais, vol. 9, p. 107.

Cinnyris chalbyeus graueri SCHOUTEDEN, 1933, Rev. Zool. Bot. Africaines, vol. 22, p. 373 (Kisenyi–Ruhengeri; Rwankeri).

Cinnyris afer graueri GRANT AND MACKWORTH-PRAED, 1943, Bull. Brit. Ornith. Club, vol. 64, p. 10.

DISTRIBUTION: Kivu Volcanoes and Ruanda, mainly at levels above 6000 feet. In this race the culmen to base measures 17.5–21.5 mm. for both sexes. A few specimens of very similar appearance, but with culmen 22–25 mm. long, have been collected on the mountain ridges west of the Ruzizi Valley and west of Lake Edward. These are intermediate between *graueri* and *stuhlmanni.* When more examples are available, this western form may be deemed worthy of a new subspecific name.[1]

Grauer's sunbird is characteristic of the Kivu Volcanoes, common at

[1] It has now been named *C. a. chapini* Prigogine, 1952, Rev. Zool. Bot. Africaines, vol. 46, p. 412 (Mt. Mohi, 3240 m.).

levels between 9000 and 11,500 feet, and reported by Gyldenstolpe as reaching 12,400 feet. In my experience it is rare below 8000 feet, and I never saw it near Lulenga or Burunga. There seems to be no record from the mountains near Behungi and Lake Bunyoni in southwest Uganda, but the range does extend southward in Ruanda to the Rugege Forest.

In the *Hagenia* forest near Kabara, around 11,000 feet between Mikeno and Karisimbi, this was the common sunbird, always active whenever the sun shone brightly, flitting about the *Hagenia* and *Hypericum* trees. It seemed to find much of its food in trees of the latter kind. I never saw it feed at the flowers of the giant *Lobelia,* nor did it seem especially fond of the tree heaths even at Lukumi, a thousand feet higher up, where it was also noted. The call note was rather harsh, not unlike that of *Nectarinia johnstoni,* the song of the male a pleasing warble, rising in pitch toward the end, then dropping.

On Mt. Nyiragongo we found these birds again at 9400 and 10,100 feet, where the trees were mainly heaths. This sunbird must have two seasons for reproduction, in rainy parts of the year. At the end of March Gyldenstolpe found several nests under construction, in trees near ravines or in open patches in the forest, but no eggs as yet. In June only a few of our specimens were still in breeding condition, and the one nest I saw contained a single newly hatched chick. But J. G. Williams of the Coryndon Museum tells me that during a visit to Mt. Muhavura in late September he also found nests.

The nest I examined was hung from a dead branch of a *Hypericum* tree at a height of 18 feet. Though built largely of beard lichen, it had also a little moss and a lining of fine brown plant fibers which also surrounded the entrance. There was still an inner lining of white cottony plant down and a few feathers of *Ruwenzorornis.*

Williams in late September found five nests on the eastern volcanoes. Two were not yet completed and were being built by females, which had chosen the ends of bamboo sprigs, 8 to 10 feet from the ground. One inaccessible nest hung from the end of a leafy branch over a gorge. On September 23 two other nests, each with a single egg, were found suspended from twigs at the ends of drooping branches, 6 to 8 feet up.

The building materials consisted mainly of flower stalks of *Thalictrum,* beard lichen, strips of bamboo leaf, moss, and vegetable down, bound with cobwebs. The lining was of vegetable down with a few doves' feathers. The eggs were of white ground color almost obscured by ashy gray freckling and clouding, with a dark ring around the large end; measurements: 20.5 by 12 mm. Only the females incubated. It may safely be concluded that one egg is the normal set and that there are two periods of reproduction, March to May and September to November.

From an examination of over 10 stomachs, Williams noted the food, in order of abundance, as follows: spiders, minute insects mainly beetles, small lepidopterous larvae (four records), and probably some Diptera. Nectar also was probably present; it dripped from the bill of a specimen freshly shot.

A word should be added here about the birds of the mountains west of the Ruzizi and west of Lake Edward, which are intermediate between *graueri* and *stuhlmanni*. A slightly differentiated race may inhabit those ridges and would be expected also to the west of Lake Kivu. My first male specimen was collected only a few miles south of Lubero, at 7600 feet in a patch of mountain forest mixed with bamboos, where it was accompanied by a female. We may be sure that more will be found on Mt. Tshabirimu. In July, 1927, I encountered a fair number of similar birds on the east slope of Mt. Kandashomwa and collected two around 8800 and 9000 feet amid bamboos with many bushes in the gullies. Two years later Rockefeller and Murphy noted them as common above 9000 feet on the same mountain and secured an immature male. A. Prigogine has collected a number of specimens in the region of Mt. Muhi and to the west of Lake Edward.

Cinnyris afer stuhlmanni Reichenow

Cinnyris stuhlmanni REICHENOW, 1893, Ornith. Monatsber., p. 61 ("Central Africa"; type undoubtedly from west Ruwenzori); 1905, Die Vögel Afrikas, vol. 3, p. 488 ("Nsangani in Ukondju"); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 351. WOOSNAM, 1907, Geogr. Jour., London, vol. 30, pp. 626, 628. OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 330 (Mubuku Valley, 9000–11,000 ft.). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 287; 1933, Bull. Cercle Zool. Congolais, vol. 9, p. 107.

Cinnyris afer stuhlmanni CHAPIN, 1928, Nat. Hist., vol. 27, p. 623 (west Ruwenzori). GRANT AND MACKWORTH-PRAED, 1943, Bull. Brit. Ornith. Club, vol. 64, p. 10 ("west of Semliki R.").

Cinnyris reichenowi stuhlmanni SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 696. VAN SOMEREN, 1932, Novitates Zool., vol. 37, p. 354. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1344. WEEKES, 1949, Ibis, p. 108 (southeast Ruwenzori).

DISTRIBUTION: Restricted to the Ruwenzori Range and not a very common bird. We found it only between 8500 and 11,500 feet on the western slope, and on the eastern side Woosnam reported it as living mainly between 10,000 and 11,200 feet.

This is a long-billed race, the culmen of both sexes measured to base being 24–27 mm. Though generally similar in color to *graueri*, the males are more olivaceous on flanks and adbomen.

Stuhlmann's sunbird was certainly discovered on the upper western slope of Ruwenzori, and not at Nsangani (more correctly Nsangaui) which Stuhlmann said was a small district in the lowland Semliki Forest, just north

of Kinyawanga, and thus close to Beni. It is a characteristic bird of the upper edge of the bamboo zone and of the tree-heath zone. But the heaths would provide it with little food, and the example I collected at 11,600 feet was in a thicket of bushes and creepers at the edge of a small grove of *Hagenia* trees. Nor would bamboos be very hospitable if they were not mingled with flowering trees and bushes. Near 9300 feet there were some tall shrubs bearing spikes of whitish flowers which attracted these sunbirds. I found them shy, the adult males usually outnumbered by females and young in greenish dress. Woosnam heard a short, bright song from the males and described their display before the female as they hopped about with wings drooped and quivering, the yellow pectoral tufts raised and spread laterally like fans.

None of our specimens was in breeding condition in November; they were mostly immature. This is one bird I should not expect to have a short nesting season. On the southeast slope of Ruwenzori above 10,000 feet Weekes found a number of nests in late December. They were fixed to the ends of branches of tree heaths, from 4 to 20 feet up, situated inside the hanging moss (or lichen?). Oval in form, with lateral entrance, they were built of similar "moss" and thus well camouflaged. The normal set was of one egg, dark olive freckled with a darker shade so thickly as to appear almost uniform. Dimensions: 19 by 13 mm.

The food I noted in a few of the stomachs consisted of very small spiders and insects, to which should be added no doubt the nectar that most of the long-billed sunbirds obtain from flowers.

Cinnyris shelleyi shelleyi Alexander

Cinnyris shelleyi ALEXANDER, 1899, Bull. Brit. Ornith. Club, vol. 8, p. 54; 1899, Ibis, pp. 556, 642, pl. 11 (type locality: Zambesi R., near mouth of Kafue R.). SCHOUTEDEN, 1938, Bull. Cercle Zool. Congolais, vol. 15, p. 60 (Kinia near L. Bangweolo). WHITE, 1945, Ibis, p. 24.

? *Cinnyris shelleyi* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 ("Kisantu").

Cinnyris shelleyi shelleyi LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 101 (Ndola in Northern Rhodesia).

DISTRIBUTION OF THE SPECIES: From Beira in Portuguese East Africa and Banket in Southern Rhodesia northward to Morogoro and the Matengo highland in Tanganyika Territory, Isoka, Lake Bangweolo, and Ndola in Northern Rhodesia. I cannot accept the supposed record from Kisantu.

Birds from the vicinity of Morogoro and the Ruvu River are believed to have shorter and more curved beaks than the nominate form and have been separated as *C. s. hofmanni* Reichenow. The nominate race is found just northeast of Lake Nyasa and at the southeast corner of the Katanga.

In Nyasaland Jack Vincent and C. W. Benson found Shelley's red-

breasted sunbird rather widely distributed in open woodlands, from 1400 up to 4000 feet. It visits the clumps of red and orange *Loranthus* flowers on the higher branches of trees, and males utter a quick, diminuendo "chitter," as well as a nasal "chibbee-cheeu-cheeu" for a song. Breeding is carried on during the rains and completed before April.

Nests found near Banket, Southern Rhodesia, by B. V. Newby-Varty[1] were hung at a height of 6 or 7 feet in a bush and a small tree, rather lightly built of grass and cobweb, and lined with feathers. Both contained sets of two eggs in late November. The color was pale olive with smudgy black spots superimposed on slaty shell marks, mostly at the blunt end. Dimensions: about 15 by 11 mm.

Cinnyris coccinigaster (Latham)

Certhia coccinigaster LATHAM, 1801, Supplementum Indicis ornithologici, p. xxxv; 1802, Supplement II to the General synopsis of birds, p. 164 (type locality: Africa; restricted to Senegal).

Nectarinia splendida HARTLAUB, 1854, Jour. Ornith., p. 13 ("Congo").

Nectarinea splendida HARTLAUB, 1857, System der Ornithologie West-africa's, p. 46.

Cinnyris splendidus SHARPE, 1884, Jour. Linnean Soc. London, zool., vol. 17, p. 428 (Semio). JOHNSTON, 1884, The River Congo, p. 365 ("Vivi"). REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 477.

Cinnyris splendida OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 126.

Cinnyris coccinigaster BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 327. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 688. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 137 (Mauda; Faradje; Dramba; Dika). DELACOUR, 1940, Avicultural Mag., ser. 5, vol. 5, p. 59, pl. BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 170 (Uelle R.).

Nectarinia coccinigaster DELACOUR, 1944, Zoologica, New York, vol. 29, p. 32.

SPECIMENS: Niangara, four males, January 18, June 3, 6; female, June 11; three immature males, May 15, June 6, 11; immature female, June 4. Dungu, male, June 2. Nzoro, male, April 23. Aba, male, July 20.

ADULTS OF BOTH SEXES: Iris dark brown, bill and feet black.

DISTRIBUTION: Senegal and Sierra Leone eastward to Nigeria, savannas of the Cameroon, southern border of the Bahr-el-Ghazal, and the Upper Uelle District. Although reported many years ago from the Gaboon and the Loango Coast, it has not been found recently in the Lower Congo, and it does not invade the equatorial rain forests.

Grote[2] discussed the possibility of dividing the species into races but thought the only difference was in the greener color of upperparts of females from Portuguese Guinea as compared with those of the Cameroon. He restricted the type locality of *coccinigaster* to Senegal. I find that seven

[1] 1945, Ostrich, vol. 16, p. 219; 1948, idem, vol. 19, p. 159.

[2] 1924, Ornith. Monatsber., p. 71.

adult males from Sierra Leone have culmen to base 25.5–29 mm., five adult males from the Uelle District only 24–25 mm. My one adult female from the Uelle is much darker than a female from Senegal and is mottled with blackish on fore-neck and breast. Cameroon females are intermediate in coloration, and males there have the culmen 24.5–28 mm. Five males from Senegal have the culmen to base 24–27 mm. I expect that the birds of the eastern end of the range will yet be given a subspecific name.

At Niangara and Dungu, in the northeastern Congo, this is one of the commoner sunbirds, not only amid the introduced Ceará rubber trees but in scrubby growth everywhere. We saw it also at Nzoro, at Madrapili's between Faradje and Aba, and at Aba, too, yet never at Faradje or Garamba. It lived plainly in a narrow band about 70 miles wide, stretching eastward to Dramba and northwestward to Yambio and Semio.

The voice is very characteristic; loud semi-musical cheeping notes are usually uttered in series of seven or eight and taken up again at intervals. While recalling those of *Chalcomitra s. acik,* they are louder, audible at 150 or 200 yards. Shorter, less pleasant call notes are also given, and the song is a protracted, rambling warble of no great musical virtue.

The season of reproduction in the Uelle lasts from April to July at least; one male showed some enlargement of the gonads in January. One immature bird taken in May suggests that nesting may start in February or March. Subadult males wear a patch of glossy purple on throat and fore-neck, suggesting the similar condition in *Chalcomitra.*

From West Africa the nest is described as hung from the under side of a leafy branch, 6 to 10 feet up, bulky but compact and smooth. The materials include fine grass stems, bits of dry leaf and scales of bark, and the structure is bound together with cottony fibers. A thick lining of plant down is added, and most or all of the building and incubation is done by the female. Eggs are regularly two, of dark mottled brown color.

Cinnyris coccinigaster feeds to a great extent at flowers. Staminate blossoms of the papaw attract it, even more so the flowers of Ceará rubber trees. At Niangara in June I have seen six different species of sunbirds in these trees within a quarter of an hour. Occasionally they hover beside the trunks, but the clusters of drooping flowers receive most attention. Some of these blooms are found to be pierced at the side. The amount of rubber in the stomachs of birds feeding in these trees varies. Often there is none, but again there may be a large ball, sometimes filling the whole interior, and yet the bird's health seems not affected. Insect remains are frequently mixed with the rubber. No doubt this indigestible mass is retained for months; what eventually becomes of it I cannot say.

How is the latex swallowed? I found that when the rosette-shaped stigma of the *Manihot* flower was pricked the milky fluid appeared at once;

many other parts of the flower produce it when broken. Undoubtedly the latex is imbibed along with nectar and coagulates in the stomach.

In eight stomachs of *C. coccinigaster* insects were always present and included several tiny black bees and a winged ant. One spider was also found, and in some cases the sweet odor of the stomach contents left no doubt of the presence of nectar. Five stomachs also contained rubber, definite balls in two cases, one of them 10 mm. in diameter, practically filling the stomach. Yet the bird seemed in excellent health. Other notes and references to this matter are given under *Chalcomitra senegalensis acik* and *Cinnyris cupreus cupreus.*

Cinnyris johannae johannae Verreaux

Cinnyris johannae J. AND E. VERREAUX, 1851, Rev. Mag. Zool., ser. 2, vol. 3, p. 314 (type locality: Gaboon). SHARPE AND BOUVIER, 1876, Bull. Soc. Zool. France, vol. 1, p. 305 (Loango Coast). SHELLEY, 1900, The birds of Africa, vol. 2, p. 44. CHAPIN, 1921, Amer. Mus. Novitates, no. 17, p. 16 (Dobo; Avakubi). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 347 (Kamaiembi; Macaco); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 137 (Djamba; Buta); 1937, Bull. Cercle Zool. Congolais, vol. 13, p. 68, fig. of nest; 1938, idem, vol. 14, p. 104 (Kunungu). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 35 (Ukaika; Mawambi). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 687.

Nectarinia johannae DELACOUR, 1944, Zoologica, New York, vol. 29, p. 33.

Cinnyris johannae johannae BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 162 (Landana).

SPECIMENS: Dobo, male, July 28. Avakubi, male, December 7.

ADULT MALE: Iris dark brown, bill black, feet black with soles yellowish.

DISTRIBUTION OF THE SPECIES: Forested regions from Sierra Leone to Southern Nigeria and from the Cameroon east to the Ituri forest; also south to the Loango Coast and the central Kasai District. Upper Guinea is occupied by *C. j. fasciatus* (Jardine and Fraser), of which the male has the red of lower breast and flanks somewhat lighter, more scarlet, than it is in *C. j. johannae* of Lower Guinea. If I may judge from a single female from Sierra Leone, that sex of *fasciatus* is of a lighter olive color on crown, back, and rump than the nominate race.

As a rule this large sunbird is far scarcer than the somewhat similar *C. superbus* which inhabits the same countries. Even George Bates collected very few specimens in the forested Cameroon. *Cinnyris johannae* is surely to be expected in the Mayombe, since it was taken near Landana by Petit. During my long stay in the Congo, I saw but two males, and Rockefeller and Murphy collected a single female at Itula on the Elila River, in the southeastern part of the Upper Congo forest. There are now sufficient records to show that the range covers the whole lowland forest belt, east almost to the Semliki Valley.

This is not an inhabitant of primary forest; my specimens were both

taken in more or less open clearings, one sitting on a small leafless tree. The very long bill and the heavily streaked breast of the female are apt to draw attention to it. Much of its feeding must be done at flowers, possibly high in the trees, for its does not come to banana and papaw blooms as does *C. superbus*.

The male taken at Avakubi in December was in breeding condition; that at Dobo in July, not. Yet there is no reason to expect any short breeding season. In 1936 Brother Joseph Hutsebaut sent a nest to the Congo Museum, with skins of the adult birds. That nest was about 22 cm. long, attached to a pinnate frond of a palm close to the midrib and was built of green moss and a little lichen, held together by black fungus fibers. More recently F. G. Holman[1] has described a nest of *C. j. fasciatus* found in the Keta District of the Gold Coast on July 31. It was a large untidy structure suspended at the end of a drooping palm frond, 8 feet from the ground. The main material was the fibrous inner bark from dead trees, and the lining was of stiff palm fibers. The female was incubating two eggs, which were very pale blue, spotted boldly with red-brown, chiefly near the large end, and measuring 20.5 by 15 and 20.5 by 14 mm.

To assure himself that this sunbird sucks nectar Bates tasted the sweet liquid in one of the stomachs. He found the remains of spiders in the same stomach.

Cinnyris superbus superbus (Shaw)

Certhia superba SHAW, 1811, General zoology, vol. 8, p. 193 (type locality: Malimba, Enclave of Cabinda).

Cinnyris superbus SHARPE, 1884, Jour. Linnean Soc. London, zool., vol. 17, p. 428 (Semio). SHELLEY, 1890, Ibis, p. 162 (Yambuya); 1900, The birds of Africa, vol. 2, p. 41 (Tingasi; Nyangabo). REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 477 (Stanley Pool); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 350. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Lower Congo; Mayombe; Kasongo; L. Leopold II; Kisantu). OGILVIE-GRANT, 1908, Ibis, p. 283 (below Kasongo, Upper Congo, 2000 ft.); 1910, Trans. Zool. Soc. London, vol. 19, p. 325 (Beni; Avakubi). SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 455 (Uelle District). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 287 (Munie Mboka; Kabambare; Baraka); 1923, idem, vol. 11, p. 347 (Luebo; Kamaiembi; Tshikapa; Ngombe in Kasai); 1924, idem, vol. 12, pp. 275, 422 (Eala; Tondu); 1925, idem, vol. 13, p. 18 (Kunungu); 1926, idem, vol. 13, p. 203 (Moanda; Makaia-Ntete; Temvo; Ganda Sundi; Mbuma; Kai Bumba; Kisala; Lundu). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 34 (Moera; Mawambi; Ukaika). MACKWORTH-PRAED AND GRANT, 1945, Ibis, p. 153.

Cinnyris superba REICHENOW, 1887, Jour. Ornith., p. 306 (Leopoldville). SHELLEY, 1888, Proc. Zool. Soc. London, p. 38 (Bellima). OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 126.

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[1] 1949, Ibis, pp. 351, 352.

Nectarinia superba HARTLAUB, 1891, Abhandl. Naturwiss. Ver. Bremen, vol. 12, p. 27 (Mangbetu country).

Cinnyris superbus superbus BANNERMAN, 1922, Bull. Brit. Ornith. Club, vol. 43, p. 8. GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 88 (Kartushi; Kampi-na-Mambuti). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 687. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 137 (Djamba; Bondo Mabe; Panga; Medje; Poko; Buta). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 571 (Ekibondo). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1331. BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 62 (Brazzaville).

SPECIMENS: Stanleyville, male, November 27. Bafwaboli, male, September 13. Kamunionge, female, September 21. Avakubi, five males, October 13, 22, 27, 28, November 29; female, October 13. Ngayu, three males, December 12, 14, 16; female, December 21; immature male, December 12. Gamangui, immature male, February 17. Medje, three males, June 7, July 12, 23; two immature males, May 30, July 19. Niangara, male, November 9.

ADULT MALE: Iris dark brown, bill and feet black.

ADULT FEMALE: Iris dark brown, bill black, feet dark gray.

DISTRIBUTION OF THE SPECIES: Sierra Leone to Southern Nigeria, Cameroon to northern Angola, and eastward across the Congo to Uganda. Birds from Upper Guinea and Southern Nigeria, *C. s. ashantiensis* Bannerman, are slightly smaller, with smaller metallic cap in the males, than *C. s. superbus* of Lower Guinea. Males of the latter race from the Cameroon to Lower Congo have wings 72–77 mm., while in the Upper Congo this measurement is 74–78.5 mm. In northern Angola, too, it is 74–79 mm.

Uganda birds certainly average larger, wings of males 77–81 mm. and, in some from Buvuma Island, 83. Their crown patches usually extend a little farther back than in Upper Congo males. So *C. s. buvuma* Van Someren may be recognized, even though its western limit will be rather difficult to fix. Males even from Luluabourg in the Kasai have wings 76–81 mm. and large crown patches.

All Congo specimens are best referred to the nominate race, which occupies the Lower Guinea forest area and extends out on the north to Semio and the vicinity of Dungu. Southward it reaches Kabambare in the Manyema, the southern Kasai District, and the lower Cuanza Valley in Angola. In the eastern Congo it is found in wooded lowlands, right to the base of Ruwenzori, and on more open plateaus like that west of Lake Albert up to 4500 feet, but it does not invade the montane forests. Nor is it to be looked for in the primary forest of the lowlands; it haunts only the second growth and the borders of clearings, feeding often at the flowers of bananas, plantains, and papaws. Where it extends into the savanna districts, on the other hand, it will be seen only in or near the more wooded spots.

This is not a sociable bird, a pair at most being found together. The olive-and-yellow females are easily recognized by their size, unstreaked breast, and the orange-red wash on under tail-coverts. Young males are at first very similar to females. The call note is seldom given, and I have no notes as to the song.

From our dissections it was clear that in the Ituri breeding went on from July to December, inclusive, so I should expect it almost throughout the year, especially since nests have been reported in Uganda from March to May. In the Cameroon Bates saw two large nests built of *Usnea* lichen, hanging in the open. Those described from Uganda by Jackson were made of fiber and shreds of banana bark and fine dry grasses, with a few dead leaves, pieces of moss and lichen loosely attached as ornaments. They were 20 feet up in the tops of small trees, and measured 9 to 12 inches from top to bottom, with loose materials hanging below for another foot or two.

Eggs are usually two, creamy white or bluish white, dotted or freckled with gray, slate, or even purplish black. They measure 20–21.5 by 14–15 mm.

In my examinations of many stomachs I found but three that held bits of small insects, including one ant, or a single small spider. Some of the other birds, I suspect, had partaken only of juices from flowers. Bates actually tasted the fluid in the stomach of one of these birds and found it sweet. L. Petit wrote of visits by this and other sunbirds to calabashes which natives had fastened up in palms to collect palm wine from the flower stalks.

Cinnyris osea decorsei Oustalet

Cinnyris decorsei OUSTALET, 1904, Bull. Mus. Hist. Nat., Paris, vol. 10, p. 536 (type locality: Ubangi-Shari District, French Equatorial Africa).

Cinnyris osea butleri SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 619 (type locality: Kajo-Kaji in Lado district).

Cinnyris oseus decorsei SCLATER, 1927, Bull. Brit. Ornith. Club, vol. 47, p. 119. BOWEN, 1931, Catalogue of Sudan birds, vol. 2, p. 82 (Yei). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 137 (Mauda). BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 178 (Meridi).

SPECIMENS: Dungu, male, January 24. Faradje, five males, February 20, October 8, 14, 26; female, October 22; immature male, October 18.

ADULTS OF BOTH SEXES: Iris dark brown, bill and feet black.

DISTRIBUTION OF THE SPECIES: Southern Syria and Palestine to Yemen and the Aden Protectorate; in Africa from Darfur and the region of the Shari River to the Upper Uelle District and Kajo-Kaji near the Bahr-el-Jebel. The nominate race, the Palestine sunbird, occupies the Asiatic section of the range. The African race, *decorsei,* is rather similar in color, but the male is a little less glossy on lower breast and belly, the female a little more

greenish. It is often somewhat smaller; six adult males of *decorsei* from the Uelle have wings 48–50 mm., tails 32–34 mm., culmen to base 16.5–19 mm. One female has the wing 47 mm., culmen to base 17 mm.

Decorse's sunbird may occur farther west along the northern border of the Congo than the records indicate. But we found it in the grasslands of the Uelle only during one-half of the year. It is undoubtedly migratory. About Faradje *Cinnyris osea decorsei* is lacking during most of the rainy season, but reappears regularly in October. In 1911 I noticed it first on October 8, in 1912 on the thirteenth of that same month. With the females and adult males come second-year males in changing plumage; at first none is in breeding condition. From the way the males pursue the duller females, they seem to be mating, and during January and February dissections show that breeding is in progress. In the month of March they all take their departure.

Birds of the open savannas, they are never very numerous, and the usual call-note is a rather weak "chip-ip-ip-ip-p." Less often a sort of low song is heard, composed of metallic syllables: "chwing-chwing-chwing. . . ." or "chwee-chwee-chwee. . . ." In two stomachs I noted the remains of tiny insects and one very small caterpillar.

I am convinced that this sunbird really leaves the Uelle during its off season, and I have seen no evidence of an eclipse plumage of the adult male. The Bahr-el-Ghazal and the Lado district would be regions to which it might retire. In Darfur, to be sure, Lynes found the species common on Jebel Marra, at 6500 to 9500 feet, from November to January and nesting during that period. By March or April these birds too had disappeared.

The nest there was of the common sunbird type, made chiefly of pieces of dry thistle leaves, lined with thistledown, and suspended from a low bush or plant only just above the ground. Eggs two, dull white, blurred and clouded with fine spots of pale gray and gray-brown, chiefly in a zone around the large end. Dimensions: 15 by 11 mm.

It is to be noted that the wing length of Jebel Marra specimens was given as 51–56 mm. for males, 47–52 mm. for females. These measurements are almost equal to those of *C. o. osea*. In view of our ignorance as to where these birds spend their off season, it would seem natural to suppose that both populations move southward to breed.

Cinnyris bouvieri Shelley

Cinnyris bouvieri SHELLEY, 1877, A monograph of the Nectariniidae, p. 227, pl. 70 (type locality: Landana, Enclave of Cabinda). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 328 (Mubuku Valley, 5000 ft.). SALVADORI, 1915, Ann. Mus. Civ. Genova, ser. 3, vol. 6, p. 280 (Kasai District). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 690. BOUET, 1934, Ois. Rev. Française Ornith., new ser., vol. 4, p. 649. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2,

p. 137 (Mahagi Port). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 100 (Sandoa). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1338. MACKWORTH-PRAED AND GRANT, 1945, Ibis, p. 154. WILLIAMS, 1951, Uganda Jour., vol. 15, p. 109 (Bwamba district).

Cinnyris tanganyicae OGILVIE-GRANT, 1907, Bull. Brit. Ornith. Club, vol. 19, p. 105 (type locality: west shore of L. Tanganyika, 4000 ft.). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 351.

Cinnyris tanganyikae OGILVIE-GRANT, 1908, Ibis, p. 283.

Cinnyris bouvieri tanganyikae SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 347 (Ngombe in Kasai).

SPECIMENS: Pawa, three males, October 18. Niangara, two males, May 14; two females, June 5, 11; immature male, June 4. Aba, immature male, July 14.

ADULTS OF BOTH SEXES: Iris dark brown, bill and feet black.

DISTRIBUTION OF THE SPECIES: Highlands of Cameroon, east to the Uelle District and Mabira in Uganda; also from the northwest side of Lake Tanganyika to Sandoa, the Kasai District, the Loango Coast, and grasslands in the Gaboon. It has not been found, even in clearings, in the Lower Guinea forest or in the savannas of the Lower Congo.

While the race *tanganyicae* has not been upheld, there is evidently some geographic variation in size. The male type from Landana was said to have the wing 52 mm. long, and six males from the northeastern Congo have wings 54–55 mm. Seven males from the Cameroon are larger, wings 57.5–60 mm., as are three males from Uganda, with wings 57–60 mm. A single male from Luluabourg has the wing 56 mm. The birds from the Kasai and Uganda have noticeably longer bills than those of the Uelle and the Cameroon highlands.

Bouvier's sunbird appears to be rather irregularly distributed, but it inhabits savannas encircling the Lower Guinea forest. From close to sea level at Landana it ascends to 5000 feet on the eastern slope of Ruwenzori, and in the Cameroon is found mainly from 4000 to 6000 feet. On coming out of the northern edge of the Ituri forest we found this sunbird common in October at Pawa, and later I saw it there in July. At Niangara it was noted frequently amid the Ceará rubber trees when they blossomed in May and June, but not elsewhere. At Faradje it was never seen, yet one male was taken at Aba, where there are more woodlands than at Faradje. It would seem that the range is sometimes a band scarcely 50 miles wide. Berlioz tells me that Allinne collected *C. bouvieri* near Bangui.

These sunbirds frequent high-grass country and native plantations, feeding at large thistle-like plants at Pawa, elsewhere in leguminous shrubs, *Erythrina* trees, and introduced Ceará rubber trees. Their call notes are low, audible only at a few yards, sounding like "cheep" and "chip-ip." The nest and eggs appear to be unknown.

Our specimens from Pawa in October were breeding birds, whereas at Niangara and Aba in May, June, and July none showed enlargement of the gonads. The nesting season must therefore come late in the rains. All five stomachs investigated held the remains of very small insects, including tiny beetles. In two cases the bits of insects were more or less mixed with coagulated rubber. These two birds were secured in May in flowering Ceará rubber trees.

Cinnyris bifasciatus bifasciatus (Shaw)

Certhia bifasciata SHAW, 1811, General zoology, vol. 8, p. 198 (type locality: Malimba, Enclave of Cabinda).

Nectarinea nitens HARTLAUB, 1850, Beitrag zur Ornithologie Westafrica's, p. 21 (Malimba).

Nectarinia jardinei SHARPE, 1873, Proc. Zool. Soc. London, p. 717 (Congo R.).

Cinnyris bifasciatus BÜTTIKOFER, 1888, Notes Leyden Mus., vol. 10, p. 211 (Banana; Ango Ango). SHELLEY, 1900, The birds of Africa, vol. 2, p. 54. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Lower Congo). SCHOUTEDEN, 1938, Bull. Cercle Zool. Congolais, vol. 15, p. 39.

Cinnyris microrhynchus NEAVE, 1910, Ibis, p. 233 (upper Lufira R., 3500 ft.). SCHOUTEDEN, 1937, Bull. Cercle Zool. Congolais, vol. 14, p. 6 (in part. "Kasai").

Cinnyris mariquensis bifasciatus SCHOUTEDEN, 1926, Rev. Zool. Bot. Africaines, vol. 13, p. 203 (Moanda).

Cinnyris bifasciatus bifasciatus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 689. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 100 (Kasenga). WHITE, 1946, Ibis, p. 212 (Mwinilunga). BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 174. SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 164 (Kiambi; Lukonzolwa; Kabalo). WOLFF, 1950, Atlantide Report, no. 1, p. 144 (Bulikoko Island).

Cinnyris bifasciatus microrhynchus A. W. VINCENT, 1949, Ibis, p. 331 (near Elisabethville).

SPECIMENS: Boma, two males, January 24, December 31.

ADULT MALE: Iris dark brown, bill and feet black.

DISTRIBUTION OF THE SPECIES: From northeast Zululand, Rhodesia, and the Mossamedes Province northward to the Gaboon coast, Katanga, vicinity of Lake Edward, South Kavirondo, and the east coast as far as Lamu. There appear to be four races, differing in length of bill, maroon color on breast, and iridescence of head and back.

Cinnyris b. bifasciatus has the culmen to base about 19–22 mm. and a well-developed band of purplish brown across the breast. It ranges from the Gaboon and Lower Congo southward through Angola and eastward to the Katanga. The race *microrhynchus,* differing mainly by its shorter beak, with culmen to base 17–18 mm., ranges from Zululand, Mashonaland, and Nyasaland to Lake Edward and Lake Victoria, also along the east coast to Lamu, and on Zanzibar and Mafia Islands. In the dry area from Teita to Tsavo and the upper Tana lives *C. b. tsavoensis* Van Someren,

which has a more purplish breast-band and is short-billed. The island of Pemba has a remarkably distinct form, *pembae*.

The breeding ranges of *C. mariquensis* and *C. chalcomelas* overlap that of *C. bifasciatus* in a number of different regions, so they cannot be regarded as conspecific with it.

In the Congo *C. b. bifasciatus* has been found in the Lower Congo and in the Katanga, though I doubt its occurrence in the Kasai. Males of this species have been said to assume an off-season eclipse plumage,[1] at least in Nyasaland and Southeast Africa. But a series of 20 brightly colored males from Angola, collected during nine different months of the year, fails to indicate any such change of plumage, and the half dozen males of mixed plumage all seem not to have been fully adult. From Elisabethville, on the other hand, I have seen one male largely in glossy plumage which was acquiring a whole patch of new greenish feathers on throat and fore-neck, as well as new dusky greenish ones on the forehead. The date of its capture had not been noted.

At Boma on the lower Congo I collected two males in full plumage which seemed to have finished breeding in January. The species was common in that vicinity, especially about the borders of groves of trees in plantations. Both Ceará and Para rubber trees were there in numbers, and one of the birds, which had been eating winged termites, had also a ball of rubber in its stomach.

At Kalombwa on the Lualaba River I subsequently took an adult male in breeding condition on August 8. Its culmen measures 20 mm., and I agree with White that Katanga birds are of the nominate race. In the vicinity of Elisabethville A. W. Vincent found this sunbird not numerous, frequenting the borders of savanna woods and more open spots with bushy growth.

Nests with eggs were found toward late August. They were suspended from twigs at the ends of branches of small trees, once from a bamboo, at a height of 10 to 14 feet. Pear-shaped and only 4 to 4½ inches in length, they were built of dry grass and delicate fibers, mixed with vegetable down and cobweb. The outside was decorated with lichens, wood chips, bits of dead leaf, and clusters of reddish seeds; the lining was of feathers. Eggs were either one or two, pale smoky gray or pale fawn, with streaks of darker gray and specks and tiny twirls of black and dark gray. Dimensions: 15.5–16.2 by 10.6–11.1 mm.

Cinnyris bifasciatus microrhynchus Shelley

Cinnyris microrhynchus SHELLEY, 1876, A monograph of the Nectariniidae, p. 219, pl. 67 (type locality: Mombasa, East Africa). OGILVIE-GRANT, 1910, Trans.

[1] Benson, 1944, Ibis, pp. 472, 473; Mackworth-Praed and Grant, 1945, Ibis, p. 149.

Zool. Soc. London, vol. 19, p. 327 (Mokia, western Uganda). SCHOUTEDEN, 1937, Bull. Cercle Zool. Congolais, vol. 14, p. 6 (in part. L. Edward).

Cinnyris mariquensis microrhynchus SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 287 (Kaniki).

Cinnyris bifasciatus microrhynchus SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 148.

Cinnyris bifasciatus bifasciatus JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1337.

DISTRIBUTION: Northeast Zululand to Mashonaland, Nyasaland, and Lamu on the east coast, including Mafia and Zanzibar. This is the race reported from Nyasaland by Benson, and specimens from the vicinity of Lake Edward are much closer to *microrhynchus* than to the nominate race. In East Africa *microrhynchus* appears to extend to Tabora, Ukerewe Island, and Kisumu. It is a lowland bird, and in the eastern Congo it is known only near the shores of Lake Edward, at Kaniki and in the Rutshuru Plain, where Grauer took a male. Ansorge collected it at Fort George, northeast of the lake, and the British Museum Ruwenzori Expedition found it not uncommon on the plains near Mokia.

In Nyasaland Benson has found that males of this sunbird regularly assume a dull eclipse plumage from October or November to April. Breeding there is carried on in June and probably continues into the dry season. On the east coast near Mombasa this sunbird breeds at two opposite periods in the year, and I doubt very much that it has any male eclipse plumage there or near Lake Edward.

The nest is known to be similar to that of *bifasciatus,* hung from a branch about 10 feet up, and lined with feathers. Sets of two eggs have been found, whitish or gray, suffused with darker and more purplish slate-color, measuring about 17 by 11.5 mm.

Cinnyris mariquensis suahelicus Reichenow

Cinnyris suahelica REICHENOW, 1891, Jour. Ornith., p. 161 (type locality: Tabora District, Tanganyika Territory).

Cinnyris mariquensis suahelicus JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1337 (Ankole). SCHOUTEDEN, 1943, Rev. Zool. Bot. Africaines, vol. 37, p. 272 (Gabiro). VERHEYEN, 1947, Exploration du Parc National Kagera, Mission Frechkop, fasc. 2, p. 16 (Katodjo).

DISTRIBUTION OF THE SPECIES: Damaraland and Zululand north to the Cuanza Valley in Angola, Southern Rhodesia, inner parts of East Africa, Abyssinia, and British Somaliland. Although similar in color to *C. bifasciatus,* this species is considerably larger. Their ranges overlap in so many places that they cannot be conspecific.

Cinnyris m. mariquensis Smith, a relatively long-billed form, is restricted to countries south of the Zambesi. *Cinnyris m. suahelicus* is shorter-billed,

with culmen to base 20–25 mm., the males not quite so black on the belly. Birds from Angola are like *suahelicus* but may have the reddish breast a little lighter. The range of *suahelicus* includes Tanganyika Territory, Kenya Colony except in the north, part of Uganda, and eastern Ruanda. In northern Kenya Colony and Abyssinia lives *C. m. osiris* (Finsch), with the purple chest band wider and the red below it less conspicuous, while *C. m. hawkeri* Neumann of Somaliland is apparently still shorter-billed. In no race of this species have I seen any indication of a male eclipse plumage.

Within our limits the race *suahelicus* is known only from eastern Ruanda. In addition to the published records there are two males in the Rothschild Collection taken by Grauer between the Kagera River and Nsaza, as well as a number of others from the near-by part of Tanganyika Territory. In Uganda the range extends to Ankole, Kampala, Lango, and Mbale.

This is a sunbird of open savannas with small acacias and bushes, and feeds at the flowers of *Kigelia* and *Erythrina* trees, as well as at those of *Leonotis* and *Aloë*. A nest found in July at Kisumu in East Africa was described by Van Someren as composed of cotton and vegetable down, lined with feathers, and bound with cobwebs. The eggs are creamy white or pale greenish, either streaked or with a few brownish specks toward the large end. Reichenow gave their dimensions as 17–18 by 12–14 mm.

Key to the Species of *Nectarinia* in or Near the Congo
(Both sexes included)

1. Head and back with brilliant metallic luster (males) 2
   Head and back without noticeable metallic luster (females) 9
2. With a band of red across upper breast, or a patch of red in the middle of breast and yellow at sides 3
   No such red area on breast 5
3. Breast band red in middle, yellow at sides . . . . . *N. pulchella*
   Breast band red all across 4
4. Culmen to base usually exceeds 21 mm., wing usually over 63 mm.; breast band rather bright scarlet; upper tail-coverts blue-green, median rectrices project at least 60 mm. beyond rest of tail . . . . . *N. congensis*
   Culmen to base not over 21 mm.; wing seldom reaching 63 mm.; breast band rather dull dark red; upper tail-coverts violet, median rectrices not more than 25 mm. longer than rest of tail . . . . . *N. erythroceria*
5. Remiges and rectrices with broad outer edges of yellow; head and back coppery, bill strongly decurved . . . . . *N. reichenowi*
   Remiges and rectrices not edged with yellow 6
6. Head and body bright glossy green, tinged with blue only on lower underparts, pectoral tufts yellow . . . . . *N. famosa*
   Head and body not green; or the green is much more tinged with blue or bronze, and pectoral tufts if present are red 7
7. Red pectoral tufts present; deep glossy green of body plumage tinged with blue, especially on flanks and upper tail-coverts . . . . . *N. johnstoni*
   No pectoral tufts; head and back more bronze, or varied with purple . . . 8

8. Lower breast and flanks dull black; head and back greenish bronze; wing length exceeding 70 mm., culmen exceeding 26 mm. . . . . *N. kilimensis*
   Lower breast and flanks largely burnished purple; wing less than 70 mm., culmen less than 26 mm. . . . . *N. purpureiventris*
9. Smaller, shorter-billed; wing length usually less than 60 mm., culmen to base less than 21 mm. 10
   Larger and longer-billed; wing usually exceeds 60 mm., and culmen exceeds 21 mm. 12
10. Smaller and lighter in color, wing averaging 52 to 56 mm.; throat whitish, shading to light yellow on belly, little trace of streaking on breast . . . . . *N. pulchella*
    Somewhat larger and distinctly deeper in color all over; wing averaging around 58 mm., throat grayish and fore-neck or breast with distinct dusky streaking or mottling 11
11. Diffuse dusky olive streaking from chest to flanks . . . . . *N. erythroceria*
    Fore-neck heavily mottled with blackish; the dusky streaking much less distinct on breast and flanks . . . . . *N. congensis*
12. General coloration sooty brown, not olivaceous; red pectoral tufts present . . . . . *N. johnstoni*
    With some olive or yellowish color; pectoral tufts wanting 13
13. Remiges and rectrices all edged exteriorly with bright yellow; bill strongly decurved . . . . . *N. reichenowi*
    Remiges and rectrices narrowly edged at most with dull green 14
14. Throat and fore-neck uniform grayish olive, lower breast and abdomen dull yellowish . . . . . *N. famosa*
    Throat whitish or pale gray 15
15. Crown distinctly gray, back olive, breast and flanks grayish olive, unstreaked; median rectrices projecting about 7 mm. . . . . *N. purpureiventris*
    Crown olive-brown like back; fore-neck and chest streaked with olive-gray, lower underparts rather bright yellow, median rectrices scarcely project beyond the others . . . . . *N. kilimensis*

Nectarinia erythroceria Hartlaub

Nectarinia erythrocerca HARTLAUB, 1857, System der Ornithologie Westafrica's, p. 270 (type locality: White Nile south of latitude 8° N.). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 315 (Beni). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 352 (L. Edward). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 29 (Rutshuru). SCHOUTEDEN, 1918, Rev. Zool. Bot, Africaines, vol. 5, p. 288 (Kabare); 1929, Bull. Cercle Zool. Congolais, vol. 5, p. 79. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 34. GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 87 (Ngoma). BERLIOZ, 1935, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 7, p. 163 (Kadjudju).

Nectarinia erythroceria HEUGLIN, 1864, Jour. Ornith., p. 261. OGILVIE-GRANT, 1908, Ibis, p. 282 (north of L. Edward, 3000 ft.). SCHOUTEDEN, 1940, Rev. Zool. Bot. Africaines, vol. 34, p. 61 (Kawa Forest); 1941, idem, vol. 34, p. 267 (Kasenyi); 1942, idem, vol. 36, p. 340 (Kibingo); 1943, idem, vol. 37, p. 272. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 100 (Kasenyi; Mahagi Port).

Cinnyris mariquensis kiwuensis BERGER, 1907, Ornith. Monatsber., p. 181 (type locality: L. Kivu). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 352.

Nectarinia adolfi-friederici REICHENOW, 1908, Ornith. Monatsber., p. 81 (type locality: Kisenyi, L. Kivu).

Nectarinia erythrocerca adolfi-friederici REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 352 (Mt. Niragongo).

Nectarinia erythroceria erythroceria SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 684. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 280; 1933, idem, vol. 22, p. 373 (Rugegera); 1935, idem, vol. 27, p. 403 (Kako bridge; Gabiro); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 148 (Mugunga; Nzulu; Ruhengeri, 1800 m.). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1322. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 45, 79.

Nectarinia erythrocerca erythrocerca FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 334.

Helionympha erythroceria HENDRICKX, 1944, Ostrich, vol. 15, p. 203.

DISTRIBUTION: From the lower Bahr-el-Ghazal and Lake No southward to Lake Albert, Uganda, the Kavirondo District, and the south shore of Lake Victoria; also to the Kivu District and Ruanda. *Nectarinia erlangeri* Reichenow is not conspecific with *erythroceria* but is apparently closer to *N. nectarinioides* Richmond.

In Uganda and about Lake Albert, Lake Edward, and Lake Kivu this is a common bird along lake shores and the banks of rivers, and it ascends streams to an altitude of about 6400 feet where the country is not heavily wooded. I have taken specimens at 5400 feet near Luofu and at 5900 feet between Kinanira and Kisolo in the Kigezi District. Near Beni and the middle Semliki River I did not notice it.

Males are very conspicuous and active, even quarrelsome, and have a brief but pleasant song. Their median rectrices seldom project even 25 mm. beyond the rest of the tail, and it may as well be admitted that the genus *Nectarinia* is an artificial grouping of long-tailed sunbirds derived from several different stocks, if we are guided by color pattern and the form of the bill. This was pointed out by Van Someren and others many years ago, but I shall continue to recognize this genus, if only for convenience.

The breeding of *erythroceria* in equatorial latitudes may take place in any month of the year, but most frequently in April and November, at least near the northern shore of Lake Victoria. The nests are small, suspended from the outer twigs of bushes and trees, often over the water. Materials vary according to surroundings and may include grasses and bark fibers, bound together with cobweb. The outside is decorated with dead leaves and seed heads; the inside is lined with plant down and feathers of other birds.

One egg is normal; two are found only occasionally. The color is bluish white with streaks and spots of gray or ash-brown. Some eggs are dull gray, less sharply marked. Dimensions: about 17 by 11.5 mm.

Nectarinia congensis van Oort

Nectarinia congensis VAN OORT, 1910, Ornith. Monatsber., p. 54 (type locality: "Boma," lower Congo R.). CHAPIN, 1921, Amer. Mus. Novitates, no. 17, p. 5 (Barumbu; Isangi; Lié; Coquilhatville; Irebu). SCHOUTEDEN, 1922, Rev. Zool. Bot. Africaines, vol. 10, p. 75 (Nouvelle-Anvers; Bumba; Eala; Alberta); 1924, idem, vol. 12, p. 422; 1924, Bull. Cercle Zool. Congolais, vol. 1, p. 12 (near Basoko). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 685. FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 759. BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 152.

Nectarinia melanogastra DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Province Orientale; Bumba).

Nectarinia erythroceria congensis DELACOUR, 1944, Zoologica, New York, vol. 29, p. 32.

SPECIMENS: Irebu, male, female, December 17. Coquilhatville, two males, December 15, 16. Near Lié, male, December 13. Barumbu, three males, July 31, December 11. Isangi, male, female, December 10.

ADULT MALE: Iris dark brown, bill and feet black.

ADULT FEMALE: Similar, but bill brownish black.

DISTRIBUTION: Banks of the Congo River from Lukolela up to Isangi at the mouth of the Lomami. It may certainly be expected to follow some of the larger affluents in this region, but thus far has not been reported even from the Ruki River or the lower Ubangi. I still doubt that Boma is the real type locality, not that suitable wooded islands are not available there, but because this sunbird has never been found even about Stanley Pool.

Antoine Greshoff, who sent home the first two specimens in alcohol, was an agent of the Dutch Trading Company toward 1887–1889, living at Kinshasa. He undoubtedly traveled by steamer on the upper Congo River, buying ivory, and might well have obtained the birds within the known range of *congensis*. I propose therefore that the type locality be corrected to "Irebu."

Other specimens from the upper Congo were misidentified by Dubois as *N. melanogastra,* and it has also been proposed to treat *congensis* as a race of *erythroceria*. I do not find the resemblance to either very close.

This long-tailed sunbird is rather common along the forested banks of the upper Congo River for a distance of about 500 miles and usually shows itself near the clearings about the villages and posts. I have also found it in the trees on islands in midstream, but it seemed not to wander more than a few hundred yards away from the river. The range is similar to that of the weaver-bird *Brachycope anomala,* but even more restricted, for we never encountered it on the Ituri or Aruwimi or at Stanleyville.

At Barumbu and Isangi the Congo River sunbird fed at the gaudy red flowers of the flamboyant tree (*Poinciana regia*), at other places amid the boughs of native trees. Its voice I could not hear. During a halt of our

steamer at Lié in July a typical sunbird nest was seen hanging from a bush some 6 feet above the water, and a male bird of the present species perching by it seemed proof of ownership. With the exception of one female showing signs of immaturity in the skull, all the specimens I have taken—in February, July, and December—were in condition to breed. I therefore expect nesting to continue sporadically through all 12 months.

Nine stomachs were examined, and they invariably disclosed tiny spiders. No insects were noted, but nectar may well have been present also.

Nectarinia pulchella lucidipectus Hartert

Nectarinia pulchella lucidipectus HARTERT, 1921, Novitates Zool., vol. 28, p. 123 (type locality: Wad Medani, Blue Nile). BOWEN, 1931, Catalogue of Sudan birds, vol. 2, p. 83 (Kajo-Kaji). VAN SOMEREN, 1932, Novitates Zool., vol. 37, p. 351 (Ankole). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 136 (Mahagi Port; "Dungu"). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1325 (Butiaba; Toro). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 100.

Nectarinia pulchella EMIN, 1888, *in* Schweinfurth and Ratzel, Emin Pascha in Central Africa, p. 142 (Wadelai). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 ("Ituri"; "Uelle"). SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 455 ("Uelle"). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 288 ("Ituri"); 1929, Bull. Cercle Zool. Congolais, vol. 5, p. 79 (Mahagi Port?). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 192 (Mswa on L. Albert).

DISTRIBUTION OF THE SPECIES: Senegal and Portuguese Guinea east to Eritrea, Abyssinia, and Lake Baringo, then southward to Lake Albert, Toro, and Ankole. If *melanogastra* is a race of this species, then the range extends in East Africa to the upper Tana River, Machakos, Nguruman, and Lake Rukwa.

Nominate *pulchella* extends from Senegal to Kordofan, across the grasslands north of the Upper Guinea forest, and is replaced in Aïr and Northern Nigeria by *N. p. aegra* Hartert, with bill just a little shorter. *Nectarinia p. lucidipectus,* on the other hand, has the bill as large as in the nominate race but the red in the middle of the breast and the yellow at the sides noticeably brighter. This third race extends from Eritrea and the vicinity of Khartoum south to Lake Albert, Lake Baringo, Toro, and Ankole.

Although its range is largely complementary, I am not quite sure that *melanogastra* is truly conspecific. It occurs commonly at Kisumu and has been taken once near Lake Edward, while *lucidipectus* is known from Ankole. The slightly larger bill and dull black flanks of *melanogastra* are the principal distinctions.

North of the Belgian Congo the species *pulchella* comes only to Fort Crampel and to Raffali in the Bahr-el-Ghazal. It is not to be expected in the Uelle District, and the specimens listed by Dubois were probably collected

by Millo-Ribotti near Lado. *Nectarinia p. lucidipectus* invades our territory along the northwest shore of Lake Albert. At Mahagi Port Vrydagh saw it feeding at the flowers of *Manihot glaziovii* in May, and Emin noted it at Mswa. The males are active and pugnacious, visiting the flowers of aloes and other plants.

The breeding season in this general region is believed to be from June or July to the end of the rains. In Eritrea and on the White Nile the adult males of *lucidipectus* certainly assume a dull eclipse plumage in October or November, after breeding, but retain the glossy wing-coverts and long median rectrices. These tail plumes are renewed as part of the prenuptial molt. Farther south, in the region of Lado and Lake Albert, Emin insisted that the males did not lose their metallic dress, for he had collected adults of that sex with glossy head and body at Magungo in November, at Lado in January, and at Mswa in February. We have additional specimens in male breeding dress from Nimule, February 27, and Butiaba, November 22, but no male in eclipse from that whole area. At Mahagi Port Vrydagh reported males in breeding plumage on January 4.

A nest described by Emin was hung in a tamarind tree, was pouch-shaped and built largely of vegetable down coated exteriorly with bits of lichen. The entrance was somewhat roofed over, the interior thickly lined with feathers. Its two eggs, measuring 17.5 by 12 mm., were bluish, with dark gray shell markings and blackish scrolls that scarcely extended to the pointed end. Granvik also described a set of two eggs from Turkana in July, so thickly mottled with pale brown and gray as to look uniform grayish. His measurements were smaller, 15.1 by 10.6 and 15.2 by 10.4 mm.

[*Nectarinia pulchella melanogastra* Fischer and Reichenow]

Nectarinia melanogastra FISCHER AND REICHENOW, 1884, Jour. Ornith., p. 181 (type locality: Nguruman, L. Natron, East Africa). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 316.

? *Nectarinia melanogastra* EMIN, 1891, Jour. Ornith., p. 340 ("Mangbetu country").

Nectarinia melanogaster JACKSON, 1906, Ibis, p. 554 (southeast Ruwenzori).

This sunbird ranges from Fort Hall, Machakos, Southern Guaso Nyiro, and Kisumu in Kenya Colony south to Nguruman and Lake Rukwa in Tanganyika Territory. It may not be conspecific with *pulchella,* and both Van Someren and Williams assure us that its range overlaps that of the smaller and duller *Nectarinia nectarinioides* in East Africa.

A single male in glossy adult plumage, collected by Geoffrey Archer in February, 1902, near the southeast base of Ruwenzori is now in the American Museum. This is the only indication of possible occurrence within the borders of the Congo. Emin's mention of the species from the Uelle was surely due to a misunderstanding.

Nectarinia kilimensis kilimensis Shelley

Nectarinia kilimensis SHELLEY, 1884, Proc. Zool. Soc. London, p. 555 (type locality: Kilimanjaro, 5000 ft.); 1900, The birds of Africa, vol. 2, p. 28, pl. 1, fig. 1. SCOTT ELLIOT, 1895, Proc. Zool. Soc. London, p. 342 (Ruwenzori; Semliki Valley). REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 502 (Ruanda; Karevia); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 353 (L. Mohasi; southeast shore of L. Kivu; Selters Spring; Kisenyi; Mt. Sabinyo, 2800 m.). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 317 (Mubuku Valley, 5000–7000 ft.; Beni). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 29 (Rutshuru). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 288 (Kasumbaki; Biogo; Moera; Kamabo; Kibati; Marubi; Kirungu; Mutiba; Muhavura-Sabinyo Pass; Busuenda; Bulaimu; west Ruwenzori; Baraka); 1933, Inst. Roy. Colonial Belge, Bull. Séances, vol. 4, p. 152; 1938, Bull. Cercle Zool. Congolais, vol. 15, p. 7. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 34 (Urundi; Usumbura; Kisenyi). FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 758 (Lulenga).

Nectarinia filiola HARTLAUB, 1890, Jour. Ornith., p. 150 (type locality: Nyangabo, eastern Ituri District); 1891, Abhandl. Naturwiss. Ver. Bremen, vol. 12, p. 27 (Buguera).

Nectarinia kilimense SCOTT ELLIOT, 1896, A naturalist in mid-Africa, p. 98.

Nectarinia kilimensis filiola GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 85 (Mt. Muhavura, 2100 m.; Tamohanga; Burunga; Ngoma; Sake; Tabaro). BANGS AND LOVERIDGE, 1933, Bull. Mus. Comp. Zool., vol. 75, p. 211. BERLIOZ, 1936, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 8, p. 490 (Kadjudju; Wungingi in Ruanda). FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 334. FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 347.

Nectarinia EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, pp. 232, 261, 268 (Kavalli; Madjamboni).

Nectarinia kilimensis kilimensis SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 683. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 281 (Nya-Muzinga; Djalasinda); 1933, idem, vol. 22, p. 373 (Nyundo; Mutura; Bigogo); 1936, idem, vol. 27, p. 403 (Kako bridge; Katana; Nyanza on L. Tanganyika; Tshibinda); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 136; 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 149 (Mugunga; Nzulu; Burunga in Mokoto; Ngesho; Tshumba; Bitashimwa; Bitale on L. Bulero; Ruhengeri; Kanyabayongo; L. Ngando; Bweza; Kibumba; Mt. Bisoke); 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 340 (Astrida; Kibingo; Bimba); 1943, idem, vol. 37, p. 272 (Gabiro); 1949, idem, vol. 42, p. 164 (Kasiki). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1316. PETERS AND LOVERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 264 (Idjwi I.). VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, p. 4 (Musosa); 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 45, 79 (Rugari; Munigi; Mutsora; Butahu R.). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 101 (Butembo; Nioka; Nizi; Mt. Aboro to 2200 m.).

Sclaterornis kilimensis kilimensis HENDRICKX, 1944, Ostrich, vol. 15, p. 203.

DISTRIBUTION OF THE SPECIES: Highlands from northwest of Lake Albert, Mt. Elgon, and the bases of Kenya and Kilimanjaro southward to Nyasaland and eastern Southern Rhodesia; also on the plateau of Angola.

The nominate race occupies elevated areas in eastern Africa, south to central Tanganyika Territory and Ufipa. *Nectarinia k. arturi* P. L. Sclater has a slightly shorter bill and its male is more purplish bronze on fore-neck and lower back. It occupies the highlands near Lake Nyasa and extends to the Mafinga Mountains, the Uvidunda Mountains in Tanganyika Territory, and to the Melsetter District. In Angola *N. k. gadowi* Bocage, with gloss of males deeper green than in the nominate race, occupies highlands of the Benguella and Bihé provinces.

Only the nominate form is known from the Congo, where it is common on highlands from Djalasinda near Mahagi south through the Kivu and Ruanda-Urundi and reaches even the highland of Marungu. It descends to about 4000 feet around Lake Victoria, even a trifle lower in the upper Semliki Valley, and perhaps lowest of all at the north end of Lake Tanganyika. Preferring open areas with flowering trees like *Erythrina,* it scarcely invades the mountain forests and does not go much higher than 6000 feet on west Ruwenzori. There seem to be no published records from west of Lake Edward, but I have seen it there up to 7600 feet and collected one example at Luofu. Sometimes it fed at the flowers of *Aloë* or of *Lobelia giberroa* but much more often at those of *Erythrina* trees. About the Kivu Volcanoes it is usually seen at the lower margin of the forest zone but has been collected by Schubotz at 9000 feet on Mt. Sabinyo. In Marungu Rockefeller and Murphy took two males and a female at Ketendwe, 6025 feet.

By far the commonest large sunbird on the highlands of the east Congo, *kilimensis* is relatively silent. In Uganda it has two main breeding periods per year, April–July and November–December. The behavior is similar in the Kivu District where nesting continues throughout all the rainier months. Certainly there is no eclipse plumage. My specimens from the west base of Ruwenzori were ready to breed in early November; two males from Marungu had gonads enlarged in February. In the latter area only one breeding season may be expected.

The nest is known to be rather large, suspended from an outer twig of a tree, at 10 to 20 feet from the ground. The female does all the building and uses grasses, shreds of bark, cobwebs, and thistledown. There is a projecting "porch." Single eggs are the rule, pale creamy or bluish white, either sparingly or more thickly spotted with lilac or ash-brown. Dimensions are about 21 by 13.5 mm. Jackson once found this sunbird rearing the young of *Chrysococcyx caprius,* a cuckoo which much more often parasitizes weaver-birds. *Chrysococcyx klaasi* is the cuckoo whose eggs are most apt to be laid in sunbird nests.

Besides the nectar which *N. kilimensis* extracts from flowers, small insects, and no doubt spiders, are also eaten.

Nectarinia purpureiventris (Reichenow)

Cinnyris purpureiventris REICHENOW, 1893, Ornith. Monatsber., p. 61 (type locality: Migere, west Mpororo, southwestern Uganda); 1894, Jour. Ornith., p. 102, pl. 1, fig. 2.

Nectarinia barakae SHARPE, 1902, Bull. Brit. Ornith. Club, vol. 13, p. 8 (type locality: Ruwenzori).

Nectarinia purpureiventris REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 503; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 353 ("Kasenyi"; "Beni"; west Ruwenzori, 1500 m.; Kisenyi; northwest of L. Tanganyika; "Usumbura"). JACKSON, 1906, Ibis, p. 555; 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1321. OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 319 (Mubuku Valley, 7000 ft.). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 288 (Sibatwa). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 34. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 684. BERLIOZ, 1936, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 8, p. 490 (Mbwahi). DELACOUR, 1944, Zoologica, New York, vol. 29, p. 31. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 79 (Lepi near Lutunguru; Djobulo R.).

Nectarinia chloronota JACKSON, 1906, Bull. Brit. Ornith. Club, vol. 16, p. 90 (type locality: Ruwenzori).

DISTRIBUTION: Ruwenzori and the highlands west of Lake Edward, south through the Kivu District to the mountains northwest of Baraka. The record from Kasenyi cannot be correct, and this sunbird has not yet been found on the mountains west of Lake Albert. The type of *chloronota* has unusually green luster above but cannot possibly represent a valid form.

It is surprising how this bird has so often eluded collectors, though it is widely distributed and at times numerous. I myself saw it only at the north end of Ruwenzori, at 7700 feet, but it evidently is most characteristic of the open glades in the lower mountain forest, coming down to about 5000 feet. On east Ruwenzori Archer collected eight specimens within about five days and told of a dozen or more gathering in one large tree, the branches of which were covered with red berries.[1] All told, Rudolf Grauer must have taken 36 examples, of which 13 came from Idjwi Island, the others from northwest of Tanganyika.

Both the immature males and the adult females of this "rainbow sunbird" show a distinct lengthening of the olive median rectrices. Young males are distinguished by heavy spotting with dull black on the fore-neck. The first metallic feathers to appear are some purple lesser wing-coverts. Then come other scattered glossy feathers on the body, greater wing-coverts, new remiges and rectrices. The whole tail soon is like that of the adult male, with long median quills, before the head acquires any glossy feathers. From this point on it is very difficult to say whether all the particolored birds are immature, or whether some may be adults in eclipse. According to Mack-

[1] More probably the globular flowers of *Symphonia gabonensis*, which we find to be extremely attractive to this sunbird.

worth-Praed and Grant,[1] males ıis species have an off-season eclipse plumage.

This I cannot confirm. With a s of 16 males collected by Grauer, none of which is plainly juvenile, I c: ıd no bird showing molt from glossy to dull condition. Six are partic , long-tailed, and thus might perhaps be males in eclipse; two were t: n June, four in November. But four other males in June and four in ember were in full metallic dress. Evidently there can be no great seasona regularity. Further, three of the November particolored birds have skulls that feel like those of immature birds. So I am left with grave doubts as to the existence of any male eclipse. The fact that five males in full dress were found during June and July (dry months) at the southern limit of the range makes it look very improbable. Nothing is known of the nesting, but I should expect a rather prolonged season of reproduction.

Nectarinia famosa cupreonitens Shelley

Nectarinia cupreonitens SHELLEY, 1876, A monograph of the Nectariniidae, p., 17 pl. 6 (type locality: Abyssinia). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 316 (Butahu Valley, 4000–5400 ft.).

Nectarinia famosa cupreonitens REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 353. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 288 (Biogo; foot of Mt. Kishasha; Mt. Karisimbi). GRANT AND MACKWORTH-PRAED, 1947, Bull. Brit. Ornith. Club, vol. 67, p. 83.

Nectarinia famosa centralis VAN SOMEREN, 1916, Ibis, p. 446 (type locality: Lusasa, Ankole, Uganda). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 682. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 281 (Mt. Mikeno; Rwankeri); 1933, idem, vol. 22, p. 373; 1935, idem, vol. 27, p. 403 (Katana); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 151 (Kanyabayongo, 1760 m.; Mt. Vuga, 2400 m.); 1940, Bull. Cercle Zool. Congolais, vol. 16, p. 72 (Kibingo); 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 340 (Bimba); 1949, idem, vol. 42, p. 164 (Kasiki). BERLIOZ, 1936, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 8, p. 490 (Rugege). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1316. VERHEYEN, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 79 (Nganzi). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 101 (Mt. Aboro to 2200 m.; Nioka).

Nectarinia famosa vulcanorum GYLDENSTOLPE, 1922, Bull. Brit. Ornith. Club, vol. 43, p. 38 (type locality: Mt. Sabinyo, 2600 m.); 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 82 (Mt. Muhavura, 2900 m.); 1926, Arkiv Zool., vol. 19A, no. 1, p. 32.

Nectarinia famosa SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 33 (Beni). SCHOUTEDEN, 1929, Bull. Cercle Zool. Congolais, vol. 5, p. 77; 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 271; 1942, Bull. Cercle Zool. Congolais, vol. 17, p. 61 (forest near Astrida).

DISTRIBUTION OF THE SPECIES: South Africa from Cape Town and Namaqualand to the Transvaal, Natal, and Melsetter District, then to northern Nyasaland, the highlands of eastern Africa and Abyssinia. *Nec-*

[1] 1945, Ibis, p. 148.

tarinia f. famosa (Linnaeus) of Cape Province has wings of males 76–79 mm., while *N. f. major* Roberts of Natal and eastern Rhodesia is a little larger, wings 80–86 mm. From Nyasaland to Abyssinia the wings of males measure 70–76.5 mm. Although there seem to be some local variations in length of bill, I feel that all the eastern birds are best united under *N. f. cupreonitens.*

Within our area this race of the malachite sunbird lives on the highlands, mainly above 4000 feet, all the way from the Lendu Plateau and the slopes of Ruwenzori south through the Kivu and Ruanda-Urundi to Marungu. It is not known from the Upper Katanga.

South African birds in captivity are known to have a male eclipse dress, but there has been considerable discussion as to just when it is worn in the wild state. At the Cape eggs are laid from late July to mid-October, and the males are thus in breeding plumage there during winter. In the uplands of Natal nesting is in progress in February, and males don an eclipse dress before migrating to lower levels around May 1, at the approach of the cold season. In Southern Rhodesia Benson found *major* nesting at Vumba in January, and it has been reported to spend the dry months of June, July, and August at lower levels, with males probably then in eclipse.

On highlands in Nyasaland Benson[1] found that *cupreonitens* breeds toward July–August or even a little later on the high Nyika, and males go into eclipse shortly afterward. Their off-season dress is worn from September or November until March, during rainy months. At Rungwe, Tanganyika Territory, Boulton collected breeding birds at the beginning of June.

In Marungu, on the other hand, Rockefeller and Murphy secured three adult males at Ketendwe, near 6000 feet, all in breeding dress with gonads enlarged, in late February. The exact breeding period would seem to vary from one highland to the next. Closer to the equator one might expect still greater irregularity, and in Kenya Colony Belcher[2] says nests may be found at any time except the dry season of January to March or April. On the Kinangop Plateau they are most numerous toward October.

It has sometimes been doubted that males in East Africa had an eclipse, but I have examined a few that were undoubtedly adult, with their long tail plumes worn, and head and body mostly olive and yellow. Three are from Escarpment, in February and March, one from Molo in February, and one from Nairobi in March. Still another, from Usambara, September 30, plainly shows the glossy plumage being lost and dull green feathers growing on the breast and crown.

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[1] 1937, Ibis, p. 577; 1941, idem, p. 26; 1942, idem, p. 325.

[2] 1939, Jour. East Africa Uganda Nat. Hist. Soc., vol. 14, pp. 167–171; 1941, Ostrich, vol. 11, p. 93.

An eclipse plumage is also worn in the eastern Congo. Males near the Kivu Volcanoes are in bright plumage, ready to breed, from December to April. Their off-season should be about June–August. But a little to the northward, at Luofu, I secured a male in eclipse, with long rectrices abraded, on March 23, and made sure that it was fully adult. Another male of very similar appearance, from the west base of Ruwenzori, November 9, was apparently not quite adult.

Still farther north, from the Lendu Plateau, we have four adult males in breeding dress in August and early September, as well as one in fresh eclipse plumage on September 6. It certainly seems as though there were considerable regularity, each highland area having a rather long breeding season, which near the Equator coincides with the rainier months.

In the eastern Congo the malachite sunbird is rather local in its distribution, for it avoids dense mountain forest, preferring the more open situations above 4000 feet. On Ruwenzori I have not seen it above 5500 feet, but it goes up to 6000 feet near Nioka, to 8400 feet in the Kigezi District, and even to 9500 feet on Mt. Muhavura. Gyldenstolpe found it in the saddles between the three eastern volcanoes, but I never saw it above the mountain forest on the central group.

This large green sunbird cannot be overlooked. It goes in pairs, perching on trees and bushes in open grasslands, gives a sharp chirp as a call, and for a song it repeats somewhat similar notes at increasing speed until they become a sort of jingle. Flowers are continually being visited and probed, especially those of *Leonotis, Erythrina, Gladiolus, Aloë,* and *Kniphofia.* I noticed that the birds' chins became generously dusted with red and yellow pollen from these last two plants, though their foreheads remained clean. In the only stomach I examined carefully there were a number of small fly-like insects and one small spider.

The nest, as described by Belcher from East Africa, is more spherical than most, ornamented outside with whitish cocoons and lined thickly with vegetable down, fur, and often feathers. The entrance lacks a projecting porch. Hung usually from a bush, nests are mostly within hand reach. Two eggs form the normal set, grayish or greenish white with plentiful freckles of gray and brown, usually darkening at the large end. Dimensions: 17–19.2 by 12.5–13.5 mm.

Nectarinia johnstoni dartmouthi Ogilvie-Grant

Nectarinia dartmouthi OGILVIE-GRANT, 1906, Bull. Brit. Ornith. Club, vol. 16, p. 117 (type locality: Mubuku Valley, 13,000 ft., east Ruwenzori); 1910, Trans. Zool. Soc. London, vol. 19, p. 318, pl. 12, figs. 1, 2 (Mubuku Valley, 12,500–14,500 ft.). WOOSNAM, 1907, Geogr. Jour., London, vol. 30, pp. 626, 628. REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 353 (west Ruwenzori, 4000 m.; Mt. Karisimbi, 3200–3400 m.). SCHOUTEDEN, 1918, Rev. Zool. Bot.

Africaines, vol. 5, p. 288; 1930, *in* Franck, Le Congo Belge, vol. 2, p. 374; 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 271; 1932, idem, vol. 22, p. 257; 1933, Bull. Cercle Zool. Congolais, vol. 9, pp. 107, 109; 1933, idem, vol. 10, p. 17. GYLDENSTOLPE, 1922, Bull. Brit. Ornith. Club, vol. 43, p. 31. BURGEON, 1933, Bull. Cercle Zool. Congolais, vol. 10, p. 25 (Mt. Nyamlagira, 2600 m.; near Katana); 1937, *in* De Grunne, Vers les glaciers de l'Equateur, le Ruwenzori, pp. 265, 272, fig. 125.

Nectarinia johnstoni LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 29 ("Kabare").

Nectarina johnstonii BARNS, 1922, The wonderland of the eastern Congo, opp. p. 138, p. 143.

Nectarinia johnstonei dartmouthi GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 83 (Mt. Muhavura, 2500 m.). SCHOUTEDEN, 1933, Rev. Zool. Bot. Africaines, vol. 22, p. 373 (Tshangerewe).

Nectarinia johnstoni dartmouthi CHAPIN, 1928, Nat. Hist., vol. 27, p. 623. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 683. SCHOUTEDEN, 1933, Rev. Zool. Bot. Africaines, vol. 22, p. 371 (Kisenyi–Ruhengeri); 1933, Inst. Roy. Colonial Belge, Bull. Séances, vol. 4, p. 150; 1934, Bull. Cercle Zool. Congolais, vol. 10, p. 63; 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 151 (Burambi, 2800 m.; Mt. Gahinga, 3400 m.; L. Ngando, 2400 m.). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1320. GROMIER, 1948, La vie des animaux sauvages de la région des grands lacs, pp. 68, 163. WEEKES, 1949, Ibis, p. 108. WILLIAMS, 1951, Ibis, p. 579.

Nectarinia darmouthi SCHOUTEDEN, 1933, Bull. Cercle Zool. Congolais, vol. 10, p. 33. GROMIER, 1936, La vie des animaux sauvages de l'Afrique, p. 295.

Nectarinia johnstoni darmouthi SCHOUTEDEN, 1935, Rev. Zool. Bot. Africaines, vol. 27, p. 403.

DISTRIBUTION OF THE SPECIES: Known only on high mountains in eastern Africa: Kenya, Kilimanjaro, Meru, Mt. Olosirwa in the Mbulu district, and others near the north end of Lake Nyasa and in the eastern Congo. *Nectarinia j. johnstoni* inhabits Kilimanjaro and neighboring peaks, including Olosirwa. The birds of Mt. Kenya differ only slightly by the more bluish green color of the underparts of males and the more decurved bill, and are probably not separable as *N. j. idius* Mearns.

The race *salvadorii* occupying the Livingstone Mountains and Nyika Plateau is well differentiated, with bill shorter than in the foregoing, males very green, females rather pale brown beneath. On the other hand, *dartmouthi* of the eastern Congo has males that are much more bluish than any of the others, and its bill is relatively short and straight. The brownish females of all four forms have scarlet pectoral tufts like those of the males.

The Dartmouth sunbird is characteristic of the alpine zone on Ruwenzori and the Kivu Volcanoes and not yet known to occur on the high mountains west of Lake Edward or Lake Kivu. Records from such places as Kabare and Katana must certainly be erroneous, since the bird is only rarely seen below 11,000 feet. It has been reliably reported from Mt. Nyamlagira at 8500 feet, and though I did not see it on Mt. Nyiragongo, it may be expected there. On Mt. Kandashomwa, west of the Ruzizi Valley, I collected one

immature male in July, 1927, amid some bare, dead bamboos at 8800 feet. There is a breeding population on some of the higher peaks in that region, such as Mt. Muhi, rising to 11,398 feet, and near Lake Lungwe at 9676 feet, as proved by A. Prigogine.

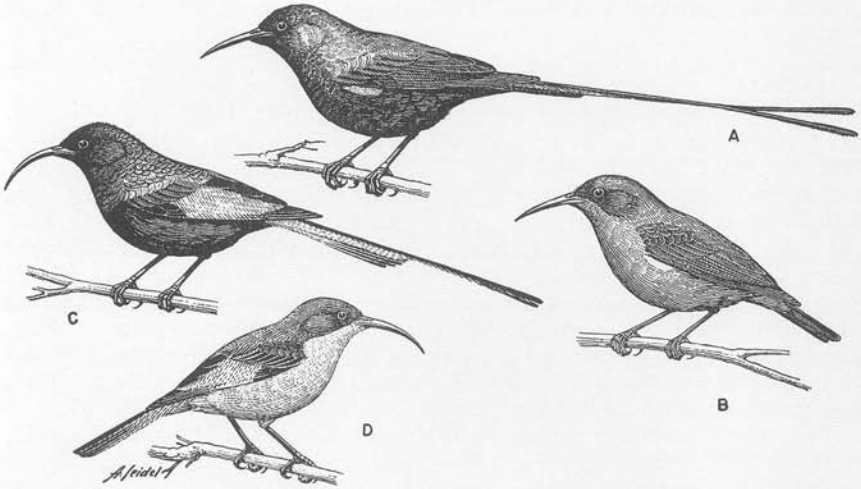

FIG. 21. Two sunbirds of the mountains. A, B. *Nectarinia johnstoni dartmouthi*, male and female. C, D. *Nectarinia reichenowi*, male and female.

On Ruwenzori this sunbird keeps wholly to the zone of tree senecios and giant lobelias. On the eastern side Woosnam reported it as living from 12,500 up to 14,500 feet. To the west of Mt. Stanley I first saw it as we came out of the heath woods into the groundsel trees at 12,600 feet. It was especially common toward 13,500 feet on the way up to Kampi-ya-Tshupa, and less numerous above 13,900 feet, where the giant lobelias thinned out. Yet I saw one male on a high ridge at 14,800 feet and one more in a valley at 14,650 feet, just below the foot of the Stanley Glacier.

These sunbirds seem thoroughly adapted to their misty home. They are active all day and do not disappear when the sun is obscured or cold fog envelops the scene. At such times one may be startled to see a bird apparently as large as a cuckoo or dove, which quickly proves to be only a sunbird magnified by the mist. Strong fliers, they are not so restless as many smaller sunbirds, and one may be seen to perch for minutes on the summit of a tall lobelia spike or the leafy crown of a groundsel tree. It is clear that most of their feeding is done at the flower stalks of lobelias, to which they cling with ease as they poke the beak in through the drooping bracts to the blue flowers. Here there are often great numbers of tiny weevil-like insects. Only occa-

sionally did we see one at the splendid scarlet flowers of *Hypericum keniense,* and those of the groundsel trees were entirely neglected.

The call note, a rasping "chk-k" or "cha-cha," is frequently heard, and the song is a series of similar sounds running on into a dry trill. There was no doubt that breeding was under way in late November and early January, as a majority of the adult males collected had enlarged gonads, and a female in November with beak filled with tiny insects was evidently feeding young. Woosnam was sure these sunbirds were breeding in January on the eastern side and that some young were already fledged. Weekes found a nest with a single young toward the end of December, at 13,500 feet. This nest was oval in form, made entirely of white wool from everlasting flowers, firmly woven into a small heath bush, about 2 feet from the ground. All this does not prove that nesting is restricted to a dry period of the year, for it certainly is under way in November, a very wet month. None of the male specimens I have seen from Ruwenzori gives any hint of an off-season eclipse plumage.

On the central and highest group of the Kivu Volcanoes I found the distribution and behavior of the Dartmouth sunbird much the same, except that it comes down some distance into the open *Hagenia* forest, almost to Kabara, and feeds at lobelias growing near there at only 11,500 feet. It was often to be seen in the same yellow-flowered *Hypericum* tree with *Cinnyris afer graueri.* About the Lukumi meadow on the north slope of Karisimbi at 12,000 feet it is common, but scarcer on the higher parts of that peak, which is windy and bleak. Yet Fred Hendrickx tells me that as he stood on the very summit of Mikeno a female came within half a meter of his feet.

On Karisimbi in mid-March Gyldenstolpe noted courtship activity by the males. In June I found that the great majority of that sex had gonads enlarged, and on June 19 I watched a female engaged in lining a nest placed 50 feet up in the boughs of a large *Hagenia* tree. Much less pensile than the usual sunbird nest, it was supported by triple-forking twigs and had of course a lateral entrance. The material used was largely beard lichen, mixed with some pappus from a composite, and some brownish plant fibers or rootlets, most noticeable about the doorway. The lining of plant down was plainly not complete, and no egg had been laid. The vertical diameter of this nest was 14 cm., from side to side about 12 cm. Its location may not be the usual one, for many of the birds live well above the limit of *Hagenia* trees, where heath trees and *Hypericum* might serve. Again I should hesitate to conclude that on these volcanoes there is any brief breeding season, and there is no sign of an eclipse plumage of adult males. *Nectarinia j. johnstoni* on Mt. Olosirwa has been found to lay a single egg, 19–20 by 12 mm., white streaked with pinkish brown, most thickly at the blunt end.

On Mt. Kenya, J. G. Williams informs me, the nest of *N. johnstoni idius*

above 13,000 feet is apt to be placed in the center of a grass tussock, while lower down the favored sites are a dead flowering branch of a groundsel tree or a heath bush. Single fledglings have usually been found, so it may be expected that only one egg is laid.

The principal season for nesting on Kenya is July and early August, in a dry period of the year. But nests have also been found in January. In May on Mt. Kenya I noted numbers of immature males molting into glossy plumage, and no bird of either sex in breeding condition, so I conclude that there are two definite periods for nesting. Still more interesting is it that Williams at the end of August, 1948, found nesting almost ended and some adult males changing to a dull off-season dress with the old middle tail-feathers retained. How long this is worn is not yet known.

There need be no doubt as to the validity of the Nyasa race, *salvadorii,* which lives at the relatively low levels of 7000 to 8000 feet; it must also have a male eclipse plumage, probably toward January–March.

I was interested to learn what food the Dartmouth sunbird found in the lobelia flowers on Ruwenzori. As the late Louis Burgeon said, on those mountains at 13,700 feet one sees few insects flying, except some Diptera and moths. There are no butterflies, no bees or ants, not even grasshoppers, roaches, or termites. The flowers are visited by small flies and beetles, but they may well depend on the sunbirds for spreading their pollen. In any case, I found the stomachs of these sunbirds filled with pieces of tiny long-legged insects. They did not seem to be beetles, and as many wings could be recognized under the microscope, I conclude that small flies furnish the bulk of their food. I doubt that any abundant nectar is present in the blossoms.

Nectarinia reichenowi (Fischer)

Drepanorhynchus reichenowi FISCHER, 1884, Jour. Ornith., p. 56 (type locality: Lake Naivasha, Kenya Colony). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1327 (northwestern Ankole).

Nectarinia reichenowi DELACOUR, 1944, Zoologica, New York, vol. 29, p. 33 (southern Kivu District).

DISTRIBUTION: Highlands of eastern Africa from the south end of Lake Rudolf and Mt. Elgon to west Usambara and the Mbulu district of Tanganyika Territory. Westward it extends to Ankole and to the highland west of the Ruzizi Valley. Near Jinja in Uganda this golden-winged sunbird comes down to about 4000 feet, and while it was reported by Neave from northwestern Ankole, it has not been found near Ruwenzori or the Kivu Volcanoes.

In East Africa it is widely dispersed at levels between 4800 and 8500 feet, and on Mt. Kenya Meinertzhagen found it up to 11,200 feet, above the bamboos. It does not inhabit dense mountain forest, is often seen in bushy

areas or groves of acacias, and loves to feed in patches of flowering *Leonotis.* The curvature of the beak is less noticeable in life than when the dead bird is examined. A weak, rasping call note is given, but little if anything in the way of song.

On the highlands of Kenya Colony August to December is the normal breeding season, but Meinertzhagen reported a nest on Mt. Kenya in mid-February. During the time of nesting adult males have the whole head, fore-neck, and back glossy bronze or copper color. In the off-season these parts are mainly clothed in dull black, with scattered metallic feathers on lower fore-neck and back. I have seen at least a dozen adult males in this eclipse plumage, taken in Kenya Colony from February to June, inclusive, but one male from Escarpment was still in breeding dress in March.

Farther to the south, in the Crater Highlands of Tanganyika Territory, the seasons are reversed, and nesting is in full swing during February.[1] We have a male in eclipse from that area taken by Rockefeller and Murphy on November 14. That southern periodicity seems to prevail also in the highland area west of the Ruzizi Valley. There the Rockefeller party collected a male in molt from breeding dress to eclipse on July 22, 1929, about 5 miles west of Mt. Kandashomwa at 9100 feet. They also secured an immature male at Lubuku, near 7700 feet, some 15 miles farther to the southwest. Thus it was evident that a population of *N. reichenowi* occupied the highland area west of the Ruzizi Valley and that it might be almost completely isolated from the East African birds.

In the past couple of years A. Prigogine has collected six or more additional specimens near Lake Lungwe at an altitude of 8800 feet. These all confirm my impression of 20 years ago that the beaks are just a little less decurved in Kivu birds than in the East African. The length of culmen to the base (in a straight line) is 30–32 mm. for five adult males from west of the Ruzizi, 28–30 mm. for six males from Kenya Colony, and 27.5–29 mm. for eight males from Kilimanjaro. There is virtually no difference, however, in wing length; it is around 76–84 mm. for males of all three groups. It seemed scarcely necessary to give a new subspecific name because of this slight difference in the form of the bills.[2]

Males taken by Prigogine in March were in nuptial dress. One on September 20 was still in eclipse, so we may suppose the duller plumage to be worn from late July until October or November in the highlands near Lake Lungwe.

Nests of *Nectarinia reichenowi* in East Africa are globular, placed in bushes at 3 to 12 feet above the ground. Materials vary and may include

[1] Elliott and Fuggles-Couchman, 1948, Ibis, pp. 423, 424.

[2] A race has now been named *N. r. shellyae* by Prigogine, 1952, Rev. Zool. Bot. Africaines, vol. 46, p. 414 (Lake Lungwe).

strips of grass, slender dry flower stalks, or even *Usnea* lichen, strengthened by insect webbing, but usually there is no "porch." The lining is of plant down. A single egg is the normal set, whitish with heavy spotting of grayish brown, which forms a patch at the large end. The approximate size is 20 by 14 mm.

In the only stomach which I have personally examined there were bits of hard-shelled insects and one naked green caterpillar.

FAMILY **PLOCEIDAE.** WEAVER-BIRDS, WEAVER-FINCHES, WAXBILLS, WHYDAHS

Key to the Genera of Ploceidae Living in or Near the Congo
(Males in breeding plumage only)

1. Size very large, wing length exceeding 115 mm.; head and breast entirely black or entirely white; tail of moderate length, square or rounded, its quills never prolonged to form a nuptial adornment 2
   Size, color, and form not as described above 3
2. Plumage blackish all over, except for white feather bases and some white markings on flanks . . . . . *Bubalornis* (p. 288)
   Head and breast white, back brown or black, upper and under tail-coverts reddish . . . . . *Dinemellia* (p. 288)
3. Tenth (outermost) primary distinctly longer than the primary-coverts . . . 4
   Tenth (outermost) primary as short as primary-coverts or shorter, or even small and completely hidden (much as it is in Fringillidae and other "nine-primaried" birds) 27
4. Beak unusually large and deep, of grosbeak form, its height exceeding length from gape; no yellow or bright red in plumage, a white patch at base of primaries, another often on forehead . . . . . *Amblyospiza* (p. 298)
   Height of bill at base less than, or at most just equal to, length from gape; coloration not as above 5
5. Size very small, wing less than 50 mm. long; bill very slender and pointed; plumage of head and back rather "scaly," belly yellowish . . . . . *Pholidornis* (p. 459)
   Wing usually exceeding 50 mm., bill stouter, plumage not as above 6
6. Breast of flanks with conspicuous white spots in male, rump or upper tail-coverts often red 7
   Breast and flanks not spotted with white in male 8
7. Sides of head, throat, and upper chest red . . . . . *Hypargos* (p. 505)
   Throat, cheeks, and fore-neck gray; a narrow stripe of red, at most, down middle of throat . . . . . *Clytospiza* (p. 475)
8. Plumage mainly gray, brown, and white, without any green, yellow, or red, and usually with a black stripe at each side of throat 9
   Adult male always with some yellow or red, unless entirely black, or black and rufous 10
9. Smaller, wing less than 75 mm. long; forehead black, finely speckled with white . . . . . *Sporopipes* (p. 298)
   Larger, wing longer than 80 mm.; forehead rufous or black, not speckled . . . . . *Plocepasser* (p. 289)

10. Plumage wholly black, or mainly black and varied with rufous, yellow, or red 11
    Plumage not mainly black, and with yellow, rufous, or red 17
11. Nostril exceptionally large and open, exposing a pale turbinate structure . . . . . *Rhinoploceus* (p. 388)
    Nostril small 12
12. Plumage of male entirely black, or black with yellow abdomen and rufous flanks . . . . . *Textor* (p. 326)
    Males largely black, but with some conspicuous markings of red, orange, and yellow, not arranged as above 13
13. Beak bluish and reddish with pearly luster; back black, upper tail-coverts with red; chest and sides of breast red; head with more or less red . . . . . *Spermophaga* (p. 479)
    Beak usually blackish, and if bluish, then not pearly 14
14. Entirely black save for a yellow mask extending from forehead over ear-coverts to sides of neck . . . . . *Hyphanturgus* (p. 317)
    Not so colored 15
15. Chest or breast chestnut or rufous brown, a collar of orange or yellow on hind neck . . . . . *Melanoploceus* (p. 369)
    Not so colored 16
16. Upper back black, red at least on crown, or on nape, chest, or whole breast . . . . . *Malimbus* (p. 375)
    Upper back bright yellow, orange-scarlet on nape and fore-neck . . . . . *Euplectes* (p. 410)
17. Bill stout, its depth equaling or exceeding the length from nostril; back and wings brownish and streaked, faintly washed at most with green . . 18
    Bill less stout, sometimes slender and pointed, especially if wings are brownish or black 19
18. Tail less than 33 mm. long, wing less than 65 mm.; lower breast usually spotted with black . . . . . *Brachycope* (p. 307)
    Tail longer than 37 mm., wing more than 65 mm.; lower breast never spotted . . . . . *Ploceëlla* (p. 304)
19. A broad black band from chin to fore-neck, and a narrow black stripe from lores to behind eye; ear-coverts yellow and crown yellow or golden . . . . . *Hyphanturgus* (p. 317)
    Not so colored; the black of throat, if present, extends to cheeks, ear-coverts, or sometimes the whole head 20
20. Back and wings largely gray or brown 21
    Back and wings yellowish, greenish, or blackish, often varied with yellow . 23
21. Head in breeding dress bright red, with or without black on chin, lores, and ear-coverts; belly whitish . . . . . *Anaplectes* (p. 394)
    Head without red 22
22. A median stripe of light yellow on back, rump also yellow . . . . . *Phormoplectes* (p. 389)
    No light stripe on middle of back . . . . . *Symplectes* (p. 373)
23. Throat and chest yellow; a black area about eye including lores and ear-coverts, which may join black of crown, or else fore-crown is yellow; back usually more or less green, in one species black . . . . . *Othyphantes* (p. 308)
    Black of face not so distributed, though head may be entirely or partly yellow, or wholly black 24

24. Beak slender, whole facial area, including throat, black; back nearly uniform green 25
    Beak usually stouter, and if slender then head not colored as above; facial area may be black or brown, or whole head yellow; back yellow, green, or black, or of mixed color 26
25. Whole crown and nape black . . . . . *Hyphanturgus* (p. 317)
    Hind crown bright yellow . . . . . *Icteropsis* (p. 313)
26. Beak slender and pointed, middle of back clear yellow, scapulars and wings plain black; crown yellow to rufous, cheeks and throat black . . . . . *Phormoplectes* (p. 389)
    Beak usually stouter, but variable; color pattern of back never as above, though it may be of mixed yellow and black; facial area partly black, or yellow, or whole head black . . . . . *Textor* (p. 326)
27. Tenth (outermost) primary rotated to a position above the ninth and not visible from under side of wing; coloration mostly gray and brown, with only small areas at most of yellow or black 28
    Tenth (outermost) primary small, but still visible from below 29
28. With a spot of yellow on fore-neck, and a soiled whitish or rufous superciliary stripe . . . . . *Petronia* (p. 292)
    No yellow on fore-neck; no superciliary stripe unless there is a black area on throat . . . . . *Passer* (p. 294)
29. Two median pairs of tail quills greatly lengthened, extending far beyond the other rectrices, which are shorter than the wing 30
    The four median tail quills not unlike their neighbors, though they may be slightly longer, or all rectrices may be greatly lengthened 31
30. The four lengthened rectrices relatively narrow and all of about equal length; body plumage black and white . . . . . *Vidua* (p. 573)
    The four enlarged rectrices are very broad, the median pair not nearly so long as the next pair; body plumage black, yellowish, and brown . . . . . *Steganura* (p. 578)
31. Plumage of breeding males wholly black, except that remiges and rectrices may be brownish 32
    Plumage never wholly black 33
32. Wing never longer than 72 mm., tail less than two-thirds as long as wing . . . . . *Hypochera* (p. 563)
    Wing always exceeding 72 mm., tail feathers greatly elongated, some of them two or three times as long as wing . . . . . *Coliuspasser* (p. 424)
33. Throat, chest, flanks, and upper side of tail light blue, with or without a crimson patch on cheek . . . . . *Uraeginthus* (p. 558)
    Not so colored 34
34. Plumage without any bright yellow or red, though there may sometimes be rufous, brown, or chestnut 35
    Some areas of yellow or red present 41
35. Flanks with bars or lunulate marks of white and black or brown 36
    Flanks not so marked 37
36. Upper breast barred like flanks . . . . . *Ortygospiza* (p. 498)
    Upper breast not barred . . . . . *Lonchura* (p. 451)
37. Tail more than 70 mm. long; plumage black, with lesser wing-coverts reddish brown and some white at bases of primaries . . . *Coliuspasser* (p. 424)
    Tail less than 60 mm. long 38

38. Cheeks and throat speckled with white on a gray ground . . . . . *Euodice*[1]
Face not so colored 39
39. Beak stout, deep red even in dry skins; back streaked with black . . . . . *Quelea* (p. 398)
Beak black or dark brown, back not streaked 40
40. Beak rather deep and compressed; coloration mostly light gray and brown; rectrices blackish with broad pale tips . . . . . *Pseudonigrita* (p. 292)
Beak rather slender, not compressed; underparts black, chestnut, or grayish white; rectrices all dark, without conspicuous pale tips . *Nigrita* (p. 465)
41. Breast and flanks of males in breeding plumage deep black, sometimes with red or yellow on fore-neck; bill nearly always blackish or dull blue . . . 42
Not so colored, although middle of breast may be black 45
42. Tail not more than 60 mm. long 43
Tail exceeding 60 mm. 44
43. Black with areas of bright yellow only on wing-coverts and rump . . . . . *Coliuspasser* (p. 424)
The red or yellow not distributed as above . . . . . *Euplectes* (p. 410)
44. Wing less than 117 mm. long . . . . . *Coliuspasser* (p. 424)
Wing more than 120 mm. long . . . . . *Diatropura* (p. 448)
45. Without red on rump or upper tail-coverts 46
With some red on rump or on upper tail coverts 54
46. With more or less yellow, but no red or pink anywhere in plumage 47
With some red or pink in plumage 48
47. Whole head and breast yellow or greenish yellow, back with dark streaking . . . . . *Anomalospiza* (p. 407)
Head or at least throat black, chest or flanks with yellow, but whole underparts not yellow . . . . . *Nesocharis* (p. 514)
48. Red restricted to forehead and fore-crown; cheeks, throat, and sometimes whole breast rufous brown; bill very slender and pointed . *Parmoptila* (p. 462)
Red not restricted to fore-crown, throat not rufous brown, bill not slender . 49
49. Crown and back green, not streaked; region about lores and eye red, lower breast and flanks spotted with white . . . . . *Hypargos* (p. 505)
Crown and back not green 50
50. A narrow stripe of bright red, or rarely of black, runs from lores to behind eye; bill small and blunt, entirely red in life . . . . . *Estrilda* (p. 537)
Not so colored 51
51. Back brownish, streaked with blackish; whole front of head is red, or else beak is deep red, even in dried skins . . . . . *Quelea* (p. 398)
Not so colored 52
52. Body plumage mostly brown and gray; outer rectrices with whitish tips; a bright red band extends from ear-coverts across throat, or whole anterior part of head is red . . . . . *Amadina* (p. 459)
Not so colored 53
53. Wing more than 53 mm. long; abdomen black, flanks spotted with white . . . . . *Hypargos* (p. 505)
Wing less than 53 mm., abdomen pale gray, flanks darker gray, chest wine-red with fine white dots . . . . . *Lagonosticta* (p. 517)
54. Bill very thick at base, 10–21 mm. wide at base of mandible, yet tapering to a sharp tip, most or all of head and throat bright red . *Pirenestes* (p. 489)
Bill not so broad at base 55

[1] Extralimital.

55. Back green, wing exceeding 54 mm., a good deal of red about face and throat . . . . . *Pytilia* (p. 508)
    If back is greenish, wing does not exceed 48 mm., and coloration is not as above 56
56. Throat, chest, and region about eye all covered with red, which sometimes extends to crown, flanks, and other areas 57
    Not so extensively red in throat region 60
57. Wing not more than 46 mm. long, hind claw relatively straight and at least 5.5 mm. long . . . . . *Ortygospiza* (p. 498)
    Wing usually exceeding 46 mm., hind claw more curved, scarcely 5 mm. long . 58
58. Abdomen gray, barred with whitish . . . . . *Pytilia* (p. 508)
    Abdomen grayish or black, not barred . . . . . *Lagonosticta* (p. 517)
59. Back red, breast uniform sooty gray, olive gray, or green . *Cryptospiza* (p. 484)
    Back not red 60
60. Upper surface of wing largely red, or with conspicuous edgings of red on greater wing-coverts and secondaries 61
    Wing not so red 62
61. No red about eye, head and body mostly gray, with coarse pale barring on lower breast and flanks . . . . . *Pytilia* (p. 508)
    A deep red stripe through eye, coloration more brownish, very fine gray barring on back and flanks . . . . . *Estrilda* (p. 537)
62. Back olive or olive gray, wing scarcely reaching 47 mm. 63
    Back ashy, darker gray, or brown, sometimes with fine dusky barring . . 64
63. A bright red stripe above eye, breast yellow or orange, even washed with scarlet, flanks with curved bars . . . . . *Amandava* (p. 533)
    No red over eye, throat and breast light gray, no barring on flanks . . . . . *Coccopygia* (p. 535)
64. Head, body, and wings mostly uniform gray, with or without a vinous wash, and with or without an area of black covering throat and cheeks . . . . . *Lagonosticta* (p. 517)
    Not so uniform in color, often with more brown above, or barred on back or wings, or with red near eye; if cheeks are black, wing-coverts and inner secondaries are barred . . . . . *Estrilda* (p. 537)

An artificial key to generic names among the Ploceidae cannot give any idea of the supposed evolution and relationships within the family. Yet in any serious study it is essential to keep those questions in mind.

The three most highly specialized subfamilies are believed to be the Passerinae, Ploceinae, and Estrildinae. The most primitive group of all is the Bubalornithinae, which at one time I believed should be treated as a distinct family. In 1925 Peter Sushkin convinced me that the Plocepasserinae are directly intermediate between the buffalo-weavers and the sparrows, and he regarded *Sporopipes* as fairly close to the ancestral line of both Ploceinae and Estrildinae.

I still find it difficult to visualize a possible common ancestor for these two subfamilies. Sushkin considered the *Vidua* group to be fairly close to the Estrildinae, yet showing some rather primitive characters in their anatomy. I have always felt that the Viduinae, now commonly raised to subfamily

rank, are closely allied to the Estrildinae, of which they appear to be always nest parasites. They share the curious mouth markings and gape wattles of nestlings, and these were not acquired independently, in my opinion, by the Viduinae through mimicry.

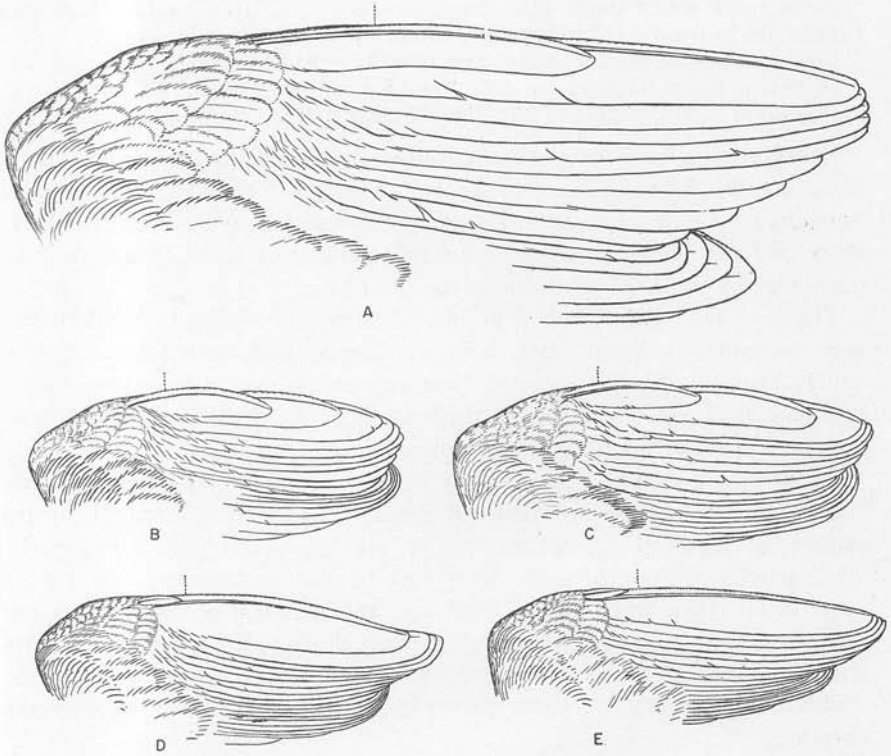

FIG. 22. Wings of five ploceids from beneath to illustrate progressive reduction of the outermost primary. A. *Dinemellia dinemelli*. B. *Clytospiza dybowskii*. C. *Clytospiza monteiri*. D. *Parmoptila jamesoni*. E. *Nigrita fusconota*. The dotted lines indicate the ends of upper primary-coverts. All figures natural size.

Reduction of the tenth (outermost) primary has proceeded independently in five of the subfamilies and is now most pronounced in *Passer*. That is to be regarded as one index of evolutionary progress, but it has not always gone on at the same rate as modifications of the beak or other structures, or as increased skill in nest building. In my linear arrangement of genera and species, I have attempted to follow, so far as possible, the supposed trend of evolution, but in some cases this is not feasible. By placing the Viduinae last, I do not mean to reverse the decision by Sushkin; my main purpose is

to keep them well apart from the *Euplectes* group, with which mistakenly they used often to be united.

SUBFAMILY **BUBALORNITHINAE**

Dinemellia dinemelli böhmi (Reichenow)

Textor böhmi REICHENOW, 1885, Jour. Ornith., p. 372 (type locality: Kakoma, Tanganyika Territory). MATSCHIE, 1887, Jour. Ornith., p. 154 (Mpala).
Textor dinemelli SCHALOW, 1886, Jour. Ornith., p. 416 (Manda).
Dinemellia böhmi REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 8.
Dinemellia boehmi SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 313.

DISTRIBUTION OF THE SPECIES: Rather dry countries from Somaliland, Shoa, and the Bahr-el-Ghazal to the Teita District of Kenya Colony; also in Tanganyika Territory south to Usagara and westward again to the southern shore of Lake Victoria and the country southeast of Lake Tanganyika. It may extend around the south end of the latter lake.

The nominate race, with dull brown back, occupies all the northern regions, south to Teita. *D. d. böhmi* is larger, with back blackish; it is widely distributed in Tanganyika Territory and is said to have been found by Böhm at Manda and Mpala on the west shore of Lake Tanganyika. I have seen no recent specimen from within our limits.

In the country east of Lake Victoria I have found *böhmi* common in dry "orchard bush," going in parties of six to 12, attracting attention by its chattering calls and a resonant "tul-yé" or "kong-kwi," the latter given while perching. Four to eight nests may be scattered through the top of some small thorn tree, often a dead one, and numbers of thorn twigs are laid along the supporting boughs, all the way down to the lower forks of the tree, as though to discourage climbing mammals. The domed nests themselves are constructed of thorn twigs, lined with grass, and have a lateral entrance.

To the east of Lake Victoria the breeding season seemed to be in May and June, the nests being built a month or two earlier. In early April the birds were using them as sleeping quarters. The eggs are two or three, and were described by Böhm as very pale gray greenish, with spots and scrawls of blackish brown.

Dinemellia d. dinemelli (Rüppell) approaches the Congo in the vicinity of Redjaf on the Bahr-el-Jebel but is not expected to occur within our limits.

[*Bubalornis albirostris albirostris* (Vieillot)]

Coccothraustes albirostris VIEILLOT, 1817, Nouveau dictionnaire d'histoire naturelle, vol. 13, p. 535 (type locality: Africa, restricted to Senegambia).

The buffalo-weaver is very widely distributed in the drier regions of Africa, from Senegal and Portuguese Guinea to Eritrea and Somaliland,

then southward through East Africa to the Transvaal, and west to Damaraland and Angola. It is divisible into four races.

The nominate form ranges from Senegal to Darfur, western Abyssinia, and Eritrea, and southward to northern Uganda and the Bahr-el-Jebel near Lado. Males of this form have a blackish bill, which becomes roughened and whitish toward the base during the breeding season. The adult females are almost as black as males, and both sexes have the linings of remiges blackish. The other races have reddish bills, and the bill of the male does not become roughened seasonally. The females do not become so black, and are usually varied with gray or whitish beneath.

Bubalornis a. albirostris approaches the Congo in the vicinity of Lado but has never been found within our limits. It builds large clusters of nests in trees, three to eight nests combined in one great mass of thorn twigs, which may be 6 to 8 feet in length and 3 to 5 feet thick. The individual nests are lined with grass, rootlets, and feathers. In the Sudan breeding goes on from July to September, but the birds are to be found about the nests during the greater part of the year.

It might be expected that *B. a. nyansae* (Neumann), which ranges from Kavirondo south through the interior of Tanganyika Territory, would occur somewhere near the southeastern border of the Congo, but this seems not to be true. A third race, *B. a. niger* Smith, has been taken in the upper Loangwa Valley near latitude 12° S. but is not expected to reach the Katanga.

SUBFAMILY **PLOCEPASSERINAE**

KEY TO THE SPECIES OF *Plocepasser* IN AND NEAR THE CONGO

1. Forehead and a broad median stripe on crown black, rump and upper tail-coverts white . . . . . *P. mahali*
   Not so colored on head; rump and upper tail-coverts gray or brownish . . . 2
2. Forehead and crown rufous, with a whitish superciliary line . . *P. superciliosus*
   Crown with a light gray stripe in mid-line, and on each side of it a blackish stripe extending from forehead to occiput, supercilium light gray . . . . . *P. rufoscapulatus*

Plocepasser rufoscapulatus Büttikofer

Plocepasser rufoscapulatus BÜTTIKOFER, 1888, Notes Leyden Mus., vol. 10, p. 238, pl. 9 (type locality: Kasinga R., southern Angola). SCHOUTEDEN, 1929, Rev. Zool. Bot. Africaines, vol. 17, p. 380 (Elisabethville); 1930, idem, vol. 18, p. 289; 1949, idem, vol. 42, p. 160 (Kiambi). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 103 (Katofio; Ndola). WHITE, 1946, Ibis, p. 215 (Mwinilunga).

DISTRIBUTION: From the plateaus of Angola eastward to Northern Rhodesia, the Katanga, Marungu, and Mzimba in Nyasaland. The rufous-mantled sparrow-weaver is largely a highland bird, found most often from 3000 feet up to 4500 feet. Rockefeller and Murphy obtained specimens at

Selembe and Kasoko in southern Marungu; the Congo Museum has two from Kiambi on the Luvua River collected by Gaston de Witte.

The favorite haunts are tall savanna woods of *Brachystegia* and similar trees. Food is sought on the ground, and sometimes this sparrow-weaver joins with mixed parties of other species. The breeding season lasts from

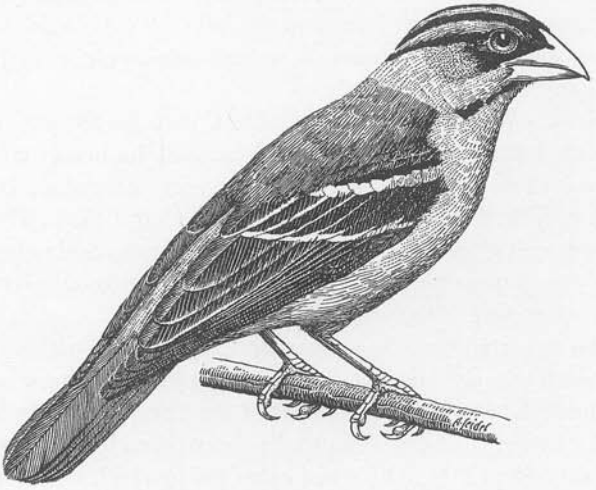

FIG. 23. Rufous-backed sparrow-weaver, *Plocepasser rufoscapulatus*.

October to March, young are on the wing by December, but thus far only old nests have been found. They are untidy, domed structures of grass, and often have two openings below. This method of building is characteristic of the whole genus; the nests that receive eggs have of course but one doorway.

Plocepasser superciliosus bannermani Grant and Mackworth-Praed

Plocepasser superciliosus bannermani GRANT AND MACKWORTH-PRAED, 1943, Bull. Brit. Ornith. Club, vol. 64, p. 18 (type locality: Gomit R., 60 miles south of L. Tana, Abyssinia).

Plocepasser superciliosus SCHOUTEDEN, 1929, Rev. Zool. Bot. Africaines, vol. 17, p. 379 (Mahagi Port).

Plocepasser SCHOUTEDEN, 1930, Bull. Cercle Zool. Congolais, vol. 7, p. 60 (near L. Albert).

Plocepasser superciliosus superciliosus BOWEN, 1931, Catalogue of Sudan birds, vol. 2, p. 89 (Kajo-Kaji).

Plocepasser superciliosus brunnescens SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 139. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 102 (Niarembe escarpment).

DISTRIBUTION OF THE SPECIES: From the Gambia Colony and French

Sudan to Northern Nigeria, Kordofan, Eritrea, and Abyssinia, south to the north end of Lake Albert and to Kamassia in Kenya Colony. *Plocepasser s. superciliosus* (Cretzschmar) is the light-colored form that occupies the drier belt from the Gambia River to Kordofan. Darker races have been described from the Ubangi-Shari, *P. s. brunnescens* Grote, and from Abyssinia, *P. s. bannermani.*

It has not been made clear how *bannermani* differs from *brunnescens,* and Schouteden may have been right in using the latter name for the bird found on Lake Albert. But for the present I shall accept the name *bannermani* for the rather deeply colored birds which range from Eritrea and Abyssinia southward to Mahagi Port and Butiaba on Lake Albert. In the Bahr-el-Ghazal the species scarcely ranges south of Raffali, so it is not to be expected in the Uelle.

The chestnut-crowned sparrow-weaver is closely allied to *P. rufoscapulatus* of the southeastern Congo, yet shows no preference for highlands, even though it has been found up to 6000 feet in Kenya Colony. It is apt to be seen in very small parties, perching in trees and bushes, giving a weak trilling call and feeding largely on seeds.

In the southern part of the range nesting is in progress during August. Nests are domed, built of twigs, plant stalks, and coarse dry grass. They are placed at the ends of branches but are not pensile or truly woven like the nests of the typical weavers and may be single or in small groups. Two eggs form a set, white with scattered spotting of pink and with gray markings apt to be concentrated at the large end. Dimensions average around 22.6 by 15.3 mm.

[*Plocepasser mahali melanorhynchus* Bonaparte]

Plocepasser melanorhynchus BONAPARTE, 1850, Conspectus generum avium, vol. 1, p. 444 (type locality: Shoa, Abyssinia). VAN SOMEREN, 1916, Ibis, p. 403 (Bukurungu in Toro).

Plocepasser mahali melanorhynchus VAN SOMEREN, 1922, Novitates Zool., vol. 29, p. 135 (Masindi).

The range of the species is from the Orange River north to Angola and Northern Rhodesia, then on through East Africa to central Abyssinia and westward to the Bahr-el-Jebel. It is divisible into five races, of which two approach the borders of the Congo.

Plocepasser m. melanorhynchus is a common bird of southern Abyssinia, Kenya Colony, and northern Uganda and has frequently been collected along the Bahr-el-Jebel near Lado and Redjaf. It has even been reported by Van Someren from Masindi in Unyoro and Bukurungu just east of Lake George in Toro. So it should be looked for near the north end of Lake Albert and

possibly on the north shore of Lake Edward. Normally an inhabitant of dry acacia country at no great elevation, it ascends in suitable regions to over 6000 feet.

Plocepasser m. pectoralis (Peters), on the other hand, ranges from eastern Africa between Morogoro and Inhambane to the shores of Lake Nyasa, the Zambesi and Loangwa valleys. It is definitely a lowland bird, has been found in the Lundazi District of Northern Rhodesia, but is not expected to reach the Upper Katanga.

[*Pseudonigrita arnaudi arnaudi* (Bonaparte)]

Nigrita arnaudi BONAPARTE, 1850, Conspectus generum avium, vol. 1, p. 444 type locality: White Nile).

The gray-headed social weaver ranges from the Bahr-el-Ghazal, southern Abyssinia, and Turkana through central Kenya Colony to Ugogo and Tabora in Tanganyika Territory. It is divisible into about four races, and the nominate form extends from the Bahr-el-Ghazal to the west side of Lake Rudolf. It occupies the Mongalla Province along the Bahr-el-Jebel and was taken by Emin at Muggi, within 70 miles of the Congo border.

Pseudonigrita a. dorsalis (Reichenow), distinguished by a conspicuous gray patch on the middle of the back, lives to the east and south of Lake Victoria. It was collected by Emin at Usambiro on the southwest side of that lake but is not known to approach the borders of Ruanda or Urundi.

SUBFAMILY **PASSERINAE**

KEY TO THE SPECIES OF *Petronia* IN AND NEAR THE CONGO

A brownish white stripe from above eye extends over the temporal region; wing more than 84 mm. long . . . . . *P. superciliaris*

A red-brown stripe from above eye over temporal region; wing only 72–80 mm. long . . . . . *P. dentata*

Petronia superciliaris (Blyth)

Gymnorhis superciliaris BLYTH, 1845, Jour. Asiatic Soc. Bengal, vol. 14, p. 553 (South Africa; restricted type locality: Saltpannan near Limpopo R., Transvaal).

Xanthodira flavigula REICHENOW, 1887, Jour. Ornith., p. 305 (Leopoldville).

Petronia petronella OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 128. NEAVE, 1910, Ibis, p. 241 (Dikulwe R., 5000 ft.; upper Lufira R., 3600 ft.; near Kambove; Lulua Post).

Petronia flavigula SHELLEY, 1902, The birds of Africa, vol. 3, p. 265, pl. 28, fig. 2.

Petronia superciliaris REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 244; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 337. OGILVIE-GRANT, 1908, Ibis, p. 279 (northwest of L. Tanganyika, 3000 ft.). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 352, 404 (Ngombe in Kasai; Kwamouth); 1949, idem, vol. 42, p. 160 (many localities in Katanga). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 726 (Kasongo). BERLIOZ, 1941, Bull. Mus. Hist. Nat.,

Paris, ser. 2, vol. 13, p. 403 (Brazzaville). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 80 (Batéké country). A. W. VINCENT, 1949, Ibis, p. 485 (Elisabethville).

Gymnoris superciliaris SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 289 (Elisabethville).

DISTRIBUTION: Cape Province north to central Tanganyika Territory, the savannas of the southern Congo, Stanley Pool, and the Bateke Plateau in the French Congo. Over this vast area there is plainly some geographic variation in size and in depth of coloration. Birds from the coast of Tanganyika Territory and Portuguese East Africa seem smallest, others from Southern Rhodesia and Ngamiland are pale, those of Cape Province large and dark. In Angola and the southern Congo the coloration is fairly dark, the size a little less than in Cape Province. For the present I shall use only the binomial name, for Congo specimens resemble others from the upper Limpopo River rather closely. According to Grote,[1] *P. pyrgita* (Heuglin) and its races are to be regarded as conspecific with *P. superciliaris,* despite the uniform color of their backs and other minor differences.

Though often called the "yellow-throated rock-sparrow," *P. superciliaris* shows no particular preference for cliffs or other rocky places and is widely distributed in savannas well provided with trees. In Marungu, Rockefeller and Murphy obtained specimens at Lubenga, 5650 feet. From the Katanga and Angola the range extends northward in the Congo to the Manyema District, Mérode and Ngombe in the Kasai, and crosses the middle Congo River to the grasslands in the French Congo. But it has not been found in the Lower Congo or Gaboon.

Usually seen in pairs or small flocks, it does not spend a great deal of its time on the ground. More often it feeds up in the trees of savanna woods, climbing about on dead boughs, plainly in search of insects. The call note is a monotonous sparrow-like chirp, but it also has a short, rather pleasant song. The breeding season may last from September to November.

The nest is made of dry grass, often with feathers added, in a hole in some dead tree, 5 to 30 feet up. The cavity may have been made originally by a woodpecker or barbet or may be due to decay. Eggs are either three or four, heavily mottled or clouded with brownish and slate over a creamy or greenish blue ground. Dimensions: 17–20 by 13–15.3 mm.

[*Petronia dentata* (Sundevall)]

Xanthodira dentata SUNDEVALL, 1850, Öfvers. K. Svenska Vetensk. Akad. Förhandl., vol. 7, p. 127 (type locality: Sennar, eastern Sudan).

This smaller species, with plain gray-brown back and rufescent temporal stripe, ranges across the whole Sudan, from Senegal to Abyssinia and then

[1] 1928, Anz. Ornith. Gesellsch. Bayern, vol. 1, p. 136.

to southwest Arabia. It has been taken in the Bahr-el-Ghazal as far south as Raffali but can scarcely reach the northern border of the Uelle District.

KEY TO THE SPECIES OF *Passer* IN AND NEAR THE CONGO

1. A light stripe of buff or rufous from above eye to temporal region, then down behind the grayish ear-coverts; male with a black patch and female with a dark gray area in middle of throat . . . . . *P. iagoensis*
   No temporal stripe; no dark area on throat 2
2. Head gray, but back rather rufous; lesser wing-coverts rufous, and greater wing-coverts and inner secondaries broadly margined with rufous; middle of throat very pale gray . . . . . *P. griseus*
   Back brownish gray, differing but little from color of crown; lesser wing-coverts rufous, but greater wing-coverts and inner secondaries only slightly edged with rufous brown; middle of throat scarcely more whitish than chest . . . . . *P. swainsonii*

Passer griseus ugandae Reichenow

Passer diffusus ugandae REICHENOW, 1899, Ornith. Monatsber., p. 190 (type locality: Uganda). HARTERT, 1900, Novitates Zool., vol. 7, p. 44 (Kitima; Bafwazabangi).

Passer occidentalis JOHNSTON, 1884, The River Congo, p. 365 (lower Congo R.).

Passer swainsoni SCHALOW, 1886, Jour. Ornith., p. 435 (L. Upemba). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Ruzizi-Kivu; Tanganyika). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 239 (Kuterma).

Passer diffusus REICHENOW, 1887, Jour. Ornith., p. 305 (Leopoldville). SHELLEY, 1890, Ibis, p. 164 (Yambuya). FLOWER, 1894, Proc. Zool. Soc. London, pp. 603, 606 (Urumbi; Muyoméma). SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 6 (Lukonzolwa). OGILVIE-GRANT, 1908, Ibis, p. 279 (east of Kasongo); 1910, Trans. Zool. Soc. London, vol. 19, p. 304 (Beni). NEAVE, 1910, Ibis, p. 242 (Dikulwe R., 4000 ft.; upper Lufira R.).

Passer griseus REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 230; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 337 (Kisenyi). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Bumba; Ituri; Lower Congo). RODHAIN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 214 (Bambili). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 271 (Kilo); 1918, idem, vol. 5, p. 278 (Lisasa; Bulaimu; Lesse; Penge; Uvira); 1930, Bull. Cercle Zool. Congolais, vol. 7, p. 11 (Buta).

Passer griseus ugandae REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 231. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 42 (Urundi; Usumbura; Baraka). LYNES, 1926, Ibis, p. 383 (Ubangi savanna). FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 762 (Efandu; Lulenga; Rutshuru). SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 279; 1933, idem, vol. 22, p. 372 (Nyundo); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 140 (Niarembe; Mahagi Port; Faradje; Niangara; Mauda; Dungu; Rungu; Medje); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 152 (Busuenda; Kibumba, 2000 m.; Katanda); 1940, Rev. Zool. Bot. Africaines, vol. 33, p. 287 (Mt. Wago); 1941, idem, vol. 34, p. 267 (Kasenyi); 1942, idem, vol. 36, p. 341 (Astrida; Kibingo); 1943, idem, vol. 37, p. 273 (Gabiro); 1949, idem, vol. 42,

p. 160 (many localities in Katanga). GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 70 (Luluabourg). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 572 (Ekibondo). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1390. VERHEYEN, 1939, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 15, no. 66, p. 6 (Bambesa); 1941, idem, vol. 17, no. 23, p. 15 (Musosa); 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 46, 80 (Munigi). WHITE, 1944, Ibis, p. 150 (Johnston Falls on Luapula R.). GRANT AND MACKWORTH-PRAED, 1947, Bull. Brit. Ornith. Club, vol. 67, p. 57. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 102 (Kasenyi; Mahagi; Nizi; Bogoro; Mt. Aboro, 2200 m.).

Passer swainsonii SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 180 (Mangbetu country; Mswa; Tunguru). EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 261 (Madjamboni).

Passer griseus diffusus SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 352, 404 (Basongo; Luebo; Dumbi; Tshikapa; Kwamouth). DE RIEMAECKER, 1927, Rev. Zool. Bot. Africaines, vol. 14, p. 276 (Kongolo).

Passer griseus griseus SCHOUTEDEN, 1924, Rev. Zool. Bot. Africaines, vol. 12, pp. 277, 425 (Kisantu; Eala); 1926, idem, vol. 13, p. 206 (Kifuku on Banana Bay; Temvo; Ganda Sundi).

Passer griseus zedlitzi GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 68 (Kartushi). VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, pp. 2, 3.

Passer griseus diffusus ≷ *ugandae* LYNES, 1926, Ibis, p. 384 (southern Congo savannas).

Passer swainssonii EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 42 (Mswa).

Passer griseus ugandae ≷ *diffusus* VERHEYEN, 1940, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 16, no. 2, p. 7 (Kanzenze).

Pyrgytopsis griseus ugandae HENDRICKX, 1944, Ostrich, vol. 15, p. 212 (southwest of L. Kivu).

SPECIMENS: Nouvelle-Anvers, two males, July 24. Mobeka, male, July 25. Lié, male, July 27. Stanleyville, immature male, August 26; immature female, August 25. Avakubi, two males, October 24, November 29. Medje, three males, March 29, July 6, August 20; three immature males, January 13, May 29, August 9; juvenile female, July 23. Niangara, three females, March 28, November 20, December 2; two juvenile females, December 3. Faradje, male, August 14. Garamba, male, July 18.

ADULTS OF BOTH SEXES: Iris brown of medium tone, bill black, feet brown.

YOUNG JUST OUT OF NEST: Iris grayish brown, bill dark gray, corners of mouth light yellow, feet light brownish gray.

DISTRIBUTION OF THE SPECIES: From the southern edge of the Sahara, Eritrea, and northern Somaliland southward over the greater part of the African continent to Angola and Mozambique, if not to northeastern Cape Province. There may be six or more valid races, and it seems very likely that *Passer swainsonii* (Rüppell) of Northeast and East Africa is a species distinct from *griseus*. Evidence is increasing of the overlapping of their

ranges in several different areas, and I am inclined to regard the large *gongonensis* and probably *suahelicus* as conspecific with *P. swainsonii.*

Passer g. griseus (Vieillot) is a rather pale race extending across the Sudan from Senegal to the Blue Nile and Sennar. South of it, from the Gold Coast and Southern Nigeria to Uganda and Mt. Elgon, lives the more deeply colored *P. g. ugandae,* which occupies almost the whole Congo and northern Angola, as well as part of inner East Africa. *Passer g. neumanni* Zedlitz is restricted to northern Abyssinia and neighboring areas; *P. g. mosambicus* Van Someren occupies the coast of East Africa from the Pangani River to the lower Zambesi. In South Africa lives *P. g. diffusus* (Smith), with dull grayish brown back.

The distinctness of *P. g. zedlitzi* Gyldenstolpe may well be questioned. It was frankly proposed as a name for the form spread widely over Lower Guinea, now considered inseparable from *ugandae.* While the type came from Benguella town, Angola, most of Ansorge's specimens from that locality scarcely differ from birds taken in the Congo. In the interior of southwestern Angola, however, there is a paler, small-billed race which may perhaps be *P. g. georgicus* Reichenow.

The best course is to consider all sparrows of this species in the Congo as *P. g. ugandae,* even those from the southeastern area, which may be rather whitish on the abdomen. It is possible also that along the northern border there is a slight approach to the paler *P. g. griseus.*

The gray-headed sparrow is seen commonly throughout the Congo, whether in grasslands or forests, up to an altitude of 6000 or even 6500 feet in the Kivu. Usually it is a bird of villages, and in a clearing of the heavy forest there may be but one or two pairs. A small native hamlet in the grasslands may not have more. They hop about on the ground near houses, feeding, or sit in small trees and chirp almost exactly like the European house sparrow.

North of the Equator we found the breeding season to extend from July to the end of November, and in the southern Congo it is to be expected at the opposite period, the rainy season there. In the intervening belt nesting may well go on in every month of the year. Nests are built in almost any sort of cavity about houses, beneath the eaves, or even in grass thatch. The material used is grass, often supplemented with feathers of chickens and domestic ducks. Sets of three and of four eggs were found, of whitish ground color with heavy spotting of dark brownish gray. They measured 19.2–19.9 by 14.6–15.3 mm.

Of two young from the same nest at Niangara in December, 1910, one was normally colored, the other an albino, nearly pure white but with gray iris. In May, 1913, again near Niangara, I shot a fully grown female albino, with a wash of gray on upperparts, and iris rather dark brown.

From my examinations of a few crops and stomachs it appeared that the food is largely of seeds, including rice and other cultivated grains, and of insects as well.

[*Passer griseus griseus* (Vieillot)]

Fringilla grisea VIEILLOT, 1817, Nouveau dictionnaire d'histoire naturelle, vol. 12, p. 198 ("United States"; corrected type locality: Senegal).

Passer griseus eritreae SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 471 (Meridi; Yei). BOWEN, 1931, Catalogue of Sudan birds, 1931, pt. 2, p. 92 (Kajo-Kaji).

Passer griseus griseus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 724 ("Ubangi R.").

The pale Sudanese race has been said to approach or even reach the northern border of the Congo in the vicinity of the Ubangi River and the southern Bahr-el-Ghazal Province. But the specimens from Faradje and Garamba differ little if at all from those taken in the Ituri.

[*Passer swainsonii suahelicus* Reichenow]

Passer griseus suahelicus REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 231 (type locality: Bussisi, Mwanza District, Tanganyika Territory).

Passer suahelicus GRANT AND MACKWORTH-PRAED, 1944, Bull. Brit. Ornith. Club, vol. 64, p. 36; 1947, idem, vol. 67, p. 57.

The principal character of this race was said to be its gray-brown back, even less rufous than that of *georgicus* and no doubt *diffusus*. Such sparrows have been collected at Loliondo, Iringa, Lake Rukwa, and other places in Tanganyika Territory, apparently inhabited by a race of *Passer griseus* as well. In the Ikoma District I myself collected a bird intermediate in several ways between *suahelicus* and the large-billed *P. swainsonii gongonensis*. One is led to wonder whether *diffusus* and *georgicus* are rightly referred to *P. griseus*.

It is not known whether *suahelicus* even extends to the eastern shore of Lake Tanganyika, and the only region where it might perhaps be expected to reach our area is in Urundi.

[*Passer iagoensis shelleyi* Sharpe]

Passer shelleyi SHARPE, 1891, Ibis, p. 256 (type locality: Lado, on Bahr-el-Jebel).

This is but one race of a wide-ranging species, *P. iagoensis* (Gould), found in separate areas of low rainfall from the Cape Verde Islands to Kordofan and the island of Socotra, in East Africa, and in the western regions of southern Africa. The only one of the eight subspecies that approaches any border of the Congo is *shelleyi*. From northern Somaliland, Turkana, and Karamoja it extends westward to the Bahr-el-Jebel near

Mongalla and Lado, but I scarcely expect it to reach the neighboring border of the Congo.

Among the birds of the Tuckey expedition listed by Leach[1] was a *"Passer,"* for which a reference was given to Savigny ("Oiseaux d'Egypte," pl. 5, fig. 7). There *Passer hispaniolensis* (Temminck) is depicted. No such bird occurs in any region near the Congo, so that it must have been taken on the voyage out.

SUBFAMILY **SPOROPIPINAE**

[*Sporopipes frontalis frontalis* (Daudin)]

Loxia frontalis DAUDIN, 1800, Traité d'ornithologie, vol. 2, p. 445 (type locality: Senegal).

The speckle-fronted weaver-finch is widely distributed in the dry areas from Senegal to Abyssinia, and south in East Africa to central Tanganyika Territory. It varies only slightly in coloration, the palest birds coming from Damergu and Zinder, just south of the Sahara, and the darkest from East Africa. Abyssinian specimens are very like those of Senegal, and those from the Bahr-el-Jebel are only a trifle grayer on the chest. This is a common bird near Lado and Redjaf, though not known to reach the adjacent Congo border. Another more grayish race, *S. f. cinerascens* Madarász, lives near the southern side of Lake Victoria but is not expected within our limits.

SUBFAMILY **PLOCEINAE**

Amblyospiza albifrons albifrons (Vigors)

Pyrrhula albifrons VIGORS, 1831, Proc. Zool. Soc. London, p. 92 (type locality: Algoa Bay, South Africa).

Amblyospiza albifrons LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 104 (Kasenga).

Amblyospiza albifrons albifrons SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 160 (Kinda; Kabalo).

DISTRIBUTION OF THE SPECIES: From eastern Cape Province and Natal north to East Africa and southern Abyssinia, westward also to northern Angola, the southern Congo, and the Gaboon; and on the northern side of the Equator to the Cameroon, Nigeria, and the Gold Coast. In the Lower Guinea forest it is found only in extensive clearings with high grass, and in the eastern Congo it rarely ranges much above 6000 feet.

The nominate South African race is usually regarded as ranging north to Lake Nyasa. It has even been reported by Lynes from the Luapula River, and by Schouteden from the Lualaba. Males have the head dark reddish brown, the white frontal patch fairly well developed. *Amblyospiza a. uni-*

[1] 1818, *in* Tuckey, Narrative of an expedition to explore the River Zaire, p. 407.

color (Fischer and Reichenow), of the eastern coastlands, is somewhat darker, averaging slightly smaller, while *montana* of the eastern highlands is still more blackish about the head. But the race *aethiopica* of Abyssinia is rather similar to nominate *albifrons* in color.

In the general region of Uganda, Lake Edward, and the upper White Nile, *A. a. melanota* has males with dark rufous heads and general coloration still rather blackish. The race *saturata,* found along the margins of the Lower Guinea forest, is lighter rufous about the head, with well-marked white frontal patch, lighter gray underparts, and is somewhat smaller. From Lagos to the Gold Coast, *capitalba* has still lighter colors, and *tandae* of northwestern Angola may be even paler but is longer-winged than *capitalba.*

Variation is such that individual males may give trouble, and the streaked females and young are still more puzzling. Lynes was positive that the nesting male he collected at Kasenga in January was of the nominate South African race. It belonged to a small colony with nests in papyrus patches of a wet swamp. Two full sets of three eggs were also secured. The species is certainly very local in the southeastern Congo.

Amblyospiza albifrons montana Van Someren

Amblyospiza albifrons montana VAN SOMEREN, 1921, Bull. Brit. Ornith. Club, vol. 61, p. 122 (type locality: Fort Hall, Kenya Colony).

Amblyospiza albifrons aethiopica REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 327 (Kisenyi; Idjwi I.).

Ambliospiza albifrons aethiopica SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 272 (in part. Loashi).

Amblyospiza albifrons melanota SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 277 (in part. West of Ngoma); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 153 (Nzulu; Rutshuru; Mt. Mikeno, 3200 m.; Mai-ya-Moto; Katanda); 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 341 (Kirinda).

DISTRIBUTION: Highlands in Kenya Colony, on Ukerewe Island, about Lake Kivu, and apparently to Lake Tanganyika. This is a large race, the males having wings 91–96 mm. and the color of the head almost blackish. Specimens from near Lake Kivu have usually been referred to *melanota* or *aethiopica,* but those I have examined seemed to me more like *montana.* A male secured by Rockefeller and Murphy at Moba on Lake Tanganyika is very blackish, with wing 96 mm. long, and two more taken by Grauer at the north end of that lake are likewise referable to *montana.* A single male in the Berlin Museum from Kasongo bore considerable resemblance to *A. a. melanota,* and it would be interesting to have more material from that part of the Congo.

From the shores of the eastern lakes this dark race of grosbeak-weaver ascends to about 6400 feet in favorable places. It is normally restricted to damp spots with high grasses or reeds, on which it hangs its neatly woven

nests. In Kenya Colony *montana* has been reported to nest in March, June, and December; in the Kivu it is likely to nest only during rainy periods of the year.

Amblyospiza albifrons melanota (Heuglin)

Coryphegnathus melanotus HEUGLIN, 1863, Jour. Ornith., p. 21 (type locality: Kitsch country, upper White Nile).

Coryphegnathus albifrons HARTLAUB, 1881, Abhandl. Naturwiss. Ver. Bremen, vol. 7, p. 85 (Mahagi).

Amblyospiza melanotus REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 100 (Karevia); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 327 (north of Beni). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 161 (in part).

Amblyospiza melanonota OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 282, pl. 19, figs. 15, 16 (Mokia, western Uganda; Butahu Valley, 4000 ft.).

Ambliospyza albifrons aethiopica SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 271 (Kilo).

Amblyospiza capitalba LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 27 (Beni).

Ambliospiza capitalba SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 272 (Lesse; Zambo; Biogo).

Ambliospiza albifrons aethiopica SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 272 (in part. Masidongo; Beni).

Ambliospiza melanotus SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 273 (Moera; Kamabo).

Pyrenestes capitellus EMIN, 1922, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 3, p. 365 (northwest shore of L. Albert).

Amblyospiza albifrons melanota BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 274. GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 27 (Kartushi; Kampi-na-Mambuti). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 754. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 142 (in part. Mahagi Port): 1940, Rev. Zool. Bot. Africaines, vol. 34, p. 61 (Kawa Forest). FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 360. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1440 (Kigezi). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 82 (Kambatule; Djobulo R.; Luhule R.).

Amblyospiza saturata SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 66 (Rutshuru Plain; Beni–Mawambi).

DISTRIBUTION: From the Bahr-el-Ghazal and Bahr-el-Jebel southward to Uganda, the Kavirondo District, and the vicinity of Lake Edward. In this race the heads of males are intermediate in color between those of *montana* and *saturata*. Although I have examined many specimens from the region of Lake Edward and the Semliki, I have found difficulty in sorting out the published references. The western limit of *melanota* in this region is not at all clear; individual variation is considerable, and female specimens of little use. The wing length of males of *melanota* varies from 91 to 99 mm.

Males in the Congo Museum from the Semliki Valley were mostly referable to *melanota*. Yet I know from personal experience that others

with the coloration of *saturata* are found at Kasenyi, Irumu, and along the forest edge at the new post of Beni.

Near Entebbe in Uganda this grosbeak-weaver breeds between February and June, weaving its nests in small colonies of three to five between the upright stalks of papyrus or elephant grass, usually not far from water. At the southeast base of Ruwenzori Woosnam watched the construction of a nest during May; it took 14 days to complete. Both sexes work at its construction, and the male displays with partly opened wings, swaying from side to side. Sets are of three or of two eggs, white to very pale pink, spotted in varying degree with red-brown. They measure around 22–24 by 16–17 mm.

Amblyospiza albifrons saturata Sharpe

Amblyospiza saturata SHARPE, 1908, Ibis, p. 353 (type locality: Ja River, Cameroon).

Amblyospiza EMIN, 1887, Mitth. Ver. Erdkunde Leipzig, p. 45 (Mangbetu country); 1888, *in* Schweinfurth and Ratzel, Emin-Pascha, eine Sammlung von Reisebriefen, p. 199.

Amblyospiza capitalbus SHELLEY, 1887, Ibis, p. 46 (in part).

Amblyospiza albifrons REICHENOW, 1887, Jour. Ornith., p. 308 (Kasongo). NEUMANN, 1905, Jour. Ornith., p. 343 (Kasongo). SCHOUTEDEN, 1930, Bull. Cercle Zool. Congolais, vol. 7, p. 95 (Buta; Mayombe); 1935, idem, vol. 11, p. 68.

Amblyospiza albifrons aethiopica REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 99 (in part).

Amblyospiza capitalba REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 101 (Nyangabo); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 327. LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 15 (Mukimbungu). SALVADORI, 1909, Ann. Mus. Civ. Genova, ser. 3, vol. 4, p. 325 (Buta–Dungu).

Amblyospiza melanota SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 307 (in part).

Amblyospiza capitalba saturata CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 267.

Amblyospiza melanotus SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 161 (in part).

Amblyospiza albifrons saturata BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 274. SCHOUTEDEN, 1926, Rev. Zool. Bot. Africaines, vol. 13, p. 203 (Temvo; Makaia-Ntete).

Amblyospiza albifrons melanota SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 142 (in part. Poko; Arebi; Bondo Mabe).

SPECIMENS: Avakubi, two males, January 28, November 9. Medje, two males, May 20, July 12; two females, three immature males, immature female, May 20; juvenile male, September 11; two juvenile females, September 11, 25. Pawa, two males, July 15, October 18. Faradje, two males, August 12, December 2.

ADULT MALE: Iris dark brown, bill and feet blackish.

ADULT FEMALE: Iris dark brown; bill greenish and gray, tip of maxilla dusky, and corners of gape yellow; feet very dark greenish gray.

DISTRIBUTION: From Ilorin in Nigeria through the Cameroon and Gaboon to the Lower Congo and eastward to the Ubangi, Uelle, and the eastern edge of the Ituri District. Schubotz collected five specimens at Duma on the Ubangi. The record from Kasongo may not apply to this form, for the bird had a dark brown head and seemed to mark a transition to some eastern race. I should hesitate to call it *montana*. Rudolf Grauer also secured a dark female at 80 kilometers north of Kasongo. It seems strange that, although *saturata* is known from the Lower Congo, there are few records of any race from the southern edge of the forest in the Kasai District or even along the middle Congo River. Schouteden tells me that several males from the Kasai are too dark-headed for *saturata*.

One male from Medje has the lower breast and abdomen very blackish;

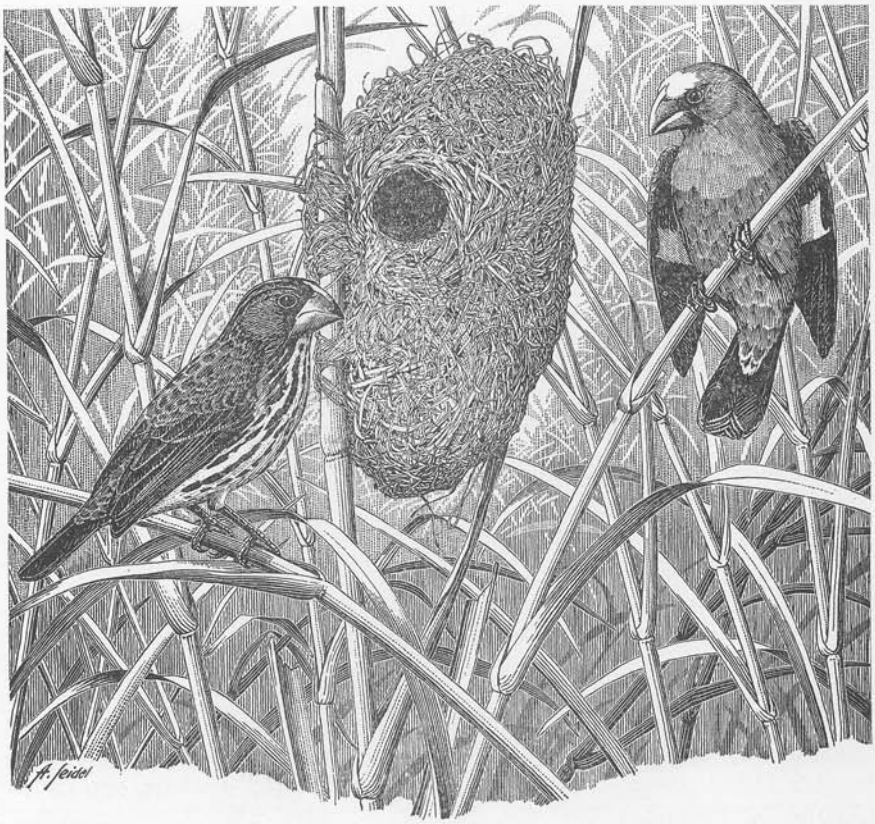

FIG. 24. A pair of grosbeak-weavers, *Amblyospiza albifrons saturata*, and their nest.

the usual color there is distinctly gray. The wing length of our males from the northern Ituri is 87–90 mm., of those from Faradje and the eastern Ituri 88–96 mm. In juvenal dress males resemble the females, and they seem to require more than a year to acquire adult plumage. In their second year they begin to have some rufous feathers about the head and become a little whitish on the forehead.

In the central parts of the Upper Congo forest, as might be expected, *Amblyospiza* is wanting. It is apt to be seen as soon as one approaches the northern border. Flocks may then be noticed, made up largely of immature birds. Even at Avakubi one example was found in a large tree rising above some old second growth, and another taken in a cleared spot with a thicket of elephant grass. The abundance of this giant grass along the northeastern edges of the forest accounts for the frequency of *Amblyospiza* there. In it the birds roost at night, and on the tall stalks they weave their nests.

Farther north, in the Uelle District, the species again becomes scarcer. Between Dungu and Faradje a few examples were noticed along the margins of papyrus swamps, and 10 miles south of Faradje, in a considerable growth of cane-like grass, another example was secured. In the eastern Ituri I found these weavers rather common near Irumu and Djugu, and to my surprise a male taken at Kasenyi on Lake Albert bore a fair resemblance to *saturata*. The same was true of four males from new Beni.

In the northern Ituri the breeding season lasts from June to October at least, and as early as April I have watched a male half hanging from a grass stalk with opened wings, paying court to a female. No very loud notes are heard, only a weak chatter about the nests. At Medje nest building commenced toward June, the carefully woven structures being attached to one or two stalks of elephant grass, at a height of 7 to 11 feet. Their form was more or less globular, and the lateral entrance, at first rather wide, was narrowed to about 45 mm. as incubation began. The only materials were fine strips torn from grasses, green when used but drying rapidly to a more yellowish tint. No softer lining was needed. Despite its very stout beak, *Amblyospiza* is one of the best weavers in a family noted for that skill.

On Lake Albert breeding was in progress late in August; at Beni even in the last week of October. Eggs are laid in sets of two or of three, whitish to pale rufous, sparingly marked all over with pale brown, light red, or maroon red. Bates found they varied from 21 to 24.5 by 15.5 to 17 mm. We saw broods of two and of three young; the parents seemed not to remove excrement from the nests.

The food of this grosbeak-weaver consists mainly of seeds, of which the stomach contents revealed only the soft inner parts. The stout beak had removed all hard coatings. Only one stomach in four contained the remains of insects.

[*Amblyospiza albifrons tandae* Bannerman]

Amblyospiza albifrons tandae BANNERMAN, 1921, Bull. Brit. Ornith. Club, vol. 41, p. 136 (type locality: Ndala Tando, northwestern Angola).

This light-colored race of northwestern Angola has the feathering of the abdomen conspicuously fringed with white, and wings of males 90–92 mm. Rudolf Braun tells me it extends north to Quicolungo, and I believe it may reach Congo territory along the Kwango River.

Ploceëlla superciliosa (Shelley)

Hyphantornis superciliosus SHELLEY, 1873, Ibis, p. 140 (type locality: Accra, Gold Coast). SHARPE, 1890, Catalogue of the birds in the British Museum, vol. 13, p. 470 (Landana; Congo R.). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 279 (Beni).

Ploceus superciliosus REICHENOW, 1887, Jour. Ornith., p. 300 (Manyanga); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 326. HARTLAUB, 1891, Abhandl. Naturwiss. Ver. Bremen, vol. 12, p. 22 (Nyangabo). EMIN, 1894, Jour. Ornith., p. 163 (Ndussuma). LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 14 (Mukimbungu). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 66.

Ploceus pachyrhynchus REICHENOW, 1893, Ornith. Monatsber., p. 29 (type locality: Karevia in Semliki Valley).

Ploceus (Ploceus) superciliosus REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 96. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 272 (Kamabo; Buwissa; Bulaimu; Lufungula).

Pachyphantes superciliosus DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, pp. 15, 29 (Ruzizi-Kivu; Kisantu). SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 448. CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, pp. 259, 267, pl. 10. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 347, 402 (Macaco; Kwamouth); 1924, idem, vol. 12, p. 275 (Kidada); 1925, idem, vol. 13, p. 18 (Kunungu); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 153 (Rutshuru); 1941, Rev. Zool. Bot. Africaines, vol. 34, p. 267.

Pachyphantes superciliosus pachyrhynchus NEUMANN, 1905, Jour. Ornith., p. 342· GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 28 (Malabo).

Ploceus pachyrhynchus pachyrhynchus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 744 (Uelle R.). FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 356.

Ploceus (Paphyphantes) pachyrhynchus SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 278 (Usumbura).

Ploceus (Pachyphantes) pachyrhynchus pachyrhynchus SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 141 (Mahagi Port; Faradje; Mauda; Poko). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 573 (Kasenyi).

Pachyphantes pachyrhynchus pachyrhynchus JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1423. BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 96 (Bwando, Ubangi R.; Pompari).

Pachyphantes superciliosus superciliosus VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 81 (Bombe R.).

SPECIMENS: Matadi, female, December 27. Pawa, male, July 10; two females, October 18, 19. Niangara, immature female, November 10. Faradje, eight males, March 14, July 21, September 12, 17, October 6, 25, 27, November 15; five females, March 13, September 15, 17, October 6; two immature females, March 14, May 11; juvenile male, three juvenile females, October 8. Aba, male, July 21.

ADULTS OF BOTH SEXES IN BREEDING PLUMAGE: Iris dark brown; maxilla black, mandible light grayish blue; feet brownish pink or pinkish buff, with dark brown claws. The same colors are preserved by adults in brownish dry season plumage.

IMMATURE: Iris dark brown; maxilla brown, mandible pale buff; feet brown.

This species, quite distinct from any other in Africa, was placed by Reichenow in the subgenus *Ploceus*. I have long been impressed with the resemblances in form and pattern to *Ploceëlla hypoxantha* (Blyth) of Burma, Siam, and Java. Their style of nest building is much the same, with the entrance of the nest situated in the upper half of one side, and without any "spout."

It must be admitted that many other African weavers show considerable resemblance to *Ploceus philippinus* (Linnaeus) of India. But to include all of them in that one genus, while admitting a dozen or more subgenera, is a method applied to no other family of African birds, and one that I do not find helpful. In his "Systema," Sclater referred some 60 species to *Ploceus* and then grouped them in 14 subgenera. Not all his subgenera were natural groups, and some, like *Symplectes* and *Phormoplectes,* are plainly so distinct as to deserve generic rank.

The arrangement by Mackworth-Praed and Grant[1] does not satisfy me either, for I do not find similarity or dissimilarity of the sexes a good generic character. I prefer to group the majority of the yellow African weavers under the name *Textor* Temminck,[2] which has been shown by Oberholser[3] to be the earliest valid generic designation for them, with *Oriolus textor* Gmelin as its type. *Oriolus textor* is a synonym of *Oriolus cucullatus* Müller, which is thus to be called *Textor cucullatus*. The genera *Hyphantornis* Gray (type *grandis*) and *Sitagra* Reichenbach (type *luteola*) are not separable from *Textor*. In my opinion *Hyphantornis superciliosus* Shelley should not be included in the genus *Textor,* and I prefer to call it *Ploceëlla superciliosa*.

DISTRIBUTION: From Sierra Leone eastward, in grasslands, to the Uelle,

[1] 1946, Ibis, pp. 225–228; 1949, idem, p. 145.

[2] 1825, Nouveau recueil de planches coloriées d'oiseaux, vol. 3, livr. 54, p. [2] under *Oriolus*.

[3] 1921, Proc. Biol. Soc. Washington, vol. 34, pp. 78, 79, 137.

southern Bahr-el-Ghazal, and southwestern Abyssinia. From Uganda it extends to the Kavirondo District and Lake Edward, and south of the equatorial forest it ranges westward again from the Ruzizi Valley to the Kasai, northern Angola, Lower Congo, and Loango Coast.

It seems likely that the birds of Lower Guinea and Uganda, with wings of males 66–72 mm., and of females 64–68 mm., are slightly larger than those of Upper Guinea. The subspecies *pachyrhynchus* may perhaps be valid. But *P. s. omoensis* Neumann, the type of which was in off-season dress, with wing 71 mm., needs further investigation.

This is a bird of well-watered grasslands, coming in very close to the edges of the solid forest, so that I have found it even at Lukolela and near the new post of Beni. It ascends little above 4500 feet and thus is absent from the country about Lake Kivu, though present at Rutshuru and in the Ruzizi Valley.

During the dry season, and except when actually nesting, these thick-billed weavers are usually seen in small flocks in open grasslands, and in flight they give short abrupt call notes which give the effect of chattering when uttered by several individuals. During the breeding period, in the latter part of the rains, the male is in company with his single mate and differs from her mainly by his golden forehead. Both sexes then have black about cheeks and throat, and later on both undergo a complete molt to a dull plumage resembling that of their young.

The prenuptial molt, which begins in the Uelle District early in May, is really only partial. The worn feathers of rump, abdomen, and under tail-coverts are retained, as those of the back often are too. South of the equatorial forest the prenuptial molt begins in November.

Nesting as they do, in the grass, these weavers wait until it is well grown up, until September in the Uelle, and nest from then into November. Yet they take little pains to conceal the nest and build usually on tall grass stalks in or near marshes, at a height of 5½ to 9 feet. Colonies are not formed, though a second nest is often constructed at a little distance and may serve as a roost for the male.

The nest which receives the eggs is oval, 12 centimeters from top to bottom, with a small round entrance high up on the side. The eight which I examined all bore a marked resemblance to nests of *Amblyospiza,* though smaller, and were woven mostly of strips torn from a hairy grass, while the softness of the bottom was increased by a lining of plant down.

The eggs numbered three to four and were sometimes pale bluish green, thickly and finely spotted with grayish or dusky, or else bluish gray or gray-blue, unspotted. They measured 17.4–20.3 by 12.9–14.3 mm. The natal down of nestlings is whitish.

The supernumerary nests are usually of rather open texture and may

either be finished before all the eggs are laid or not even commenced until later. The tops of the grasses supporting the nests are stripped of seeds and often broken off by the birds.

The diet of this weaver is composed largely of seeds. Of 12 stomachs examined, 11 contained seeds of grasses and the like, sometimes large and hard. One had some bits of stone as well. Three, on the other hand, held remains of insects, and one a small spider.

Brachycope anomala (Reichenow)

Ploceus anomalus REICHENOW, 1887, Jour. Ornith., pp. 214, 307 (type locality: Stanleyville, upper Congo R.). HARTERT, 1900, Novitates Zool., vol. 7, p. 40 (Yambuya).

Brachycope anomala REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 97: 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 326 (Banalia). SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 446. OGILVIE-GRANT, 1908, Ibis, p. 278 (Ponthierville). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, pp. 271, 272; 1921, Amer. Mus. Novitates, no. 17, p. 16 (Avakubi). SCHOUTEDEN, 1922, Rev. Zool. Bot. Africaines, vol. 10, p. 73 (La Romée; Coquilhatville; Eala; Bamania; Irebu; Bolobo; Boma); 1924, idem, vol. 12, p. 423 (Ikengo); 1925, idem, vol. 13, p. 19; 1926, idem, vol. 13, p. 204 (Banc d'Anvers); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 142 (Panga). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 757. FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 767 (Budjalibala; Bumba). BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 162, fig. 21.

SPECIMENS: Nouvelle-Anvers, two males, two immature males, July 24. Mobeka, male, female, July 25. Lié, male, immature male, July 27. Dobo, female, July 28. Stanleyville, juvenile, August 13. Avakubi, three males, June 2, October 13; female, September 9; three immature males, September 20, October 13, 15.

ADULTS OF BOTH SEXES: Iris dark brown, bill black, feet brownish pink to pinkish brown.

IMMATURE: Iris very dark gray, bill pinkish brown, feet pinkish.

The genus *Brachycope* I now regard as rather closely allied to *Ploceus* of Asia, even though it may seem to show some points of similarity to *Euplectes afer*.

DISTRIBUTION: Banks of a number of the larger rivers of the Congo system, near Boma on the lower Congo and on the upper Congo from Bolobo at least to Ponthierville. It also ascends the Sanga River to Ouesso and Molundu, the Ubangi River to Libenge, the Ruki to Bamania, the Itimbiri to Ibembo, and the Aruwimi-Ituri to Avakubi. It has been collected on the Uelle River at Bondo. Schouteden did not find it on Lake Tumba or along the Kasai.

As a rule this short-tailed weaver is restricted to rivers within the equatorial forest belt, yet it does not live in the forest. Wherever we saw it,

Brachycope was a common and familiar bird in villages and clearings along the river banks. Though decidedly fond of grass-grown areas close to human habitations, it was not to be seen in clearings away from rivers.

About Lukolela the species was not common, though noted on both banks of the river, and nesting there in March, building also in October. At Stanleyville it was one of the common birds in the station, hopping about on the ground or perching in palms and mango trees. The soft plumage and short tail give a strange semblance of immaturity even to adults. Males are often noisy, giving a series of harsh syllables, "ch! ch! ch! ch!. . . ."

At Avakubi they were seldom seen during December and January, when a sort of dry season could be noticed, but from April to October at least they nested in coffee bushes, small trees, and young oil palms. The nests were placed from 2 to 6 yards above the ground, empty ones being far more numerous than those occupied, but they never built in colonies as did *Textor cucullatus*. Nor were the nests like those of *Textor*, for, although well woven of strips of grass, their lateral entrance reminded me more of a bishop-bird's nest. In two cases, sets of eggs numbered two. Their color was a uniform, rather dark gray, a shade one might expect to get by mixing green and purple and not common in birds' eggs. Dimensions: 17.1–18.5 by 13.0–13.6 mm.

I find that I neglected to note the contents of stomachs, save in the case of a single bird whose crop and stomach contained small seeds. It was evident that such must be the bulk of the food, though it may well be varied with insects.

KEY TO THE SPECIES OF *Othyphantes* IN AND NEAR THE CONGO

Smaller, with wings 74–83 mm., back never black in races inhabiting the Congo, but green or gray-green only streaked with black . . . . . *O. baglafecht*
Larger, with wings 85–93 mm., back deep black in both sexes . . *O. nigrimentum*

Othyphantes baglafecht eremobius (Hartlaub)

Symplectes eremobius HARTLAUB, 1887, Zool. Jahrb., Abth. Syst., vol. 2, p. 320 (type locality: Khor Mabrué, in western Lado district).

Hyphantornis (*guerini*) EMIN, 1888, *in* Schweinfurth and Ratzel, Emin-Pascha, eine Sammlung von Reisebriefen, p. 374 (Kabayendi).

Ploceus (*Othyphantes*) *emini* SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 433 (Yambio).

Hyphantornis SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 227.

Ploceus (*Othyphantes*) *baglafecht alexanderi* SCLATER, 1925, Bull. Brit. Ornith. Club, vol. 46, p. 15 (type locality: Gudima, Iri R., Upper Uellę District).

Ploceus baglafecht eremobius SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 733. FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 399. GRANT AND MACKWORTH-PRAED, 1949, Bull. Brit. Ornith. Club, vol. 69, p. 123.

Othyphantes baglafecht eremobius BOWEN, 1932, Ibis, p. 603 (Rangu in southern

Bahr-el-Ghazal Province). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 104 (Nioka; Mahagi, Niarembe escarpment; Ishwa Plain).

Ploceus (Otyphantes) baglafecht eremobius SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 140 (Faradje).

Othyphantes emini GRANT AND MACKWORTH-PRAED, 1944, Bull. Brit. Ornith. Club, vol. 64, p. 67 (in part).

SPECIMENS: Nzoro, male, April 17. Faradje, male, May 12; female, August 11; immature male, September 10. Aba, male, December 13.

ADULT MALE (BREEDING PLUMAGE): Iris light buffy yellow, bill black, feet brownish pink.

ADULT MALE (DRY-SEASON PLUMAGE): Differs in color of bill, which is blackish only on culmen, elsewhere gray.

ADULT FEMALE (BREEDING PLUMAGE): Iris light buffy yellow, bill black, feet pale pinkish buff.

DISTRIBUTION OF THE SPECIES: Eritrea and Abyssinia to the highlands around the north end of Lake Nyasa, westward also to the Banso Mountains of Cameroon. I am satisfied that *stuhlmanni* does not differ specifically, and believe that even the black-backed *reichenowi* of East Africa is no more than a race of *baglafecht*.

About eight subspecies are separable. Of these, *baglafecht* on the Abyssinian Plateau has the male in breeding plumage with fore-crown yellow, nape and back green with some blackish streaking. The race *eremobius* is rather similar in color, but smaller, wings of males 74–78 mm. It occupies the Lado region and adjoining parts of the Bahr-el-Ghazal and northeast Congo. In the Cameroon highlands lives *neumanni,* again slightly larger.

These three races wear their bright plumage only during the rains, and females then are yellow on the breast. In southern Abyssinia some black appears on the hind neck of males; females become more blackish on crown and cheeks. These are the characters of *emini.* On the highlands of Kenya Colony and in the vicinity of Kilimanjaro the increase of black on the upperparts is very pronounced, and the race *reichenowi* has no eclipse plumage. In the country around Ruwenzori and the northwest shores of Lake Victoria the back remains green, the crowns of both sexes are black, and there is no eclipse plumage in *stuhlmanni,* which extends southward to the shores of Lake Tanganyika. The race *sharpii,* in southwest Tanganyika Territory, differs only slightly from *stuhlmanni,* while the birds of the Nyika Plateau in Nyasaland seem again to have an eclipse plumage and have been separated as *nyikae* by Benson.

The races *fricki, budongoensis,* and *nigrotemporalis* seem to me only intermediate forms which help link all these birds in one species. Seasonal change, sexual difference, and individual variation are all apt to cause confusion.

The range of *O. b. eremobius* is really rather extensive, from the Lado district west at least to the vicinity of Bambili on the Uelle. Schubotz collected it at Surunga, and Hutsebaut at Malengoya. It extends northward to the southern Bahr-el-Ghazal, and southward to the plateau near Mahagi.

In the Upper Uelle this is not a common bird and is found only singly or in pairs in rather open savannas. To me it always seemed silent and shy.

The male collected in December was an adult in complete dry-season plumage with whitish underparts, chest washed with pale buff. The diffuse black area around the eye is distinctive. By the middle of April the prenuptial molt is well under way, beginning with the yellow of forehead and throat. The soiled whitish feathers of flanks and abdomen appear to be retained until the postnuptial molt in November.

Our adult female, taken in the breeding season, differs from the male in eclipse by having a strong wash of yellow on the chest. Cheeks and ear-coverts are distinctly black, and the fore-crown also black. In eclipse the female must lose all yellow on the chest and most of the black on the face.

The breeding season is presumably from August to October, and the nest may be expected to resemble that of *O. b. stuhlmanni*. The three stomachs which I examined all contained insect remains; only one held some green seeds as well.

Othyphantes baglafecht budongoensis Van Someren

Otyphantes emini budongoensis VAN SOMEREN, 1921, Bull. Brit. Ornith. Club, vol. 41, p. 123 (type locality: Busindi, Uganda).

Ploceus (*Othyphantes*) *baglafecht* REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 40 (Kibiro).

Ploceus (*Othyphantes*) *stuhlmanni* REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 40 (in part. Kavalli).

Othyphantes emini SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 458 (Buguera).

Ploceus emini HARTERT, 1907, Novitates Zool., vol. 14, p. 494.

Ploceus stuhlmanni SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 270 (Kilo).

Ploceus (*Otyphantes*) *baglafecht* SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 270 (Boga).

Ploceus (*Otyphantes*) *stuhlmanni* SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 270.

Othyphantes emini budongoensis GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 41 (Tabaro).

Hyphantornis emini EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 41 (Mswa).

Ploceus emini budongoensis SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 734. FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 401.

Ploceus (*Otyphantes*) *emini* SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 140 (Mahagi Port; Djalasinda).

Ploceus (*Othyphantes*) *baglafecht eremobius* STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 572 (Bunia).

Othyphantes budongoensis SCHOUTEDEN, 1938, Bull. Cercle Zool. Congolais, vol. 15, p. 7 (Mt. Wago).

Otyphantes baglafecht eremobius SCHOUTEDEN, 1940, Rev. Zool. Bot. Africaines, vol. 33, p. 287 (Mt. Wago; Boga).

DISTRIBUTION: From Lango and Unyoro in Uganda to the western side of Lake Albert and the grasslands near the lower Semliki Valley. The male type of this race has a broad yellow forehead, a black area on back of head and neck, the back green striped with black. It is plainly an intermediate form connecting *emini* with *stuhlmanni*. Furthermore, a male I collected at Bogoro is almost closer to *eremobius* than to *budongoensis*, and a male from Irumu is somewhat more like *budongoensis*. The female of *budongoensis* is very like that of *stuhlmanni* and has a conspicuous black crown.

In haunts and behavior this race is very like *eremobius* and molts to a dull off-season dress in the dry season. At Nizi, Bogoro, and Irumu I saw it in breeding dress in August and September, in bushy savannas near villages; it was more numerous there than *eremobius* is in the Uelle. Young were on the wing in late September. The food noted in two stomachs was insects, mingled in one case with some seeds.

Othyphantes baglafecht stuhlmanni (Reichenow)

Symplectes stuhlmanni REICHENOW, 1893, Ornith. Monatsber., p. 29 (type locality: Bukoba on L. Victoria: also from Walia and Karevia).

Ploceus (*Othyphantes*) *stuhlmanni* REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 40.

Othyphantes stuhlmanni SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 453. SCHOUTEDEN, 1942, Bull. Cercle Zool. Congolais, vol. 17, p. 61 (near Astrida).

Heterhyphantes stuhlmanni OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 272 (Mubuku Valley, 6000 ft.; Mokia).

Ploceus stuhlmanni REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 322 (Ruanda; Bugoie Forest, 2500 m.; northwest of L. Tanganyika).

Ploceus (*Otyphantes*) *stuhlmanni* SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 270 (Kibati; Mutiba; Lufungula; Luvungi; Beni). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 60 (Urundi; Usumbura).

Othyphantes stuhlmanni stuhlmanni GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 41 (Mt. Muhavura, 2000 m.; Burunga). FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 766 (Lulenga). SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 157 (Nzulu; Burunga in Mokoto; Kibumba; Nyabirehe). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1401. HENDRICKX, 1944, Ostrich, vol. 15, p. 207. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 81 (Kalehe near Lutunguru; Mutsora).

Ploceus stuhlmanni stuhlmanni SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 732. SCHOUTEDEN, 1933, Rev. Zool. Bot. Africaines, vol. 22, p. 273 (Mutura;

Rulindo). FRIEDMAN ND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 350. PETERS AND VERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 268.

Ploceus (*Otyphani stuhlmanni stuhlmanni* SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, 8 (Ngoma; Kisenyi).

Ploceus (*Othypha stuhlmanni stuhlmanni* SCHOUTEDEN, 1935, Rev. Zool. Bot. Africaines, vol. 27, 03 (Katana; Rutshuru).

Otyphantes stuh ni stuhlmanni SCHOUTEDEN, 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 341 (Rutegama; Astrida; Kibingo): 1943, idem, vol. 37, p. 273 (Gabiro); 1949, idem, vol. 42, p. 161 (Kasiki).

Othyphantes emini stuhlmanni VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 47 (Rugari; Tshumba).

DISTRIBUTION: From the northern shore of Lake Victoria, the base of Ruwenzori, and the vicinity of Beni southward through the Kivu and Karagwe to the Kungwe-Mahare highland on the east side and to Marungu on the southwest side of Lake Tanganyika.

On the northern edge of the range, at Kamabo and Biogo in the Semliki region, and likewise in Uganda, according to Van Someren, adult males sometimes have yellow of varying extent on the forehead. This is proof of the close relationship with *budongoensis* and *baglafecht*. The fact that *stuhlmanni* has no eclipse plumage is evidently correlated with its equatorial habitat.

From the base of Ruwenzori to the shores of Lake Kivu, Ruanda-Urundi, and Lake Tanganyika this weaver is seen frequently, never in flocks, and particularly in places where there are elephant grass, bushes, and small trees. It even ventures into second-growth woods. Rockefeller and Murphy secured a breeding male at Sambwe, 6100 feet, in Marungu on February 27. From the northern shores of Tanganyika Stuhlmann's weaver ascends to 7650 feet on Mt. Kandashomwa, to at least 6500 feet around the Kivu Volcanoes, and to 7000 feet on west Ruwenzori. I have noted it at Luofu and on the highland northwest of Lake Edward.

In Uganda nests have been found in at least six different months, scattered through the entire year. Near Bambumé I saw a nest low down in an *Erythrina* tree on November 11; at Lulenga a young nestling was secured on June 4.

The nest is roughly woven, without spout and the entrance fairly well up on the side. It is hung from the end of a leafy bough at 10 to 20 feet from the ground, usually alone. Eggs are two, white, well spotted with pale rufous and gray, about 21–23 by 14.5–15 mm.

Three stomachs all contained remains of insects, including a small grasshopper, and one of them also had some small seeds.

[*Othyphantes nigrimentum* (Reichenow)]

Ploceus nigrimentum REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 39 (type locality: Galanga, Angola).

This boldly marked black and yellow weaver was long known from only a small number of specimens, all taken near Galanga and Mombolo in the northwestern part of the Benguella Plateau. It was described from a female specimen with the whole crown black; the adult male has the crown yellow, washed with golden brown anteriorly.

In November, 1951, Harry A. Beatty collected a female of *O. nigrimentum* for the Chicago Natural History Museum at Djambala, altitude 2400 feet, in the French Middle Congo. This extends the range some 650 miles to the northward and would lead us to expect the species somewhere in northwestern Angola to the north of the Cuanza River and also in the Belgian Congo in the Kwango District or the country nearer to Stanley Pool.

Despite a certain similarity in color pattern to *Othyphantes baglafecht reichenowi* of East Africa, the species *nigrimentum* is probably more closely allied to *O. bertrandi* (Shelley) of Nyasaland and southern Tanganyika Territory, even though the back of the latter is green.

KEY TO THE SPECIES OF *Icteropsis* IN THE CONGO
(Males only)

Smaller, wing 54–66 mm., culmen to base 14–18.5 mm.; little or no brownish wash on the bright yellow nape or chest . . . . . *I. pelzelni*

Larger, wing 68–70 mm., culmen to base 18–20 mm.; a distinct brownish wash over the yellow of nape and chest . . . . . *I. subpersonata*

Icteropsis pelzelni monacha (Sharpe)

Sitagra monacha SHARPE, 1890, Catalogue of the birds in the British Museum, vol. 13, p. 426 (type locality: Fanti, Gold Coast). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Bumba). SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 395. RODHAIN ET AL., 1913, Rapport sur les travaux de la Mission Scientifique du Katanga, p. 155 (Leopoldville). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, pp. 268, 269. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 348, 402 (Luebo; Kwamouth); 1924, idem, vol. 12, pp. 275, 423 (Eala); 1925, idem, vol. 13, p. 19; 1926, idem, vol. 13, p. 203 (Banc d'Anvers near Boma); 1949, idem, vol. 42, p. 160 (Kadia; Kabalo). BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 71, fig. 8 (Jabir).

Ploceus personatus REICHENOW, 1887, Jour. Ornith., pp. 300, 307 (Manyanga; Stanleyville).

Ploceus (Sitagra) monachus REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 75.

Ploceus luteolus monachus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 737 (Aruwimi R.). BERLIOZ, 1941, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 13, p. 404 (Brazzaville). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 78 (Bolobo).

Ploceus monachus LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 104 (Kasenga). A. W. VINCENT, 1949, Ibis, p. 487.

SPECIMENS: Boma, male, January 20. Leopoldville, male, July 5. Nouvelle Anvers, male, July 24. Stanleyville, female, August 6. Near Banalia, two males, September 20, 21.

ADULT MALE: Iris dull light yellowish brown or dark brown, bill black, feet rather light bluish gray.

DISTRIBUTION OF THE SPECIES: From the Gold Coast east to the Bahr-el-Jebel and the eastern shore of Lake Victoria, and southward to the lower Cuanza River, the central Kasai, and the Luapula River.

Only with reluctance do I recognize the genus *Icteropsis,* the slender beak being the principal character. The species *pelzelni* is represented in West Africa by a race with relatively short bill, *I. p. monacha,* which certainly is not to be allied with *Textor luteolus.* In the region of the Great Lakes the size increases and the bill is noticeably lengthened. The range appears to be interrupted in the eastern Congo, but the birds are all so similar in coloration and behavior that they must be regarded as of one species.

The usual measurements of *monacha* are: wing 54–59 mm., tail 34–38 mm., culmen to base 14–16 mm. Those of nominate *pelzelni:* wing 58–64 mm., tail 37–44 mm., culmen to base 14.5–17 mm. Those of *tuta,* not strikingly different, are: wing 59–66 mm., tail 40–47 mm., culmen to base 16.5–18.5 mm.

Icteropsis p. monacha ranges from the Gold Coast and Southern Nigeria to southern Cameroon, Cunga on the lower Cuanza River in Angola, and a large part of the Congo basin. Along the tributaries of the upper Congo this small weaver may be expected to ascend the Ubangi, and it follows the Aruwimi up to some 25 miles above Banalia. Southward it reaches Luebo on the Lulua, and along the Lualaba it has been taken north of Kasongo and at Katobwe. Lynes found it at Kasenga on the Luapula, and Grauer even collected one male at Usumbura on Lake Tanganyika.

During our first journey up to Congo River we found this a rather common weaver along the river banks, in the high grass and trees of clearings, all the way from Leopoldville to Stanleyville. Later I found it also at Boma, at the edge of a papyrus swamp. It is rather surprising that there are not more published references for a bird so widely distributed.

This small black-masked weaver could not have escaped observation in the Ituri and Upper Uelle, had it been there. We first met it again, on coming down the Aruwimi, at the village of Bombwa, above Banalia. Just behind the rest house, on September 21, 1914, there were three of its nests, suspended from the tips of the tall grasses, some 8 feet above the ground. They were peculiar in being woven partly of seed-bearing grass tops, as well as of strips torn from the grass blades, and they had no lengthened spout.

One of the nests sheltered two young, whose feather sheaths were just beginning to burst. The natal down still remaining was grayish white. The two other nests were empty, and a gray flycatcher (*Pedilorhynchus comitatus*) entered one repeatedly, then perched beside it. This flycatcher breeds regularly in abandoned nests of weavers. The eggs of *I. p. monacha* were

described by Reichenow as pure white, measuring 16.5–19 by 12.5–13 mm., and they are laid in sets of two and three.

Near the Equator nesting probably goes on throughout the year, for it was noted in the Cameroon in February and August, and our dissections indicated breeding at Leopoldville in July, Nouvelle-Anvers in July, Stanleyville in August, and Boma in January. Along the Luapula Vincent found nests in January. The diet must consist largely of insects. Of four stomachs examined, only one contained seeds, the others having insect remains which included one small caterpillar.

Icteropsis pelzelni pelzelni (Hartlaub)

Sitagra pelzelni HARTLAUB, 1887, Zool. Jahrb., Abth. Syst., vol. 2, p. 343, pl. 14 (type locality: Magungo, north end of L. Albert). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 281 (Mokia). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 29 (Kabare; Butalia; Angi on L. Edward). EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 24. SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 153 (Rutshuru; Mabenga, 1000 m.).

Ploceus (*Sitagra*) *pelzelni* REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 75 (Mswa). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 272 (Kaniki). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 65 (Rutshuru Plain).

Hyphantornis pelzelni EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, pp. 27, 69, 128 (Tunguru).

Ploceus pelzelni pelzelni SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 743.

Ploceus (*Icteropsis*) *pelzelni pelzelni* SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 141.

Icteropsis pelzelni pelzelni JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1421 (Katwe).

Sitagra pelzelni pelzelni SCHOUTEDEN, 1941, Rev. Zool. Bot. Africaines, vol. 34, p. 267 (Kasenyi).

DISTRIBUTION: From the Bahr-el-Jebel near Rhino Camp and Wadelai southward to Lake Albert and Lake Edward, and the northern shores of Lake Victoria. While easily distinguished from *monacha,* this race is only slightly smaller than *tuta,* which seems to extend from Kisumu to the southern shores of Lake Victoria and the Kivu highland.

Pelzeln's weaver has exactly the same fondness for the banks of rivers and lakes as *Icteropsis p. monacha.* I collected specimens at Kasenyi on Lake Albert and along the upper Semliki and noted this race as common at Katwe, on the Lubilia River, and at Kabare at the south end of Lake Edward. It gives chirping and twittering notes but no musical song.

Near Entebbe, Uganda, the breeding season is reported to extend from February to May. At Kasenyi breeding was in progress in late August. On an island in the Nile near Wadelai, Emin found a colony of some 20 nests hung in some yellow-flowered *Sesbania* trees. They were roughly woven of

grasses, globular in form, with an entrance tube opening downward. Sets of two eggs were the rule, either pure white or lightly spotted with brownish and measuring 18–19.5 by 13–14 mm. On Lake Victoria Jackson found the nests in ambatch and wild fig trees, as well as hung from heads of papyrus. In the birds' stomachs I found only small insects; Emin noted quantities of small brown ants and watched them catching insects among flowering trees.

Icteropsis pelzelni tuta (Bangs and Phillips)

Ploceus pelzelni tuta BANGS AND PHILLIPS, 1925, Occas. Papers Boston Soc. Nat. Hist., vol. 5, p. 177 (type locality: Bussisi, Mwanza District, Tanganyika Territory).

Ploceus (Icteropsis) pelzelni SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 278 (Busingizi).

Sitagra pelzelni SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 153 (Kibumba, 2000 m.).

Icteropsis pelzelni tuta JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1423 (Kigezi ?).

DISTRIBUTION: Eastern and southern shores of Lake Victoria, thence westward to the highlands of Kigezi, Ruanda, and the bases of the Kivu Volcanoes. This race is just a trifle larger than nominate *pelzelni*. The only specimen in juvenal dress which I have seen was collected by Grauer on August 2 between Mkingo and Mulera, and it is strikingly darker above, more washed with brownish all over, than a young specimen of *pelzelni* in similar plumage from Masindi, Uganda.

While *tuta* is not an altitudinal race, it does ascend from the level of Lake Victoria to an elevation of 6750 feet in the Kigezi District. It requires streams and lakes, and I am surprised that it has not been found on the shores of Lake Kivu. I noted it at Kisolo in the Kigezi District of Uganda and collected a male on the eastern side of Lake Bunyoni. There breeding seemed about to begin in April. At Kisumu on Lake Victoria Van Someren found these long-billed weavers busy with a small colony of nests amid the papyrus in July.

Icteropsis subpersonata (Cabanis)

Hyphantornis subpersonata CABANIS, 1876, Jour. Ornith., p. 92 (type locality: Chinchoxo, Enclave of Cabinda).

Hyphantornis subpersonatus SHARPE AND BOUVIER, 1876, Bull. Soc. Zool. France, vol. 1, p. 47 (Landana).

Ploceus subpersonatus REICHENOW, 1886, Zool. Jahrb., Abth. Syst., vol. 1, p. 152, pl. 5, fig. 4; 1904, Die Vögel Afrikas, vol. 3, p. 74. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 743.

Sitagra subpersonata SHARPE, 1890, Catalogue of the birds in the British Museum, vol. 13, p. 427. VRYDAGH, 1949, Bull. Cercle Zool. Congolais, vol. 19, p. 23 (near Vista).

Icteropsis subpersonata BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 95, fig. 10 (Loango Coast).

DISTRIBUTION: Known with certainty only from the coastal strip between Fernan Vaz and the mouths of the Shiloango and Congo rivers. It is a valid species, larger than *I. pelzelni,* for the male has the wing 67–70 mm., tail 48–53 mm., culmen to base 18–20 mm., and metatarsus 20–22 mm. The black facial mask extends over the crown to a little behind the eye, covering also the ear-coverts and throat. Nape and breast are yellow with more or less golden wash; back, wings, and tail olive-green.

The female was long undescribed, and the supposed example of that sex reported from Lake Kivu by Reichenow[1] was certainly misidentified. Through the courtesy of the Chicago Natural History Museum I have been able to examine an adult female collected by Harry A. Beatty near Fernan Vaz in the Gaboon, September 4, 1951. It lacks any distinct pattern about the head, although there are faint traces of blackish speckling about the forehead and supercilium. In general it is like a large counterpart of the female of *I. p. monacha,* but deeper, duller olive on back and wings, much duller yellowish on face and underparts, with a distinct wash of buff over the whole chest, flanks, and under tail-coverts. Wing 66 mm., tail 47, culmen to base 18, metatarsus 20.5. An immature male from the same locality is rather like the female, but darker, dull olive, on crown and forehead, with lighter and more brownish beak.

The only specimen taken in recent years in the Belgian Congo appears to be the adult male collected by J. M. Vrydagh for the Congo Museum between Moanda and Vista, December 31, 1945. He noted the iris as brown, the bill black, feet browish gray. I have examined this bird, which Vrydagh tells me was shot in a coconut palm.

On one occasion at Boma in mid-January, 1915, I saw a very similar black-faced yellow weaver at the edge of a pool in a large papyrus swamp. When shot it fell on the water and was immediately taken under by some large fish. During the remainder of the month I failed to find another example.

KEY TO THE SPECIES OF *Hyphanturgus* IN THE CONGO
(Adults of both sexes)

1. Entirely black save for yellow on forehead, fore-crown, and sides of head; throat of female is also brownish yellow . . . . . *H. melanogaster*
   Breast yellow or golden 2
2. Crown, nape, sides of head, and throat all black; back green . . . . *H. alienus*
   Black on head not nearly so extensive 3

[1] 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 325.

3. With a conspicuous black area on throat 4
   Throat yellow or golden 5
4. Back usually blackish, but even if greenish it is rather sharply separated from the golden yellow crown; black of throat tends to join with that of lores by a narrow line at base of mandible; bill heavier, base of mandible about 9 mm. wide . . . . . *H. nigricollis*
   Back always yellowish green, that same color extending up the nape and blending gradually with golden yellow of fore-crown; golden yellow malar region not bordered with black anteriorly; bill slenderer, base of mandible about 8 mm. wide . . . . . *H. ocularius*
5. Forehead and fore-crown bright yellow, hind-crown greener, more like back; no distinct superciliary line, a little black in front of and behind eye; bill slender, about 8 mm. wide at base of mandible . . . . *H. ocularius*
   Crown blackish or green all the way to the forehead, a rather well-marked yellow line above the eye; bill stouter, about 9 mm. wide at base of mandible . . . . . *H. nigricollis*

Hyphanturgus alienus (Sharpe)

Sitagra aliena SHARPE, 1902, Bull. Brit. Ornith. Club, vol. 13, p. 21 (type locality: Ruwenzori). JACKSON, 1906, Ibis, p. 565. OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 279 (Mubuku Valley, 6000–9000 ft.).

Ploceus (*Sitagra*) *alienus* REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 68. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 272 (west Ruwenzori; "Beni"; "Baraka"). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 65.

Hyphanturgus alienus SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 392, pl. 39, fig. 2. SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 159 (Kibga, 2400 m.). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1430. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 81 (Kambatule; Kalonge).

Ploceus schubotzi REICHENOW, 1908, Ornith. Monatsber., p. 161 (type locality: Mt. Karisimbi, 2800 m.).

Ploceus alienus REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 324 (Mt. Karisimbi; "Mboga"; northwest of L. Tanganyika). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 746. BERLIOZ, 1935, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 7, p. 163 (Mbwahi).

Heteryphantes aliena GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 31 (Burunga; Mt. Mikeno).

Ploceus (*Hyphanturgus*) *alienus* SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 278 (Lulenga).

DISTRIBUTION: Mountain forests from Ruwenzori and the highland west of Lake Edward through the Kivu District to the Rugege Forest and the highlands northwest of Baraka on Lake Tanganyika. Any record from below 5500 feet is questionable.

This weaver may be referred to the genus *Hyphanturgus,* but its beak is noticeably broader toward the tip than beaks of the other species. Females resemble males rather closely, but the black on their throat is less extended. Young in juvenal plumage are dull greenish, with no black on the head and abdomen yellowish or whitish.

Though not at all conspicuous, this weaver-bird is fairly common in the wooded highlands of the eastern Congo, from about 5500 feet up to 9000 feet. Singly or in pairs it searches for insects in low trees and vine tangles, and while heard but seldom, its voice is a wheezy chatter appropriate for a weaver. Grauer collected two specimens in the Rugege Forest, and I have found this weaver at 7600 and 8000 feet west of Lake Edward.

There is not likely to be any short breeding season. In the southern part of the range young birds and other evidence indicate nesting from January to May at least, with a respite from July to December. On Ruwenzori I should expect irregular nesting throughout the year. Adults with gonads enlarged were taken there on November 15 and December 25, while the British Museum expedition found a nest at 6000 feet on January 23. It was suspended from the end of a bough about 10 feet above the ground and composed almost entirely of thin tendrils of creepers with a few fine strips of grass. The two eggs were creamy white thickly speckled with brick-red and with a few lavender-gray shell markings. Dimensions: 23.5 by 14.7 and 22.3 by 15 mm. I took an egg of similar color from the oviduct. Two nests are commonly built by one pair of birds; they often hang above water.

The seven stomachs I examined invariably held the remains of insects. Two small naked caterpillars were noted, as well as one tiny millipede.

Hyphanturgus melanogaster stephanophorus (Sharpe)

Heterhyphantes stephanophorus SHARPE, 1891, Ibis, p. 117, pl. 6, fig. 2 (type locality; Mau, Kenya Colony). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 273 (Mpanga Forest, 5000 ft.). BANNERMAN, 1915, Ibis, p. 518 ("Ruwenzori").

Ploceus stephanophorus SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 270 (Kilo).

Ploceus (*Hyphanturgus*) *melanogaster* SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 270.

Ploceus (*Hyphanturgus*) *stephanophorus* SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 270. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 61 (east side of Rutshuru Valley, 1600 m.).

Ploceus melanogaster stephanophorus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 735.

Hyphanturgus melanogaster stephanophorus SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 159; 1940, Rev. Zool. Bot. Africaines, vol. 33, p. 287 (Mt. Wago). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 105 (Nioka, 1800 m.; Loda Forest, 2100 m.).

Heterhyphantes melanogaster stephanophorus JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1403. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 81 (Kianiamakue and Nyabukoko near Lutunguru).

DISTRIBUTION OF THE SPECIES: Mountain forests from Fernando Po and British Cameroons to the Didinga Mountains, Mau Plateau, and eastern

Congo. The nominate form is restricted to Fernando Po and the Cameroon highlands, and males of that race have a yellow crescent across the fore-neck. The rest of the range is occupied by *stephanophorus,* of which the male has chest and fore-neck black like the throat. Females of both races have the whole throat yellow washed with brown.

The race *stephanophorus* extends from the Didinga Mountains in the Sudan, Cherangani Hills, and Mau to the plateaus west of Lake Albert and Lake Edward, to southern Ankole, and even to the highland northwest of Lake Tanganyika. While common in the Mpanga Forest of western Uganda, this yellow-masked black weaver has not yet been found on Ruwenzori. It occurs in the forest just east of the Rutshuru Valley but is unknown on the Kivu Volcanoes and to the west of Lake Kivu. Yet there is one male in the Rothschild Collection taken by Grauer in 1908 at 1900 meters on the highland west of Uvira.

It should be noted that in the northeastern Congo it has usually been secured at levels around 5000 and 6000 feet. As a rule it is found singly or in pairs, feeding amid the leafy boughs inside the forest, making no noise and evidently searching for insects after the manner of a *Malimbus.* I have seen one at only 4600 feet in woods on the eastern side of the Rutshuru Valley.

Nests are woven of grass and hung singly in forest from an outer branch of a bush or tree, about 10 feet up. The eggs are two, white with small spots all over of pinkish brown, and measure about 21 by 15 mm. Granvik found eggs on Mt. Elgon, June 8, and Weekes at Nagichot in the Sudan on August 19. The rainy season is probably preferred for nesting.

In addition to insects, fruit may be eaten. Weekes told of seeing numbers of this weaver in a fruiting forest tree.

Hyphanturgus nigricollis nigricollis (Vieillot)

Malimbus nigricollis VIEILLOT, 1805, Histoire naturelle des plus beaux oiseaux chanteurs, p. 74, pl. 45 (type locality: Malimba, Enclave of Cabinda).

Ploceus atricapillus VIEILLOT, 1819, Nouveau dictionnaire d'histoire naturelle, vol. 34, p. 128 (type locality: Kingdom of Congo).

Ploceus jonquillaceus VIEILLOT, 1819, Nouveau dictionnaire d'histoire naturelle, vol. 34, p. 130 (type locality: coast of Angola).

Ploceus flavocapillus VIEILLOT, 1822, Tableau encyclopédique et méthodique . . . ornithologie, vol. 2, p. 698 (type locality: Congo).

Symplectes jonquillaceus SHARPE AND BOUVIER, 1878, Bull. Soc. Zool. France, vol. 3, p. 74 (Condé).

Symplectes nigricollis REICHENOW, 1887, Jour. Ornith., pp. 301, 307 (Manyanga; Riva-Riva).

Ploceus nigricollis SHELLEY, 1890, Ibis, p. 165 (Yambuya). EMIN, 1894, Jour. Ornith., p. 163 (Ndussuma). FLOWER, 1894, Proc. Zool. Soc. London, pp. 599, 602, 605 (Ipoto; Muyoméma). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-

Afrika Exped., vol. 3, p. 323 (Avakubi; Banalia); 1923, Mitt. Zool. Staatsinst. Zool. Mus. Hamburg, vol. 40, p. 63 (Lupungu). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 270 (Kilo); 1920, idem, vol. 7, p. 191 (Temvo). STRESEMANN AND NEUNZIG, 1924, Jour. Ornith., p. 539. STRESEMANN AND GROTE, 1928, Verhandl. VI. Internatl. Ornith. Kongr., Copenhagen, for 1926, pp. 361, 362.

Heterhyphantes nigricollis SHARPE, 1890, Catalogue of the birds in the British Museum, vol. 13, p. 415 (Bellima). SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 381. OGILVIE-GRANT, 1908, Ibis, p. 276 (near Kasongo; Beni); 1910, Trans. Zool. Soc. London, vol. 19, p. 274 (Mpanga Forest, 5000 ft.).

Ploceus melanoxanthus HARTLAUB, 1891, Abhandl. Naturwiss. Ver. Bremen, vol. 12, p. 23 (Msukali).

Heteryphantes nigricollis OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127.

Ploceus (Hyphanturgus) nigricollis REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 44. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 271 (Moera; Zambo Kamabo; Biogo; west Ruwenzori; Assumba). GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 71 (Luluabourg).

Hyphanturgus nigricollis DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Kisantu; Umangi; Uelle). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 271. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 348, 402 (Luebo; Macaco; Basongo; Kabambaie; Kwamouth); 1924, idem, vol. 12, pp. 275, 423 (Kidada; Eala; Ikengo); 1925, idem, vol. 13, p. 19 (Bolobo); 1926, idem, vol. 13, p. 204 (Moanda; Tshela; Ganda Sundi); 1935, Bull. Cercle Zool. Congolais, vol. 11, p. 95 (Buta).

Ploceus (Hyphanturgus) nigricollis nigricollis SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 61 (Rutshuru Plain; Mawambi; Ukaika; Irumu). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 141 (Panga; Poko; Medje; Bondo Mabe; Abimva).

Hyphanturgus nigricollis vacillans GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 42 (Kartushi). FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 766 (Yalembe).

Hyphantornis ocularius-Gruppe EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 310.

Ploceus nigricollis nigricollis SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 746. WOODMAN, 1938, Sudan Notes, vol. 21, p. 324 (Li Rangu in southwest Bahr-el-Ghazal Province). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 78 (Brazzaville; upper Kemo R.).

Hyphanturgus nigricollis nigricollis SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 158 (Molindi R.; Rutshuru); 1941, Rev. Zool. Bot. Africaines, vol. 34, p. 267 (Kasenyi). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1427. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 49, 81. BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 113 (Kasai District; Bajinga).

SPECIMENS: Leopoldville, immature male, July 2. Nouvelle-Anvers, male, July 24. Bumba, female, July 29. Boyulu, female, September 22. Avakubi, two males, January 12, August 27; female, November 4. Gamangui, three males, February 4, 8, 12. Medje, three males, March 23, 29, November 28; two females, August 31, September 6; two immature males, January 23, September 28; four juvenile males, March 18, 23, September 1; juvenile female, October 24. Faradje, two immature males, November 28.

ADULT MALE: Iris light brown, light brownish gray, or whitish gray; bill black; feet light gray to leaden gray.

ADULT FEMALE: Iris light gray or grayish yellow, bill and feet as in male.

IMMATURE: Iris dark brown, bill and feet pinkish gray.

NESTLING: Iris brown, bill gray, feet bluish.

DISTRIBUTION OF THE SPECIES: Senegal to Nigeria, Fernando Po, Cameroon to northern Angola, and eastward to Uganda, southern Abyssinia, and East Africa from Lamu to Ugogo. The nominate race of Lower Guinea has a blackish back, and *H. n. brachypterus* of Upper Guinea, with yellowish green back, seemed so different that it was usually regarded as a valid species. Individuals with back color intermediate are, however, very common in the region from Duala and Mt. Cameroon north to Djang, and hybridization on a wide scale must be admitted.

On Fernando Po *H. n. po* (Hartert) has the coloration of *brachypterus* but the bill distinctly larger. The East African race, *H. n. melanoxanthus* Cabanis, is even blacker on the back than *nigricollis,* and its bill is slenderer. Its range extends from the Omo and Juba rivers through the coastal region of Kenya Colony to Ugogo and also to Ukerewe Island and the southern shores of Lake Victoria. Although it has been claimed that Uganda birds are intermediate, the race *vacillans* is usually not recognized.

The present species is a bird of woods, widely distributed in lowland rain-forest areas and extending out in isolated forest patches, even to Ngara in the Amboim district of Angola. It is common in the Kasai District but decidedly local in the northeastern Uelle and scarcely ascends much above 5000 feet. Grauer collected specimens on Wau Island in Lake Kivu. In the central forest region it is found in second-growth woods rather than primary forest, and it is frequently seen in shade trees near houses.

Usually not more than two or three go together, and their voice is reminiscent of that of *Textor cucullatus,* though not often heard. With her black crown and yellow superciliary stripe, the female looks very different from the golden-headed male with black throat patch. Immature males for some time resemble females.

In the northern Ituri the breeding season extends from early March to late October and nearer the Equator no doubt through the whole year. At Bumba we saw a nest in an oil palm with nests of four other species of weavers. More often they are placed singly in some small tree with dense foliage, in a plantation or near a village. In weaving the birds show considerable skill, using thin plant stems and a little grass and adding a spout that hangs down perhaps 20 centimeters, though it is not so wide as in nests of *H. ocularius.*

Eggs are regularly two, either pale greenish blue, not always spotted, or white with small rufous spots, and measure 18–23 by 13.5–15 mm.

In the eight stomachs I examined there were always pieces of beetles and other insects. One bird had eaten many Hemiptera of a single species, and in only one case were there also some small seeds.

[*Hyphanturgus nigricollis brachypterus* (Swainson)]

Ploceus brachypterus SWAINSON, 1837, The natural history of the birds of Western Africa, vol. 1, p. 168, pl. 10 (type locality: Senegal). STRESEMANN AND GROTE, 1928, Verhandl. VI. Internatl. Ornith. Kongr., Copenhagen, for 1926, pp. 361, 363 (Ubangi R.).

Ploceus anochlorus REICHENOW, 1912, Jour. Ornith., p. 321 (type locality: Yakoma on Uelle R.). BATES, 1930, Handbook of the birds of West Africa, p. 486 (in part. Northern Belgian Congo). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 734 (in part. Uelle District).

Ploceus brachypterus × *nigricollis* STRESEMANN AND NEUNZIG, 1924, Jour. Ornith., p. 538 (Duma on Ubangi R.).

Ploceus brachypterus brachypterus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 745 ("Chad-Ubangi watershed").

Ploceus (*Otyphantes*) *anochlorus* SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 140.

Hyphanturgus brachypterus brachypterus BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 104 (Kaga Djirri, near Kemo R.).

This race is mentioned here only because of the occurrence of birds near the Ubangi River which resemble it in one way or another, possibly as a result of the hybridism mentioned under *nigricollis*. One such bird was even made the type of a supposed new species, *anochlorus*. Other specimens of similar hybrid appearance were taken by Schubotz and Schultze at Yakoma, Duma, and Fort de Possel, near the northwestern border of the Upper Congo forest and surprisingly far to the east of the Cameroon, where *brachypterus* and *nigricollis* meet. The black-faced birds of Manenguba in the Cameroon, which Sclater took to be the males of *anochlorus,* have since proved to represent a very distinct species, *Othyphantes bannermani* Chapin.

Hyphanturgus ocularius crocatus (Hartlaub)

Hyphantornis crocata HARTLAUB, 1881, Abhandl. Naturwiss. Ver. Bremen, vol. 7, p. 100 (type locality: Magungo, Victoria Nile).

Hyphantornis ocularius HARTLAUB, 1882, Abhandl. Naturwiss. Ver. Bremen, vol. 8, p. 200 (Langomeri). EMIN, 1922, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 3, p. 375 (Mswa).

? *Symplectes princeps* DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Symplectes ocularius REICHENOW, 1887, Jour. Ornith., p. 308 (Kasongo).

Hyphantornis ocularis SCHWEINFURTH AND RATZEL, 1888, Emin-Pascha, eine Sammlung von Reisebriefen, p. 403 (Mangbetu country).

Ploceus ocularius SHELLEY, 1888, Proc. Zool. Soc. London, p. 34 (Fanjimoro). EMIN, 1894, Jour. Ornith., p. 163 (Ndussuma).

Ploceus (Hyphanturgus) ocularius crocatus REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 46. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 271 (west Ruwenzori; Talia-Semliki confluence); 1932, idem, vol. 21, p. 278 (Ngoma); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 141 (Mauda; Mahagi Port; Poko). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 61 (Usumbura; Ishangi). A. W. VINCENT, 1949, Ibis, p. 492 (Elisabethville).

Hyphanturgus ocularius SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 385. CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, pp. 270, 271, pl. 9.

Hyphanturgus ocularius var. *brachyptera* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Lower Congo).

Hyphanturgus ocularius var. *crocata* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (L. Tanganyika).

Ploceus ocularius crocata HARTERT, 1907, Novitates Zool., vol. 14, p. 497.

Sitagra crocata NEAVE, 1910, Ibis, p. 257 (Kambove; upper Lualaba R.; Bunkeya R.).

Sitagra ocularia OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 280 (Mubuku Valley, 5000–6000 ft.; Mokia; Beni). MOURITZ, 1914, Ibis, p. 32 (southeastern Katanga).

Ploceus ocularius crocatus REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 323 (Kisenyi; Kirk Falls). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 746. FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 356. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 108 (Kasenga).

Hyphantornis brachyptera EMIN, 1921, *in* Schubotz, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 245 (Gangere-tambu on Nambia brook); 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 24.

Ploceus ocularius brachypterus SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 287.

Hyphanturgus ocularius crocata GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 42 (Sake; Irumu).

Ploceus (Hypanthurgus) ocularius crocatus SCHOUTEDEN, 1935, Rev. Zool. Bot. Africaines, vol. 27, p. 403 (Katana).

Hyphanturgus ocularius crocatus SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 158 (Mugunga; Burunga in Mokoto, 2000 m.; Mabenga); 1940, Rev. Zool. Bot. Africaines, vol. 34, p. 61 (Kawa Forest); 1941, idem, vol. 34, p. 267 (Kasenyi); 1942, idem, vol. 36, p. 341 (Astrida); 1949, idem, vol. 42, p. 161 (many localities in Katanga). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1426. HENDRICKX, 1944, Ostrich, vol. 15, p. 199.

Hyphanturgus brachypterus crocatus VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 81 (Mutsora).

SPECIMENS: Medje, male, female, August 14. Niangara, three males, April 11, May 8, 25; juvenile male, May 25. Nzoro, female, August 3. Faradje, four males, May 4, September 11, 27, October 15; three females, April 24, August 18, September 27; immature male, August 29; immature female, March 14.

ADULT MALE: Iris grayish white to yellowish buff, bill black, feet bluish gray.

ADULT FEMALE: Iris gray, pale grayish buff, or yellowish buff; bill and feet as in male.

NESTLING: Iris brownish gray, bill dirty greenish, corners of mouth pale yellow, feet light grayish blue.

DISTRIBUTION OF THE SPECIES: Grasslands just north of the equatorial forest, from the Cameroon to the Uelle and Bahr-el-Ghazal, then to southern Abyssinia and Lamu on the east coast, southward through eastern Africa to eastern Cape Province, and westward again to Mossamedes and the Loango Coast.

There are probably four races, *ocularius* of countries south of the Zambesi having a long bill, with culmen to base 20–22 mm. From Nyasaland northward the bill is a little shorter, and *H. o. suahelicus* (Neumann) has the culmen to base 19–20 mm., and the cheeks heavily washed with golden brown. Its range is from the Zambesi through East Africa to the Northern Guaso Nyiro. West of the Great Rift Valley the brown wash on the cheeks is lessened, and the race *crocatus* ranges from the upper White Nile, Uganda, and Kavirondo to the grasslands of the eastern Congo, Northern Rhodesia, Angola, and Pointe Noire on the coast of French Congo. Birds from the northern side of the forest, westward to the Cameroon, are possibly a little less brownish yellow on cheeks and chest, but I hesitate to admit *H. o. camerunensis* Neunzig. Specimens from southern Abyssinia are very similar to those of the Uelle District, and the validity of *H. o. abayensis* Neumann is open to question. It too has been called a synonym of *crocatus,* though it seems to be just a little clearer yellow about the head.

Thus all the birds within our limits may be referred to *crocatus,* and that race occupies the grasslands of the northern and eastern Congo, up to 6000 feet and occasionally a little higher. Schubotz collected it at Duma on the Ubangi and Amadi on the Uelle. Though I saw it several times at Boma, and it is known from the Katanga and Manyema, only Father Windmolders has found it in the Kasai.

This slender-billed weaver is usually seen singly or in pairs about patches of trees and bushes in damp situations, where its peculiar, resonant "chirr-r-r!" is heard more often than the maker is seen. The neighborhood of human habitations is avoided.

Nesting goes on during the rainy part of the year, and in the Uelle nests or adults with enlarged gonads were noted in April, May, September, and October. Nests were usually hung singly from the ends of drooping thorny boughs of acacias, often 2 to 5 yards above a pool of water. The majority were empty but easily recognizable by their form. Very well built, they are woven entirely of fine grass strips and have a well-marked spout of variable length opening straight down. The wide spout is characteristic, for it measures 7 to 8 centimeters in diameter and readily admits two birds at once.

In Uganda Jackson noted two breeding seasons, February to June and November to December; these may be expected also in the Kivu. Nests might be hung from the end of a palm leaf, a withy, or even banana leaf or elephant grass. In the Bangweolo region Brelsford reported nesting in December, *Raphia* palms and even a *Dracaena* offering support. At Elisabethville eggs are laid from late September to early February.

The eggs I found in sets of two, very pale bluish with numerous spots of brownish gray. Dimensions: 20–21.3 by 14–14.6 mm.

The diet is almost entirely of insects. The 12 stomachs examined all contained chitinous bits of insects, and only one held any seeds. Among other food I noted a small naked caterpillar, a spider, and a small millipede.

Key to the Species of *Textor* in and Near the Congo
(Males in breeding plumage only)

1. Plumage entirely black 2
   Plumage without black or only partially black 3
2. Bill slenderer (6.4–7.5 mm. deep at anterior end of nostril); wing 78–85 mm.; feet blackish . . . . . *T. albinucha*
   Bill stouter (8.4–9.1 mm. deep at anterior end of nostril); wing 83–90 mm.; feet brownish . . . . . *T. nigerrimus*
3. With some black on the face (not merely on lores or near eyelids), or whole head black 4
   Face all yellowish (though there may be a little black near eye), or with a brownish mask 15
4. Very small: wing only 60–65 mm. long; black covers cheeks and throat, but extends back only to middle of crown . . . . . *T. luteolus*
   Wing exceeding 65 mm. 5
5. Throat and cheeks blackish, but no black on forehead, which is yellow like crown . . . . . *T. atrogularis*
   Not so colored on head 6
6. Black of forehead does not extend to above middle of eye, middle of crown yellow or golden brown 7
   Black of crown extending farther back, sometimes to hind neck, or even to back 9
7. Black of cheeks does not extend beyond hind border of eye; fore-crown golden brown, and that color borders the black of face and throat . *T. taenioptera*
   Black of cheeks extends back over ear-coverts 8
8. Black covers whole throat and extends to a point on fore-neck, chest scarcely washed with golden brown . . . . . *T. velatus*
   Black covers upper throat and does not run to a point on fore-neck, unless the chest is heavily washed with brown . . . . . *T. vitellinus*
9. Black of the head extends to whole chest and back; belly yellow, but considerable chestnut on flanks . . . . . *T. weynsi*
   Not so colored 10
10. Size large: wings exceeding 80 mm., culmen to base at least 20 mm., plumage of back always yellow mixed with black, or with distinct black areas there 11

Size smaller: wings mostly 70–80 mm., culmen to base 19 mm. or less; plumage of back may have dark streaking but is not mixed with black . . . 12

11. Head always entirely black; a large patch of chestnut on chest, changing to yellow below it . . . . . *T. cucullatus collaris*

Head may be entirely black or hind crown may be golden yellow or brownish; chest is yellow or orange, only washed at most with brown . . . . . *T. cucullatus* (other races)

12. Hind crown yellow or golden brown, middle of crown and forehead black . . . . . *T. intermedius*

Black of crown extends back at least to occiput 13

13. Back clear light yellow, black of head extending to hind neck, breast mostly deep rufous, changing to yellow on middle of abdomen . . . *T. jacksoni*

Not so colored 14

14. Back greenish yellow or yellowish green, breast varying from clear bright yellow to rufous . . . . . *T. melanocephalus*

Back golden yellow mixed with rufous, breast golden brown . . . *T. badius*

15. Larger, wings 80–96 mm. long; head yellow with only a light wash of golden brown on throat and fore-neck . . . . . *T. xanthops*

Smaller, wings usually 67–77 mm. 16

16. A distinct mask of deep brown, sometimes almost black in part, covering forehead, eye region, and upper throat . . . . . *T. castanops*

No distinct brown mask, though throat and face are usually washed with golden brown, lores are usually black, and there is a narrow black circle around eye . . . . . *T. aurantius*

This is the generic group of African weaver-birds for which the name *Ploceus* Cuvier has generally been used, and it is plain that *Textor* Temminck is closely allied to the several Asiatic species of *Ploceus*. In Africa, however, there are many more species of these weavers, exhibiting far greater diversity in form and coloration, yet all are plainly interrelated. I prefer to unite them in the genus *Textor,* as already explained on page 305.

Textor aurantius aurantius (Vieillot)

Malimbus aurantius VIEILLOT, 1805, Histoire naturelle des plus beaux oiseaux chanteurs, p. 73, pl. 44 (type locality: Malimba, Enclave of Cabinda).

Hyphantornis aurantius JOHNSTON, 1884, The River Congo, p. 365 (lower Congo R.). OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127 (in part. Mouth of Alima R.).

Symplectes aurantius REICHENOW, 1887, Jour. Ornith., p. 307 (Stanleyville).

Hyphantornis velatus OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 128.

Ploceus aurantius EMIN, 1894, Jour. Ornith., p. 170 (old Irumu). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 323.

Ploceus (*Hyphanturgus*) *aurantius* REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 49.

Ploceus (*Xanthophilus*) *aureoflavus* OUSTALET, 1905, Bull. Mus. Hist. Nat., Paris, vol. 11, p. 13 (Ubangi R.).

Xanthophilus aurantius SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 472.

Xanthophilus aureoflavus DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Province Orientale; Banalia).

Hyphanturgus aurantius DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1,

fasc. 1, p. 29 (Province Orientale). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, pp. 270, 271. BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 289 (Guruba R.). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 43 (Malisawa).

Hyphanturgus aurantius aurantius SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 348, 402 (Basongo; Kwamouth); 1924, idem, vol. 12, p. 423 (Ikengo); 1925, idem, vol. 13, p. 19 (Kunungu). FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 767 (Bumba).

Ploceus (*Hyphanturgus*) *aurantius rex* SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 61 (Beni; Moera; Mawambi).

Ploceus aurantius aurantius SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 749. BOUET, 1942, Ois. Rev. Française Ornith., new ser., vol. 12, p. 166 (Ponta da Lenha); 1945, idem, new ser., vol. 14, p. 78 (mouth of Alima R.; Bangui).

Ploceus (*Hyphantornis*) *aurantius* SCHOUTEDEN, 1930, Bull. Cercle Zool. Congolais, vol. 7, p. 95.

Ploceus (*Xanthophilus*) *aurantius aurantius* SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 141 (Poko; Bomili; Mokope near Panga; Buta; Titule; Panga; Djamba).

Xanthophilus aurantius rex VERHEYEN, 1939, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 15, no. 66, p. 6 (Alipago in Uelle; Bombe).

Xanthophilus aurantius aurantius BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 121, pl. 4.

SPECIMENS: Nouvelle-Anvers, three males, two females, July 24. Ukaturaka, two males, July 25, 26. Near Lié, male, July 26. Avakubi, male, May 23. Bafwabaka, male, May 2. Medje, male, September 9. Dungu, male, female, March 3.

ADULTS OF BOTH SEXES: Iris grayish white, bill dark gray (nearly black in some males, lighter in females), feet pinkish or pinkish gray.

DISTRIBUTION OF THE SPECIES: Forested regions from Liberia to Southern Nigeria, Cameroon, Gaboon, and Belgian Congo, eastward to the Semliki Valley. Also on Lake Victoria near Entebbe and the Sesse Islands.

The nominate race is usually said to extend from Liberia to the eastern Congo; wings of males over most of that area measure 71–75 mm. But half a dozen males from the Ogowé River have wings only 66–71 mm., and another small series from Southern Nigeria appears more heavily washed with brown than usual on the throat.

All the above birds agree in having blackish lores. But *T. a. rex* of Lake Victoria differs in having males often lighter and yellower on the back, the blackish loral spot usually lacking, and the bill color as a rule paler.

In the Congo this orange weaver extends northward to the Upper Uelle and south to the lower Congo River and central Kasai District. It usually shows a strong preference for the banks of rivers, and thus it is much in evidence along the forested Congo River from Lukolela up to Basoko, on the Aruwimi and Ituri, the Ubangi and Uelle, and no doubt many other affluents of the upper Congo. Nesting colonies of considerable size are often

formed, on trees along the edge of the water, or a few pairs may set up housekeeping on reeds or boughs actually projecting from the water. There is all the activity and chatter usually associated with weaver-bird society.

The breeding season is prolonged and near the Equator extends through the whole year. On the upper Congo I have watched the birds at their nests in February, July, August, and October. Near Nouvelle-Anvers and Ukaturaka in July they were nesting plentifully in oil palms about villages. In October near Lukolela there were colonies of perhaps 80 nests on trees overhanging the river, and in that same vicinity in February and October smaller groups had built on tall grasses and boughs in the water about islands.

Near Avakubi on the Ituri breeding went on from early March to September at least. Great numbers of nests were placed in a tree on a rocky islet in the rapids, others on bushes overhanging the water, and even on branches of trees that had fallen into the river. Once the breeding season was over, the birds seemed to vanish. At Penge in April I saw nests attached to leaves of a screw pine (*Pandanus*) growing on an islet in rapids, only a yard above the ground. In early March on the Uelle River below Dungu, though the river was at its lowest, these weavers were beginning to hang their nests on reeds and bushes on the small islands. In one place a few *Textor nigerrimus* were building near them.

Near Medje and Pawa, however, nesting was observed in July and September on palms and larger trees far from water, side by side with *Textor cucullatus* and a couple of other species of weavers. Nests of *T. aurantius* are globular or ovate, compactly woven of strips from leaves of grasses or palms, closely bound to their support, with entrance opening downward but without prolonged spout. Inside there is a ceiling composed of broader leaves which certainly serves to shed rain. Eggs are laid in two's, either brownish white with a greenish tinge, speckled and blotched with dark reddish brown, or light green with large brown spots. Dimensions: 19.4–21.3 by 14.5–15.1 mm.

As its rather slender bill might suggest, *T. aurantius* is never seen feeding in native grain fields. Of four stomachs examined, two contained small fruits like berries or drupes, the other two held small beetles, two caterpillars, and the eggs of an orthopter.

Textor luteolus kavirondensis (Van Someren)

Sitagra luteola kavirondensis VAN SOMEREN, 1921, Bull. Brit. Ornith. Club, vol. 41, p. 123 (type locality: Soronko R., near Mt. Elgon). GRANVIK, 1934, Rev. Zool. Bot. Africaines, vol. 25, p. 155 (L. Albert). SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 154 (Rutshuru R.). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1408.

Sitagra luteola OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 281

(Mokia, western Uganda). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, pp. 268, 269.

Ploceus (*Sitagra*) *luteolus* SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 437 (Tembura; Yambio). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 272 (old Mission St. Gustave).

Hyphantornis luteola EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 24 (Mswa).

Ploceus (*Sitagra*) *luteolus luteolus* SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 140 (Mahagi Port).

Ploceus (*Sitagra*) *luteolus kavirondensis* SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 140 (Mauda). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 572 (Ekibondo).

SPECIMENS: Dungu, female, July 1. Faradje, seven males, March 1, August 16, September 12, 22, October 26, November 22; four females, March 1, August 14, September 22, October 26.

ADULT MALE: Iris bright hazel, bill black, feet bluish gray.

ADULT FEMALE: Iris slightly darker brown, bill dusky brownish, feet bluish gray.

DISTRIBUTION OF THE SPECIES: From Senegal and the Gambia across the whole Sudan to Eritrea, Abyssinia, Lake Baringo, and the Kavirondo District. On the south it approaches the northern edge of the Congo forest and then extends southward past Lake Albert and Lake Edward to the Rutshuru Plain.

Nominate *luteolus* extends from Senegal to Abyssinia and Lake Baringo and southward to Lado, Nimule, and possibly to Masindi in Uganda. But our specimens from the Upper Uelle and from the neighborhood of Lake Edward are more greenish on the back and agree rather with *T. l. kavirondensis* of Uganda and the Kavirondo District. It seems still possible that *T. l. luteolus* may reach the north end of Lake Albert, as Schouteden believed.

Near Dungu and Faradje in the Upper Uelle this small black-faced weaver is not uncommon, at least during the rainy season. It does not gather in flocks and is usually seen about acacia trees in the open upland, not close to the banks of streams. The same is true in the vicinity of Kasindi, the upper Semliki Valley, and the Rutshuru Plain. Yet in all the northeastern Congo it is a lowland bird; I know of no record even on the plateau west of Lake Albert.

The streaking of the back and the stouter beak of *T. luteolus* serve to distinguish it readily from *Icteropsis pelzelni*. In the Uelle the yellow and black breeding plumage of males is exchanged in November for a dull dry-season dress, without black on the head, and buff and whitish below. The black pigment in the beak disappears at the same time. Females likewise are much less yellow beneath in the dry season.

A male in the prenuptial molt, on March 1, had already constructed a nest, but that was unusually early for building in the Uelle. There the breeding season is more properly from August to November. Nests are woven of strips of grass and placed invariably on the outer branches of thorny acacias, 3 to 10 yards up. Many seem to be built without receiving eggs, but seldom more than three in the same tree. Old nests often have long "spouts," which are probably added during the period of incubation and the rearing of young. Two sets of two eggs each were found, on September 22 and October 26. They were pure white and measured 18.8–19.6 by 13.2–13.6 mm.

Both sexes incubate, and the natal down of the young is rather sparse, of whitish color. I suspect that the molts and breeding period may come two or three months earlier near Lake Edward than in the Uelle.

In the Sudan wasp nests are very frequently found close to the nests of this weaver,[1] an association that I never noted in the Congo. The crops and stomachs of 10 individuals contained both seeds and insect remains. Four had eaten only seeds; and six had insects, including small beetles and four small caterpillars.

Textor atrogularis atrogularis Heuglin

Textor atrogularis HEUGLIN, 1864, Jour. Ornith., p. 245 (type locality: Bongo in Bahr-el-Ghazal Province).

Hyphantornis atrogularis SHARPE, 1884, Jour. Linnean Soc. London, zool., vol. 17, p. 426 (Sassa).

Ploceus heuglini REICHENOW, 1886, Zool. Jahrb., Abth. Syst., vol. 1, p. 146 (type locality: Bahr-el-Ghazal). HARTLAUB, 1887, Zool. Jahrb., Abth. Syst., vol. 2, p. 320 (Kudurma).

Ploceus (Sitagra) heuglini REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 84.

Hyphantornis heuglini SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 413.

Sitagra heuglini CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 268.

Ploceus heuglini heuglini SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 739 (Upper Uelle District).

Sitgra heuglini heuglini BOWEN, 1931, Catalogue of Sudan birds, vol. 2, p. 94 (Kajo-Kaji).

Ploceus (Sitagra) heuglini heuglini SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol 1, fasc. 2, p. 141.

Ploceus atrogularis MOREAU, 1950, Ibis, pp. 251, 261.

SPECIMENS: Faradje, six males, January 18, 26, 28, March 26; four females, January 28, February 2, 24.

ADULT MALE: Iris yellowish buff, bill black, feet pinkish brown.

ADULT FEMALE: Iris yellowish buff, bill brown, feet pinkish brown.

DISTRIBUTION OF THE SPECIES: From Senegal to Northern Nigeria, the

[1] Lynes, 1924, Ibis, p. 663; Moreau, 1936, Ibis, p. 467; 1943, idem, p. 98.

Bahr-el-Ghazal, and the country near Mt. Elgon. Specimens from the western part of the range appear to be relatively small, males having wings 70–75 mm. long, and have been separated as *T. a. neglectus* (Neumann). Males of the nominate race from the Uelle have wings of 73–77 mm., and I doubt the validity of *T. a. sukensis* (Van Someren), said to have the wing 78 mm. long.

The nominate race may thus be expected to range from the Bahr-el-Ghazal south to the Upper Uelle, possibly westward to the Cameroon, and eastward to the Kerio River in Kenya Colony. Within our limits it is known only from the Upper Uelle District. Even in the vicinity of Faradje it was not numerous and was seen only from the middle of January to late March. During that period it nested, though drought reigned, the grass was largely burned off, and the common *Textor taeniopterus* had long since finished nesting and doffed its bright breeding dress.

Whether *T. atrogularis* is really migratory I cannot say. It would seem not to escape observation by assuming a dull off-season plumage, for Heuglin found it in the Bahr-el-Ghazal only in the rainy season and nesting there in August and September. At Zaria, Northern Nigeria, Shuel found *T. a. neglectus* nesting actively on July 29, on a small tree right in the station.

The first time I saw Heuglin's weaver, on January 26, 1912, there was a colony of a dozen pairs in the upper branches of a sausage tree (*Kigelia*). Four or 5 feet below them was a nest of *Buteo auguralis* containing two eggs. The weavers' nests were typically ploceine, without lengthened spout, woven of green grass and lined with the soft feathery grass tips of *Imperata cylindrica*. These nests were attached to the stout leaf stems of the *Kigelia* tree, two or three often close together.

The weavers' nests were all new and still empty save for a single egg, so there could be no doubt that the buzzards built first and the weavers assembled there for protection. In examining 11 stomachs of *Buteo auguralis* I found the remains of a small bird only once. Since *T. atrogularis* is the only yellow and black weaver nesting in the northeastern Uelle during the dry season, I am convinced that some nests found by Lang at Garamba in March near two nests of *Pseudogyps africanus* and two abandoned nests I saw close to a nest of *Leptoptilos crumeniferus* north of Nzoro in March were also built by this same species.

In the Sudan Meyers [1] noted a colony placed near a native beehive, with bees buzzing about, and told of the same weavers nesting also with meliponid bees. In the Uelle *atrogularis* would also occupy thorn trees that were well isolated or boughs hanging over water. On January 18, 1913, I found a

[1] 1943, Ibis, p. 100.

group beginning to build on some clumps of thorny *Zizyphus* trees standing out in a wide meadow now cleared by fires, and in March there were eight or 10 nests on bushes and high grass growing on rocks in the middle of the Dungu River.

As a rule the birds were rather shy. The males uttered wheezy twitterings like those of so many of the related species. The nests were always the same, invariably lined with the feathery tops of *Imperata* grass, which blooms immediately after its leaves have been burned or cut down, especially in the dry season. Eggs were regularly laid in sets of two, greenish blue without spots, though the color was more intense about the larger end. Dimensions: 20.7–22.3 by 14.4–15.1 mm.

Hairless caterpillars are a favorite food; for them the birds might be seen examining hanging bunches of dried leaves, and the large red flowers of *Kigelia* were likewise investigated. In the crops and stomachs of seven weavers caterpillars were present four times: one to six per meal. Three birds had eaten other insects, one a spider, and only one some unidentified seeds. Weavers have more varied appetites than the form of their beaks may suggest.

Textor velatus tahatali (Smith)

Ploceus tahatali A. SMITH, 1836, Report of the expedition for exploring Central Africa, p. 50 (type locality: between Orange R. and the Tropic).

Sitagra auricapilla DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Katanga).

Hyphantornis shelleyi NEAVE, 1910, Ibis, p. 258 (Petauke, Northern Rhodesia).

Ploceus velatus tahatali WHITE, 1946, Ibis, p. 215 (Mwinilunga).

DISTRIBUTION OF THE SPECIES: Orange River and eastern Cape Province, north to Angola, the Katanga, and Nyasaland. There appear to be four or more races. *Textor velatus nigrifrons* (Cabanis) of eastern Cape Colony and adjacent areas is large, wing of males 82–89 mm., with yellow color rather pale. Nominate *velatus,* described from Namaqualand, is slightly smaller and brighter yellow, wings of males 75–79 mm. *Textor v. tahatali* is still brighter yellow, wing of males mostly 74–78 mm., and ranges from the upper Limpopo to the Benguella Province and Northern Rhodesia. Angola males have wings 72–76 mm. This form may just reach the Upper Katanga, while from the vicinity of Lake Moero *T. v. katangae* has recently been named, with wing only 66–70 mm.

This masked weaver is well known in the western parts of Northern Rhodesia and reaches Mwinilunga, but it must be rare in the Upper Katanga. It usually hangs its nests in colonies on bushes and trees near water; males are somewhat polygamous. In the upper Zambesi Valley the breeding season comes in December–January, and in the off-season the males assume a dull eclipse plumage.

The eggs are normally two, sometimes three in a set. The coloring is commonly light greenish blue with spotting of brown or reddish brown, but the ground color may sometimes be pink or white and the spotting variable or even wanting. Dimensions: 18–23 by 13–15 mm.

Textor velatus katangae (Verheyen)

Sitagra velata katangae VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, p. 3 (type locality: Musosa, northeast of L. Moero).

Ploceus velatus katangae WHITE, 1951, Ibis, p. 627 (L. Moero; Luapula R.).

DISTRIBUTION: Known only from the Luapula River, Lake Moero, and the district northeast of that lake. This is a very small form, with the black of forehead and supercilium more restricted than in *tahatali,* the yellow areas about the head more washed with golden brown.[1]

Textor vitellinus vitellinus (Lichtenstein)

Fringilla vitellina M. H. C. LICHTENSTEIN, 1823, Verzeichniss von Vögeln . . . Doubletten des Zoologischer Museums, p. 23 (type locality: Senegambia).

Sitagra vitellina DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (in part. "Ituri").

Ploceus (Sitagra) vitellinus vitellinus SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 437 (Tembura). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 141 (in part. Lado).

Sitagra vitellina vitellina VRIJDAGH, 1949, Gerfaut, vol. 39, p. 103 (Niarembe escarpment; Ishwa Plain).

DISTRIBUTION OF THE SPECIES: From Senegal and other grasslands of Upper Guinea across the Sudan to Darfur, the Bahr-el-Ghazal, and British Somaliland, then southward in East Africa to Tanganyika Territory and Lake Bangweolo. Three races have been recognized. The nominate form ranges from Senegal eastward to the Anglo-Egyptian Sudan and south to the north end of Lake Albert. *Textor v. uluensis* (Neumann) of Abyssinia and East Africa is a little greener on the back, and *T. v. reichardi,* ranging from eastern Tanganyika Territory to Bangweolo and the Lualaba River, has a great deal more golden brown on the breast, as well as a broader black forehead and more extensive throat patch.

Nominate *vitellinus* was not known with certainty from the Congo until Vrydagh collected four specimens on the plain west of Mahagi Port. Its occurrence at Tembura, only 35 miles from the northern border of the Uelle, was a safe indication that it must reach our limits. The specimen reported as from the Ituri probably came from the Lado district. In life this species might be confused with *T. taeniopterus,* the male of which has

[1] From Lake Upemba Verheyen (1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 612, Mabwe) has now described *T. v. upembae,* like *katangae* in color and size, but with beak 2 mm. longer.

just a little more black on the throat, but *T. v. vitellinus* is apt to live in dry places with thorny bushes.

In the Sudan Heuglin and Emin both considered *vitellinus* as partially migratory, moving northward in May and June as the males began to assume their bright yellow breeding dress. Nests are not built in colonies, but are hung singly from a horizontal twig in a tree, at a height of 6 to 12 feet. They are woven of strips of grass, lined with grass tops, and have only a short "spout" at the entrance. In the western Sudan nesting goes on from June to September.

Eggs are in sets of two or of three, varying greatly in color.[1] They may either be white tinged with pink, spotted with reddish and dark brown, or pale greenish blue with spotting of chocolate, mauve-brown, and lilac. Dimensions: 18.5–21.6 by 13.2–13.8 mm.

In November the postnuptial molt brings the adult males into a plumage similar to that of females and young.

Textor vitellinus reichardi (Reichenow)

Ploceus reichardi REICHENOW, 1886, Zool. Jahrb., Abth. Syst., vol. 1, p. 150, pl. 2 (type locality: Karema, east shore of L. Tanganyika).

Ploceus vitellinus DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Hyphantornis reichardi SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 445 (Karema).

? *Sitagra vitellina* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (in part. Ruzizi-Kivu).

Sitagra reichardi DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Ruzizi-Kivu; Tanganyika).

Hyphantornis vitellina NEAVE, 1910, Ibis, p. 258 (L. Bangweolo).

Sitagra vitellina reichardi SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 160 (Maka; Kadia; Kole).

DISTRIBUTION: From Useguha in Tanganyika Territory to Karema on Lake Tanganyika, southward supposedly to Lake Bangweolo, and westward to the Lualaba. This richly colored bird has sometimes been regarded as specifically distinct from *vitellinus*. No one has reëxamined the specimens listed by Dubois from the Ruzizi-Kivu and Lake Tanganyika. The male specimen taken by Neave at Lake Bangweolo on July 5 was in dry-season plumage. He found the birds haunting large reed-covered lagoons, often at considerable distances from dry land.

On the eastern side of Lake Tanganyika Böhm observed *reichardi* in swampy places, where their nests were hung in a colony on ambatch bushes standing in shallow water. It was in March; some nests held two young, others two eggs. The latter were either bluish with dark brown spots or

[1] Serle, 1943, Ibis, pp. 433, 434.

more grayish olive with diffuse dark markings. They measured 18.5–20 by 14–15 mm.

Textor taeniopterus taeniopterus (Reichenbach)

Ploceus taeniopterus REICHENBACH, 1863, Die Singvögel, p. 78, pl. 36, figs. 281, 282 (type locality: "Sudan," doubtless upper White Nile).

Sitagra taenioptera CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, pp. 268, 269, pl. 8 (Faradje).

Hyphantornis sp. SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 240 (Kuterma–Mundu).

Sitagra taenioptera taenioptera CHAPIN, 1927, Bull. Amer. Mus. Nat. Hist., vol. 53, p. 479. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 103 (Ogondjo).

Ploceus (*Sitagra*) *taeniopterus taeniopterus* SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 141 (Mahagi Port).

SPECIMENS: Nzoro, two males, August 10. Faradje, 16 males, February 11, March 15, April 6, 18, 24, 25, August 7, 17, 25, September 5, 6, October 9, 21, November 30, December 20; three females, February 15, March 28, October 6; four immature males, February 26, March 15, May 12, October 14; four immature females, March 28, 31; two juvenile males, October 9.

ADULT MALE IN BREEDING PLUMAGE: Iris dark brown, bill black, feet brownish pink. During the dry season the base of mandible is light greenish gray, bill elsewhere blackish.

ADULT FEMALE: Iris dark brown, bill blackish with lower side of mandible light gray, feet brown.

IMMATURE: Like female, but iris often grayish white.

NESTLING: Iris gray with dark brown inner rim; bill dark green, lower edge of maxilla and corners of mouth yellowish white; feet flesh color.

DISTRIBUTION OF THE SPECIES: From Darfur and Khartoum south to the Upper Uelle, the Bahr-el-Jebel, and the north end of Lake Albert; supposedly also to Lake Stefanie in southern Abyssinia. The nominate form occupies all this area save Darfur, where Lynes found that males have more black and more chestnut on face and head, also yellower backs. The race *furensis* is known only from Darfur.

Textor t. taeniopterus is largely Nilotic in distribution but extends into the northeastern corner of the Congo basin, and in part of the Upper Uelle it is one of the commonest weavers. Its distribution there corresponds with that of papyrus swamps, so it extends southward to Nzoro and westward to the vicinity of Dungu.

In the dry season, when adults and young are all much alike in color, they are seen about Faradje in small flocks, often hopping on the ground in villages, picking up fallen grain. Late in the afternoon they flock to papyrus swamps and reed beds, where they roost. At the beginning of April the

bright yellow feathering of adult males starts to grow. They become more conspicuous and more noisy. Many immature males retain their "sparrowy" pattern through the breeding season now impending, and one adult male taken in February has scattered yellow feathers on the body and the facial mask faintly outlined, though mainly in rufous.

Breeding begins toward the end of July, the nests being hung in numbers on papyrus and tall reeds (*Phragmites*) along the banks of streams and on islands, more rarely on the lower branches of some tree, and always at a height of 2 to 4 yards above water. Numbers of nests are woven that receive no eggs; these are usually of poorer construction, even partly transparent. Nests fastened to papyrus tops usually have an outer network of fibers from that plant, but the interior is of grass. Typically ploceine in form, they have the entrance opening downward, but no prolonged spout.

The sets of eggs are always two, and while eggs in different nests vary from brown to light green spotted with brownish, those in any one nest are colored alike. Measurements are 18–21.4 by 13.3–14.6 mm. Breeding continues regularly until late October, and November 12 was my latest date for eggs.

Shortly afterward the durra grain (*Sorghum*) was ripening in the fields, and these weavers joined the large mixed flocks of Ploceinae that gather to raid the natives' farms. In late November and December males underwent their postnuptial molt.

Of nine stomachs examined at various seasons, three contained grains of durra, one those of *Eleusine* millet, and four others divers seeds as well as a roach, a beetle, and a green caterpillar. One piece of snail shell had doubtless been swallowed as grit.

Textor castanops (Shelley)

Ploceus castanops SHELLEY, 1888, Proc. Zool. Soc. London, p. 35 (type locality: Wadelai, Bahr-el-Jebel). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 749 (Ruanda).

Hyphantornis castanops OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 278 (Fort Portal, Uganda).

Ploceus (*Xanthophilus*) *castanops* VAN SOMEREN, 1916, Ibis, p. 412 (Kazinga Channel).

Xanthophilus castanops GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 40 (L. Bunyoni; Warma on L. Edward). SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 157 (Kabare). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1434. GROMIER, 1948, La vie des animaux sauvages de la région des Grands Lacs, p. 112 (southwest shore of L. Edward).

Hyphantornis galbulae affin. EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 128 (Tunguru on L. Albert.)

DISTRIBUTION: From Wadelai and the Lango District south to the northern shores of Lake Victoria, Lake Edward, Lake Bunyoni in the

Kigezi District, and Lake Kiaga in southeast Ruanda. It must occur on Lake Albert, though from that lake we have only one rather unsatisfactory record.

This is a water-side bird, usually seen only along the edges of lakes and rivers, perching on bushes, reeds, or papyrus. The brown facial patch of the male looks blackish from a distance, and in every way this species reminds one of the black-faced *T. melanocephalus* or *T. taeniopterus*. At Kabare on Lake Edward I found *T. castanops* numerous, as it was also on the shores of Lake Bunyoni in the Kigezi District, at an altitude of over 6500 feet. There it even hopped about on the lily pads.

Males taken at lower levels in Uganda have wings 71–75 mm.; two from Lake Bunyoni have wings 76 and 77 mm. long and are more blackish about the face. One indeed has the throat quite black, bordered with chestnut.

About Entebbe Jackson collected eggs in March, my Bunyoni specimens were in breeding condition in April, and near Fort Portal Woosnam found nests in July. At Lake Wamala, also, I thought they were breeding in July. I have seen no indication of any eclipse plumage of the male.

Near Wadelai Emin found a nest on August 12, suspended from stalks of papyrus and containing a single fresh egg, so thickly spotted with rufous as to appear completely red-brown. About Entebbe Jackson noted that the nest was attached to reeds when available, or to the outer twigs of ambatch and hibiscus. Its materials also varied, grass blades being used when possible, and some feathers added to the lining. Two eggs were laid as a rule, but sometimes three. Their ground color was pale salmon-pink or pale blue, and spotting of reddish brown variable; one egg was immaculate blue. Dimensions: 20–25 by 14–15 mm.

The diet of this weaver appears to include a good many insects, in addition to millet and other seeds.

Textor intermedius intermedius (Rüppell)

Ploceus intermedius RÜPPELL, 1845, Systematische Uebersicht der Vögel Nord-Ost-Afrika's, pp. 71, 76 (type locality: Shoa, Abyssinia).

Hyphantornis intermedius OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 276 (Mokia in western Uganda).

Ploceus intermedius intermedius SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 740. FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 402.

Sitagra intermedia intermedia JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1409 (Toro; Ankole). SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 154 (Kitehe; Bilumma); 1943, Rev. Zool. Bot. Africaines, vol. 37, p. 273 (Gabiro).

ADULT MALE: Iris pale, dull cream-yellow; bill black; feet light bluish gray.

DISTRIBUTION OF THE SPECIES: Southern Abyssinia and western Somali-

land, through eastern Africa to Natal and the Orange River. It also extends westward to Damaraland and Angola. Nominate *intermedius,* with a moderate wash of golden brown on chest and hind crown, is usually said to extend southward from Abyssinia to northern Tanganyika Territory, Lake Edward, and Ruanda. It is possible that males from southern Kenya Colony, South Kavirondo, and the region of Lake Edward show a little more brown wash on the underparts and have wings averaging slightly longer. The status of *T. i. kisumui* (Van Someren) is still undecided.

Textor i. cabanisii of southern Africa certainly is much clearer yellow on hind crown and breast, and this race is believed to range north to the Katanga and the coast of Tanganyika Territory. But the birds of the coast of Angola near Lobito Bay are very richly colored and more washed with brown than any in eastern Africa.

Within our limits nominate *intermedius* is known only from the plains near Lake Edward and in eastern Ruanda, but birds of very similar coloration and size extend eastward to Kisumu and Simba in Kenya Colony and Ilula in Tanganyika Territory. Two adult males from Kitehe in the lower Rutshuru Plain have wings 74 and 75 mm. long. They were collected on May 6 at a nesting colony of six or eight pairs in large acacias standing in the open savanna. The nests were woven of strips of grass and attached to the upper boughs. Entrance tubes were short or of only moderate length. Another colony of about 15 pairs was noted in the eastern Rwindi Plain near Bilumma on March 28.

In southern Ankole and the Masaka district of Uganda Pitman found breeding colonies in May and early June as well as in October, the periods of reproduction coinciding with the rains. In some other parts of Africa the males of *T. intermedius* have been thought to molt to a duller plumage in the off season, but in the Kivu this is not likely to be the case.

In Ankole and near Masaka, Pitman writes me, colonies of this weaver are frequent, and number up to two dozen pairs. Nests are hung on *Acacia* trees or papyrus, always over water, from 4 to 10 feet up. The normal set of eggs is two, immaculate white; and Pitman's measurements of 27 eggs are 20–23.6 by 13.8–15.4 mm. In each of two nests he found an egg of *Chrysococcyx klaasi* with a single egg of the weavers. The cuckoo's eggs were white with a faint tinge of blue, a little glossier and harder-shelled, measuring 19.5 by 13.3 and 21 by 14.2 mm.

My two specimens of *Textor i. intermedius* had eaten only insects and a few caterpillars; such a diet seems characteristic of the species.

Textor intermedius cabanisii (Peters)

Hyphantornis cabanisii W. Peters, 1868, Jour. Ornith., p. 133 (type locality: Inhambane, Portuguese East Africa).

Hyphantornis cabanisi NEAVE, 1910, Ibis, p. 258 (Mazanguli in Lualaba Valley).

Ploceus intermedius cabanisii LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 103 (Kasenga).

Sitagra intermedia cabanisi SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 160 (Kilwa).

Ploceus intermedius cabanisi WHITE, 1951, Ibis, p. 626 (Lake Moero).

DISTRIBUTION: From Natal and the Orange River northward to Damaraland, Rhodesia, Nyasaland, the Katanga, and coastal regions of Tanganyika Territory. *Textor i. littoralis* Van Someren of the region near Mombasa may be a form intermediate between *cabanisii* and *intermedius*.

The race *cabinisii* may be more widely distributed in the Katanga than the records suggest, but it is likely to be restricted to open lands near rivers. Neave collected only one male in April, with iris pale sulphur yellow, bill black, and feet silver gray. Lynes took two breeding males at Kasenga in January, so breeding surely goes on in the latter part of the rains. At Lake Moero White saw a nesting colony in March. Males are said to have a duller off-season dress.

Farther south the nests of *cabanisii* are often hung from the tips of reeds or from boughs overhanging water. They are well woven of strips from blades of grass or reed, and usually have an entrance tube descending some 6 cm. below the rest of the nest. Eggs are two, pure white, measuring 20.2–23 by 13.5–16 mm.

As Austin Roberts pointed out, insects form a very important part of the food of this weaver, yet White found breeding birds eating small, hard blackish seeds.

Textor melanocephalus duboisi (Hartlaub)

Ploceus duboisi HARTLAUB, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 144, pl. 4, fig. 1 (type locality: L. Tanganyika). DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 737 (Ubangi R.).

? *Hyphantornis capitalis* JOHNSTON, 1884, The River Congo, p. 365 (Congo R.).

Ploceus (*Sitagra*) *melanocephalus* REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 71.

Sitagra melanocephala var. *duboisi* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Mpala).

Hyphantornis melanocephalus SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 439 (in part).

Sitagra melanocephala capitalis BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 275 (Kibali R.).

Ploceus (*Sitagra*) *vitellinus vitellinus* SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 141 (in part. Niangara).

Ploceus melanocephalus LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 104 (Leopoldville).

Sitagra melanocephala duboisi SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 160 (Kadia; Kabalo).

Ploceus melanocephalus duboisi WHITE, 1951, Ibis, p. 626 (Nchilenge on L. Moero; Luapula Valley, near Johnston Falls).

SPECIMENS: Mistandunga near Bolobo, immature female, July 16. Telegraph Post 34 near Lukolela, female, July 17. Near Lié, male, December 13. Niangara, male, June 3; female, June 6.

ADULT MALE: Iris brown, bill black changing to greenish gray on base of mandible, feet brownish pink.

ADULT FEMALE: Iris dark brown, maxilla very dark brown, mandible dull yellowish white, feet light brown.

DISTRIBUTION OF THE SPECIES: Senegal and Casamance to Lake Chad and the Kassala Province in the eastern Sudan, south to Stanley Pool, the middle Congo River, and the Luapula River. Lake Tanganyika, Ruanda, an the Kavirondo District mark its eastern limit. The nominate race is rather large, wings of males 74–80 mm., and has only a little brownish wash below the black throat of males. It appears to range from Senegal to Lake Chad, but in Southern Nigeria it is replaced by the smaller, more richly colored *T. m. capitalis* (Latham), the males of which have wings 69–72 mm. long and a heavier wash of brown on the chest.

Near the Ubangi River and the middle Congo the breast again becomes yellower, the chest even less washed with brown than in nominate *melanocephalus*. These birds scarcely differ from *T. m. duboisi,* described from Lake Tanganyika; wings of males measure 72–77 mm. The remaining eastern part of the range, from Urundi and Lake Kivu north to the Nile region, is occupied by *T. m. dimidiatus,* of which the males have breast and flanks very heavily washed with brown; wings 74–79 mm.

From the northeast corner of Lake Tanganyika a few males are known which are exactly intermediate in chest color between *duboisi* and *dimidiatus*. These have been named *usumburae*. Farther north the range of *duboisi* scarcely touches that of *dimidiatus,* and consequently the latter was long regarded as a valid species.

In the more open countries north and east of the equatorial forests this species is rather regularly distributed along rivers and lakes. But in the Lower Guinea forest *T. m. duboisi* is decidedly local, found only here and there along the larger rivers where open grassy or bushy spots meet its needs. It is not surprising that Lynes identified his birds from Leopoldville as *melanocephalus*. I have examined specimens referable to *duboisi* from Krebedje, from the middle Congo River, Kadia on the Lualaba, Kilwa on Lake Moero, Kasenga on the Luapula, and Usumbura on Lake Tanganyika. Brother Joseph Hutsebaut has collected it at Titule, and Boyd Alexander supposedly on the Kibali River. Along the Ituri River we never saw it.

At Niangara on the Uelle I collected a mated pair which I should identify without hesitation as *duboisi* were it not that the male has the black of the crown more restricted and bordered behind by golden yellow washed with brown. One might perhaps suspect its ancestors of some crossing with *T. taeniopterus*.

The region where I became best acquainted with *duboisi* was along the middle Congo River. At Lukolela it lived only on the river bank and on islands with high grass and bushes. Males there are in full nuptial dress in August and September and must then be breeding. At Leopoldville Lynes found a large colony nesting in November, most of the nests attached to the heads of papyrus, and each containing two eggs. These he found variable in color and of either greenish or brownish type. A male taken at Lié near Lisala on December 13 was still in breeding plumage but had plainly finished with nesting. Near Lake Kisale all the males were in eclipse plumage in August.

The pair secured at Niangara in early June were busy with a couple of nests placed in manioc bushes, not 6 feet above the ground and not far from a pond. Eggs had not yet been laid. Four out of five stomachs examined contained only insect remains, including a young grasshopper. The fifth held small seeds.

Textor melanocephalus usumburae (Neumann)

Ploceus melanocephalus usumburae NEUMANN, 1920, Jour. Ornith., p. 82 (type locality: Usumbura, L. Tanganyika).

Ploceus (*Hyphantornis*) *melanocephalus usumburae* HARTERT, 1928, Novitates Zool., vol. 34, p. 194.

DISTRIBUTION: Restricted apparently to the northeast shore of Lake Tanganyika between Usumbura and Nyanza. At best, this seems to be only an intermediate form between *duboisi* and *dimidiatus* and rather variable in the amount of brownish wash on the chest. At Usumbura in April, Grauer collected two males which are best referred to *duboisi,* as well as another which is much browner on the breast than the type of *usumburae*. So these four specimens show nearly all the intermediate stages in color and prove that they belong to a single species.

A small series of adult males taken by Harry Raven at Nyanza, a little farther south, included birds referable to *usumburae* and others more like *dimidiatus*. He found them nesting in March, together with *T. jacksoni jucundus* and *T. cucullatus graueri,* in some cane grass at the edge of a native farm, not far from the marshy border of the lake.

Textor melanocephalus dimidiatus (Antinori and Salvadori)

Hyphantornis dimidiata ANTINORI AND SALVADORI, 1873, Atti R. Accad. Sci. Torino, vol. 8, p. 360 (type locality: Kassala, eastern Sudan). EMIN, 1887, Mitth.

Ver. Erdkunde Leipzig (for 1886), p. 114 (Tunguru); 1922, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 3, pp. 209, 211, 213; 1927, idem, vol. 4, pp. 14, 69. SCHWEINFURTH AND RATZEL, 1888, Emin-Pascha, eine Sammlung von Reisebriefen, p. 166 (L. Albert).

Hyphantornis dimidiatus OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 275 (Mubuku Valley, 5000 ft.; Mokia; Beni).

Ploceus fischeri REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 325 (L. Edward; L. Mohasi; north of Beni). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 27 (Rutshuru). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, pp. 154, 156 (Mswa).

Ploceus dimidiatus REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 325.

Ploceus (Sitagra) fischeri SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 272 (Mai-na-Kwenda; Kaniki; Moera). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 65 (Rutshuru Plain; Kisaka).

Sitagra dimidiata fischeri GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 29 (Butalia).

Ploceus capitalis dimidiatus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 738. SCHOUTEDEN, 1933, Rev. Zool. Bot. Africaines, vol. 22, p. 372. FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 352.

Ploceus (Sitagra) capitalis dimidiatus SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 278 (Busingizi); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 140 (Mahagi Port).

Ploceus (Sitagra) dimidiatus dimidiatus STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 572 (Kasenyi).

Sitagra dimidiata dimidiata SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 154 (Mabenga; Kibumba, 2000 m.); 1940, Rev. Zool. Bot. Africaines, vol. 34, p. 61 (Kawa Forest); 1941, idem, vol. 34, p. 267; 1943, idem, vol. 37, p. 273 (Gabiro).

Sitagra capitalis dimidiata JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1414.

Sitagra melanocephala dimidiata VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 48.

Sitagra capitalis dimidiatus VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 81 (Butahu R.).

DISTRIBUTION: From the country around Lake Kivu, Urundi, and the southern shore of Lake Victoria northward to Uganda, Lake Albert, and the eastern edge of the Anglo-Egyptian Sudan to Kassala.

Like the other races, *dimidiatus* is to be seen mainly near the shores of lakes and along the banks of rivers or brooks and is not known from the highlands west of Lake Albert or Lake Edward. Yet I have seen several in the new post of Beni, well away from any river, and at the post of Rutshuru. Near the bases of the Kivu Volcanoes this weaver ranges up to 6500 feet.

During the off season males assume a dull plumage with a pronounced tinge of buff on chest and flanks. At Kisumu in Kenya Colony this "eclipse" plumage is assumed in August and worn until December–January. Nesting

goes on there from April to July, according to Jackson. The season may not be very different at Entebbe, though Jackson told of abortive attempts at nesting in November and February, and Van Someren wrote also of a second nesting period on Lake Victoria in December and January.

On both sides of Lake Albert the nesting season must come later, for I collected males with gonads still enlarged in August and September, and at the new post of Beni there were others in similar condition as late as early November. Yet along the upper Semliki River in late January only one black-headed male was noticed, the others all being in eclipse.

A little farther south, on the Rutshuru River, males were seen in bright plumage, weaving nests, on March 29, and in Ruanda and Karagwe I expect the eclipse plumage to be assumed in July and to be worn for at least four months. Thus the dates there would be almost opposite to those on Lake Albert.

The nests of these weavers are built in small groups on tall reeds, elephant grass, and bushes or small trees not far from water, and 6 to 10 feet up. They are woven of strips from grass blades, lined with the blades and with soft grass tops. There is little or no entrance spout. The whole exterior is built by the males, whose voices then are reminiscent of the wheezy chatter of *T. cucullatus,* but they also have a petulant nasal call, "chă!," which is distinctive. I have occasionally seen nests hung from the frayed-out leaves of banana plants.

Sets of eggs are usually of two, and according to Jackson they may vary in color from uniform liver color through dull gray, profusely spotted with reddish and purple, to pale olive green, either uniform or freckled with brownish and green. Usual dimensions are 19–21 by 13–15 mm.

Of the four stomachs I examined, two held insect remains and two had small grass seeds and other softer seeds which may have been unripe maize. I expect that more insects are eaten in the breeding period, more seeds during the off season.

Textor jacksoni jucundus (Friedmann)

Ploceus jacksoni jucundus FRIEDMANN, 1931, Proc. Biol. Soc. Washington, vol. 44, p. 117 (type locality: Nyanza, northeast shore of L. Tanganyika). FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 353.

Ploceus (Sitagra) jacksoni SCHOUTEDEN, 1935, Rev. Zool. Bot. Africaines, vol. 27, p. 403.

Ploceus jacksoni GRANT AND MACKWORTH-PRAED, 1949, Bull. Brit. Ornith. Club, vol. 69, p. 123.

DISTRIBUTION OF THE SPECIES: From Agaru on the northern boundary of Uganda and the Turkana country south through Uganda to the Morogoro district and Ujiji in Tanganyika Territory. The nominate race has been

reported from Masindi and Lake Wamala in Uganda, but it is not known to reach our boundary either along Lake Albert or on the upper Kagera.

The species does occur in Urundi along the northeast shore of Lake Tanganyika. Males from Nyanza on that lake were found to have traces of chestnut just behind the black of the crown, where the color is otherwise bright yellow. From beneath, their tails look duller and greener, with less bright yellow showing. From Mwanza on Lake Victoria I have seen one male with a little chestnut on the hind neck, but *T. j. jucundus* does seem to differ by its tail color.

Harry Raven, who collected the type and four other specimens at Nyanza in mid-March, told me that they were nesting on some cane grass not far from the lake shore, along with *T. melanocephalus usumburae* and *T. cucullatus graueri.* The present species was the least numerous of the three. Females of *jacksoni* are much yellower beneath than those of any race of *melanocephalus.*

On the northern shore of Lake Victoria *T. j. jacksoni* is known to breed from January to May and again toward November. Its nests are placed in colonies on reeds, papyrus, or ambatch bushes, often near those of other species such as *Textor cucullatus, T. aurantius,* or *Icteropsis pelzelni.* They are very compact, woven of strips torn from grasses, and lined with grass tops. The males are certainly polygamous, as is the case with a number of other African weavers of this group. Eggs are laid in two's, sometimes in three's, and usually have the ground color pale blue, with heavy spotting of dark red. But the markings may be finer or so abundant as almost to conceal the blue. Dimensions: 19.9–21.2 by 13.5–15 mm.

[*Textor badius axillaris* (Heuglin)]

Hyphantornis axillaris HEUGLIN, 1867, Jour. Ornith., p. 381 (type locality: district of Kidj Negroes, on Bahr-el-Jebel).

? *Hyphantornis badia* HARTLAUB, 1881, Abhandl. Naturwiss. Ver. Bremen, vol. 7, p. 85 (Magungo).

Ploceus (Sitagra) badius axillaris SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 436 (Mongalla).

The cinnamon weaver ranges from the Atbara and the Blue Nile southward at least to Mongalla on the Bahr-el-Jebel. Southern males differ only slightly from the nominate, northern race. It is scarcely likely that this species reaches the northern end of Lake Albert or any adjacent part of the Belgian Congo. Neither Van Someren nor Jackson listed it among the birds of Uganda, so Hartlaub's record from Magungo seems highly questionable.

Textor xanthops xanthops (Hartlaub)

Hyphantornis xanthops HARTLAUB, 1862, Ibis, p. 342 (type locality: Angola). MATSCHIE, 1887, Jour. Ornith., p. 154. SCHALOW, 1887, Jour. Ornith., p. 241.

SHARPE, 1890, Catalogue of the birds in the British Museum, vol. 13, p. 447 (Lower Congo). NEAVE, 1910, Ibis, p. 259 (Kambove, 4500 ft.; Bunkeya R.; L. Bangweolo).

? *Symplectes princeps* HARTLAUB, 1857, System der Ornithologie Westafrica's, opposite p. lix ("Congo").

Ploceus xanthops DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika). DE RIEMAECKER, 1927, Rev. Zool. Bot. Africaines, vol. 14, p. 276 (Kongolo).

? *Ploceus aureoflavus* DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Hyphantornis olivacea ? SCHALOW, 1886, Jour. Ornith., p. 417 (Kaué R.).

Hyphantornis xantops SCHALOW, 1886, Jour. Ornith., p. 421 (Luvua R.).

Hyphantornis olivaceus SCHALOW, 1886, Jour. Ornith., p. 422.

Ploceus (*Xanthophilus*) *xanthops* REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 88.

Xanthophilus xanthops DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (in part. Lower Congo).

Xanthophilus princeps SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 468, pl. 42, fig. 2 ("Lake Tanganyika").

Ploceus xanthops xanthops SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 748. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 108 (upper Lufira R.; Kasenga). VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, p. 3 (Musosa).

Xanthophilus xanthops xanthops VERHEYEN, 1940, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 16, no. 2, p. 7 (Kanzenze); 1941, idem, vol. 17, no. 16, p. 10 (Kiambi; Albertville). SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 160 (many localities in Katanga).

Ploceus (*Xanthophilus*) *xanthops xanthops* A. W. VINCENT, 1949, Ibis, p. 494 (Elisabethville).

SPECIMENS: Boma, three males, January 8, 12; female, January 27; immature male, January 7.

ADULTS OF BOTH SEXES: Iris rather dull light yellow, bill black, feet brownish pink or pinkish brown.

IMMATURE MALE: Iris light yellow, bill dusky brown above, shading to dull yellowish beneath, feet light pinkish brown.

DISTRIBUTION OF THE SPECIES: From the southern margin of the Gaboon and Congo forests south to the region of Mossamedes, Ngamiland, eastern Transvaal, and Natal. Also in eastern Africa from Mozambique northward to the base of Mt. Kenya and to Masindi in Uganda.

Four races may be recognized. The nominate form ranges from the Gaboon to Marungu and Katanga and southward to southern Angola and Nyasaland. Males are brightly colored, their wings 87–93 mm. long. The East African race, *camburni,* ranges into the grasslands of the eastern Congo and southward to the Zambesi. Its males are often a little brighter yellow, their wings 91–98 mm. South of the Zambesi lives *jamesoni,* a more greenish race, males with wings 86–95 mm. A fourth race, *maunensis,* described

from Ngamiland by Austin Roberts, is a little brighter than *jamesoni* and has the wings of males 95–100 mm. Some specimens from the western part of Northern Rhodesia are not unlike *maunensis*.

In the grasslands of the Lower Congo I found this large golden-headed weaver not uncommon, usually seen in pairs about the bushes in lower-lying situations, but occasionally on the grassy hills. It has a prolonged "wheezy" note like that of *Textor cucullatus* and seemed to me remarkably shy for a weaver. In January the breeding season was almost ended.

It seems surprising that this golden weaver has not been found in the Kasai, but in the Katanga and Marungu it is common enough. Rockefeller and Murphy collected specimens at Moba on Lake Tanganyika and at Kasoko, 4100 feet, and Kitendwe, 6050 feet, in Marungu. One male was still in breeding condition on February 10.

In Northern Rhodesia White found eggs from October 6 to January. Nests are usually attached to high grasses or reeds, and two pairs seldom build near together. The rather large nest has little if any spout, and the entrance may be more to one side than below. Eggs are generally laid in two's and vary considerably in color. The ground color may be white, cream color, pinkish white, or blue, and the spotting practically absent or plentiful, reddish brown and gray. Alfred Vincent's measurements are 22.7–26.7 by 15.5–16.9 mm.

Of the five stomachs I examined, four contained insect remains, two some soft fruit, and only one some green seeds.

Textor xanthops camburni (Sharpe)

Hyphantornis camburni SHARPE, 1900, Bull. Brit. Ornith. Club, vol. 10, p. 35 (type locality: Nairobi Forest, East Africa).

Xanthophilus xanthops DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (in part. Ruzizi-Kivu).

Hyphantornis xanthops OGILVIE-GRANT, 1908, Ibis, p. 277 (L. Kivu; northwest of L. Tanganyika); 1910, Trans. Zool. Soc. London, vol. 19, p. 278 (Mubuku Valley, 5000 ft.; Mokia).

Ploceus xanthops REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 326 (Ruanda; Kisenyi; Ishangi).

Ploceus (*Xanthophilus*) *xanthops* SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 272 (Kibati; Nya-Lukemba; Boga; Ruzizi R.). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 66 (Urundi; Uvira; Kasindi).

Xanthophilus xanthops camburni GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 40 (Ngoma). SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 157 (Rutshuru; Bweza, 2000 m.); 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 341 (Astrida; Kibingo). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1433. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 49, 81 (Munigi).

Ploceus xanthops camburni SCLATER, 1930, Systema avium Aethiopicarum, pt. 2,

p. 748. FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 359. PETERS AND LOVERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 270 (Idjwi I.),

Ploceus x. xanthops < *x. camburni* BERLIOZ, 1932, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 4, p. 378 (Kadjudju).

Ploceus (*Xanthophilus*) *xanthops camburni* SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 277 (Lulenga); 1935, idem, vol. 27, p. 403.

Hyphantornis xanthops cambrurni HENDRICKX, 1944, Ostrich, vol. 15, p. 199 (southwest of L. Kivu).

DISTRIBUTION: From the plateau west of Lake Albert, Masindi in Uganda, and the base of Mt. Kenya southward through the interior of eastern Africa to the eastern side of Lake Nyasa. It is sometimes difficult to distinguish this race from nominate *xanthops,* but a series collected by Grauer near Usumbura and Baraka on Lake Tanganyika seems to me to represent *camburni,* as do all the birds from the Kivu.

While by no means restricted to highlands, this golden-headed weaver is most frequently seen between 3000 and 5000 feet and ascends at times to 6500 feet in the Kivu. It is not sociable, and seldom are more than three or four seen together. High grass and bushes attract them, not necessarily near bodies of water, and I have noted this species at Bogoro on the escarpment west of Lake Albert, at the new post of Kasindi, at Rutshuru, and at Lulenga. It is common around Lake Kivu.

Nesting is carried on during rainy periods, and near the Equator there may be two peaks of reproductive activity. Males have no eclipse plumage. At Kichwamba near the northeast base of Ruwenzori, at 5100 feet, I found a group of three nests on July 28, built on tall bushes amid elephant grass. One held two eggs, and I saw but a single male bird. Jackson reported two nests from western Ankole on February 18, and at Rutshuru nesting is expected in March–April. In the country east of Lake Tanganyika Böhm watched nest building in March, the latter part of the rains, and noted that an extra nest was regularly woven in addition to the one for the eggs. Of rounded form, nests were hung near the tip of a thin bough overhanging water. The initial woven ring becomes weighted down by the other materials until it comes to lie on the lower side, encircling the doorway. No long spout is added.

Eggs are laid in sets of two, either uniform greenish blue or spotted with reddish brown on a pale blue or whitish ground. Dimensions: 21–25.5 by 15–16 mm.

Textor cucullatus cucullatus (Müller)

Oriolus cucullatus P. L. S. MÜLLER, 1776, Des Ritters C. von Linné . . . Natursystems Supplement, p. 87 (type locality: Senegal).

Hyphantornis aurantius OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127 (in part).

Ploceus (*Plesiositagra*) *cucullatus cucullatus* BOUET, 1934, Ois. Rev. Française Ornith., new ser., vol. 4, p. 645 (Belgian Congo).

Ploceus cucullatus cucullatus STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 597 (Fort Sibut; Nola). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 79 (Ouadda; upper Kemo R.).

DISTRIBUTION OF THE SPECIES: Senegal to Darfur and Abyssinia, southward to Fernando Po, Angola, Southern Rhodesia, British Bechuanaland, and Mozambique. About eight races may be recognized.

Textor c. cucullatus ranges from Senegal to Fernando Po, the northern edge of the Gaboon, and supposedly to the great bend of the Ubangi, but it is largely replaced in the Upper Congo forest area by *T. c. bohndorffi.* Males of the latter normally have the black of the crown less extensive, the breast with more chestnut brown.

Males from the Kasai and Lomami usually have a little more black on the hind crown than *bohndorffi* and still more brown on the breast. They are separated as *T. c. frobenii.* The form inhabiting the northeast borders of the Congo, Uganda, and adjacent areas in the Sudan, though known as *T. c. femininus,* is merely the intermediate between *bohndorffi* and *abyssinicus.* The latter is a yellower race, characteristic of Abyssinia, Sennar, and probably northeastern Uganda.

All five races thus far mentioned have a well-marked black V-shaped area on the back of the male. This distinct mark is lacking in males of the three other races, *collaris, graueri,* and *nigriceps.* All across the back they have the feathers black tipped with yellow, producing a uniform, scaly pattern. Yet intermediates have been found, proving that these birds are also conspecific with *T. cucullatus.* Even the yellow-crowned *T. spilonotus* (Vigors) of the Transvaal, Natal, and eastern Cape Province may really belong in this group.

The range of *T. c. collaris* extends from the vicinity of the lower Ogowé River in the Gaboon south to Lobito Bay in Angola, and eastward to Kwamouth and Kinzia on the lower Kasai and to Kikwit on the Kwilu River. In this race the whole head is black, and the long black gorget is bordered on the chest by a band of deep chestnut.

The race *nigriceps,* ranging from the Juba River in East Africa to Rhodesia and southern Bechuanaland, is a lighter, yellower bird, with the black of the crown of the male ending just short of the nape and no chestnut on the fore-neck. From the northern end of Lake Tanganyika to Ruanda and Karagwe lives *T. c. graueri,* with distinctly richer body color and even a light wash of golden brown on nape and chest.

Nominate *cucullatus* is supposed to reach our territory in the vicinity of Bangui, and male specimens from Fort Sibut and Nola in French Equatorial Africa are best identified with that race. Yet they seem to have

less brown on the flanks than do birds from farther west, and three males from Karawa, eastward of Libenge, show the transitional stage from *cucullatus* to *bohndorffi*. Wherever this bird occurs it is a common "village" weaver; its behavior is discussed under the races more characteristic of the Congo. The birds now so successfully established in Haiti belong to this nominate race.

Textor cucullatus frobenii (Reichenow)

Ploceus cucullatus frobenii REICHENOW, 1923, Mitt. Zool. Staatsinst. Zool. Mus. Hamburg, vol. 40, p. 64 (type locality: Lupungu, Lomami District, Belgian Congo). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 742. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 103 (Idiofa).

Hyphantornis cucullata SALVADORI, 1915, Ann. Mus. Civ. Genova, ser. 3, vol. 6, p. 280 (Kasai District).

Hyphantornis cucullatus cucullatus SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 348 (Basongo; Tshikapa; Dumbi; Luebo; Kamaiembi; Macaco; Kabambaie; Makumbi).

? *Hyphantornis cucullatus* VANDERYST, 1925, Bull. Agr. Congo Belge, vol. 6, p. 535, footnote.

Hyphantornis cucullatus BERLIOZ, 1925, Bull. Mus. Hist. Nat., Paris, vol. 31, p. 347 (Luluabourg).

Ploceus (Sitagra) cucullata GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 70.

Ploceus nigriceps nigriceps LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 103 (in part. Tshikapa; Luebo).

DISTRIBUTION: The Kasai and Sankuru districts of the Congo, extending west to near the Lubue River, and eastward also to the Manyema. It is difficult to fix any exact limits between this race and *bohndorffi*, since *frobenii* is merely browner on the breast and flanks of males, and there is considerable individual variation. The black of the crown is usually rather extensive in *frobenii*, while that feature is more variable in *bohndorffi*. Nestlings of *frobenii* and females in the off season appear to be more washed with buff on breast and flanks than those of *bohndorffi*.

In the Kasai District this is the common village weaver-bird, and the males seem to have no dull off-season dress, since we have specimens in the bright plumage taken at Luluabourg in January, May, August, September, and November. A nestling was collected there as late as May 22, but the breeding season begins in October.

Just as in so many other regions of the Congo, this weaver sometimes nests in colonies in close proximity to *T. nigerrimus*. At Tshikapa in October, 1921, Schouteden secured a male bird that was evidently a hybrid between them. The head, throat, and middle of breast were black; sides of breast varied with brown; abdomen and under tail-coverts light yellowish brown. Middle of back, rump, and upper tail-coverts were yellowish brown; scapulars with markings of clearer yellow. Wings blackish with markings

of yellow and golden brown; tail blackish above, dark olive beneath. Wing length 88.5 mm.; tail 54 mm.; exposed culmen 19.5 mm.

Textor cucullatus bohndorffi (Reichenow)

Ploceus bohndorffi REICHENOW, 1887, Jour. Ornith., pp. 214, 307 (type locality: Stanleyville, Upper Congo). SHELLEY, 1890 Ibis, p. 164 (Yambuya).

? *Ploceus cucullatus* DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

? *Ploceus abyssinicus* DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Hyphantornis abyssinicus OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 128. HARTERT, 1900, Novitates Zool., vol. 7, p. 40 (in part. Stanley Falls; Bafwazabangi).

Ploceus (*Hyphantornis*) *abyssinicus bohndorffi* REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 58.

Hyphantornis bohndorffi SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 428 (in part).

? *Hyphantornis abyssinicus* var. *bohndorffi* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 ("Lower Congo"; "Kisantu"; "L. Tanganyika").

Hyphantornis cucullatus DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Province Orientale; Umangi; Bumba).

Hyphantornis femina OGILVIE-GRANT, 1908, Ibis, p. 277 (near Kasongo).

Hyphantornis cucullatus bohndorffi CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 269.

Ploceus (*Hyphantornis*) *cucullatus bohndorffi* HARTERT, 1919, Novitates Zool., vol. 26, p. 139.

Plesiositagra cucullatus bohndorffi BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 277.

Hyphantornis cucullatus cucullatus SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 402 ("Kwamouth"); 1924, idem, vol. 12, p. 423 (Eala; Ikengo); 1925, idem, vol. 13, p. 19 (Kunungu).

Ploceus cucullatus bohndorffi SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 742. GRANT AND MACKWORTH-PRAED, 1944, Bull. Brit. Ornith. Club, vol. 64, p. 48. BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 79 (upper Kemo R.).

Textor cucullatus CHAPIN, 1931, Nat. Hist., vol. 31, pp. 601, 603, 605, figs. (Lukolela).

Ploceus (*Sitagra*) *cucullatus bohndorffi* SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 141 (in part. Kotili; Mokope near Panga; Buta). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 572 (Saidi; Ekibondo; Vube).

Sitagra cucullata bohndorffi VERHEYEN, 1939, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 15, no. 66, p. 6 (Bambesa).

SPECIMENS: Bolobo, two males, July 16. Near Bolengi, female, juvenile female, July 20. Nouvelle-Anvers, female, juvenile female, July 24. Ukaturaka, five males, July 24, 25, 26; female, July 26. Dobo, male, female, July 28. Bumba, male, female, July 29. Avakubi, nine males, February 12, 14, October 2; juvenile male, October 23. Ngayu, male, December 13.

Gamangui, male, January 29; female, February 21; two immature males, January 29. Medje, two males, March 26, May 12; two females, May 13, 18; three immature males, May 11, September 5; two juvenile females, August 27, September 10.

ADULT MALE: Iris orange-red to red, bill black, feet brownish gray or light brown.

ADULT FEMALE: Iris red; bill dark brownish gray, becoming whitish at base of mandible; feet pinkish gray.

DISTRIBUTION: From the lower Alima River and the middle Congo near Bolobo, eastward across the forested Upper Congo to the Ituri and Lowa districts. Even with the type specimen of *bohndorffi* for comparison, it is no simple matter to outline the range. Many male specimens from the middle Congo River show an approach to *frobenii,* particularly in the extent of black on the hind crown, while others from the forested Ituri might perhaps be referred to *femininus.* But we cannot avoid using the name *bohndorffi* for most birds of the forested Upper Congo, and to this form I would assign three males collected by Harry Raven at Kindu on the Lualaba and my own series from the central Ituri. A single male from Kita-Kita in the forested Manyema shows considerable resemblance to *frobenii.*

Along the wooded course of the Congo, between Bolobo and Stanleyville, we saw these large yellow and black weavers in abundance at almost every stop of the steamer. From there to the northern border of the Ituri forest they had colonized every clearing of any size. To recall them to memory is to picture the oil palms, silk cotton trees, and other large trees about forest villages, where they hang their nests by scores, even hundreds, and whence they radiate out to feed in the plantations. Strictly birds of clearings, natural or more often man-made, they never are seen in primary forest.

Extremely fond of maize and rice, they hunt diligently also for insects, taking winged termites in flight, and peck the oily outer husk from ripe palm nuts when available. They are in a way the enemies of the Negro farmer, who is much annoyed by these and other weavers when his grain is ripening. Maize may be attacked while the kernels are still white and milky, the husks pulled off, and the cobs picked clean. In the region east of Stanleyville the rice-growing Wangwana sometimes tie long bark cords across their fields, knotted to others running here and there, so that a jerk by a single watcher will agitate the plants over a wide area and frighten the birds from their feast.

In return, the weavers of the present species pay a heavy toll when the villagers gather their young to eat, lashing poles upward along the trunk of their nesting tree. Most of the time they go unmolested and pay little attention to people walking beneath. One large tree may easily contain 200 nests, many of course empty. There are spells of continuous wheezy

chattering by numbers of males in unison, as they hang upside down from the bottom of their nests, flap their open wings excitedly, swaying the head from side to side, and peer up into their doorways. Between times they weave new materials about the margin of the inverted entrance. Other males are continually arriving with long strips of palm leaf, grass blades, or even banana leaf, held in the beak and trailing far out behind. Suddenly an unwonted sight or noise alarms the birds; with one accord they dive obliquely from the tree and depart silently in all directions. Perfect quiet reigns, but not for long.

Almost any large tree will serve for nesting, especially if it stands well alone. Palms of several kinds are often used, and sometimes a few nests are attached to the frayed ends of banana leaves. An oil palm occupied for any long period is apt to be sadly stripped of leaflets, but that does not kill it, and eventually the birds will move elsewhere. Other species of weavers may nest in the same tree, especially *Textor nigerrimus,* but also *T. a. aurantius* and *T. albinucha holomelas.* At Buta in the Lower Uelle Hutsebaut has collected two male hybrids between *T. c. bohndorffi* and *T. nigerrimus.*

Where there is so little change of season, many of these weavers certainly are nesting in every month throughout the year. It is probable that any one individual has a period of quiescence, yet it is worth noting that of 11 adult males taken in the forested Ituri at various seasons, only one had small gonads. We found no indication of an eclipse plumage there. If certain nesting trees are found deserted, others meanwhile will be actively occupied.

Toward sunset along the Congo River, even though these weavers were busy nesting, I frequently saw them in vast clouds flying about as though preparing to roost. Adults while breeding appeared to sleep in the nests, so I concluded that these flocks were largely composed of immature birds. At sundown I have sometimes watched small parties of such birds leave the nesting trees for a roost in a patch of tall elephant grass, and I have also seen hundreds, including males in bright plumage, gathered for the night in a grove of leafy trees.

Between Bolobo and Coquilhatville on the Congo River I found *bohndorffi* nesting actively in July, 1909, and December, 1914. In 1930 I returned to Lukolela Plantation on July 25, at an exceptionally dry period, and there watched a vigorous colony go on breeding in a large *Borassus* palm, without interruption, until I left the Plantation on February 23, 1931. For all I could learn this same palm was in active use for the full 12 months.[1] In the Ituri, about Avakubi and Medje, I cannot recall one month

[1] As recently as 1953, I am informed, these weavers were still nesting in the same great fan palm at Lukolela and did not stop even in the dry season.

over a period of about two years when these weavers were not breeding actively somewhere. In the Bwamba District of Uganda the Van Somerens report a similar condition.

Nests are rather coarsely woven, attached by the top, and a spout of moderate length is apt to be added below the entrance during the period of incubation. The male does all the weaving of the outer walls, the female seldom bringing any material and then only for the lining. The inner ceiling of the egg chamber is made of coarse grass blades, set crosswise. Incubation of eggs is probably done by the female alone. It is probable that males are polygamous when opportunity offers, but at most nesting colonies in the Congo forest the females do not appear to outnumber the males, and so I doubt that many males have even two mates.

Eggs are usually in sets of two, and either white or light blue in ground color, immaculate or finely speckled with dull reddish brown or dark brown. They measure about 21.7–25.7 by 15.3–16.4 mm.

The variety of food eaten by this weaver has already been mentioned. Of 12 stomachs examined, 11 were found to contain rice, maize, or seeds of many other kinds. Three held the oily fibrous husk from palm nuts; eight, the remains of insects, including large winged termites, beetles, and ants. Small pieces of stone are occasionally swallowed.

The preference shown for large isolated trees, so often on cleared ground close to human dwellings, may well be due to the protection they provide from marauding monkeys, squirrels, snakes, and various other enemies. Like many other species of weavers, this one often hangs its nests on boughs projecting over water and sometimes in the immediate vicinity of the nest of a large bird of prey. Near Bumba, in mid-December, 1914, I saw a colony established in the same tree with a nest of *Gypohierax angolensis.*

This weaver distinguishes between the various kinds of predatory birds, showing little fear of *Milvus* and no interest at all in *Kaupifalco monogrammicus,* though it perches in the same tree. But their breeding colonies are raided incessantly by *Gymnogenys typicus,* which alights near the nests and pulls out the young, while the old weavers scold excitedly at short distance, unable to offer any real defense. At dusk *Machaerhamphus alcinus* also comes to catch any small birds flying about the trees, and I have seen it tear down a nest of this weaver.

A more insidious enemy is the didric cuckoo, *Chrysococcyx caprius,* often seen flying about the clearings where these weavers nest and often hotly pursued by them. Yet very frequently the female didric succeeds in laying her egg in a weaver's nest and in having her young reared by them. At Medje in June I saw a young didric cuckoo, already fledged, being fed by a *Textor cucullatus,* and twice, in September and October, I was brought nests of the same bird containing one young weaver and one young didric.

It seems very probable that the female cuckoo when laying carries off and eats one of the weaver's eggs, and it is certain that the young cuckoo does not always succeed in getting rid of its legitimate rival, possibly because of the enclosed form of the nest. In one case I noted that the young cuckoo had its stomach much better filled than the nestling weaver. The egg of the didric may resemble eggs of the weaver very closely. One which I took from the oviduct of *Chrysococcyx caprius* was pale greenish blue, with tiny, well-scattered spots of dusky brown. It had been broken by shot, but the size approximated very closely that of this weaver-bird's eggs.

Textor cucullatus femininus (Ogilvie-Grant)

Hyphantornis feminina OGILVIE-GRANT, 1907, Bull. Brit. Ornith. Club, vol. 21, p. 15 (type locality: Mokia, western Uganda); 1910, Trans. Zool. Soc. London, vol. 19, p. 277.

Hyphantornis abyssinicus SHARPE, 1890, Catalogue of the birds in the British Museum, vol. 13, p. 453 (Tingasi).

Ploceus abyssinicus EMIN, 1894, Jour. Ornith., pp. 163, 171 (Ndussuma; old Irumu). FLOWER, 1894, Proc. Zool. Soc. London, p. 598 (Ipoto). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 152 (Mbiundsu; Mswa).

Ploceus (Hyphantornis) abyssinicus REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 57 (Nyangabo; Kinyawanga). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 64.

Hyphantornis cucullatus BOYD ALEXANDER, 1907, From the Niger to the Nile, vol. 2, pp. 310, 314 (Gudima). CHAPIN, 1915, Nat. Hist., vol. 15, p. 289.

Ploceus abyssinicus bohndorffi REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 324 (Ruanda; Kisenyi; L. Edward; south slope of Kivu Volcanoes). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 271 (Kilo).

Hyphantornis bohndorffi SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 452 (Uelle District).

Ploceus nigriceps LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 26 (Rutshuru).

Hyphantornis cucullatus abyssinicus CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, pl. 8 (Yakuluku).

Ploceus (Hyphantornis) abyssinicus bohndorffi SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 271 (Kaniki; Molekera; Kirungu; Buwissa; old Mission St. Gustave; "Nya-Lukemba"; Beni; Bulaimu; Boga).

Ploceus (Hyphantornis) nigriceps SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 271 (in part. Kilo).

Hyphantornis habessinica EMIN, 1919, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 2, pp. 429, 433 (southwest of Kuterma; Mundu); 1921, *in* Schubotz, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 243; 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 69.

Plesiositagra cucullatus feminina BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 277.

Ploceus (Hyphantornis) cucullatus abyssinicus BERLIOZ, 1922, Bull. Mus. Hist. Nat., Paris, vol. 28, p. 261 (Ababua country near Bima R.).

Plesiositagra cucullata femina GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 31 (Masidongo; Beni; Kitsumuro).

Plesiositagra cucullata bohndorffi GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 32 (southwest of Tamohanga; Ngoma).

Ploceus cucullatus feminina SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 742. PETERS AND LOVERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 269 (Nyakabande in southwest Uganda).

Textor cucullatus bohndorffi FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 767 (Lulenga).

Ploceus (Hyphantornis) cucullatus bohndorffi SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 278.

Ploceus (Sitagra) cucullatus bohndorffi SCHOUTEDEN, 1935, Rev. Zool. Bot. Africaines, vol. 27, p. 403 (near Rutshuru; Katanda); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 141 (in part. Mauda; Niangara; Rungu; Mahagi Port).

Ploceus (Sitagra) cucullatus femininus STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 572 (Bunia; Kasenyi).

Textor cucullatus femininus SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 155 (Kibati; Nzulu; Burunga in Mokoto; Kamatembe; Ruhengeri; Rwindi; Nyabirehe, 2400 m.); 1941, Rev. Zool. Bot. Africaines, vol. 34, p. 267. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 104 (Nioka; Bogoro; Ishwa Plain).

Sitagra cucullata feminina JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1411. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 48, 81 (Fuku).

SPECIMENS: Faradje, four males, May 13, August 4, 16, 19; immature male, February 20.

ADULT MALE: Iris orange-red to scarlet, bill black, feet brownish pink.

ADULT FEMALE: Iris reddish orange to orange-red; bill dark gray, feet pale pinkish.

IMMATURE MALE: Iris reddish orange.

NESTLING: Iris dark gray; bill gray, corners of mouth whitish yellow; feet grayish pink.

DISTRIBUTION: From the base of the Kivu Volcanoes to Uganda, Lake Albert, the Upper Uelle, Mongalla on the Bahr-el-Jebel, and Darfur. To this race I assign the birds living along the northeastern margins of the Congo forest, though I admit that some of them might just as rightly be called *bohndorffi,* and some others, especially from the Uelle, are very similar to *T. c. abyssinicus.* At best this is merely an intermediate population, occupying a rather wide region.

In the grasslands of the northeastern Congo, from Lake Albert south to the upper Rutshuru Valley, *femininus* is a common bird near villages and posts. It never invades mountain forests, but I have found it at 7400 feet, to the northwest of Lake Edward. In the Upper Uelle, too, it is numerous. Near Lake Edward it must nest throughout the greater part of the year, and males seem to have no eclipse plumage.

At the new post of Beni males with gonads enlarged were taken in mid-October, while at Mohokyia in Uganda, in about the same latitude, Woosnam found them nesting in May and June. Others in breeding condition were secured in the region of Butembo on March 7, at Luofu on March 22, and

at Lulenga, 6100 feet, they had fresh nests in June in eucalypt trees. At Kasenyi on Lake Albert there were males with gonads enlarged in August, and in that same month I found them nesting in eucalypt trees at Djugu. On a pond near Nizi in August I saw a colony of some six nests placed just above a nest of *Scopus umbretta* in an old tree rising above the water. Near Kampala, Uganda, a colony has been noted in the same tree with occupied nests of *Ardea melanocephala*.

FIG. 25. Village weaver-birds, *Textor cucullatus femininus*. Males at their nests.

In the Upper Uelle, where the dry season is rather long, breeding was definitely restricted to the rains. Nests were seen right in the post of Niangara, but near Faradje they were hung in large leafy trees along the river's edge, and often far from any village. Usually they overhung the water. Males in breeding plumage were taken first on May 13; active breeding colonies of good size were noted by August 19, and all were abandoned by

the middle of November. During the dry season the trees laden with old dry nests were conspicuous, and no males in yellow and black dress were to be seen. About Faradje they evidently went into eclipse, as do some of the smaller weavers there, and as *T. c. cucullatus* and *abyssinicus* certainly do in the drier, northern areas.

In the dull plumage, *femininus* then joined in the large flocks of weavers and bishop-birds which raid the fields of ripening grain. In the northeastern Uelle the durra-eating Logo spend a large part of each day in the fields as their harvest ripens, toward the end of November. It is the task of the women and children especially to drive off the raiding birds. The durra plants are 4 or 5 yards high at this time, and to look out over them it is necessary to mount the large termite hills or build platforms of sticks in trees. A boy will mount guard as a live scarcecrow, a great deal of shouting is heard from the farms, lumps of clay or stones are hurled at the birds, or little reeds shot at them from bows. Later on in the dry season these large weavers attract little attention.

In the latter part of the rains, from August to early November, their behavior is like that of *bohndorffi,* save that they keep much more to the banks of rivers. A colony may contain a hundred nests or more. Of six sets of two eggs collected at Faradje, all had the ground color pale blue of varying depth; three were spotless, the other three finely spotted with dull dark brown and lilac-gray. A single egg from the same place was white with a few small spots of reddish brown. Dimensions: 21.9–25.8 by 14.9–16.5 mm. In Uganda Jackson noted the same diversity of color and occasional sets of three.

Three stomachs of *femininus* from Faradje contained maize in two cases, large termites once, and ants once.

Textor cucullatus graueri (Hartert)

Ploceus graueri HARTERT, 1911, Bull. Brit. Ornith. Club, vol. 29, p. 21 (type locality: Usumbura, north end of L. Tanganyika). MAYR, 1945, Bull. Brit. Ornith. Club, vol. 65, pp. 41, 42 ("Rutshuru Plain"; Kagera R.).

Ploceus nigriceps REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 324 (Kisenyi; Usumbura).

Ploceus (*Hyphantornis*) *nigriceps* SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 271 (Kibati; Nya-Lukemba; Manakwa).

Ploceus (*Hyphantornis*) *nigriceps graueri* HARTERT, 1919, Novitates Zool., vol. 26, p. 139. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 64 (Urundi; Uvira; Baraka). SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 278.

Plesiositagra nigriceps graueri GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 32 (Ngoma).

Ploceus nigriceps graueri SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 741. SCHOUTEDEN, 1933, Rev. Zool. Bot. Africaines, vol. 22, p. 372 (Nyundo; Kisenyi–Ruhengeri; Rugegera; Kisenyi; Ruzizi R.). PETERS AND LOVERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 269 (Nyakabande in southwest Uganda).

VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, p. 4 (Musosa).

Ploceus (Sitagra) nigriceps SCHOUTEDEN, 1935, Rev. Zool. Bot. Africaines, vol. 27, p. 403 (Gatsibu; Luvungi; Nyanza on L. Tanganyika).

Sitagra nigriceps graueri JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1420.

Sitagra cucullata graueri VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 16, p. 10.

Textor nigriceps graueri SCHOUTEDEN, 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 341 (Astrida; Gikorongo; Kibingo); 1942, Bull. Cercle Zool. Congolais, vol. 17, p. 61; 1943, Rev. Zool. Bot. Africaines, vol. 37, p. 273.

Hyphantornis nigriceps graueri HENDRICKX, 1944, Ostrich, vol. 15, pp. 199, 207 (southwest of L. Kivu).

DISTRIBUTION: From Baraka and Nyanza on the northern shores of Lake Tanganyika to Karagwe, Ruanda, and the base of the Kivu Volcanoes. This is a valid race, intermediate in body color between *femininus* and *nigriceps,* which have usually been regarded as specifically distinct. As a rule, males of *graueri* have the black of the head and the scaly pattern of the back much the same as in *nigriceps.* But, as Verheyen pointed out in 1941, there is complete intergradation in these respects with *femininus,* especially in the vicinity of the Kagera River. At Kifumbiro on the lower Kagera Grauer collected a male with the pattern of the hind crown very much as in *T. c. femininus,* whereas the back has barely a suggestion of any black V.

At Kisenyi on Lake Kivu Gyldenstolpe reported that he had collected males of both *bohndorffi* and *graueri,* but that does not prove them distinct species. The females there would be all alike. Moreover, at Nyakabande on the lava plain just north of the eastern Kivu Volcanoes, Arthur Loveridge collected five male weavers from the same nesting colony between January 28 and February 7. One had the head pattern of *graueri,* but the back with a slight suggestion of the V-mark of *femininus.* The four others had the pattern of the head as well as of the back of *femininus,* but it could be seen that scarcely a feather of the V-mark was without a little yellow on it. No difference in size or proportions could be found to divide these birds, so I regard intergradation as proved. At Rwindi and Lulenga in the Kivu I could find only *femininus,* and I doubt that *graueri* occurs in the Rutshuru Plain.

So far as I know, the breeding behavior of *graueri* is exactly similar to that of *femininus.* At Nyanza on Lake Tanganyika Harry Raven found a sizeable colony in the first half of March, nesting in company with smaller numbers of *T. melanocephalus* and *T. jacksoni.* This weaver nests in the Kivu region from December to May, and males molt to a dull eclipse plumage in early July. We have three adult males from eastern Ruanda undergoing that molt between July 4 and 9, as well as other adult males in eclipse dated from July to October, from Kisenyi south to the northwest shore of Lake Tanganyika.

Textor cucullatus nigriceps (Layard)

Hyphantornis nigriceps LAYARD, 1867, The birds of South Africa, ed. 1, p. 180 (type locality: Kuruman, South Africa). SCHALOW, 1886, Jour. Ornith., pp. 422, 423, 434 (Luvule R.; L. Itambe; L. Upemba). MATSCHIE, 1887, Jour. Ornith., p. 154. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (in part. Mommpara; Katanga). NEAVE, 1910, Ibis, p. 258 (Dikulwe R.; upper Lualaba R.; Bunkeya R.).

Ploceus nigriceps DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika). MOURITZ, 1914, Ibis, p. 32 (southeastern Katanga). GRANT AND MACKWORTH-PRAED, 1945, Bull. Brit. Ornith. Club, vol. 65, p. 16 (Kasulu and Kigoma in western Tanganyika Territory).

Ploceus (Hyphantornis) nigriceps REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 62.

Ploceus nigriceps nigriceps LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 103 (in part. Kasenga).

Sitagra cucullata nigriceps VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 16, p. 8 (Kiambi).

Ploceus (Sitagra) nigriceps nigriceps A. W. VINCENT, 1949, Ibis, p. 490 (Elisabethville).

Textor nigriceps nigriceps SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 160 (Katanga localities from Kasenga to Kasaji and Albertville.

Ploceus collaris nigriceps WHITE, 1951, Ibis, p. 626 (L. Moero).

DISTRIBUTION: From southern Bechuanaland north through Mozambique, Rhodesia, and East Africa to the Juba River, also to Lake Tanganyika, the Katanga, and Quillengues in southern Angola. Three males from Rhodesia seem to me distinctly duller, lighter yellow, than most East African examples, while a single male from Quillengues, Angola, has the yellow feather tips on hind neck and back so restricted in size that the upperparts are unusually blackish. More specimens from Angola may well prove that *nigriceps* and *collaris* interbreed. Males from Moba and Tembwe on Lake Tanganyika are richly colored and show an approach to *graueri*.

In the southeastern Congo this race seems to be largely restricted to the lower levels and the vicinity of rivers and lakes. There it hangs its nests in large colonies on trees, often those overhanging water, and also on reeds. Occasionally a colony will be established in the same tree with the nest of a kite (*Milvus*). Breeding is carried on between early September and November and even into February or March, and the behavior of the males is very much the same as with *T. c. bohndorffi*. They display by hanging upside down beneath the nests, flapping their wings and chattering.[1] Eggs are usually in two's, occasionally three's. Their color is quite variable, from unspotted white or light blue to thickly spotted with reddish or brown on either ground color. Dimensions: 21–25.8 by 12.8–16 mm.

[1] For a detailed study of nesting, see Mrs. F. M. Benson, 1945, Ostrich, vol. 16, pp. 54–65.

During the dry season in the Katanga males wear a dull plumage not unlike that of the females, and the females themselves become much yellower beneath at breeding time. About Mombasa on the East Coast *nigriceps* is breeding in July and August, and R. E. Moreau doubts that in Usambara the males have any eclipse plumage.

Textor cucullatus collaris (Vieillot)

Ploceus collaris VIEILLOT, 1819, Nouveau dictionnaire d'histoire naturelle, vol. 34, p. 129 (type locality: Angola). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 741. BERLIOZ, 1941, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 13, p. 404. BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 79 (opposite Bolobo).

Hyphantornis collaris HARTLAUB, 1857, System der Ornithologie Westafrica's, p. 126 (Congo). SHARPE, 1890, Catalogue of the birds in the British Museum, vol. 13, p. 455. OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 128. SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 422. MENEGAUX, 1918, Rev. Française Ornith., vol. 5, p. 259 (Paso-Konité). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 402 (Kwamouth); 1924, idem, vol. 12, p. 275 (Kidada); 1925, idem, vol. 13, p. 19 (Kunungu); 1926, idem, vol. 13, p. 204 (Moanda; Makaia-Ntete; Temvo; Ganda Sundi; Tshela; Lundu).

Hyphantornis cincta SHARPE, 1873, Proc. Zool. Soc. London, p. 717 (Congo R.).

Hyphantornis textor JOHNSTON, 1884, The River Congo, p. 365.

Ploceus cinctus REICHENOW, 1887, Jour. Ornith., p. 305 (Leopoldville). BÜTTIKOFER, 1888, Notes Leyden Mus., vol. 10, p. 212 (Vista).

Ploceus (*Hyphantornis*) *collaris* REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 61. OUSTALET, 1905, Bull. Mus. Hist. Nat., Paris, vol. 11, p. 12 (Brazzaville).

Hyphantornis nigriceps DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (in part. Lower Congo).

Ploceus (*Hyphantornis*) *nigriceps* LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 14 (Mukimbungu).

Sitagra cucullata collaris VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 16, p. 10.

Plesiositagra collaris BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 86, fig. 9.

SPECIMENS: Boma, male, January 2; female, January 24. Matadi, male, December 27. Leopoldville, male (immature?), July 2.

ADULT MALE: Iris orange-red to scarlet, bill black, feet pinkish brown.

ADULT FEMALE: Iris scarlet, bill blackish, but a little browner beneath base of mandible.

DISTRIBUTION: From the western Ogowé basin in the Gaboon south to the vicinity of Lobito Bay in Angola, and on the east at least to Kwamouth and Kinzia on the lower Kasai River. On the middle Kwango River Schwetz collected specimens at Kasanga and at Franz Joseph and Wilhelm Falls. The Congo Museum has two males of *T. c. collaris* from Leverville on the Kwilu River.

From all the other races of *Textor cucullatus* this one is distinguished

by the broad, distinct area of deep chestnut bordering the black of the throat and fore-neck. Its whole back is "scaly," each feather tipped with yellow, somewhat as in *nigriceps* and *graueri,* but head and nape are wholly black.

Verheyen (1941) suggested, with good reason, that *collaris* is merely another race of *T. cucullatus.* Females and males in dull plumage are often impossible to distinguish from those of *bohndorffi.* For years I was anxious to examine actual intermediates in male breeding dress. At Lukolela and Bolobo I had collected *T. c. bohndorffi,* but Bouet reported *collaris* from the west bank of the Congo near Bolobo, and Schouteden identified birds from Kwamouth as *collaris.* The zone of intergradation must be very narrow.

Finally, between November, 1951, and January, 1952, H. A. Beatty collected about 14 adult males for the Chicago Museum at Djambala, Nkoumou, and Mpouya in the French Congo, west of the middle Congo River near Tshumbiri. All are colored rather like *bohndorffi* below and have the black of the head more restricted than in *collaris.* But the majority show by the color of their backs, where the black V-mark is less distinct or wanting and more of the feathers are tipped with yellow, that they are beginning to approach *T. c. collaris.* Had others been secured about 40 miles farther south, I am sure they would have proved more similar to *collaris.* The change is gradual, and there is considerable variation in any one spot. Two males from Gamboma, to the northwest of Bolobo, are normal *bohndorffi.*

At Mbigou in the Gaboon Beatty collected another male, with underparts colored much as in *Textor c. cucullatus,* but approaching *collaris* in the color of nape and back. Normal males of *collaris* were secured at Mouila and Fougamou in the Gaboon. In the American Museum there are others from Lake Ogemwe and Lake Ezanga.

I regard it as proved that *collaris* interbreeds with *cucullatus* and *bohndorffi* where the ranges meet. The band of intergradation is evidently narrow and must run from a point somewhere between Libreville and Cape Lopez to the middle Ogowé River above Lambaréné, then southeastward to the area between Mouila and Mbigou, eastward to a point just south of Djambala in the French Congo, and to the bank of the Congo River near Tshumbiri. Interbreeding with *frobenii* is indicated by a male from Dumba on the Lubue River, with the scaly back of *collaris* but the whole nape rufous.

From the Congo coast and Mayombe Forest up to Stanley Pool and Kwamouth *Textor cucullatus collaris* is the common village weaver, with large nesting colonies built during the rainy season in palms, silk cotton trees, and other large trees, very like those of *Textor cucullatus bohndorffi.* During the dry season breeding ceases there, and the old brown nests are conspicuous but deserted. Whether adult males in the Congo regularly assume an eclipse plumage is doubtful. At Leopoldville on July 2 I once took a

male which seemed to be an adult in eclipse, but years later I saw three bright males at the same locality on July 17 and collected one of them. From Brazzaville we have a full-plumaged male taken in August.

Farther south in Angola a male eclipse plumage certainly is assumed. Near Lobito Bay on May 16 Boulton collected three adult males in very worn breeding dress. One of them has fresh yellowish feathers growing out amid the old black ones on the malar region and sides of throat.

Along the Ogowé River in the Gaboon Ansorge collected eggs on July 31 and August 4, and at Canhoca in northwestern Angola he collected four half-grown nestlings as early as November 18. Near Boma on the lower Congo I found nesting only just beginning in early January; the breeding season in the Lower Congo must be roughly from December to May.

My male from Matadi was secured in a tree where *Textor nigerrimus* was already nesting, but neither it nor the male from Boma on January 2 was quite ready for breeding. Near Tshela and Urselia in the Mayombe on April 22 I saw large nesting colonies active in oil palms and silk cotton trees. In a small village near old Leopoldville, on March 21 and 24, I again watched a colony of about 60 pairs nesting in a silk cotton tree. A small grove of oil palms close by provided materials for the nests, and their fronds were badly stripped. Half a dozen nests had been hung in the palms as well, but now looked old and abandoned. The males were displaying upside down beneath the nests, flapping their wings in the same way as *T. c. bohndorffi* males, but their chatter seemed less loud than that of the latter race. Eggs are usually in sets of two, grayish blue with reddish brown and gray spotting, and measure 23–25 by 15–16 mm.

The three stomachs examined by me all contained insect remains, and two of them palm-nut pulp as well.

Textor weynsi (Dubois)

Melanopteryx weynsi Dubois, 1900, Ornith. Monatsber., p. 69 (type locality: Bumba, upper Congo R.); 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, pp. 14, 29, pl. 9.

Ploceus (Melanopteryx) weynsi Reichenow, 1904, Die Vögel Afrikas, vol. 3, p. 56.

Hyphantornis weynsi Shelley, 1905, The birds of Africa, vol. 4, pt. 2, p. 432.

Ploceus weynsi Sclater, 1930, Systema avium Aethiopicarum, pt. 2, p. 738. Schouteden, 1935, Bull. Cercle Zool. Congolais, vol. 11, p. 96.

Sitagra weynsi Jackson, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1418 (Uganda).

Distribution: Upper Congo forest, from Coquilhatville to Bumba and Buta, and also at many places in Uganda, from the Kigezi District and Bugoma to the Mabira Forest. Though first described from Bumba, Weyns's weaver is known from few localities in the Congo. Six or more specimens were collected by Weyns, and there is one adult male in the Rothschild

Collection obtained by Meregaglia at Buta in 1906. I was greatly surprised to find in the collection of J. De Riemaecker an adult female taken near Coquilhatville on November 14, 1926. More recently Father Lootens has collected several examples near Bokuma on the Ruki River. Never have I seen this species alive.

Near Entebbe, Uganda, Pitman tells me, it is not rare but keeps to the tree tops and thus escapes notice. Jackson secured it in several of the forest areas of Uganda, but never found a nest. Nor did Van Someren, though he was sure that there the breeding season came in June and July.

Textor nigerrimus (Vieillot)

Ploceus nigerrimus VIEILLOT, 1819, Nouveau dictionnaire d'histoire naturelle, vol. 34, p. 130 (type locality: Kingdom of Congo, West Africa). REICHENOW, 1887, Jour. Ornith., p. 305 (Leopoldville); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 323 (west Ruwenzori, 2000 m.). SHELLEY, 1890, Ibis, p. 164 (Yambuya). FLOWER, 1894, Proc. Zool. Soc. London, pp. 598, 601 (Ipoto). EMIN, 1894, Jour. Ornith., p. 171 (old Irumu). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 270 (Kilo). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 26 (Rutshuru). STRESEMANN AND GROTE, 1928, Verhandl. VI. Internatl. Ornith. Kongr., Copenhagen, for 1926, p. 370. BERLIOZ, 1935, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 7, p. 163 (Mbwahi). CAVE, 1938, Sudan Notes, vol. 21, p. 186 (Li Rangu in southern Bahr-el-Ghazal). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 103 (Luebo; Kinda). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 80 (Brazzaville).

Malimbus nigerrimus OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 128. OGILVIE-GRANT, 1908, Ibis, p. 278 (Ponthierville); 1910, Trans. Zool. Soc. London, vol. 19, p. 270 (Beni; Mpanga Forest, 5000 ft.).

Melanopteryx nigerrima HARTERT, 1900, Novitates Zool., vol. 7, p. 40 (Bafwazabangi). SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 362. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Kisantu; Banalia). BOYD ALEXANDER, 1907, From the Niger to the Nile, vol. 2, p. 310 (Gudima). SALVADORI, 1915, Ann. Mus. Civ. Genova, ser. 3, vol. 6, p. 280 (Kasai District). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1404. VERHEYEN, 1939, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 15, no. 66, p. 6 (Bambesa).

Ploceus (*Melanopteryx*) *nigerrimus* REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 50 (Awamba). LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 14 (Mukimbungu). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 271 (Lesse; Munie Mboka; Mutiba; Buwissa; Marissawa; Kinzi; Kokoba; Kinabe; Lisasa); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 140 (Niangara; Poko; Panga; Mauda; Dramba; Abimva; Bondo Mabe; Buta; Angodia; Titule; Api). BERLIOZ, 1922, Bull. Mus. Hist. Nat., Paris, vol. 28, p. 261 (Bumba). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 62 (Usumbura; Kisenyi; Rutshuru Plain to eastern border at 1600 m.; Moera; Mawambi; Ukaika). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 572 (Vube; Ekibondo).

Melanopteryx nigerrimus CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 269; 1931, Nat. Hist., vol. 31, p. 601 (Lukolela). BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 278 (Ubangi R.; Uelle R.); 1949, The birds of tropical West Africa, vol. 7, p. 52, pl. 2. BEQUAERT, 1922, Bull. Amer. Mus. Nat. Hist., vol.

45, p. 310 (Avakubi). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 33 (Bopu). SCHOUTEDEN, 1924, Rev. Zool. Bot. Africaines, vol. 12, pp. 275, 423 (Kidada; Eala); 1925, idem, vol. 13, p. 19 (Kunungu; Bolobo); 1926, idem, vol. 13, p. 204 (Lukula; Ganda Sundi; Kai Bumba; Butu Polo); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 156 (Kibati); 1940, Rev. Zool. Bot. Africaines, vol. 34, p. 61 (Kawa Forest); 1942, idem, vol. 36, p. 341 (Kabagari). FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 767. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 735. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 47, 81 (Fuku; Munigi; Lume R.; Mutsora). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 104 (Mt. Aboro, 2200 m.; Loda Forest, 2200 m.).

Penthetria concolor EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, pp. 297, 299 (Vugarama in Uvamba).

SPECIMENS: Leopoldville, male, July 9. Bolobo, male, July 16. Ekaturaka, male, July 25. Batama, immature male, September 15. Avakubi, four males, September 16, October 11, 13, 14. Medje, three males, January 12, 26, May 14; five females, February 28, March 24, July 6, 7; three immature males, July 10, August 18, September 3; two immature females, July 10; three juvenile males, March 1, 7. Faradje, two males, April 1, September 8; female, August 18.

ADULT MALE: Iris bright chrome yellow, bill black, feet light brown or grayish brown.

ADULT FEMALE: Iris yellow, bill blackish gray, feet pale grayish pink.

NESTLING: Iris dark gray, bill and feet pinkish gray, corners of mouth light yellow.

DISTRIBUTION: From the British Cameroons to northern Angola and the Kasai; also eastward across the Upper Congo to the southern edge of the Bahr-el-Ghazal, the North Kavirondo District, Bukoba, the north and east shores of Lake Tanganyika, and the Manyema District. No races are recognized, but it should be pointed out that *T. castaneofuscus* (Lesson) of Upper Guinea and Southern Nigeria is another geographic representative of the same group, possibly conspecific with *nigerrimus*. The supposed occurrences of *castaneofuscus* in the vicinity of the Gaboon are surely erroneous.

This common black village weaver inhabits clearings in all the Lower Guinea forest, the high-grass savannas beyond its borders, and various wooded areas south to Ndala Tando in Angola, east to Mt. Elgon and Kavirondo, and even the Kungwe Peninsula on the east shore of Lake Tanganyika. While avoiding mountain forests, it does ascend sometimes to well over 5000 feet. It has been taken on Idjwi Island; I have seen it at Djugu on the Lendu Plateau, and on the east side of Lake Bunyoni at 6600 feet.

Like *Textor cucullatus* it is one of the most characteristic birds about villages in the forested Upper Congo, and in the Lower Congo it dwells

alongside *T. c. collaris*. Nesting sites are frequently shared with *cucullatus*, often large trees with spreading crowns in fields or even in the middle of a village, or palms growing in similar situations. There may be a few pairs of *nigerrimus* living with a large colony of *cucullatus*, or the colony may be of *nigerrimus* exclusively and count a couple of hundred nests.

In its social behavior, voice, nesting, and feeding habits there are only minor differences from *T. cucullatus*, the latter being usually somewhat more numerous. I have never seen any indication of an eclipse plumage of males, even in areas well outside the heavy forest. Within three degrees of the Equator breeding goes on at all seasons, yet at Avakubi we noted that the palms used for nesting might at times be deserted for a period of several weeks. Farther from the Equator it seems that nesting is discontinued during the driest season of the year.

At Matadi on the lower Congo I noted a breeding colony on December 27, and at Leopoldville another of about 30 nests still very active on March 28. In the Mayombe, at Ganda Sundi around April 20 the birds seemed to be approaching the end of their nesting season, and most nests were old and brown.

At Lukolela half a dozen pairs of *nigerrimus* nested on the upper leaves of a *Borassus* palm occupied by a large colony of *T. cucullatus*, where I watched them continuously from July 25 until February 23 of the following year, when I left.

A small colony in a Medje village occupied half a dozen oil palms only 35 feet high. One palm bore 45 nests, many of them probably without eggs or young. A frond was cut down on February 28, in the dry season; it had three nests, each with two newly hatched young. At that period a patch of elephant grass a few hundred yards square was serving as sleeping quarters for many of these village weavers. At sunset birds would fly there from the nesting trees, and attached to the tall grasses were many roughly constructed nests that may well have served as dormitories. Perhaps only incubating or brooding birds slept in the nests in the palms.

At Faradje I found several pairs on April 1 nesting in papyrus on a small island in the Dungu River. Near Nzoro on August 8 a group of a dozen or more nests was located on very tall stalks of grass. Each nest was slung between two of the higher flowering stems, at a height of 3 to 4 yards. Three nests, at least, contained eggs, and a fourth two young. On the east shore of Lake Bunyoni, April 8, a busy colony of perhaps 50 nests was seen in the trees about a small rest house.

The nests of *T. nigerrimus* are constructed in much the same way as those of *T. cucullatus*, but no spout is added to the entrance. The males do all the weaving of the outer surface. The waterproof ceiling inside the nest

chamber is usually made of leaves, some of which may be 4 or 5 inches long and 1¼ inches wide.

I had of course many opportunities to compare the behavior of males of *nigerrimus* at the nest with *T. c. bohndorffi* and *collaris*. On the whole, *nigerrimus* seemed less demonstrative, a little less noisy. While the black males do hang below their doorways and chatter, they seldom extend their wings so far, and quiver them more often than flap, as they sway from side to side. The chatter of *nigerrimus* was less loud than that of *collaris*, and that of *bohndorffi* more vigorous than either. It was noticeable that the spells of excited flapping and wheezing by males of *T. cucullatus* did not spread to black males of *nigerrimus* that were nesting in the same palm. The females of *nigerrimus* are somewhat darker than those of *cucullatus*, and they must be easily distinguished by the males. Yet I have seen three undoubted male hybrids between these two species in the Congo Museum.

The eggs of *nigerrimus* are laid in sets of two, and in my experience are always light blue, unspotted, measuring 22–26.2 by 15.4–17 mm.

The feeding habits are closely similar to those of *T. cucullatus*. Largely insectivorous, *T. nigerrimus* also eats seeds, palm-nut husk, and fruit. It steals rice and unripe maize in native plantings. In the crops and stomachs of 11 individuals we found rice, maize, and other seeds three times, fatty palm-nut pulp once, and insect remains in nine cases. Once there was a small green caterpillar, and another bird had eaten a number of the large light brown ants (*Oecophylla*) which tie leaves together with silk.

Textor albinucha holomelas (Sassi)

Ploceus (*Melanopteryx*) *holomelas* SASSI, 1920, Ornith. Monatsber., p. 81 (type locality: Mawambi, Ituri District).

Melanopteryx maxwelli CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 269 (northern Belgian Congo). BANNERMANN, 1922, Rev. Zool. Bot. Africaines, vol. 9, pp. 278, 279. GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 33.

Ploceus (*Melanopteryx*) *nigerrimus* SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 271 (in part. Kinawa; Malisawa).

Ploceus (*Melanopteryx*) *maxwelli* SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 62 (Beni; Beni–Mawambi; Mawambi).

Ploceus maxwelli SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 735.

Melanopteryx albinucha maxwelli BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 57, fig. 6 (in part. Ituri Forest).

SPECIMENS: Gamangui, two males, February 27; female, February 24. Bafwabaka, male, female, July 25. Pawa, male, July 6. Isiro, two females, July 3.

ADULTS OF BOTH SEXES: Iris very pale yellow, bill and feet black.

DISTRIBUTION OF THE SPECIES: Sierra Leone to Fernando Po, and for-

ested Lower Guinea from the Cameroon coast eastward to the Semliki Valley. *Textor a. albinucha* (Bocage) of Upper Guinea, from Sierra Leone to the Gold Coast, has an area on the hind-neck where the plumage usually looks worn, and the feathers pale gray save at their tips. The two other races are black on the hind-neck. *Textor a. maxwelli* Alexander seems to be restricted to the island of Fernando Po and never becomes quite so black on the abdomen as do mainland birds in Lower Guinea. In their first plumage, too, the young of the island form are light olive-gray beneath, while those of the mainland race are dark slate color there. Adult females of this species are black like the males.

An adult female in the Rothschild Collection from the Abanga River, Gaboon, agrees with *T. a. holomelas,* and this race, I believe, ranges from the Cameroon and Gaboon eastward to the Semliki. This all-black weaver is readily confused with the males of *Textor nigerrimus* and the females of some species of *Malimbus.* It has not been reported from the Mayombe, but is not rare in the forest of the northeastern Congo. At Lukolela, Stanleyville, and Avakubi I never found it, but I did see one specimen from Makala.

In the northern Ituri the species seemed local in distribution, apt to be numerous when present. At Gamangui on the Nepoko it shared a large nesting tree with *Textor c. bohndorffi* on the outskirts of a village of Arabisés. The nests of the two species looked much alike and were woven largely of strips from banana leaves, no palms and little grass being available.

Near Isiro we passed through a native village in the center of which stood a single tall tree with bare trunk. The branches of its leafy crown bore at least 200 nests of weavers. Great numbers of birds flew continually back and forth, stripping the fronds of the palms about the edge of the village, or plucking other leaves to make the inside of their nests rainproof. Half of them may well have been *Textor a. holomelas,* the others *Textor nigerrimus* and *T. c. bohndorffi;* of the three, *bohndorffi* was least numerous. The very pale iris of *holomelas* is a better recognition mark than the smaller size. Another colony near Pawa included the same three species and a few *Textor aurantius* as well. This one was likewise in a large tree near a village, and we were unable to collect eggs. In the Nepoko region nesting goes on in February, July, and probably most other months in the year.

The next place I met *holomelas* was about halfway between Irumu and Beni, in some second-growth woods where several were feeding with *Malimbus erythrogaster.* But the finest colony I saw in early February, 1927, at the village of Kapamba in the Semliki Forest. A rather small oil palm, right in the village, was stripped bare by these black weavers and bore some 250 nests. On a neighboring palm were 70 more, and in a taller leafy tree on the far side of a field perhaps another 150 nests. The activity and the noise were extraordinary, but in the main like those of *Textor cucullatus.*

This colony of *holomelas* was practically pure; only one pair of *Textor nigerrimus* could be seen in it.

To my surprise, the chief asked me not to disturb the birds in the palms, so I took three specimens from the more distant tree. Soon I learned the reason. The chief was protecting the birds only until they should have a sufficient number of young for harvesting, and the palms were much easier to climb than the tall tree. I made the mistake of not trying to secure eggs, and these seem still to be unknown.

In the crops and stomachs of nine individuals I have found only two hard seeds. One bird had eaten a number of tiny red berries, another some soft green vegetable matter. Eight had partaken of insect food, but this consisted very largely of naked green caterpillars, and in one case a few green chrysalids. Hard-bodied insects were noted only three times.

KEY TO THE SPECIES OF *Melanoploceus*

A simple yellow crescent between nape and back, both of which are uniform black; breast deep rufous in male, either rufous or black in female . . *M. tricolor*[1]

Crown not black, but mainly or partially maroon or yellowish brown; an orange or golden brown collar on hind-neck, rather bristly in male; flanks and lower breast olive gray, and chest deep maroon in male . *M. aureonucha*

Melanoploceus tricolor tricolor (Hartlaub)

Hyphantornis tricolor HARTLAUB, 1854, Jour. Ornith., p. 110 (type locality: Sierra Leone).

Ploceus fuscocastaneus REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 53 (Loango; Loemma R.).

DISTRIBUTION OF THE SPECIES: Forests of Upper and Lower Guinea, from Sierra Leone to the Cameroon, Kasai, and northwestern Angola, also to the Uelle River, Uganda, Nórth Kavirondo, and doubtless the forested Manyema. Two races are recognized, of which the males differ little if at all. But *M. t. tricolor,* extending from Upper Guinea to the Cameroon and supposedly the Loango Coast, has the adult female colored rather like the male. The rufous brown of her breast is usually somewhat lighter and tends to spread upward on the throat. The female of *M. t. interscapularis,* on the other hand, is almost wholly black beneath.

This species is certain to occur in the Mayombe Forest, since it is known from the forest of Quicolungo in Angola, and it would seem probable that females from the Lower Congo will be rufous-breasted. Thus far I have seen no female specimen from Angola.

[1] For this species Mackworth-Praed and Grant (1946, Ibis, p. 228; 1949, idem, p. 145) have erected the genus *Melanoploceus*, in which they would include also *Textor albinucha*. I do not consider mere color agreement between the sexes to be a satisfactory generic character, and I regret that *Ploceus aureonucha* Sassi, a much more distinctive bird, was not chosen as the type of *Melanoploceus*.

Melanoploceus tricolor interscapularis (Reichenow)

Ploceus interscapularis REICHENOW, 1893, Ornith. Monatsber., p. 29 (type locality; Bundeko in Semliki Valley); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 324. SCHOUTEDEN, 1938, Bull. Cercle Zool. Congolais, vol. 14, p. 97.

Ploceus rufoniger REICHENOW, 1893, Ornith. Monatsber., p. 29 (type locality: Kinyawanga in Semliki Valley).

Ploceus (Melanopteryx) interscapularis REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 53.

Ploceus (Melanopteryx) fuscocastaneus REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 53.

Cinnamopteryx tricolor SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 359, pl. 38. SCHOUTEDEN, 1935, Bull. Cercle Zool. Congolais, vol. 11, pp. 69, 96 (Buta).

Cinnamopteryx interscapularis SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 361.

Cinnamopteryx mpangae OGILVIE-GRANT, 1907, Bull. Brit. Ornith. Club, vol. 21, pp. 14, 15 (type locality: Mpanga Forest, 5000 ft., western Uganda); 1910, Trans. Zool. Soc. London, vol. 19, p. 274.

Ploceus fuscocastaneus REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 324. SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 271 (Kilo).

Ploceus (Melanopteryx) fuscocastaneus interscapularis SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 271 (Beni; Biogo; Kikanga; Masidongo). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 63 (Moera; Mawambi).

Cinnamopteryx tricolor interscapularis BANNERMAN, 1920, Rev. Zool. Bot. Africaines, vol. 7, p. 288 (Poko). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 35 (Molemba; Kartushi). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1406.

? *Ploceus castaneofuscus* REICHENOW, 1923, Mitt. Zool. Staatsinst. Zool. Mus. Hamburg, vol. 40, p. 64 (Lupungu in Lomami District).

Ploceus tricolor interscapularis SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 736.

Ploceus (Cinnamopteryx) tricolor interscapularis SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 140 (Isiro). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 572 (Saidi).

Melanopteryx tricolor interscapularis SCHOUTEDEN, 1939, Bull. Cercle Zool. Congolais, vol. 16, p. 8.

Melanoploceus tricolor interscapularis MACKWORTH-PRAED AND GRANT, 1946, Ibis, p. 228.

SPECIMENS: Medje, male, female, June 22.

ADULTS OF BOTH SEXES: Iris dark red, bill black, feet brown or grayish brown.

DISTRIBUTION: From the Yala River in North Kavirondo across Uganda in wooded places to the forest of the Upper Congo. Most of the Congo records are from the northeastern parts of the forest, but this weaver may well have been collected at Lupungu by Frobenius, and Father George Windmolders writes me that he has secured the species in the Kasai.

At Avakubi I saw it just once in heavy forest and was unable to collect it. At the Frankfurt Museum I examined a male secured by Schubotz at Surunga on the Uelle River, and in October, 1926, I collected a male 4 miles north of new Beni. Prigogine has shown me a female from Kamituga.

In my experience this is a rather scarce bird of the rain forest of which never more than four are seen together, and more often one or two. They

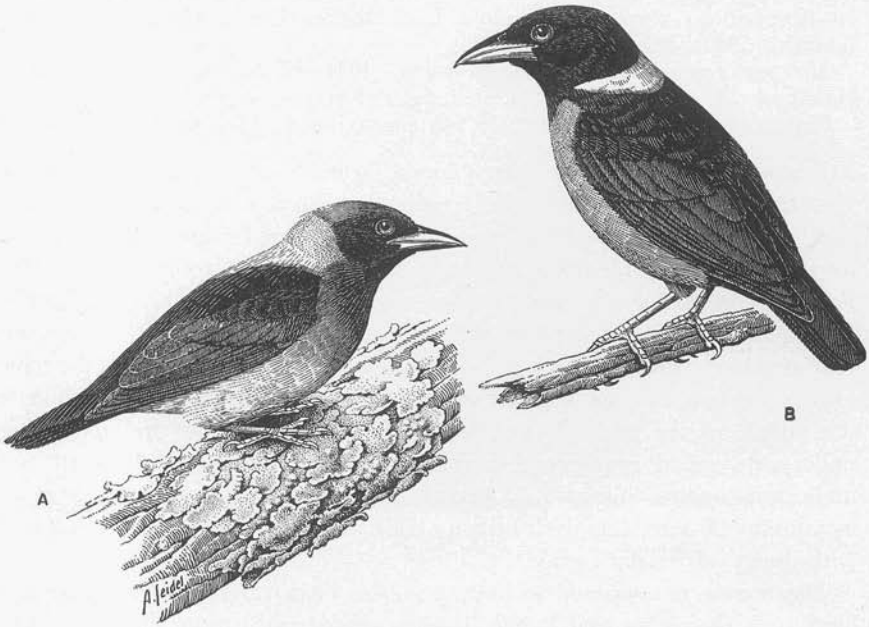

FIG. 26. Two forest-dwelling weavers. A. *Melanoploceus aureonucha*, male. B. *Melanoploceus tricolor interscapularis*.

are not averse to coming out into tall trees at the edges of clearings but seem never to approach the ground. Not infrequently they climb on the bark of trees, no doubt in search of insects, and they keep very silent.

The pair collected during the Congo expedition at Medje in June was working on a nest, still incomplete, placed 40 feet up, in a fork of a small branch near the top of a tree at the edge of a small Medje village. This nest was not pensile, but saddled on the branch like a nest of *Malimbus rubricollis,* though otherwise of regular weaver-bird form.

In Uganda Van Someren obtained breeding specimens during June and September. Nests were built by single pairs in high leafy trees and were very untidy, composed of rootlets loosely woven together and lined with grass fibers. Eggs varied in form from long oval to almost round, whitish

and translucent so that the yolk lent a pinkish tinge. Their length was about 20.2 mm.

The three stomachs I examined all contained insect remains, and one held some fruit as well.

Melanoploceus aureonucha (Sassi)

Ploceus (*Melanopteryx*) *aureonucha* SASSI, 1920, Ornith. Monatsber., p. 81 (type locality: between Beni and Mawambi, Ituri District, Belgian Congo): 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 63.

Melanopteryx aureonucha GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 34, pl. 1, fig. 2 (Kampi-na-Mambuti).

Ploceus aureonucha SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 736.

DISTRIBUTION: Eastern Congo forest, scarcely known thus far outside the triangle between Mawambi, Irumu, and Beni. Grauer collected three specimens, one surely an adult male, the others either female or immature. A fourth bird, at first identified as *aureonucha,* has proved to be *Rhinoploceus flavipes.* Gyldenstolpe obtained a single example, supposedly a young female.

The adult male is a bird of striking coloration, largely black above but with much of the crown deep red-brown, a bristly ruff of orange on the nape giving way to a rich yellow collar on the hind-neck, and a short yellow line on the middle of the back. Throat black, chest deep maroon, and remaining underparts soiled gray-green, becoming nearly whitish on abdomen and under tail-coverts. Wing 79–83 mm., tail 43.5 mm., culmen to base 20 mm., metatarsus 20 mm. Iris dark brown; bill black; feet pinkish brown washed with dusky, claws dark gray.

The female is supposed to have a golden brown band on the nape and hind-neck, the crown mostly light brown washed with rufous, back blackish, and underparts mostly gray, washed on breast with olive-green, and changing to grayish white on abdomen. But immature males have very much that same appearance.

Gyldenstolpe saw this golden-naped weaver only once. A few of them were climbing on the branches of a medium-sized forest tree in the region west of Irumu. My first specimen was an adult male, in primary forest near Udembo, 48 kilometers from Irumu on the road toward Beni. It was climbing about alone on a rather thick bough, high up in a great tree, in much the same fashion, I thought, as *Phormoplectes preussi.* The date was September 30, the gonads were enlarged for breeding, and the stomach contained only pieces of insects.

Five days later, at some 8 kilometers north of the new post of Beni, I encountered a party of 20 to 25 birds, none of them recognizable as an adult male. They straggled across the road in some old second growth with many high trees left standing, and were feeding actively in leafy trees, not climbing

on the bark. I picked two individuals that seemed rather brightly colored, but they both proved to be immature males. The rest escaped, and I never saw the species again.

The younger bird was not unlike Gyldenstolpe's figure; the other was beginning to molt into fully adult plumage. Both these birds had in their stomachs remains of some greenish fruit and a few bits of insects. The only calls heard were a weak chatter such as one might well expect.

A forest weaver in that region may nest in any month of the year, and this one is not expected to be colonial in habits. I am rather surprised that the young form such large parties.

Symplectes bicolor mentalis Hartlaub

Symplectes mentalis HARTLAUB, 1891, Jour. Ornith., p. 314 (type locality: Buguera, on highland west of L. Albert).

Ploceus bicolor nandensis HARTERT, 1907, Novitates Zool., vol. 14, p. 503 (Mpanga Forest, western Uganda).

Ploceus bicolor mentalis HARTERT, 1907, Novitates Zool., vol. 14, p. 503. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 730.

Sycobrotus mentalis OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 271.

Ploceus mentalis SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 270 (Kilo).

Ploceus (*Symplectes*) *mentalis* SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 270. HARTERT, 1919, Novitates Zool., vol. 26, p. 139.

Ploceus (*Symplectes*) *nandenses* SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 59 (Urundi).

Symplectes bicolor mentalis JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1396.

DISTRIBUTION OF THE SPECIES: Fernando Po and Cameroon to Angola, Rhodesia, and eastern Cape Province; also in the southern and eastern Congo, and in East Africa north to the Juba River. This widespread species appears divisible into seven or more subspecies, some of which are restricted to highlands, while others range through lowlands.

The nominate form, in Cape Province and Natal, is brownish black above, while *stictifrons* of Mozambique and Nyasaland has the back more grayish, forehead feathers tipped with whitish. There may be one or two intermediate races in southeast Africa. Along the East Coast, on Zanzibar and northward, lives the richly colored *kersteni,* with head and back deep black.

The race *amaurocephalus* of Angola is gray-backed, with crown and cheeks brownish black and throat rather hoary gray. In the Gaboon and lowland Cameroon crown, back, and throat are all a little darker, and the race there is *analogus.* Mt. Cameroon and Fernando Po have a still darker form, *S. b. tephronotus.* Another race with dark gray back and black crown and cheeks is *mentalis* of Kavirondo and the eastern Congo. Males have the

throat black, its feathers tipped more or less with yellow. While *amaurocephalus* has usually been said to range east to Northern Rhodesia and the Katanga, birds from these eastern regions show some approach to the coloration of *mentalis*.

Symplectes b. mentalis is mainly restricted to highlands, from near the Lotti Forest in the southeastern Sudan to the Nandi District of Kenya Colony, and also to the Lendu Plateau, southwestern Uganda, Urundi, and the mountains west of Baraka. Grauer's three specimens from the last-named place seem just a little less black on chin and upper throat than others from North Kavirondo and Toro. From most of the Kivu District this weaver has not been reported. In my experience it lives mainly in thick forest at levels of 4000 to 5500 feet. It feeds on insects amid the undergrowth and leafy lower boughs of trees, and twice I have seen it with a mixed party of small birds. It has never been taken on Ruwenzori, but I am sure I saw it at Karasawangwa, along the west base of those mountains. A specimen was secured at Djugu and another in the Mpanga Forest where it seems to be rather numerous.

Symplectes bicolor amaurocephalus (Cabanis)

Sycobrotus amaurocephalus CABANIS, 1880, Jour. Ornith., p. 349, pl. 21, fig. 1 (type locality: Malange, Angola). SCHALOW, 1887, Jour. Ornith., p. 241. SHELLEY, 1899, Ibis, p. 368; 1905, The birds of Africa, vol. 4, pt. 2, p. 370.

Sycobrotus bicolor DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika); 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 ("Kibongo"). SCHALOW, 1886, Jour. Ornith., p. 419 (Lukumbi R.). MATSCHIE, 1887, Jour. Ornith., p. 154 (Luvua R.). SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 5 (Lukonzolwa). NEAVE, 1910, Ibis, p. 256 (Lualaba R., 2500 ft.; Bunkeya R.).

Sycobrotus (*kersteni* ?) SCHALOW, 1886, Jour. Ornith., p. 416 (Masembe).

Symplectes bicolor REICHENOW, 1887, Jour. Ornith., p. 309 (Kibondo).

Ploceus (*Symplectes*) *bicolor* REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 34.

Ploceus bicolor tephronotus HARTERT, 1907, Novitates Zool., vol. 14, p. 501.

? *Symplectes tephronotus* SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 403 (Kwamouth).

Ploceus bicolor amaurocephalus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 730. VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, p. 3 (Musosa).

Symplectes bicolor amaurocephalus SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 161 (Moba; Kinda; Dilolo).

DISTRIBUTION: Angola, from Canhoca and Tala Mugongo south to the region of Quillengues. The eastward extension of the range is not clear, for the birds of the Katanga and Ufipa are much more blackish on the throat, the feathers partly tipped with brownish yellow. Moreau[1] pointed

[1] 1943, Ibis, p. 395; 1947, idem, p. 223.

out that they were intermediate in coloration between *amaurocephalus* and *mentalis,* and I use the former name only provisionally for the population occupying the southern Congo, from Kwamouth to the Manyema and Katanga. Perhaps it is as much like *analogus* as any other race. A single male collected by Rockefeller and Murphy at Lake Suzi, 3850 feet, in southern Marungu is rather gray on the throat, but it is plainly immature.

Neave found this a woodland bird in the Upper Katanga, with a harsh, jarring call note. White, in the adjacent Mwinilunga District, reported it as not uncommon in evergreen forest areas, breeding there presumably about September. Along streams on the southwest side of Lake Tanganyika Böhm met with it in small parties in September and sometimes busy about its large, low-hanging nests woven of tendrils from creepers. Eggs had not yet been laid.

The food must consist largely of insects, but Rockefeller and Murphy noted one as feeding on red berries in riverside bush.

[*Symplectes bicolor analogus* Todd]

Symplectes amaurocephalus analogus Todd, 1932, Proc. Biol. Soc. Washington, vol. 45, p. 221 (type locality: Jele, French Cameroon).

Characteristic of the lowland forest of southern Cameroon, but extending certainly to Kango in the Gaboon, where Maclatchy collected it for us, and possibly to the Loango Coast or Mayombe. In the Rothschild Collection there is a single adult, probably female, labeled "Congo" and possibly from a little north of the Congo mouth. It may be that Schouteden's record from Kwamouth should be referred to *analogus* rather than to *amaurocephalus*. Here also it should be pointed out that in most of the lowland rain forest of the Upper Congo this species is unknown.

Key to the Species of *Malimbus*
(Adults of both sexes)

1. Red feathers of crown lengthened to form a crest, conspicuous in male, less so in female; chin black, but throat, fore-neck, upper chest, and most of ear-coverts also red . . . . . *M. malimbicus*
   Head not crested; red not distributed as above 2
2. Plumage only partly black, varied with red or some yellow 3
   Plumage wholly black 11
3. Crown red in whole or in part 4
   Crown black, but chest region with red or yellow 6
4. Entire under surface black 5
   With some red or yellow on underparts 8
5. Red of crown extending back over hind-neck, forehead either red or black; wing usually over 87 mm. long . . . . . *M. rubricollis*
   Crown with a red patch that may extend to forehead but not beyond occiput; wing usually less than 87 mm. . . . . *M. coronatus*

6. Under tail-coverts black, chest patch red . . . . . *M. nitens*
   Under tail-coverts red or yellow 7
7. Chest patch red, sometimes divided by a black median stripe; under tail-coverts red . . . . . *M. scutatus*[1]
   Chest patch red in middle, changing to yellow laterally; under tail-coverts yellow . . . . . *M. racheliae*[1]
8. Whole breast and most of flanks red, throat black in male, red in female . . . . . *M. erythrogaster*
   Chest with a patch of red or red and yellow; lower breast black 9
9. Under tail-coverts black, chest scarlet . . . . . *M. cassini*
   Under tail-coverts scarlet or yellow 10
10. Chest scarlet all across, under tail-coverts scarlet . . . . . *M. scutatus*
    Chest patch largely yellow, shading to orange-red in middle, anteriorly; under tail-coverts yellow . . . . . *M. racheliae*
11. Wing usually more than 85 mm. long; feet brown. . . . . *M. cassini*
    Wing usually less than 85 mm.; feet black . . . . . *M. coronatus*

Malimbus coronatus Sharpe

Malimbus coronatus SHARPE, 1906, Bull. Brit. Ornith. Club, vol. 19, p. 18 (type locality: Ja R., Cameroon). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 321. CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 269. GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 39 (Kartushi). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 57 (Beni; Mawambi; Ukaika; Mawambi–Irumu). SCHOUTEDEN, 1925, Rev. Zool. Bot. Africaines, vol. 13, p. 19 (Kunungu); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 142 (Poko; Kotili; Nava R.); 1938, Bull. Cercle Zool. Congolais, vol. 14, p. 34 (Buta). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 752. BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 140, fig. 18 (near Libokwa).

Malimbus gracilirostris REICHENOW, 1909, Jour. Ornith., p. 108 (type locality: Avakubi, Ituri District).

SPECIMENS: Panga, female, September 17. Avakubi, five males, May 13, October 9, 16, 19, November 30; four females, January 11, 15, November 9, 30; immature male, November 4; immature female, May 28. Ngayu, male, December 10. Bafwabaka, male, July 26; two immature males, January 3, December 31.

ADULT MALE: Iris dark red, bill and feet black.

ADULT FEMALE: Iris rather dark carmine, bill black, feet bluish black or black.

IMMATURE: Iris first brownish gray, then brown, and later reddish brown; bill at first dull light brown, becoming dusky brown, corners of mouth pale yellow; feet dark gray or bluish.

DISTRIBUTION: Forested southern Cameroon and eastward to the rain forest of the Upper Congo, where it is known only from the northern half of the forest belt.

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[1] *Malimbus scutatus* and *racheliae* are extralimital; both have been reported from the Gaboon.

The male is wholly black save for a rich scarlet crown patch, which does not extend to nape or supercilium. Seven adults of that sex from the Ituri have wings 82–86.5 mm. In the Cameroon this wing length is usually 85–90 mm. The adult female is completely black, scarcely distinguishable from that sex of *M. cassini,* except by the black feet and slightly shorter wing. Five females of *coronatus* from the Ituri have wings 82–84 mm., whereas females of *cassini* have wings 85–92 mm.

The young of both sexes of *coronatus* in juvenal dress have crown patches of light yellowish rufous extending to the forehead. There is often an area on the upper chest, too, which is lightly spotted with the same color. This head color of the young female may be compared to a similar condition in some young woodpeckers.

This red-crowned weaver is one of the commoner species of *Malimbus* in the Ituri forest, and I collected four specimens in 1937 as far south as Angumu. It also extends to the lowland forest east of the Semliki River. I have seen a specimen from Koloka in the region of Angu but none from the gallery forests of the Uelle District.

The species is not social, is strictly forest-dwelling, and never noticed in clearings about villages. It is sometimes a silent member of a mixed roaming party of insectivorous birds, also rather frequent along paths through the heavy forest. In spots where the undergrowth opens out it will hang its nest from some dangling thorny vine like an acacia, at a height of 8 or 10 yards.

One nest which we preserved is composed mainly of dry spiral tendrils from some vine, with small twigs and leaf stems as well. The spout is not very long (there were still no eggs) but decidedly wide, 7 cm. in diameter. Above the nest additional materials including green moss had been hung to the supporting vine, so the total length of the structure was 51 cm. Male and female both work at building the nest, and the male gives chattering notes without the "wheeze" of the village weavers.

To judge from dissections and nest building, about Avakubi the breeding season lasts almost through the whole year. A breeding female was secured even in January, and nests were seen under construction from July to November. Usually the nests were inaccessible, and we collected no eggs.

Of 17 stomachs examined, every one contained small insects or hard fragments, including small beetles and Orthoptera; in three there were also naked caterpillars and other insect larvae, and in three were insect eggs.

Malimbus cassini (Elliot)

Sycobius cassini ELLIOT, 1859, Ibis, p. 392 (type locality: Gaboon).

Malimbus cassini OGILVIE-GRANT, 1908, Ibis, p. 277 (Ponthierville). BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 287. SCHOUTEDEN, 1923, Rev. Zool. Bot.

Africaines, vol. 11, p. 348 (Basongo; Mayombe); 1926, idem, vol. 13, p. 204 (Kai Bumba); 1929, Bull. Cercle Zool. Congolais, vol. 6, p. 50 (Kunungu ?); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 142 (Kotili; Kondolole; Buta); 1937, Bull. Cercle Zool. Congolais, vol. 14, p. 5. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 752. BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 137, fig. 17.

Malimbus ? coronatus SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 348 (Basongo).

DISTRIBUTION: Lower Guinea forests from Efulen in Cameroon, Gaboon, Mayombe, and possibly northwestern Angola, eastward to the Lower Uelle, Stanleyville District, and the Kama River in the forested Manyema.

Except for its black under tail-coverts, the male of *cassini* bears a close resemblance to that of *M. scutatus* (Cassin). The ranges of the two species seem complementary, and they may be even more closely related than has commonly been supposed. Females differ more markedly, that of *cassini* being entirely black, while that of *scutatus* has a red chest, divided by a black median line in the race *scutopartitus*.

On the other hand, the ranges of *cassini* and *coronatus* overlap widely in the northern part of the forest belt. I have seen a male of *cassini* collected by Schubotz at Lifaki, a little north of the lower Uelle River. William Coultas obtained another at Ayena, near the Tshopo River, and Rockefeller and Murphy one more at Kita-Kita on the Kama River.

The young of *cassini* are black with a large area of light orange-red extending over forehead, malar region, and throat, and thus totally different from those of *coronatus*.

This is a bird of heavy forest, apparently more fond of swampy situations than *coronatus*. It hangs its nest from a leaf of one of the thick-stemmed thorny rattan palms that grow in such places, and this nest is most beautifully constructed. Its walls are smooth, made of strips from the palm leaves, and so thin as to be rather transparent. The division between egg chamber and spout is not very evident, and as the spout turns downward it becomes 10 to 15 cm. wide. At the end of the spout the fibers project loosely. The nest is usually woven between two or more palm leaflets, and with its spout measures about 50 cm. in length. Two white eggs are probably the rule. The nest of *M. scutatus* is very similar.

Nesting certainly begins early in the rains but possibly is interrupted during a part of the year. At Eala, where this weaver is reported to nest rather commonly, I could find only one very old nest in mid-March. The species is stated by C. S. Webb to be entirely insectivorous.

Malimbus nitens nitens (Gray)

Ploceus nitens J. E. GRAY, 1831, The zoological miscellany, no. 1, p. 7 (type locality: Sierra Leone, West Africa).

Malimbus nitens nitens SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 348 (Basongo). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 751. BOUET, 1934, Ois. Rev. Française Ornith., new ser., vol. 4, p. 646.

Malimbus nitens SCHOUTEDEN, 1924, Rev. Zool. Bot. Africaines, vol. 12, p. 423 (Bikoro). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 80 (Liranga).

DISTRIBUTION OF THE SPECIES: From Portuguese Guinea and Sierra Leone eastward to the Cameroon and almost the whole Lower Guinea forest, as far as the Semliki Valley. Two races have usually been recognized and nominate *nitens* said to range from Upper Guinea to the Cameroon and Loango Coast, while *microrhynchus* occupied the Upper Congo forests.

Actually the variation seems more complex. Large-billed birds are found from Southern Nigeria to the Cameroon and Gaboon, the culmen of males (to base) measuring 21–24.5 mm. But those of Sierra Leone and the Gold Coast have this measurement only 20–21 mm., and males from the northeastern Congo likewise 20–21 mm. Wings of males from Upper Guinea measure 86–89 mm., from Cameroon and Gaboon 91–97 mm., and from the northeastern Congo 84–91 mm.

It would seem therefore that the large-billed birds of the Cameroon and Gaboon deserve a new subspecific name, but I shall continue to call them *nitens* for the present. Though not known from the Mayombe, such birds are believed to extend eastward to the lower Ubangi, Lake Tumba, and possibly to Basongo. A male from Lukolela has the wing 93 mm., culmen to base 22 mm.

The species was far from common in the vicinity of Lukolela. Its haunts and behavior are discussed under the next race.

Malimbus nitens microrhynchus Reichenow

Malimbus nitens microrhynchus REICHENOW, 1908, Ornith. Monatsber., p. 160 (type locality: Lenda R., Ituri District): 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 320. SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 270 (Kilo); 1918, idem, vol. 5, p. 269; 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 142 (Poko; Rungu; Mauda; Panga; Bebengo near Panga; Kotili; Buta). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 26 (Beni). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 54 (Moera; Mawambi; Ukaika). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 751. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 81 (Nganzi).

Malimbus nitens SHARPE, 1884, Jour. Linnean Soc. London, zool., vol. 17, p. 426 (Ndoruma). SHELLEY, 1887, Ibis, p. 41; 1905, The birds of Africa, vol. 4, pt. 2, p. 351. REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 19. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Banalia). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 269.

SPECIMENS: Avakubi, two males, January 8, October 12; two females, October 12, November 4. Bafwabaka, male, December 30; immature male, December 31. Gamangui, male, February 8. Medje, two males, March 13,

June 3; female, March 22. Niangara, two males, November 22, 25; two immature females, May 4, December 14.

ADULTS OF BOTH SEXES: Iris crimson or carmine, bill light grayish blue, feet rather dark bluish, under surface of toes greenish gray.

DISTRIBUTION: Forest region of the Upper Congo, from Doruma on the north to the Kama River in the Manyema forest, and eastward to the Semliki Valley. I obtained specimens at Angumu; Rockefeller and Murphy brought

FIG. 27. Males of three species of *Malimbus*. A. *M. malimbicus*. B. *M. erythrogaster*. C. *M. nitens*.

one from Kita-Kita in the Manyema. Why there are no published records from west of Stanleyville I do not know, but I expect the species to range from Stanleyville to Coquilhatville and Lukolela without interruption.

In the Ituri District, east to Irumu and the forest east of the Semliki, this red-chested weaver is common in heavy forest, especially in the undergrowth, and comes out into second-growth woods but not into open clear-

ings. Not sociable, it is seen at most in pairs, noticeably fond of swampy spots and the banks of streams. The gallery forests of the Uelle must harbor it, since it has been reported from Doruma. Near Okondo's village, south of Niangara, I saw a few in a dense growth of young oil palms.

Adult females are noticeably smaller than males, with chest patch more scarlet. The young differ less from adults than in some other species of the genus. They are duller throughout, have a dull red patch on the chest and scattered red feathers on the crown.

In the Ituri the nesting season continues through the greater part of the year, for we took breeding adults in February, June, October, and November. But two fully adult males in December and January had reduced gonads. In these forests one often notices old empty weaver nests hanging from drooping boughs in the middle of an opening in the undergrowth, overspread by the larger trees. Very often these were built by *Malimbus nitens* and are recognizable from the wide entrance spout. The dark-colored materials look like rootlets. Sometimes nests are hung from *Raphia* or *Calamus* palms, and then strips are torn from their leaves. A gap in the forest over a brook is a favorite situation. I have occasionally found nests on branches projecting out over a river such as the Ituri or Nepoko. The birds were shy, retreating into the densest tangles, and scolding harshly. I found no eggs, but those of the Cameroon race were described by Ogilvie-Grant as yellowish stone-color with minute dots, spots, and blotches of Vandyke brown and grayish lilac, measuring 24 by 16 mm.

The 10 stomachs examined held no vegetable food, nothing but remains of insects and one spider. Beetles seemed to be eaten often, and a number of ants, several caterpillars, and one hemipter were also noted.

Malimbus rubricollis rubricollis (Swainson)

Ploceus rubricollis SWAINSON, 1838, Animals in menageries, p. 306 (type locality: Malimba, Enclave of Cabinda).

Malimbus rubricollis ELLIOT, 1876, Ibis, p. 462 (Congo). OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 128. REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 19. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (L. Leopold II). SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 346 (in part. Lower Congo).

Malimbus rufovelatus SHARPE AND BOUVIER, 1878, Bull. Soc. Zool. France, vol. 3, p. 75 (Condé).

Malimbus malimbicus BARTLETT, 1889, A monograph of the weaver-birds, Ploceidae, and . . . finches, Fringillidae, pt. 4, p. 1, pl. 1 (tributaries of Congo R.).

Malimbus rubricollis rubricollis HARTERT, 1907, Novitates Zool., vol. 14, p. 489. SCHOUTEDEN, 1926, Rev. Zool. Bot. Africaines, vol. 13, p. 204 (Temvo; Makaia-Ntete). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 751. BERLIOZ, 1941, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 13, p. 404 (Brazzaville).

DISTRIBUTION OF THE SPECIES: Sierra Leone to Southern Nigeria, Fernando Po, Cameroon, northwestern Angola, and eastward to Uganda and

North Kavirondo. Five races were recognized by Sclater. In Upper Guinea *bartletti* has the red of crown and nape deep crimson, and *nigeriae* of Southern Nigeria, with very large beak, is intermediate in crown color between *bartletti* and *rubricollis,* the last-named race being scarlet on the crown. These three races are large, wings of males 100 mm. or longer. Nominate *rubricollis* ranges from the forested Cameroon to the Lower Congo and Stanley Pool. On Fernando Po, *Malimbus r. rufovelatus* Fraser has a large bill like that of *nigeriae,* but is colored more like *rubricollis.*

Malimbus r. centralis is colored like the nominate race, but smaller, with wings of males in the Ituri 94–100 mm. It occupies the eastern Congo and Uganda, and males from Uganda and North Kavirondo have wings 97–105 mm. The only character of *praedi,* in the forests of northwestern Angola, is its rather short wing, in males 90–96 mm. The coloration is like that of *centralis.*

The nominate race has been found in the Mayombe Forest, at Brazzaville, and at Kimuenza, where Schultze collected a specimen. I saw at least two pairs of this species at Lukolela but did not collect any. I can only suspect that the race there may be *centralis,* to which the record from Lake Leopold may also refer. This weaver keeps well up in high trees and is very apt to be seen climbing about on the bark in search of insects.

Malimbus rubricollis centralis Reichenow

Malimbus rubricollis centralis REICHENOW, 1893, Ornith. Monatsber., p. 30 (type locality: Ndussuma, west of L. Albert); 1904, Die Vögel Afrikas, vol. 3, p. 21 (Ipoto); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 320 (Avakubi). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 270 (Kilo); 1918, idem, vol. 5, p. 269 (Beni; Masidongo; Kikanga); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 142 (Bondo Mabe; Arebi; Medje); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 159. CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 270; 1927, idem, vol. 53, p. 478. BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 283. GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 37 (Kartushi; Lesse; Simbo). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 55 (eastern edge of Rutshuru Plain, 1600 m.; Mawambi). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 751. FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 359. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1437.

Malimbus rubricollis SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 346 (in part).

Malimbus centralis OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 269 (Mpanga Forest, 5000 ft.).

SPECIMENS: Panga, male, September 15. Avakubi, three males, April 14, October 17, November 1; female, October 26. Bafwabaka, female, January 11. Ibambi, female, May 3.

ADULT MALE: Iris dark brown to brownish red, bill black, feet brownish black, soles yellowish gray.

ADULT FEMALE: Iris reddish orange to carmine, bill black, feet dusky bluish.

DISTRIBUTION: From the base of Mt. Elgon and the North Kavirondo District across Uganda to the eastern Congo forest, southward at least to the Kivu District and Angumu, and possibly to the Sankuru River. To the westward it is known from Koloka in the Lower Uelle, where Schubotz collected it, and it may perhaps reach the middle Congo River.

This red-crowned weaver has not been taken above 5300 feet, and in the Ituri forest is not a common bird. Singly or in pairs it is usually seen high in trees in the forest or at the edges of clearings and often climbs almost like a nuthatch on the trunks and limbs of the trees. In this it recalls the weavers of the genus *Phormoplectes* and differs from other species of *Malimbus*. Like so many other birds it will also pursue winged termites in the air.

The nesting season is evidently long. Adults with gonads enlarged were taken in April, May, and October, but a male in November had very small testes, and nesting may stop in the dry season. Near Avakubi on April 14 I saw a nest in an inaccessible position on an outer bough of a tall tree in a clearing, 30 yards up. It was not simply hung from the top but supported also by a small branch passing beneath it where the spout joined the nest proper. A female on October 26 had an egg in the oviduct, not yet completely calcified, whitish with a few rufous spots. In Uganda nests have been reported as built singly in similar positions in April, May, and August, the eggs pure white.

Examination of five stomachs confirmed the insectivorous propensities of this weaver. Not a seed or fruit was noted. The insect remains included a number of winged termites, about eight caterpillars, and one other insect larva. One spider, two tiny snails, and some pieces of snail shell were also found.

Malimbus erythrogaster erythrogaster Reichenow

Malimbus erythrogaster REICHENOW, 1893, Ornith. Monatsber., p. 205 (type locality: Yaunde, Cameroon). SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 453 (Zone of Gurba-Dungu). SCHOUTEDEN, 1939, Bull. Cercle Zool. Congolais, vol. 16, p. 51 (Bambesa); 1948, idem, vol. 19, p. 28 (Boende).

Malimbus erythrogaster erythrogaster SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 142 (Buta; Medje; Kotili; Djamba). BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 148, pl. 5.

DISTRIBUTION OF THE SPECIES: Southern Nigeria and forested Cameroon, eastward to the southern Uelle, Ituri, and Semliki Valley. The nominate

race occupies Southern Nigeria and the Cameroon and is believed to range eastward to the Ubangi, possibly to the Uelle. The birds of the Ituri and Semliki forests are deeper red and separable as *M. e. fagani.* But they do not always have black under tail-coverts, and specimens I collected near Beni agree well with those from Avakubi and Medje.

I cannot be positive that birds from the Lower Uelle really belong to the nominate race, but it is to be expected near the Ubangi. The northernmost locality from which I have seen a specimen is Ngurru, between the Uelle and the Bili rivers; it was collected by Schubotz in 1911. The behavior of this red-breasted *Malimbus* is discussed under the next race.

Malimbus erythrogaster fagani Ogilvie-Grant

Malimbus fagani OGILVIE-GRANT, 1907, Bull. Brit. Ornith. Club, vol. 21, p. 15 (type locality: Beni, Semliki Valley, eastern Congo); 1910, Trans. Zool. Soc. London, vol. 19, p. 270, pl. 10, fig. 1. REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 321. SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 270 (Kilo); 1918, idem, vol. 5, p. 270 (Zambo). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 57 (Moera; Ukaika).

Malimbus erythrogaster SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 270 (Kilo). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 269; 1925, Nat. Hist., vol. 25, p. 469 (Avakubi).

Malimbus erythrogaster fagani LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 26. BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 286. GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 39 (Molemba). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 752. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 142 (Bondo Mabe; Arebi).

SPECIMENS: Avakubi, three males, March 20, August 17, 28; female, March 20. Medje, four males, August 16, 24, September 1, 5; female, September 4; juvenile male, April 13.

ADULTS OF BOTH SEXES: Iris dark brown to dark red, bill black, feet brown or dark grayish brown.

NESTLING: Iris grayish, bill and feet pinkish gray.

DISTRIBUTION: From the Semliki Forest and the whole eastern edge of the lowland Congo forest westward at least to Angumu, Avakubi, and Medje. There is one male of *fagani* in the American Museum which Grauer collected in the forest not very far from Nyangwe on the Lualaba. The type of the subspecies was said to have thighs and under tail-coverts largely black, but this is by no means the rule. These parts are, however, deeper in color than in the nominate form.

The female is distinguished from the male in having the throat red instead of black. The young differ in having the whole head red, with only the lores blackish, and the ear-coverts tipped with dusky. Belly and under tail-coverts are light gray-brown with scarcely a tinge of pink.

Like others of its genus, *M. erythrogaster* is a bird of heavy forest, where it lives high in the trees, and sometimes comes to very tall trees in clearings. The brilliant red breast commands attention as the birds perch amid leafy boughs. Just north of the Equator in the Ituri the breeding season lasts from March to September at least and may include most of the year.

The Medje brought us a nest with one young bird in it on April 13. It was round and well woven, with a spout about 18 cm. long. More were seen later, attached to branches of tall trees and woven of pieces of small vines. The long spout seems to be added during the rearing of the young. Often these nests are built singly, and one was seen under construction, 30 yards above the ground, in a tree where a pair of blue plantain eaters (*Corythaeola*) already had a nest with two young.

Near Rungu in July, 1913, I noticed a colony of about 120 old weaver nests in the same tree with a huge nest of the crowned eagle (*Stephanoaëtus*) not occupied at that time. In March of the following year my helper Nekuma visited another crowned eagle's nest near Avakubi, already deserted by its proprietors. In the same tree were some 20 weaver nests, still in use, so he brought me two of the weavers. They proved to be *Malimbus erythrogaster,* and nowhere could they have found greater security from monkeys or other marauders. The eggs of this species seem still to be unknown.

Malimbus erythrogaster is mainly insectivorous. Of 12 stomachs examined, 10 contained insects, including beetles, an orthopter, and in two cases caterpillars. Three stomachs held fruit, and one some small green seeds.

Malimbus malimbicus malimbicus (Daudin)

Tanagra malimbica DAUDIN, 1802, Ann. Mus. Hist. Nat., Paris, vol. 1, p. 151, pl. 10, fig. 1 (type locality: Malimba, Enclave of Cabinda).

Sycobius cristatus HARTLAUB, 1850, Beitrag zur Ornithologie Westafrica's, p. 30 (Congo).

Sycobius malimbus HARTLAUB, 1857, System der Ornithologie Westafrica's, p. 132.

Malimbus cristatus ELLIOT, 1876, Ibis, pp. 457, 459. BARTLETT, 1889, A monograph of the weaver-birds, Ploceidae, and . . . finches, Fringillidae, pt. 4, p. 7, pl. 2.

Malimbus malimbicus SHELLEY, 1887, Ibis, p. 40. SCHOUTEDEN, 1926, Rev. Zool. Bot. Africaines, vol. 13, p. 204 (Temvo; Makaia-Ntete).

Malimbus malimbica malimbica HARTERT, 1907, Novitates Zool., vol. 14, p. 491.

Malimbus malimbicus malimbicus BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 284 (in part). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 38 (Lower Congo). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 750.

DISTRIBUTION OF THE SPECIES: Forests of Upper and Lower Guinea, from Sierra Leone to Uganda, and south to northwestern Angola. In forested Upper Guinea the race *nigrifrons* is distinguished by its relatively small bill and short crest even in the male. Size and stoutness of bill increase from the Cameroon to western Uganda, as does also the length of crest,

which becomes deep crimson. In northern Angola the bill is long but not so stout as in the northern Congo, the crest long but not so deep in color.

There can be no doubt as to the validity of the race *crassirostris,* described from Uganda. But the diminution in size of the bill across the Upper Congo to the Cameroon is gradual, as is the reduction of black about the base of the bill and the eye. The color of the crest changes but little. The type locality of nominate *malimbicus* is in the Enclave of Cabinda, and there the crest seems a little lighter, the bill a little slenderer than in the Upper Congo. I suspect that when satisfactory topotypes can be compared it will be found that *M. m. granti* of northern Angola differs little if at all from nominate *malimbicus,* and that the name *rubriceps* may be used for the birds of southern Cameroon.

In any case *M. m. malimbicus* extends from the Enclave of Cabinda into the Mayombe and adjacent wooded areas of the Lower Congo. At Ganda Sundi I collected a subadult male with rather slender bill, and in the Rothschild Collection there is an adult male with an even smaller bill and light red crest labeled "Loagna." The various birds from that mysterious locality are all such as one finds in the Mayombe; they were collected around 1900 by W. Lucas.

This nominate race is common in the Mayombe Forest, usually noted as a member of a mixed party of insectivorous birds.

Malimbus malimbicus crassirostris Hartert

Malimbus malimbicus crassirostris HARTERT, 1919, Novitates Zool., vol. 26, p. 140 (type locality: Budongo Forest, Uganda). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 38 (Kartushi; Kampi-na-Mambuti; Simbo). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 750. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 141 (Medje; Bondo Mabe; Nava R.; Poko; Kondolole; Buta). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 573 (Saidi). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1438. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 81 (Bwanandeke; Butahu R.; Biangolo R.; south of Katuka).

Malimbus bartletti OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 128.

Malimbus malimbicus FLOWER, 1894, Proc. Zool. Soc. London, p. 598 (Ipoto). REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 21; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 320 (Lenda R.). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 270 (Beni; Irumu). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 270 (Kilo); 1918, idem, vol. 5, p. 269 (Moera; Zambo; Lubilu; Mutiba; Bolovet; Makojoba; Lesse). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 26. SASSI, 1924, Ann. Naturhist. Mus., Wien, vol. 38, p. 55 (Mawambi; Ukaika).

Malimbus cristatus FLOWER, 1894, Proc. Zool. Soc. London, p. 606 (Muyoméma).

Malimbus rubriceps SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 270 (Kilo); 1918, idem, vol. 5, p. 269 (Beni).

Malimbus malimbicus malimbicus SCHOUTEDEN, 1924, Rev. Zool. Bot. Africaines,

vol. 12, p. 423 (Tondu); 1925, idem, vol. 13, p. 19 (Kunungu; Mongende). BOUET, 1942, Ois. Rev. Française Ornith., new ser., vol. 12, p. 163 (Bangui): 1945, idem, new ser., vol. 14, p. 80.

SPECIMENS: Avakubi, two males, April 13, October 17; two immature males, November 27, December 21; immature female, January 21. Ngayu, three males, December 14, 20; female, April 17; immature male, December 15. Gamangui, female, June 16. Bafwabaka, male, December 31. Medje, male, June 3.

ADULTS OF BOTH SEXES: Iris dark brown to dark brownish red, bill and feet black.

IMMATURE: Iris brownish, bill dark gray above, shading to pinkish gray below, feet black.

DISTRIBUTION: Budongo and Bugoma forests in western Uganda and the whole great forest area of the Upper Congo, west at least to Lukolela, where I collected a series of 11, all very much like those from the Ituri. I believe therefore that records from Kunungu and Bangui are to be included here.

On the north this red-crested weaver scarcely ranges beyond the edge of the solid rain forest near the Bomokandi and lower Uelle rivers. I have taken it at Angumu, but how far it extends southward toward the forested Manyema and Sankuru is not yet known.

Adult females are easily recognized by the shortness of the crest. Young of both sexes of *crassirostris* in juvenal dress have the whole crown, cheeks, and hind-neck rather dull red, without crest, throat and fore-neck red, often mixed with blackish. The young of *M. m. nigrifrons* differs conspicuously in being brighter red on crown and cheeks, the whole throat quite black, with only scattered red feathers there.

From Lukolela to the Semliki Valley the red-crested weaver is not uncommon, but fond of primary forest, where it feeds amid the lower boughs and taller undergrowth, searching the foliage for the insects on which it feeds. Frequently it joins in the mixed parties of insectivorous birds, consisting of various species of bulbuls, flycatchers, sunbirds, thrushes, woodpeckers, and weavers, each bird seeking food in its own way, from the ground up to the boughs of the great trees, but all keeping on together in some one direction. The habit must be acquired early in life. Young of this weaver even in juvenal dress are to be found in such associations. I heard no outstanding note that could be attributed to this species.

No nest of *M. malimbicus* did I ever see in the Ituri. Breeding evidently went on in the early part of the rains, for at Ngayu on April 17 a female had a soft egg in the oviduct, and another with ovary enlarged was taken in much the same region in June. Four adult males in the Ituri in December all had gonads much reduced in size, and three young in juvenal dress were secured in December and January. Near Beni the gonads were on the

wane in October. At Lukolela, near the southern edge of the forest, dissections likewise indicated a cessation of breeding during the dry period and its resumption in October. A female about ready to lay was taken on December 27, after which date I have no information. Close to the Equator, farther east, there must be a region where nesting is still more prolonged.

The nests of this weaver in the Cameroon were said by Bates[1] to be hung from climbing rattan palms in the forest. One from which he watched the bird emerge was attached to a long thorny rachis of such a palm leaf, about 20 feet up. It seemed to be woven of strips torn from such leaves, much more roughly built than nests of *M. cassini,* with entrance directed down, but short and ragged. In swampy forest near Eala in March I saw similar nests hung from rattan fronds, but no birds came to them.

The 17 stomachs of *Malimbus m. crassirostris* which I have examined held nothing except insect remains. Often there were pieces of beetles, but also four Orthoptera and some of their eggs, two small cicadas, five naked caterpillars, and one hemipter.

Rhinoploceus flavipes (Chapin)

Malimbus flavipes CHAPIN, 1916, Bull. Amer. Mus. Nat. Hist., vol. 35, p. 27, fig. 3 (type locality: Avakubi, Ituri District, Belgian Congo). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 753.

Ploceus (Melanopteryx) aureonucha SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 63 (in part. Ukaika).

Rhinoploceus flavipes GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 36, fig. 14 (Kampi-na-Mambuti; Simbo).

Ploceus flavipes STRESEMANN, 1925, Ornith. Monatsber., vol. 33, p. 89 (Ukaika).

Malimbus (Rhinoploceus) flavipes YAMASHINA, 1936, Tori, vol. 9, p. 214, fig. 77.

SPECIMEN: Avakubi, female, September 20.

ADULT FEMALE: Iris light yellow; bill black, but interior of nostril with its conspicuous turbinate structure flesh color; feet rather dull light yellow.

DISTRIBUTION: Northeastern Congo forest, from Avakubi on the Ituri River to the districts west of Irumu and Beni. Although the adult male is still unknown, the very open nostrils of this rare weaver-bird are most distinctive and may justify placing it in the monotypic genus *Rhinoploceus* Gyldenstolpe. The nasal aperture is approximately 3 mm. long by 2 mm. wide and exposes a large, light-colored turbinate structure, too long to be called a tubercle.

The adult female is glossy black, with inner edges of remiges shading to gray and under tail-coverts blackish brown. The yellowish feet are unusual, and the feathers of the nape have a slightly ruffled aspect. Wings 77.5, 84 mm., tail 42, 46 mm., culmen to base 18 mm., metatarsus 18.5 mm.

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[1] 1908, Ibis, p. 351; 1909, idem, p. 41.

Gyldenstolpe collected a second female resembling the type, and two immature males. The latter are less completely blackish and have indications of an olive-yellow collar near the nape. Rump and upper tail-coverts are washed with olive; the wings are somewhat brownish. Beneath, the coloration is grayish tinged with greenish yellow, abdomen and under tail-coverts becoming paler. We may wonder whether the adult male will be found to have some yellow or red color, possibly on the hind-neck.

Another immature specimen collected by Grauer at Ukaika, probably a female, was at first mistaken for *Melanoploceus aureonucha* and then shown by Stresemann to belong to the present species. It was colored like the young males but was already acquiring many black feathers on the chest.

About all we can say is that this weaver inhabits high trees in the rain forest. I never saw it alive; the type was shot by my helper Nekuma. Its stomach contained a number of small caterpillars, and in the oviduct there was a developing egg.

KEY TO THE SPECIES OF *Phormoplectes* IN THE CONGO
(Adults of both sexes)

1. No deep black in plumage, whole under surface whitish or pale yellow; crown and back dark brown, a pale yellow or whitish stripe on mid-line of back; middle upper wing-coverts broadly tipped with white . . *P. angolensis*
   Always with areas of deep black and of bright yellow 2
2. Crown and forehead entirely yellow, golden brown, or chestnut 3
   Forehead at least, and sometimes whole crown, black 5
3. A distinct crown patch of chestnut, ending abruptly on occiput . . . *P. insignis*
   Crown yellow or, if more brownish, changing gradually to yellow on occiput . 4
4. Rump mainly yellow, splashed at most with a little blackish . . . *P. preussi*
   Rump mainly black, with scarcely a splash of yellow . . . *P. dorsomaculatus*
5. Rump black; a yellow stripe on middle of back, usually extending up to the occiput . . . . . *P. dorsomaculatus*
   Rump yellow; a yellow stripe on middle of back 6
6. Black of forehead extending back only to above eye; hind crown yellow, often with a golden wash, sides of head and upper throat black . . *P. preussi*
   Whole crown, sides of head, and hind-neck black . . . . . *P. insignis*

Phormoplectes angolensis (Bocage)

Sharpia angolensis BARBOZA DU BOCAGE, 1878, Jor. Sci. Nat. Lisboa, vol. 6, p. 258 (type locality: Caconda, Angola).

Notiospiza (*Sharpia*) *angolensis* SCHOUTEDEN, 1930, Bull. Cercle Zool. Congolais, vol. 7, p. 46 (Elisabethville).

Notiospiza angolensis SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 289; 1949, idem, vol. 42, p. 161 (Nieuwdorp). WHITE, 1946, Ibis, p. 216 (northern Mwinilunga District; Ndola).

DISTRIBUTION: From the highlands of Benguella Province in Angola eastward to Mwinilunga in Northern Rhodesia and the Upper Katanga. In the region of the Katanga it is a bird of *Brachystegia* woodland.

Although long regarded as constituting a monotypic genus of unusually dull color, possibly allied to *Anaplectes,* this bird is plainly a member of the genus *Phormoplectes,* with which it agrees structurally. To that same group I should refer also *Symplectes olivaceiceps* Reichenow of southern Tanganyika Territory and *Ploceus nicolli* Sclater of Usambara. Those two species are evidently intermediate in coloration between the dull *angolensis* and the brightly colored *insignis.*

There can be no doubt of the similarity in behavior between this bird and the other members of the genus. White wrote that it kept well up in the trees and was sometimes a member of a mixed bird party, probably not uncommon. Since his published note of 1946 he has informed me that it is a very unusual bird for a weaver and reminded him almost of a nuthatch, by climbing about on the bark. That explains how its plumage often becomes so worn on the under side.

Adult males and females are alike in color, with crown and cheeks dark chocolate brown, bill blackish. Young birds of both sexes have paler beaks, greenish gray above and pink beneath; their crowns are dull olive-gray, the cheeks and a narrow superciliary stripe whitish. In Angola, where Ansorge collected immature birds in December that may have been four or five months old, the adults molt their remiges in November. Nesting is likely to go on during the dry season, toward August, or perhaps at the very end of the rains.

The food undoubtedly consists wholly of insects; nest and eggs are still unknown.

Phormoplectes preussi (Reichenow)

Symplectes preussi Reichenow, 1892, Jour. Ornith., p. 442 (type locality: Victoria, Cameroon).

Sycobrotus herberti Boyd Alexander, 1907, Bull. Brit. Ornith. Club, vol. 19, p. 88 (type locality: Pompari, Uelle District, Belgian Congo).

Phormoplectes herberti Chapin, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 270 (northeastern Congo).

Heterhyphantes preussi Ogilvie-Grant, 1917, Ibis, p. 72.

Ploceus (*Phormoplectes*) *preussi* Sassi, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 59 (Mawambi). Stone, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 572 (Ekibondo).

Phormoplectes preussi Schouteden, 1926, Rev. Zool. Bot. Africaines, vol. 13, p. 204 (Temvo).

Ploceus preussi congoensis Neunzig, 1927, Anz. Ornith. Gesellsch. Bayern, vol. 1, p. 105 (type locality: Makaia-Ntete in Mayombe). Sclater, 1930, Systema avium Aethiopicarum, pt. 2, p. 732 (Lower Congo).

Ploceus insignis preussi Sclater, 1930, Systema avium Aethiopicarum, pt. 2, p. 732 (Uelle District).

Ploceus (*Phormoplectes*) *insignis preussi* Schouteden, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 140 (Medje).

Phormoplectes preussi preussi BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 41, pl. 1.

Phormoplectes preussi congoensis BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 43 ("Makoia" = Makaia Ntete).

SPECIMENS: Medje, female, March 1; juvenile male, July 29. Rungu, female, July 1. Niangara, male, female, juvenile male, juvenile female, December 22.

ADULTS OF BOTH SEXES: Iris dark brownish red, bill black, feet light brownish pink (male) or pinkish gray (female).

NESTLINGS OF BOTH SEXES: Iris gray, bill grayish pink with corners of mouth pale yellow, feet pink.

DISTRIBUTION: Lowland forests from Sierra Leone to Cameroon, Lower Congo, and eastward edge of the Upper Congo forest. Although that area is vast, few specimens are usually collected, and thus far no real division into races has been made. The type of *congoensis* does not differ appreciably in size or color from Cameroon examples, and the species is certainly to be expected in the Gaboon.

In the Upper Congo I have seen this "nuthatch-weaver," as I like to call it, mainly in the border regions of the forest. It ranges northward about to the Uelle River. On the east I have collected specimens between Beni and Irumu and should expect the species in the Semliki Forest. At Lukolela I never saw it, and Schouteden secured only a single example in the Mayombe. An adult male collected by Rockefeller and Murphy at Kitutu on the Elila River proves that *preussi* extends to the forested Manyema. It has a brownish chest patch darker and more clearly defined than any other I have seen.

Near Avakubi in the Ituri I thought I saw *P. preussi* once but was never able to get a specimen there. In the region from the Nepoko River north to Okondo's village near Niangara it was not really rare. Adults are apt to be seen in pairs, and sometimes they are members of a mixed bird party which may include *Parus funereus, Anthreptes tephrolaema, Andropadus gracilirostris, Oriolus brachyrynchus,* and even *Mesopicos xantholophus.* Most of their time is spent climbing silently about the trunks or larger boughs of high trees. In this method of searching the bark for food they resemble *Malimbus rubricollis.*

South of Niangara, on December 22, we found a nest, 38 feet up, in the top of a small tree in a plantation close to a gallery forest. It was composed almost entirely of grayish green *Usnea* lichen, bound together with strips torn from palm leaves and fastened securely to small branchlets, the entrance opening below. It was not truly pensile and had no spout. The arrival of an old bird with food was hailed by the two young with noisy chirping, and the ground below was spotted with white excrement. Both parents came to the nest.

It was interesting to find these birds nesting early in the dry season, but a nestling with tail only half grown was brought to us at Medje on July 29. I doubt that nesting goes on through the whole year, for two adults taken 45 kilometers north of the new post of Beni on October 4, in a very rainy period, were definitely non-breeding. On the other hand, the male from Kitutu, at latitude 3° 16′ S., had gonads enlarged on August 30. There may be a preference for drier months.

Our nestlings show that in juvenal plumage the sexes are alike and that the name *auricomus* was given by Sjöstedt to a young bird of this species. There is no black on the head. The forehead is dull yellowish green; mid-crown and nape are light tawny rufous. Body plumage resembles that of adults, but wing-coverts and secondaries are fringed with greenish.

Stomachs of six adults contained only remains of insects, including one caterpillar, and a spider was also noted. One of the young birds had a few hard seeds in its stomach, probably from a berry.

Phormoplectes dorsomaculatus (Reichenow)

Symplectes dorsomaculatus REICHENOW, 1893, Ornith. Monatsber., p. 177 (type locality: Yaunde, Cameroon).

Ploceus (*Phormoplectes*) *insignis* SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 270 (Marissawa).

Ploceus (*Phormoplectes*) *dorsomaculatus* SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 60 (Moera; Beni–Mawambi).

Ploceus dorsomaculatus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 732.

ADULTS OF BOTH SEXES: Iris dark reddish or deep red-brown; bill black; feet light gray-brown, claws dark gray-brown.

DISTRIBUTION: Scattered localities from Yaunde and Bitye in the Cameroon and Berberati in the northern French Congo eastward to the Semliki River. In the Cameroon it occurs in the same places with *P. preussi,* which it resembles so closely in appearance and behavior. Likewise in the eastern Congo it has been found between 2500 and 5000 feet and may well live side by side with *preussi,* occasionally even with *insignis.*

The species *dorsomaculatus* appears to be restricted to the northern part of the equatorial forest belt, and the gaps in its distribution as known are still very wide. Ogilvie-Grant (1917) was well justified in separating it from both *preussi* and *insignis.* The black rump in both sexes of *dorsomaculatus* is distinctive.

The only specimens I have secured were a mated pair, with gonads not ready for breeding, at 4000 feet, some 5 kilometers north of the new post of Beni on October 5, 1926. They were climbing about the larger limbs of some great trees in a clearing. Schouteden now assures me that Pilette's example from Malisawa is really *dorsomaculatus.* In the Rothschild Collec-

tion we have an adult female of *dorsomaculatus* secured by Grauer to the west of Lake Edward on February 17, 1908; on that same day he also obtained a specimen of *insignis,* at 1600 meters altitude. I have seen no example of *dorsomaculatus* in juvenal dress.

There appear to be no differences in behavior or food between *preussi* and *dorsomaculatus.* Two stomachs of the latter I found to contain only small caterpillars and remains of insects.

Phormoplectes insignis insignis (Sharpe)

Sycobrotus insignis SHARPE, 1891, Ibis, p. 117, pl. 6, fig. 1 (type locality: Mt. Elgon, East Africa).

Ploceus insignis frater NEUMANN, 1908, Bull. Brit. Ornith. Club, vol. 23, p. 12 (type locality: country west of L. Edward).

Ploceus frater REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 321.

Heterhyphantes insignis OGILVIE-GRANT, 1917, Ibis, p. 73.

Ploceus (Phormoplectes) frater SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 270 (Loashi).

Ploceus (Sitagra) insignis frater HARTERT, 1919, Novitates Zool., vol. 26, p. 138.

Ploceus insignis insignis SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 731 (west of L. Albert).

Ploceus (Phormoplectes) insignis insignis SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 279 (Burunga).

Phormoplectes insignis insignis SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 159 (Kamatembe, 2100 m.; Burunga near Mt. Mikeno, 2000 m.). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1398 (Ankole). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 80 (Kalehe near Lutunguru).

Phormoplectes insignis VRIJDAGH, 1949, Gerfaut, vol. 39, p. 105 (Mt. Aboro, 2100 m.).

ADULTS OF BOTH SEXES: Iris dull dark red, bill black, feet dull light grayish or pinkish brown with claws gray.

DISTRIBUTION OF THE SPECIES: Highlands of Fernando Po, the Cameroon, eastern Congo, and East Africa from the Imatong Mountains, Marsabit, and Mt. Kenya to Kungwe-Mahare on the east side of Lake Tanganyika.

Phormoplectes insignis unicus Stresemann[1] of Fernando Po has the chestnut crown of the male very much darker than that of *P. i. insignis* of the highlands of the Cameroon. That nominate race extends to the eastern Congo, southeast Sudan, Mt. Elgon, North Kavirondo, and Kungwe-Mahare. East of the Great Rift in Kenya Colony the males are apt to be richer yellow on the chest, often splashed there with reddish brown; those are the characters of *P. i. ornatus* (Granvik).

On the Banso Mountains in Cameroon and the Imatong Mountains in the Sudan, some specimens taken at altitudes of 7000 feet or higher have been

[1] 1948, Ibis, p. 335 (Mt. Santa Isabel).

found to have the yellow areas of plumage olive rather than bright golden. Their condition was due to immaturity and soiling, so *P. i. okuensis* Bannerman does not deserve recognition.[1]

In the eastern Congo *P. i. insignis* is restricted to woods at altitudes of 5000 to 7000 feet. I have taken it at Djugu, west of Lake Albert, and Vrydagh found it on Mt. Aboro. Grauer collected two examples west of Lake Edward, and Pilette one to the northwest of Lake Kivu. It has never been observed on the higher slopes of the Kivu Volcanoes or on Ruwenzori but does occur near the bases of the volcanoes.

Both in Kenya Colony and on the Lendu Plateau I have watched this highland "nuthatch-weaver" going in pairs, crawling about on the bark of high trees, acting in every way like *P. preussi* and *P. dorsomaculatus*. It feeds on insects and small naked caterpillars, as indeed its slender bill might suggest.

A nest found by Jackson in the Nandi District on May 26 was built of corkscrew-like tendrils of convolvuli, had a lengthened spout, and was woven onto the under side of a branch in a thorn tree, not suspended. The eggs were two, pale blue with faint traces of a few brown spots; measurements: 22 by 16 mm. At Lutunguru Prigogine found a nest on January 23 with two eggs of that same coloration, measuring 22.5–23 by 15 mm.

Nestlings of both sexes are alike in color; the forehead, crown, and hind-neck are dark olive obscurely streaked with dusky. Thus they are readily distinguished from the young of *P. preussi*. Blackish feathers soon appear on the crowns of young females; the yellow throat may be retained for a long time. Young males gradually acquire deep rufous feathers on the crown, but before that many blackish feathers may appear there as well. The type of *frater* is simply a female with chin and throat entirely yellow, and we have a black-throated female taken by Grauer at the same locality, one day later.

Anaplectes rubriceps rubriceps (Sundevall)

Ploceus (*Hyphantornis*) *rubriceps* SUNDEVALL, 1850, Öfvers. K. Svenska Vetensk. Akad. Förhandl., vol. 6, p. 97 (type locality: Mohapoani, Witfontein Mountains, western Transvaal).

Anaplectes rubriceps NEAVE, 1910, Ibis, p. 256 (Loangwa Valley). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 105 (upper Lufira R.). SCHOUTEDEN, 1938, Bull. Cercle Zool. Congolais, vol. 14, p. 105 (region of L. Kisale). WHITE, 1946, Ibis, p. 216 (Mwinilunga). A. W. VINCENT, 1949, Ibis, p. 496 (Elisabethville, and 100 miles to northeast).

DISTRIBUTION OF THE SPECIES: From Swaziland, eastern Transvaal, and Ngamiland to Angola and the Katanga, then through eastern Africa to

[1] See Macdonald, 1947, Ibis, p. 661; and Serle, 1950, Ibis, p. 630.

Somaliland; also westward across the Sudan to interior Senegal or the Gambia.

It has been customary to treat *rubriceps* and *leuconotos* as distinct species, even though it has been clear that a form named *gurneyi* was more or less intermediate, with indications of black about the face. The remiges of *rubriceps* are normally edged with greenish yellow, those of the black-cheeked *leuconotos* with red. But we have a male of *rubriceps* from Kilosa, Tanganyika Territory, with red outer margins on the remiges. Thus does the specific distinction break down.

The foregoing races all have a male eclipse plumage, worn for many months, and the prenuptial molt seems never to involve the rump or belly. In *jubaensis,* living close to the Equator, the eclipse plumage appears to be omitted, and thus the male is red on rump, belly, and under tail-coverts. So even *jubaensis* may be only a race of *rubriceps.*

Anaplectes r. rubriceps ranges from South Africa to southern Angola, the Katanga, and the Pangani District in Tanganyika Territory. The rather variable *gurneyi* seems to crop up sporadically near the northern edges of the range of *rubriceps,* where it meets *leuconotos.*

The black-cheeked *leuconotos* extends across most of the Sudan and adjacent grasslands to Abyssinia and British Somaliland, then south in East Africa to Unyamwezi and Kakoma. It occurs in Marungu and even on the Kwango River in Angola. We have a male that can well be referred to *leuconotos* from the Mombolo district in Angola. *Anaplectes jubaensis* Van Someren is known only from Jubaland.

The red-faced *rubriceps* enters the Congo only in the Upper Katanga, where it is found thinly scattered through the more open savanna woods and country dotted with large trees. It is rather silent and retiring, keeping mostly to the higher trees and feeding almost entirely on insects. In the Mwinilunga District of Northern Rhodesia White noted that it was often a member of mixed bird parties.

Alfred Vincent found nests near Elisabethville from early September to mid-October, and breeding continues at Mwinilunga until December. Nests are built singly at the extremity of a drooping branch, 8 to 30 feet above the ground, of the familiar retort shape, often with long spout, toughly woven of pliant twiglets and with leaves intermingled. Numerous twists of other fibers bind the twiglets together, and there is a lining of dry grass and leaves. Sometimes a nest is hung from a telegraph wire close to a tree. Rarely are more than three built close together unless they be near the nest of some bird of prey.

The set is normally of three eggs, immaculate greenish blue, sometimes fading almost to white at the small end, or with a ring of deepening color around the large end. Measurements: 18.8–21.9 by 13.8–15 mm.

Anaplectes rubriceps gurneyi (Shelley)

Ploceus gurneyi SHELLEY, 1887, Ibis, p. 17, pl. 1 (type locality: Caconda, Angola).

Anaplectes rubriceps gurneyi SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 289 (Elisabethville); 1949, idem, vol. 42, p. 161 (Kadia; Nieuwdorp; upper Lufira R.).

DISTRIBUTION: From the highland of Angola near Caconda eastward to the Tanganyika-Nyasa Plateau, it has been said, and possibly even into Tanganyika Territory where the ranges of *rubriceps* and *leuconotos* approach each other. This is not a satisfactory race; the range is long and irregular. More likely it is composed of hybrids between the two more widely distributed races, so they cannot be regarded as valid species that do not interbreed.

There are few records of *gurneyi* from the Katanga. Yet since *rubriceps* occurs near Elisabethville and *leuconotos* certainly inhabits Marungu, we must expect specimens of intermediate character from the intervening area and possibly in the Lulua District. Males do not acquire a complete black cheek patch, and the edgings on the wings are usually yellowish.

Anaplectes rubriceps leuconotos (Müller)

Ploceus leuconotos J. W. VON MÜLLER, 1851, Naumannia, vol. 1, no. 4, p. 28 (type locality: Abyssinia).

Sycobius melanotis SCHALOW, 1886, Jour. Ornith., p. 427 (Lugoma R.).

Calyphantria melanotis MATSCHIE, 1887, Jour. Ornith., p. 154.

Anaplectes melanotis REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 26 (Kwango R. in northern Angola). SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 338, pl. 37, figs. 2, 3. OGILVIE-GRANT, 1908, Ibis, p. 276 (southwestern Uganda); 1910, Trans. Zool. Soc. London, vol. 19, p. 271 (Mokia). NEAVE, 1910, Ibis, p. 256 (upper Lufupa R., 4500 ft.). SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 439 (Yambio). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 755. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 142 (Uelle District). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1442.

Anaplectes leuconotus SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 161 (Kiambi; Kapiri; Kabalo; Tembwe). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 105 (Mahagi Port).

SPECIMENS: Garamba, male, June 25; immature male, June 4.

MALE: Iris bright brown, bill orange-red, metatarsus grayish brown, toes light brownish pink.

IMMATURE MALE: Iris dark brown; bill orange, brownish on culmen and tip; feet brownish gray.

DISTRIBUTION: The Sudan, probably west to the Gambia, and eastward to the Nuba Mountains, Fung Province, Abyssinia, and British Somaliland. In eastern Africa it extends southward through Uganda and Kenya Colony to Unyamwezi and Marungu, then westward to the northern edge of the

Benguella highland in Angola. This extended range circles entirely around the Guinean forests and forms a relatively narrow band on the south side of the Congo forest.

On the northeastern frontier of the Congo this black-cheeked *Anaplectes* has been observed only from Faradje north to the Bahr-el-Ghazal Province. In the Ubangi region Fort Sibut may mark the southern edge of the range. On the east it is perhaps to be expected along the north shore of Lake Edward, and there are two specimens in the American Museum which were taken by Grauer in eastern Ruanda near the Kagera River. It may seem surprising that the largest area in the Congo known to be inhabited by *leuconotos* is in Marungu and west to Kiambi on the Luvua and Kabalo on the Lualaba. It is to be expected that the range will extend westward across the Lulua District, since Neave reported this race from the upper Lufupa, and it certainly reaches Mombolo in Angola.

Neave noted *leuconotos* as rather scarce in the Katanga and always a member of some mixed bird party. In Marungu Rockefeller and Murphy collected three specimens at Kasoko, 4100 feet, where they were characteristic of savanna woods.

During more than two years in the Upper Uelle I saw only three individuals. One that I could not collect, a male with considerable red about head and chest, was seen near Faradje in March. The adult male secured at Garamba late in June had just begun to molt from eclipse to breeding plumage, the red feathers coming in on crown and fore-neck. The young male taken there three weeks earlier had a faint wash of olive-yellow on head and fore-neck. These three birds were solitary and rather shy, hunting insects amid the foliage of smallish trees in the savanna. Although climbing about in rather unusual ways, they are less addicted to working over the bark than is *Phormoplectes*.

It is evident that this *Anaplectes* nests mainly during the rains and that males have a very dull eclipse dress even in latitudes very close to the Equator. This plumage can usually be recognized by the bright red edgings on wings and faint traces of red in the crown feathers. In Nigeria Shuel[1] found a nest as early as April 20; in southern Abyssinia Benson[2] obtained eggs on February 27 and October 30, and found other evidence of nesting in June, July, and even in December. From the Abyssinian area the American Museum has males in breeding plumage taken during every month of the year except January and August, so there would appear to be great irregularity in nesting and molting.

In the southeastern Congo the breeding period is probably from Septem-

[1] 1938, Ibis, p. 242.
[2] 1947, Ibis, p. 35.

ber to December, and two specimens from Kasoko, Marungu, in mid-March are certainly adult males in eclipse. From the region around Lake Victoria we have five males taken in June and July; two are in eclipse, three in breeding plumage.

Nests are like those of *A. r. rubriceps,* woven strongly of small rootlets and strong spines of leaves, and hung from the ends of branches at 10 to 15 feet above the ground. They have spouts 3 to 6 inches long. Eggs are two or three in a set, pale blue, unspotted, and measure 20.5–22 by 13.5–14.7 mm.

The stomachs of my two specimens of *leuconotos* contained a mantis, two Hemiptera, a beetle, and remains of other insects.

KEY TO THE SPECIES OF *Quelea*
(Adults of both sexes)

1. Bill pinkish to deep red (even in dried skins); facial region never bright red but usually black in male breeding plumage . . . . . *Q. quelea*
   Bill light brown to blackish; males in breeding plumage become red over most of head and in eclipse plumage may have a wash of red on face . . . 2
2. Larger: wing usually 61–67 mm. long; red-headed males have throat blackish, its feathers often tipped with red. . . . . *Q. erythrops*
   Smaller: wing usually 55–61 mm.; males in breeding plumage have throat clear red like cheeks . . . . . *Q. cardinalis*

Quelea erythrops (Hartlaub)

Ploceus erythrops HARTLAUB, 1848, Rev. Mag. Zool., vol. 11, p. 109 (type locality: São Tomé I.).

Foudia erythrops SHARPE AND BOUVIER, 1878, Bull. Soc. Zool. France, vol. 3, p. 75 (Condé). DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Quelea erythrops REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 111; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 328. SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 117. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Kisantu). LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 15 (Mukimbungu). OGILVIE-GRANT, 1908, Ibis, p. 270 (east of Kasongo). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 273 (Baraka); 1920, idem, vol. 7, p. 191 (Temvo); 1923, idem, vol. 11, pp. 348, 403 (Basongo; Kwamouth); 1924, idem, vol. 12, pp. 275, 423 (Kidada; Eala); 1925, idem, vol. 13, p. 19 (Kunungu); 1926, idem, vol. 13, p. 204 (Banc d'Anvers); 1932, idem, vol. 21, p. 277 (Ngoma); 1935, Bull. Cercle Zool. Congolais, vol. 11, p. 96 (Buta); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 143 (Faradje; Niangara; Dungu); 1937, Bull. Cercle Zool. Congolais, vol. 13, p. 68; 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 160; 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 341 (Kibingo). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 287 (L. Albert). BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 290. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 758. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1446. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 106 (Nioka; Lendu Plateau, 1850 m.; Loda Forest).

Pyromelana franciscana SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 457 (in part. Mt. Baginzi).

SPECIMENS: Boma, male, January 16. Suata, juvenile female, July 14. Post 34, near Lukolela, immature male, July 17. Ikengo, immature male, July 20. Nouvelle-Anvers, male, July 24. Mobeka, male, July 25. Ngayu, immature male, December 25. Gamangui, male in eclipse, immature male, February 18. Medje, male, August 1. Faradje, male, August 20.

ADULT MALE: Iris dark brown, bill gray, feet light pinkish brown.

IMMATURE MALE: Iris dark brown; bill pinkish brown, or (still younger) brownish gray above and yellowish gray beneath; feet pinkish gray to light brown.

DISTRIBUTION: Islands of São Tomé, Principe, and Fernando Po; on the mainland from Senegal through the better-watered regions to the Bahr-el-Ghazal, southern Abyssinia, and East African coast from the lower Tana River southward. The southern limits are central Angola, southeastern Congo, Nyasaland, Portuguese East Africa, and Pondoland. No races have yet been recognized.

It is plain that the range covers the greater part of the Belgian Congo, except perhaps the southern Kasai and the Upper Katanga. But it should be pointed out that this red-headed *Quelea* is wanting in most of the heavy forest of the Upper Congo, and that it seldom ventures much above 6000 feet on the eastern Congo highlands. I have, to be sure, taken a specimen at 8000 feet on Mt. Musandama, at the north end of Ruwenzori, and have also collected others along the forested Congo River. But none was ever seen along the roads between Stanleyville and the Nepoko River.

The species is usually frequent around the edges of the rain forest and in clearings near its borders, living in large flocks in grassy and bushy spots. At Boma I found it feeding in the high grass in a marsh; from Stanley Pool up to the Bangala District it was numerous. In the savannas of the Upper Uelle *erythrops* became less common than about Medje; at Faradje I found only a single male, feeding in company with *Q. cardinalis*. At Kasenyi on Lake Albert I again saw one male of *erythrops* amid a flock of *Q. quelea*. The different species of this genus are frequently noticed together.

The number of localities from which *erythrops* has been reported is not very great. We have additional specimens from Irumu, from the highland west of Lake Edward, and from Selembe, 3600 feet, in southern Marungu. Father Windmolders tells me he has secured this species in the Kasai.

Breeding is carried on during the rains, but the nests, although built in colonies, are not often found. In the off-season the male loses its red head plumage and retains only a light wash of light rose or orange-red on cheeks, eyebrow, and sometimes the chin. Just north of the Equator on the edge of the forest males are in breeding plumage from July to October inclusive. On the south side of the Congo forest they have red heads during January, February, and March, at least. It was interesting to note that at Lukolela

the males were following the Southern Hemisphere seasons, while higher up the river at Nouvelle-Anvers and Mobeka the males had just assumed their breeding plumage in July and thus were adjusted to the northern seasons.

About Lake Albert the breeding plumage is worn from July to September, but a little farther south there may be some irregularity. In Toro I have taken one male with red head and one in eclipse on July 26, and from Entebbe we have a male in breeding dress dated May 1, another in eclipse on July 29. In the southeastern Congo the seasons must again be regular; a red-headed male from Marungu had gonads enlarged on April 20.

At the time of nesting this *Quelea* gathers in large flocks in fields of high grass or in swamps with similar grasses, away from paths frequented by men. There the nests are built in colonies of 30 or more, even up to several hundred. They are usually slung between two or more tall grass stalks, neatly woven, with lateral entrance and no spout. They resemble those of *Amblyospiza albifrons* and *Ploceëlla superciliosa,* though not so finely woven. In Nyasaland Benson watched the construction of nests on a shrubby herb by female birds, though among most weavers the male does the greater part of nest building. At breeding time the companies of *Quelea erythrops* join in a loud wheezy chatter suggesting that of *Textor cucullatus.*

In the region near Buta, according to Brother Joseph Hutsebaut, *Quelea erythrops* would be abundant and conspicuous in April and May, just before the males came into color. They assumed their red heads toward July, at the same period when *Euplectes afer* molted to its nuptial dress, and soon both species seemed to vanish. The queleas were found to have gathered in spots remote from human passage, where they built finely woven nests on the tall Guinea-grass. But the whole colony might be abandoned before any eggs had been laid.

Serle[1] in southwest Nigeria and British Cameroons found two nesting colonies of hundreds of pairs, on August 17 and in the first week of November. Sets were of two or of three eggs, blue with a greenish tinge, unmarked, and measuring 17.4–20.7 by 12.5–14.3 mm.

The food of this *Quelea* consists mainly of the seeds of grasses, which it may be seen gathering; cultivated rice is greatly appreciated. In the four stomachs I examined, rice was found twice, divested of course of its husk, and other smaller seeds twice; but no insect remains were present.

Quelea cardinalis cardinalis (Hartlaub)

Hyphantica cardinalis HARTLAUB, 1880, Jour. Ornith., p. 325 (type locality: Lado on Bahr-el-Jebel). EMIN, 1921, *in* Schubotz, Die Tagebücher von Dr. Emin Pascha, vol. 6, pp. 164, 287 (L. Albert).

[1] 1950, Ibis, pp. 94, 633.

Quelea cardinalis SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 143 (Mahagi Port). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1445 (Kibale near Fort Portal; Kigezi). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 106 (Ishwa Plain).

SPECIMENS: Faradje, seven males, August 10, 20, September 10, 12; two females, October 31, November 20.

ADULT MALE: Iris dark brown, bill dark brownish, feet buff.

ADULT FEMALE: Iris dark brown, bill light brown, paler and buffy beneath, feet buff.

DISTRIBUTION OF THE SPECIES: From the southern end of Lake Rudolf, Mongalla on the Bahr-el-Jebel, and the northeastern Uelle District through eastern Africa to Nguruman, Uhehe in Tanganyika Territory, and the upper Loangwa Valley.

The supposedly paler *pallida* from the Indunumara Mountains in Kenya Colony may still require confirmation, but *Q. c. rhodesiae* does appear to be deeper in color than the nominate race from the upper Nile, the Uelle, and Uganda. The range of *rhodesiae* extends from eastern Northern Rhodesia to Tanganyika Territory, southern Urundi, and possibly southern Kenya Colony. But I find it difficult to distinguish Kenya Colony specimens from those of Uganda, the Uelle, and Lado.

The nominate race therefore seems to range from Faradje and the Bahr-el-Jebel to Turkana, Marsabit, and the Kapiti Plains in East Africa and to Lake Burigi, southwest of Lake Victoria. In the Uelle we saw the species only at Faradje, and there only from early August to late November, in two different years. In small, silent flocks, the birds clung to the tall grasses on the seeds of which they fed. Never at all abundant, they seemed to disappear during the dry season. All males had gonads enlarged, and it is safe to conclude that they bred there in August and September, hiding their nests successfully in the grass. Records from Lake Albert are few, and there are none from Lake Edward.

In many parts of Kenya Colony this *Quelea* is far more common. In the Kidong Valley in early June I have seen flocks of 600 to 900 passing over, which included many males in breeding plumage. In that region the breeding dress is worn from April to June at least, and one male from Nakuru has all but completed the prenuptial molt on January 3. Males in off-season eclipse have a strong wash of red on eyebrows and cheeks, a little red on the forehead, and splashes of red over the whole throat.

On the grassy plains southeast of Mt. Elgon, in early June, Granvik found about 20 nests within a small area, but only three contained eggs. All were built from 30 to 70 cm. above the ground, between two strong grasses, and woven of strips from grass blades. The pouch is 8 or 10 cm. in vertical

diameter and has a doorway 4 cm. in diameter at one side. Emin found nests attached to twigs.

Eggs are in sets of two or three, grayish white with spots of violet and dark gray scattered thickly and uniformly over the whole surface. Dimensions: 17–19 by 12–13 mm.

In all the stomachs I ever examined I found only small grass seeds.

Quelea cardinalis rhodesiae Grant and Mackworth-Praed

Quelea cardinalis rhodesiae GRANT AND MACKWORTH-PRAED, 1944, Bull. Brit. Ornith. Club, vol. 64, p. 65 (type locality: Molilo's, Petauke, Northern Rhodesia). WHITE AND WINTERBOTTOM, 1949, A check list of the birds of Northern Rhodesia, p. 126 (Mwinilunga).

Hyphantica cardinalis DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Quelea cardinalis SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 119. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Karema in Tanganyika Territory). OGILVIE-GRANT, 1908, Ibis, p. 270 (north of L. Tanganyika, 3000 ft.). NEAVE, 1910, Ibis, p. 250 (upper Loangwa Valley). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 328.

Quelea cardinalis cardinalis FRIEDMANN, 1931, Proc. Biol. Soc. Washington, vol. 44, p. 119 (north end of L. Tanganyika); 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 420.

DISTRIBUTION: From the upper Loangwa Valley and the country between Ubena and Uhehe northward to the northern end of Lake Tanganyika and the plains between Kilimanjaro and Lake Victoria, possibly into Kenya Colony.

A series of 12 specimens in the United States National Museum from Nyanza on the northeast shore of Lake Tanganyika is distinctly deeper in coloration than ours of the nominate race from Faradje. Not a few males from Kenya Colony show a red wash on the hind-neck, so it is difficult to define the northern limit of *rhodesiae*. There appear to be no records from the Katanga or the western shore of Lake Tanganyika, but this race certainly reaches our territory around the northern end of that lake.

Raven's specimens from Nyanza were taken in March and include three males in fresh breeding plumage. In similar latitudes in East Africa nesting has been observed from February to early May. Lynes[1] found swarming colonies in long grass near a river at Iringa, Tanganyika Territory. Nests were pocket-shaped, only a few yards apart from one another. On the Ardai plains, much farther north, Fuggles-Couchman and Elliott[2] saw many nests in early May hung between the stems of *Bidens* plants 2 to 4 feet high.

Eggs are laid in two's or three's and have the ground color white, bluish

[1] 1934, Jour. Ornith., Sonderheft, p. 120.

[2] 1946, Ibis, p. 346.

white, more greenish, or even pinkish. They are always spotted rather thickly with sepia or reddish brown and purplish gray. Dimensions: 16.5–18 by 11.5–13 mm.

Quelea quelea lathamii (Smith)

Loxia lathamii A. SMITH, 1836, Report of the expedition for exploring central Africa, p. 51 (type locality: near Kurrichane, South Africa).

Quelea sanguinirostris lathami REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 110 (Chinchoxo).

Quelea sanguinirostris DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (in part. Kisantu).

Quelea lathami NEAVE, 1907, Mem. Proc. Manchester Lit. Phil. Soc., vol. 51, no. 10, p. 90 (Petauke in Northern Rhodesia); 1910, Ibis, p. 250.

Quelea quelea lathamii WHITE, 1946, Ibis, p. 217 (Mwinilunga).

Quelea quelea lathami SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 161 (Kashobwe; Moba; Kasenga; Pweto).

DISTRIBUTION OF THE SPECIES: From Senegal east to Eritrea, Abyssinia, and Somaliland, south through eastern Africa to Natal and Cradock in Cape Province, and west again to the Lower Congo, Angola, and Damaraland. Unknown in the forested areas of Upper and Lower Guinea.

The nominate race, ranging from Senegal to Lake Chad and the Shari River, has breeding males with black on forehead, sides of head, and throat. In northeastern Africa the black forehead is usually wanting; the race *aethiopica* extends from Somaliland, Eritrea, Abyssinia, and Sennar to Kordofan, the Lado district, and northern Kenya Colony at least. Farther south in eastern Africa there is so much variation in the color of the forehead that Van Someren prefers to recognize *Q. q. intermedia.* Some males without black on the forehead have been found as far south as the Uluguru Mountains and the north end of Lake Tanganyika; others with black on the forehead are not uncommon. But in the region from Lake Albert and western Uganda south to Lake Tanganyika the color of crown and back in females and males in eclipse is apt to be darker than it is in the countries to the north and east; these birds are separated as *Q. q. centralis.* From the Katanga and the Lower Congo southward the color of the upperparts again becomes grayer; males in breeding plumage normally have well-marked black foreheads; these birds are *Q. q. lathamii.*

Throughout the entire range of the species there is great variation in the wash of wine-red that may spread over breast, flanks, and crown. There is also a male color phase known as *"russi,"* in which the black facial area is replaced by whitish or buff. This occurs in all the races. During the off season adult males become almost indistinguishable from females; both sexes then have the beak reddish, while in females it becomes yellow during the breeding period, under the influence of ovarian hormones.

Quelea quelea lathamii has been found in the eastern parts of the Katanga and is known also from the neighboring borders of Northern Rhodesia. Perhaps it will appear there mainly in the dry season. It is a common bird in Angola and has been reported from the Loango Coast and Kisantu. It must therefore occur in the Lower Congo and yet is wanting in the Kasai. Most of the southern Congo is evidently not dry and open enough to suit its needs.

In South Africa this red-billed *Quelea* often gathers in flocks of many thousands and devastates the grain ripening in the fields. So little was known of its breeding that some ornithologists suspected it of nest parasitism. But it has been found to gather in great colonies in out-of-the-way places, weaving its nests by scores on every tree over an area that may measure 200 by 300 yards or more. Breeding appears to be rather erratic, sometimes delayed until April or even into the southern winter. There must also be extensive migratory movements.

The nests are oval, woven of strips from grass blades, and have little in the way of lining. The entrance is placed at the side near the top. Eggs are pale greenish blue, unspotted; dimensions: 19–19.5 by 13–13.5 mm. Sets are of two to four, perhaps sometimes five.

Quelea quelea centralis Van Someren

Quelea sanguineirostris centralis VAN SOMEREN, 1921, Bull. Brit. Ornith. Club, vol. 41, p. 122 (type locality: L. Edward).

? *Ploceus sanguineus* SCHALOW, 1886, Jour. Ornith., p. 418 (Lufuku R.).

Quelea quelea SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 111 (L. Edward). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 283 (Mubuku Valley, 5000 ft.; Mokia; Beni).

Quelea aethiopica SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 114 (Mpala). SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 6 (Lukonzolwa).

Quelea aethiopica × *quelea* SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 115 (L. Edward).

Quelea sanguinirostris DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (in part. Pweto).

Quelea sanguinirostris aethiopica REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 327 (west shore of L. Edward; Kisenyi; Usumbura). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 273 (Lesse; Kamabo; Mission St. Gustave; Busuenda; Masidongo; Molekera; Mutiba; Boga).

Quelea sanguinirostris centralis VAN SOMEREN, 1922, Novitates Zool., vol. 29, p. 147. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 48 (Uvira; Kisenyi–Rutshuru; Beni–Mawambi).

Quelea quelea centralis SCLATER, 1925, Bull. Brit. Ornith. Club, vol. 46, p. 19. HARTERT, 1928, Novitates Zool., vol. 34, p. 194. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 758. GRANVIK, 1934, Rev. Zool. Bot. Africaines, vol. 25, p. 163. SCHOUTEDEN, 1935, Rev. Zool. Bot. Africaines, vol. 27, p. 403 (Nyanza on L. Tanganyika; Rutshuru; Gabiro; Ruindi camp); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 142 (Mahagi Port); 1938, Exploration du Parc National

Albert, Mission de Witte, fasc. 9, p. 160 (Kibati); 1941, Rev. Zool. Bot. Africaines, vol. 34, pp. 267, 365; 1942, idem, vol. 36, p. 341 (Kibingo); 1943, idem, vol. 37, p. 273. STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 573 (Kasenyi). IMPARATI, 1937, Riv. Italiana Ornit., ser. 2, year 7, p. 163. FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 417. FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, pp. 362, 363 (eastern Ituri District). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1445. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 49, 82.

Quelea sanguinirostris sanguinirostris FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 765 (Lulenga).

Quelea quelea aethiopica SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 277 (Ngoma); 1933, idem, vol. 22, p. 372. VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, p. 3 (Musosa).

ADULT MALE: Iris dull brown, rim of eyelids orange to scarlet; bill dark crimson, lighter at tip; feet and claws salmon pink.

ADULT FEMALE: Iris brown, rim of eyelids orange-red; bill dull crimson (probably more yellowish when actually breeding); feet yellowish salmon color.

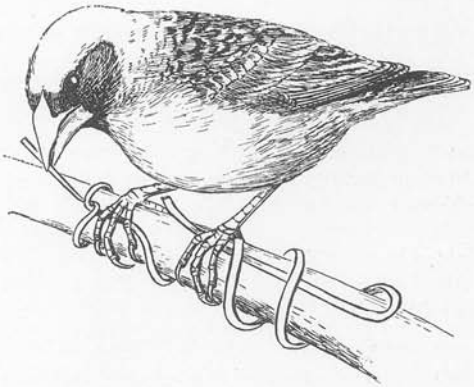

FIG. 28. Red-billed weaver, *Quelea quelea*.
A male, tying a knot about its perch.

DISTRIBUTION: From the vicinity of Lake Albert southward through the eastern Congo border, western Uganda, Karagwe, and Ruanda to the northern end of Lake Tanganyika, possibly to Lake Moero. Many specimens are not unlike *Q. q. aethiopica,* but the males frequently have a little black on the forehead, and the general coloration in the off season is apt to be darker than that of *aethiopica.*

The red-billed *Quelea* approaches the Congo forest on its eastern edge much more closely than on the northern or southern sides. It is a common bird, living in large flocks, on the west shore of Lake Albert, about Lake

Edward, Lake Kivu, and the northern end of Tanganyika, also in suitable parts of Ruanda. I have noted it at Bogoro, on the escarpment above Kasenyi, and Grauer collected specimens in a grassland west of Lake Edward. Around the base of Ruwenzori I have found it at 5000 feet on the eastern side and at 3800 feet near Nganzi on the west. In the Kivu it ascends to 6000 feet near Lulenga and Kibati.

As a rule the black-faced males are but a small minority, and it would seem that the breeding season must be a rather short one. At Kasenyi males were just coming into breeding color in early September. We have a few males in breeding dress from the Rutshuru Plain in January, where they seem to remain black-faced until May at least. It was on May 10, 1891, that Emin noted "thousands of red-billed weavers" nesting in a swamp between Vitshumbi and the lower Rutshuru River, with eggs in some of the nests.[1] I am not familiar with any other record of their nesting in the eastern Congo. From near Usumbura we have two males in worn breeding dress taken in April and May, so the nesting season there may be the same as just south of Lake Edward.

These birds feed mainly on grass seeds in open plains, where *Quelea erythrops* will occasionally be found associating with them. The voice is twittering, somewhat sparrow-like.

[*Quelea quelea aethiopica* (Sundevall)]

Ploceus aethiopicus SUNDEVALL, 1850, Öfvers. K. Svenska Vetensk. Akad. Förhandl., vol. 7, p. 126 (type locality: Sennar, eastern Sudan).

Quelea quelea aethiopica SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 455 (Lado).

Hyphantica aethiopica EMIN, 1919, *in* Stuhlman, Die Tagebücher von Dr. Emin Pascha, vol. 2, p. 100 (Lado); 1921, *in* Schubotz, Die Tagebücher von Dr. Emin Pascha, vol. 6, p. 163 (Wadelai).

The northeastern race of the red-billed *Quelea* ranges from British Somaliland and Eritrea to Kordofan, Darfur, the Bahr-el-Jebel, and northern East Africa, perhaps even to Tanganyika Territory. It does not reach the Uelle but may possibly be looked for at the north end of Lake Albert.

It is not easy to distinguish the black-faced males from males of *centralis,* since some of the latter lack black on the forehead. Females are lighter in color than those of *centralis.* At Lado Emin thought at first that *aethiopica* was present only in the dry season or northern winter. He took a male there in prenuptial molt about May 5. Later on, at Wadelai, he obtained young in June and August which convinced him they were bred in the vicinity. A black-faced male was taken at Wadelai as late as November 15. A female from Lado dated July 16 looks to me like *aethiopica* in breeding condition, but the birds of Lake Albert are supposedly *centralis.*

[1] Emin, 1898, *in* G. Schweitzer, Emin Pasha, his life and work, vol. 2, p. 208.

Anomalospiza imberbis imberbis (Cabanis)

Crithagra imberbis CABANIS, 1868, Jour. Ornith., p. 412, footnote (East Africa; type believed to be from Zanzibar).

Anomalospiza imberbis DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Kisantu). DELACOUR, 1943, Zoologica, New York, vol. 28, p. 71.

Anomalospiza imberbis imberbis SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 784 (Kasai District). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 108 (Kasenga). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1493. MACKWORTH-PRAED AND GRANT, 1948, Ibis, p. 324 (in part). SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 161.

Anomalospiza imberbis subsp. WHITE AND WINTERBOTTOM, 1949, A check list of the birds of Northern Rhodesia, p. 129 (Itawa Swamp near Ndola).

ADULT MALE: Iris rather dark brown, bill brownish black, changing gradually to buffy gray beneath base of mandible; feet gray-brown.

DISTRIBUTION OF THE SPECIES: From the Transvaal northward to Kisantu and the Kasai District, through eastern Africa to Lake Tana in Abyssinia, and from the Bahr-el-Jebel westward to Sierra Leone; also on Zanzibar and Pemba islands.

The systematic position of *Anomalospiza* is still a puzzle. I place it near *Quelea* merely because its young are not known to have any mouth spots or papillae suggesting relationship to the Estrildinae, and the outermost primary is greatly reduced. It is worthy of mention that in the only example I have had occasion to dissect in recent years the spine of the sternum was forked but showed marked development of the spina interna, so that the internal corner of each coracoid fitted into a small socket. This recalls the condition in *Bubalornis* and *Dinemellia* and may perhaps indicate that *Anomalospiza* is not typically ploceine. I may add that in the case of two males I skinned myself the skull was noted as not quite completely ossified, although nothing else gave any indication of immaturity. There is a possibility that the skull roof may retain one thin layer of bone in the anterior region, as it certainly does in *Vidua* and its allies.

Seven names have been proposed for subdivisions of the species, but I am not convinced there are more than three races. After examining the type of *imberbis* in Berlin, I concluded that it did not differ from the form ranging widely over southern and East Africa. The type was labeled as coming from Zanzibar, and there is no need to alter that type locality, since Pakenham has found the bird on Zanzibar Island. The remarkable brightening of the male plumage, without molt, was first correctly explained by Van Someren [1] as the result of abrasion. John T. Zimmer has reëxamined the feathers microscopically and has shown me how simply the change is produced. Even in the fresh feather the shaft of each barb is bright yellow, but the

[1] 1922, Novitates Zool., vol. 29, p. 147.

outer part of all the barbules is dusky and tends to mask the yellow color, giving the general effect of olive. As the barbules wear down the feather seems to become progressively yellower, but there is no addition of pigment, the yellow is merely uncovered.

The races are not distinguished by any difference in yellowness. I believe that nominate *imberbis* is a large race with bill dark except on the under side, apt to have prominent dusky streaks on the back and even on the occiput when in the worn yellow condition. Wings of males measure 66–73 mm., tails 38.5–44 mm. It ranges from southern Africa northward to Kisantu, the Kasai, Kivu, Uganda, and Kenya Colony to Lamu.

Anomalospiza i. macmillani Bannerman differs but little, except that the beak of males seems lighter in color, and the female may perhaps be a little darker above. Wings of males measure 69–72 mm. If valid, it is supposedly restricted to Abyssinia.

Anomalospiza i. butleri seems to me a better-marked race, smaller, with narrower streaks on the back, the beak of males rather light brown. Wings of males measure only 62–69 mm., tails 36–39 mm. It appears to inhabit grasslands north of the forest belt, from the upper Bahr-el-Jebel west to Sierra Leone.

The nominate race inhabits the southern and eastern savannas of the Congo, north at least to Lake Edward. Despite the paucity of records, it is probably not very rare; Father Callewaert collected eight specimens near Luluabourg, in the months of January, June, October, and December. I have verified the identity of the Kisantu male. On the borders of the Upper Katanga, Lynes took one example at Kasenga, while Button is reported to have collected a number near Ndola. In the Kivu District I saw a pair near Luofu at 5200 feet and secured the male.

According to observations in other parts of Africa, *Anomalospiza i. imberbis* is not a solitary bird, and gathers at times in flocks of eight to 50, and even 200, frequenting particularly damp open meadows with high grasses. The flock keeps well together in flight, giving chattering calls; the song of the male was described by Pakenham as a squeaky "tsileu, tsileu, tsileu." As a rule these weavers cling to the stalks of grasses and feed on the seeds. In captivity a male was noted as displaying by fanning the wings and uttering "sizzling" notes.

The breeding habits are remarkable and have earned the name "cuckoo-weaver" for *Anomalospiza*. The fact that it is a brood parasite was discovered independently by Austin Roberts [1] in the Transvaal and Van Someren [2] in Kenya Colony. The young were first noticed while being fed by small

[1] 1917, Ann. Transvaal Mus., vol. 5, pp. 260, 261; 1939, Ostrich, vol. 10, pp. 86, 117.
[2] 1918, Novitates Zool., vol. 25, p. 283; 1922, idem, vol. 29, p. 147.

warblers, and subsequently they were found in the nests of various warblers by several different investigators. Many years passed before an egg of *Anomalospiza* was finally discovered in a nest of *Prinia subflava* on March 5, 1944, in Southern Rhodesia,[1] together with four eggs of the warbler. It was pale dull pinkish, clouded at the thick end with faint purplish, and with reddish brown spots and blotches which diminished toward the pointed end. Dimensions: 17 by 12.5 mm.

Fortunately the coloration of nestlings is very distinctive; all the upperparts have feathers conspicuously margined with tawny buff, while cheeks, throat, and breast are uniformly buffy. The unusually compressed form of the beak soon becomes evident. The fosterers of *A. i. imberbis* are now known to include *Prinia flavicans* and *subflava, Cisticola chiniana, tinniens,* and *juncidis*. In Abyssinia the young of *macmillani* have been taken from nests of *Cisticola cantans, galactotes,* and *brunnescens*. Often the young cuckoo-finch is the only occupant, sometimes there are two, and the young of the warblers usually disappear. For a while the fledglings are fed by their fosterers, then they begin to recognize their own kind and gather by dozens in flocks with numbers of adults.

Anomalospiza lays its eggs of course during the rains, while the warblers are nesting. We have a very young bird from Luluabourg, but with rectrices fully grown, dated January 22. Adult males are in worn breeding plumage there in December and January. On Pemba Island eggs are laid from September to January. In Kenya Colony, on the other hand, the young are on the wing in June and July, adults are still in worn plumage in June, and molt in July. Near Lake Edward breeding may be expected toward May or June, since my male bird in mid-March showed only slight enlargement of the gonads, and its plumage was still not bright yellow.

Anomalospiza imberbis butleri Sclater and Mackworth-Praed

Anomalospiza butleri SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 460 (type locality: Kajo-Kaji, near southern border of Anglo-Egyptian Sudan).

Anomalospiza imberbis imberbis BOWEN, 1931, Catalogue of Sudan birds, pt. 2, p. 99 (Kajo-Kaji). MACKWORTH-PRAED AND GRANT, 1948, Ibis, p. 324 (in part).

Anomalospiza imberbis butleri SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 146 (Faradje).

SPECIMEN: Faradje, male, October 18.

ADULT MALE: Iris hazel, bill and feet rather light, dull brown.

DISTRIBUTION: Grasslands north of the equatorial forests, from the upper Bahr-el-Jebel to the Upper Uelle District, Tibati in the Cameroon, the vicinity of the Nimba Mountains in French Guinea, and Bo in Sierra Leone.

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[1] O. Payne, 1944, Ostrich, vol. 15, p. 235.

As this is not a bird of montane distribution, its range may be expected to be rather continuous.

The type of *butleri* was a male in fresh plumage, taken on April 8. My male from Faradje was in very yellow, worn plumage. Allowing for the change of plumage with the seasons, I found they agreed very closely, and the small size of the males from Cameroon and Sierra Leone indicates that they all belong to the same race.

Very few specimens have been taken except at the type locality, where Butler found large flocks associating with *Euplectes franciscanus* and collected 17. It is certain that the male *butleri* molts into a fresh greenish plumage during the dry season and gradually becomes yellower as the rainy season progresses. Laying will probably take place toward August and September, in the latter half of the rains. My male specimen, the only one seen around Faradje, was perching silently on a small tree amid the high grass. It was in very bright, worn plumage and evidently past the breeding period, for its gonads had become rather small. The stomach contents were of seeds exclusively.

No fosterers of *butleri* have yet been discovered, but they are likely to be warblers of the genera *Cisticola* and *Prinia*.

Key to the Species of *Euplectes* in or Near the Congo
(Males in breeding plumage only)

1. Crown, middle of back, and rump yellow, a black band across back of neck; underparts black or black and yellow; wing scarcely exceeding 65 mm. . . . . *E. afer*
   Crown not yellow 2
2. Head entirely black, middle of back and rump yellow . . . . . *E. aureus*
   Crown red, or nape at least scarlet. 3
3. Black covering ear-coverts and crown, but nape and whole throat bright red; tail-coverts as long as rectrices . . . . . *E. franciscanus*
   Whole crown, or at least its posterior half, red; tail-coverts shorter than rectrices 4
4. Rump and upper tail-coverts not red, upper back yellow or orange, black of forehead often extending to fore-crown . . . . . *E. gierowii*
   Rump and upper tail-coverts bright red, upper back reddish or pale buff . . 5
5. Smaller: wing usually 65–71 mm.; wing quills dark brown, black of chin scarcely extends to upper throat . . . . . .*E. orix*
   Larger: wing 71–83 mm. long; wing quills black with brownish borders, black of chin extends to middle of throat . . . . . *E. hordeaceus*

Euplectes afer afer (Gmelin)

Loxia afra Gmelin, 1789, Systema naturae, ed. 13, vol. 1, pt. 2, p. 857 (Africa; restricted type locality: Senegal).

Pyromelana afra Dubois, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (L. Leopold II). Schouteden, 1926, Rev. Zool. Bot. Africaines, vol. 13, p. 204 (Banc d'Anvers).

Euplectes afra SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 762 (Stanley Falls). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 143 (Buta). BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 192, pl. 6.

Pyromelana afra afra FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 764 (Bumba).

Euplectes afra afra DELACOUR AND EDMOND-BLANC, 1933, Ois. Rev. Francaise Ornith., new ser., vol. 3, map on p. 556.

SPECIMENS: Boma, male, January 20. Stanleyville, three males, October 25, November 15; immature female, November 14.

ADULT MALE IN BREEDING PLUMAGE: Iris dark brown; bill black above, shading to dark greenish gray beneath mandible; feet brown.

FEMALE: Has a brownish bill.

DISTRIBUTION OF THE SPECIES: Senegal to Abyssinia, and south to Natal, Orange Free State, and Damaraland, but absent from certain regions within that vast area. Many forested and highland districts seem unsuitable. Nominate *afer* in male breeding plumage has yellow flanks and a yellow band across the chest with some brown near the mid-line. Wings of males measure 53–59 mm. It ranges from Upper Guinea to the western basin in Darfur, the region of Stanley Falls, and northwestern Angola.

In the southern part of the continent *E. a. taha* has the flanks black, and chest black except for a very little yellow at its sides. Wings of males measure 61–66 mm. That race ranges northward to southern Angola, the Transvaal, and Portuguese East Africa. Birds of coloration intermediate between *afer* and *taha* occur near Benguella, Angola, Lake Upemba, and the upper White Nile. In *E. a. ladoensis* the flanks are mixed with yellow, and, while the chest looks black, the bases of the feathers are yellow all across it. Wings of males measure 55–59 mm. Here and there in East Africa are found birds which have the same black chest as *taha,* but they are markedly smaller, with wings 58–59 mm., and for the present may best be called *E. a. niassensis* Meise.[1]

The highlands of Abyssinia have still another race, *E. a. strictus* Hartlaub, with the black-chested pattern of *taha,* and wings of males 65–70 mm. The female of this form is heavily streaked with brownish black on the breast.

Nominate *afer* is not uncommon in the Lower Congo and at various spots along the upper Congo River and its larger tributaries. At Boma I found a few in fresh breeding dress during January in the high grass of a broad marsh and one even in an open space in a papyrus swamp. At Lukolela small flocks were seen in August and late March but not one male in black and yellow dress. At Bumba, on the other hand, males were in breeding dress in July, and at Stanleyville that plumage was worn from July to

[1] 1937, Mitt. Zool. Mus. Berlin, vol. 22, p. 150 (Mitimone on Rovuma R.).

November. One just entering the postnuptial molt was taken there on November 15. It may be remarked that this agrees with the seasonal change farther north, at Buta and no doubt on the Ubangi. Schubotz collected a male at Duma in rather fresh breeding plumage on September 19.

During September and October at Stanleyville these yellow and black bishop-birds were mated, the males very attentive to their plainly colored females, and making short flights over the grass tops, after the manner of *E. hordeaceus,* but more rapid. As Lynes said, they "look more like glorified black-and-yellow bumble-bees than like birds." The wings meanwhile are kept somewhat above the horizontal and often beat so forcibly as to be heard for more than a dozen yards. When perched the male is very handsome and often raises the yellow rump feathers so they stand out conspicuously, then quivers the wings.

Nests of this bishop-bird are ball-shaped, woven of grass strips and lined with fine grass tops. The entrance is at the side near the top. They are always built in wet places, often only 2 or 3 feet above water and attached to growing grasses. Several may be placed near together, but polygamy has not been proved. Sets vary from two to four eggs. These are white, sparingly marked with dots of black and of gray. Dimensions: 16.3–19.2 by 12–13.5 mm.

In the five stomachs we examined the food was invariably seeds from grasses. One bird had swallowed some small stones.

Euplectes afer ladoensis Reichenow

Euplectes ladoensis REICHENOW, 1885, Jour. Ornith., p. 218 (type locality: Lado, on Bahr-el-Jebel).

Pyromelana ladoensis DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 ("Upper Ituri").

Euplectes taha EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 128 (Tunguru on L. Albert).

Euplectes taha ladoensis SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 143 (Mahagi Port).

Euplectus afer ladoensis VERHEYEN, 1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 627 (Mabwe on L. Upemba).

SPECIMEN: Faradje, immature male, April 14.

DISTRIBUTION: Vicinity of the Bahr-el-Jebel, south to the northern end of Lake Albert, northward perhaps to Fashoda, and eastward certainly to Lake Stefanie, where Donaldson Smith collected a breeding male on May 30, 1895.

Our immature male from Faradje can be referred only tentatively to this race, since no adult was seen there. Dubois' "Ituri" specimen was a full-plumaged male of *ladoensis,* received from Millo-Ribotti without original

label and no doubt secured in the Lado district. In that region it is reported to be common and must breed in July.

Verheyen reports a population of intermediates similar to *ladoensis* occupying the shores of Lake Upemba.

[*Euplectes afer taha* Smith]

Euplectes taha A. SMITH, 1836, Report of the expedition for exploring central Africa, p. 50 (type locality: near Kurrichane, South Africa).

? *Pyromelana taha* NEAVE, 1910, Ibis, p. 250 (Bunkeya R., 3000 ft.).

The occurrence of the South African *taha* in the Upper Katanga seems highly questionable. It has been reported from Mongu and Kalabo in Northern Rhodesia but was not found by White in the Mwinilunga District. Benson tells me that the supposed records from Nyasaland were all based on misidentifications. No race of *E. afer* has yet been reported from the Bangweolo area.

Neave's specimen was an adult female taken in August, when males would have been in eclipse, and was more likely to have been nominate *afer* than *taha*. Males from the Katanga might show an intermediate breast coloration but were scarcely likely to represent the East African *niassensis*. Now *ladoensis* is reported from Lake Upemba.

[*Euplectes aureus* (Gmelin)]

Loxia aurea GMELIN, 1789, Systema naturae, ed. 13, vol. 1, pt. 2, p. 846 (type locality: Benguella, Angola).

Euplectes aurinotus HARTLAUB, 1857, System der Ornithologie West-africa's, opposite p. lix ("Congo").

Euplectes aurea DELACOUR AND EDMOND-BLANC, 1933, Ois. Rev. Française Ornith., new ser., vol. 3, p. 561, map on p. 552 ("coast of Angola and Gaboon").

If this yellow-backed bishop-bird were really found on the coast of the Gaboon as well as that of Angola, one could expect it at the Congo mouth. But the only Gaboon record is attributed to Verreaux, and in recent years specimens have been taken only in Angola, from Benguella and Lobito Bay north to St. Paul de Loanda, and on the island of São Tomé where the species is of common occurrence.

Strangely localized in Angola, where Ansorge collected not a single example for the Tring Museum, this bishop-bird is reported by Jack Vincent to be common in the acacia scrub at Lobito Bay. Considerable series have been secured on São Tomé, and one may wonder whether perhaps the species was introduced on the coast of Angola. The great majority of males on São Tomé are in breeding plumage in February and early March, as one might expect also in Angola.

Euplectes gierowii ansorgei (Hartert)

Pyromelana ansorgei HARTERT, 1899, *in* Ansorge, Under the African sun, p. 344, pl. 2 (type locality: Masindi, Uganda). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 284 (Mubuku Valley, 5000 ft.; Beni). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 328. SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 160 (Rutshuru). SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 457 (Meridi; Tembura). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 106 (Mahagi Port).

Pyromelaena ansorgei SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 273 (Masidongo).

Euplectes gierowii ansorgei SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 761. DELACOUR AND EDMOND-BLANC, 1933, Ois. Rev. Française Ornith., new ser., vol. 3, p. 554, map on p. 552. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 143 (Faradje). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1453. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 82 (Luhule R.). V. AND G. VAN SOMEREN, 1949, The birds of Bwamba, p. 96 (Bwamba).

SPECIMENS: Nzoro, male, August 2. Faradje, five males, July 2, August 11, 20, September 11; immature male, October 8.

ADULT MALE IN BREEDING PLUMAGE: Iris dark brown, bill black, feet dark brown.

DISTRIBUTION OF THE SPECIES: From southwestern Abyssinia to Uganda, the northern Congo west almost to the bend of the Ubangi, and grasslands from Lake Albert to Rutshuru. That is the range of *E. g. ansorgei.* In Tanganyika Territory *E. g. friederichseni* extends from the Ikoma District to Nguruman, and in northwestern Angola *E. g. gierowii* is known from the region between Malange, Pungo Andongo, and Cahata. It may extend north to the Cataracts district of the Congo.

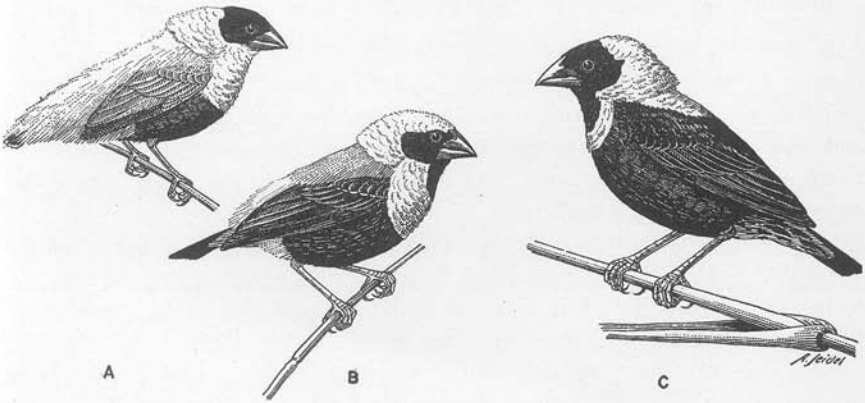

FIG. 29. Three bishop-birds, genus *Euplectes*, males in breeding plumage. A. *E. f. franciscanus.* B. *E. h. hordeaceus.* C. *E. gierowii ansorgei.*

The three races are thus widely isolated and differ markedly. The bill of *ansorgei* is large, its outermost primary unusually long, measuring 24–30 mm. In breeding plumage the male has a narrow scarlet collar across the fore-neck, and the yellow of the upper back does not extend toward the blackish rump. The beaks of the other two races are smaller, their outermost primaries 15–16 mm. long. The black on the throat is more restricted, the scarlet gorget broad. In *friederichseni* the middle of upper and lower back is orange-scarlet, almost like the nape, while *gierowii* has those parts of the back yellow and the nape scarlet.

In the northeastern Congo *ansorgei* is not rare, though rather localized, because of its preference for patches of high cane-like grasses. It is not restricted to highlands; Vrydagh found it at Mahagi Port, and I saw one male at Kasenyi. Another was noted on a hill top at 5300 feet near Bogoro, and a male was collected at Irumu. At the western base of Ruwenzori this large bishop-bird was again seen just north of Nganzi at 4200 feet. Rutshuru appears to mark its southern limit.

On the northern side of the forest *ansorgei* is rather common at Nzoro and just south of Faradje. It is reported from the southern border of the Bahr-el-Ghazal Province and plainly ranges much farther west. There are males in the Congo Museum and the American Museum secured by the Reverend T. B. Wallin near Karawa in the northern Bangala District.

In the northern savannas of the Congo the breeding plumage of males begins to appear in early July and is doffed about the end of November. During the rainy season we saw them perching and feeding on high grasses, usually along the edges of damp meadows near Faradje, and more generally distributed near Nzoro, where the grass is notably higher and denser. The feathering of lower back and the under tail-coverts is not renewed at the prenuptial molt; it is black fringed with brown. No females were secured or nests discovered, but the enlargement of gonads in August and September showed breeding to be in progress. The season for nesting is the same between Lake Albert and Irumu, probably also in the lower Semliki Valley. Young males go through their first 18 months without assuming bright plumage or breeding.

Near Kampala, Uganda, Pitman has examined 70 nests and found eggs from May 14 to August 2. The nests are built in groups in clumps of elephant grass amid cultivation, bordering forest plantations, or along streams. The grass is 8 to 10 feet high; the nests 5 to 7 feet up. They are typical bishop-bird nests, with an outer shell of green grass strips and a lining of fine grass heads. The latter sometimes project above the wide entrance, which is high up on the side. A nest will measure 5½ to 6 inches in height, 3 to 4 inches in breadth, and is generally attached to one upright stalk and to several broad grass blades. Each male controls three or four nests; the

polygamy of this species was confirmed by the Van Somerens in Bwamba.

The eggs are normally in sets of three, sometimes of two, and rarely of four. Well glossed and bright blue in color, they may be immaculate or may have a few black specks and dots scattered over the whole surface. Dimensions: 18.3–23 by 14.3–16.3 mm.

The diet is mixed. In seven stomachs I found grass seeds and similar vegetable material six times, remains of insects three times. The insects included two small winged termites and three winged ants. In one case some small bits of stone were also present.

Euplectes gierowii gierowii Cabanis

Euplectes gierowii CABANIS, 1880, Jour. Ornith., p. 106, pl. 3 (Angola; type from Malange).

Pyromelana gierowi SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 103 (Kwango R.).

? *Pyromelana gierowi* SCHOUTEDEN, 1924, Rev. Zool. Bot. Africaines, vol. 12, p. 276 (Kidada).

DISTRIBUTION: From Cahata in the western Bailundo District of Angola to Pungo Andongo, Malange, and possibly to the Kwango or the Cataracts districts of the Belgian Congo. Schouteden was in doubt about his record from Kidada, yet it seems likely that this bishop-bird will be found to reach the southwestern borders of the Congo.

Virtually nothing is on record as to the haunts or behavior of *E. g. gierowii.* They are likely to be similar to those of *ansorgei,* and males may undergo the prenuptial molt toward January or February. One from Pungo Andongo, July 7, has just begun its post-nuptial change of plumage.

Euplectes hordeaceus hordeaceus (Linnaeus)

Loxia hordeacea LINNAEUS, 1758, Systema naturae, ed. 10, p. 173 ("In Indiis"; type locality corrected to Senegal).

Euplectes flammiceps DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Pyromelana flammiceps SCHALOW, 1886, Jour. Ornith., pp. 435, 436 (L. Upemba). REICHENOW, 1887, Jour. Ornith., p. 308 (Kasongo); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 328. SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 104 (in part). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (in part. Ruzizi-Kivu). SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 6 (Lukonzolwa). OGILVIE-GRANT, 1908, Ibis, p. 269 (north and northwest of L. Tanganyika, 2800–3000 ft.; east of Kasongo). NEAVE, 1910, Ibis, p. 249 (Dikulwe R., 4000 ft.).

Pyromelaena flammiceps SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 273 (in part. Baraka).

Pyromelana hordacea SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 348 (Luebo; Tshikapa; Ngombe in Kasai; Belenge). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 46 (Uvira). DE RIEMAECKER, 1927, Rev. Zool. Bot. Africaines, vol. 14, p. 276 (Elisabethville).

Pyromelana hordacea changamwensis SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 289.

Euplectes hordacea hordacea DELACOUR AND EDMOND-BLANC, 1933, Ois. Rev. Française Ornith., new ser., vol. 3, pl. opposite p. 539, fig. 2, map on p. 549. BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 172, pl. 6.

Euplectes hordacea sylvatica LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 108 (Kasenga; upper Lufira R.). VERHEYEN, 1940, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 16, no. 2, p. 7 (Kanzenze).

Euplectes hordeacea sylvatica A. W. VINCENT, 1949, Ibis, p. 499 (Elisabethville).

Euplectes hordacea changamwensis SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 161 (many localities in Katanga).

SPECIMENS: Stanleyville, three males, November 4, 5.

ADULT MALE: Iris dark brown, bill black, feet brownish.

DISTRIBUTION OF THE SPECIES: Senegal to Abyssinia and the East African coast, southward to Benguella, Northern Rhodesia, and Portuguese East Africa; also on the islands of São Tomé, Pemba, and Zanzibar.

Division into subspecies is difficult. An Abyssinian race, *E. h. craspedopterus* (Bonaparte), has usually been admitted, mainly because the under tail-coverts of males are not renewed at the prenuptial molt and remain whitish. It seems to reach Uganda. The males in the Cameroon, Lower Congo, Uelle, and lower Semliki area become unusually deep red and deep red-brown on the back, so I feel that we must recognize *E. h. sylvaticus.*

The remainder of the range of the species may be left to the nominate race until other regional differences are proved. The males from the central Kasai and from Stanleyville are usually not so deeply colored as *sylvaticus;* those of northwestern Angola are brightly colored but lighter red on the back. Within our limits I refer all the birds from the Kasai to the Manyema, Katanga, Lake Tanganyika, Ruzizi Valley, and the Lualaba north to Stanley Falls to *E. h. hordeaceus.* If they prove to differ from those of Senegal they may perhaps be called *changamwensis* Mearns. Individual variation is considerable and the range of *sylvaticus* none too clear, so I have left a few references under the name assigned to them, even though apparently outside the proper limits.

As a rule this red-crowned bishop-bird is absent from all the central regions of the Upper Congo forest and from the higher parts of the Kivu and Ruanda, so that *sylvaticus* is partially isolated from *hordeaceus* there. It was surprising to find *hordeaceus* in some numbers about Stanleyville, living in the fields of high grass. Males there were much lighter, more orange-red, than those of the Uelle, yet they seemed to molt in accordance with the northern seasons, and males in early November were still in worn breeding dress. At Yanonge, some 35 miles down the river, another male in bright dress was seen on December 10. It would seem that this population must have invaded the forest belt from its southern edge by following the

Lualaba River. At Kindu Raven collected two males of *hordeaceus* in fresh breeding dress at the end of January; they were adjusted to the southern seasons.

In the Kasai District this is a common bird, the males coming into color during January and retaining their red and black dress until mid-May at least. The dates are much the same east to the Ruzizi Valley and south to the Katanga. At Moba on Lake Tanganyika Rockefeller and Murphy collected males in prenuptial molt in early February, and we have males from Kasongo still in breeding dress in June.

It is evident that this bishop-bird avoids elevations much over 4000 feet and is often restricted to areas of high grass not far from watercourses. Its nesting and other behavior are exactly like those of the following race, *sylvaticus*.

Euplectes hordeaceus sylvaticus (Neumann)

Pyromelana flammiceps sylvatica NEUMANN, 1905, Jour. Ornith., p. 345 (type locality: Yaunde, Cameroon).

Pyromelaena flammiceps JOHNSTON, 1884, The River Congo, p. 365 (Lower Congo). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 273 (in part. Bowissa; Mutiba).

? *Pyromelaena franciscana* JOHNSTON, 1884, The River Congo, p. 365.

Pyromelana flammiceps BÜTTIKOFER, 1888, Notes Leyden Mus., vol. 10, p. 212 (Boma). SHELLEY, 1888, Proc. Zool. Soc. London, p. 33 (Tingasi; Kubbi); 1890, Ibis, p. 166; 1905, The birds of Africa, vol. 4, pt. 1, p. 104 (in part. Tingasi). REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 118 (in part. Stanley Pool). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (in part. Kisantu; L. Leopold II). OUSTALET, 1905, Bull. Mus. Hist. Nat., Paris, vol. 11, p. 13 (Fort de Possel). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 285 (lower Semliki Valley). SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 454 (Zone of Gurba-Dungu). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 272, pl. 9 (Faradje). MENEGAUX, 1918, Rev. Française Ornith., vol. 5, p. 259. BERLIOZ, 1922, Bull. Mus. Hist. Nat., Paris, vol. 28, p. 262 (Uelle R., Congo).

? *Pyromelana* sp. OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127.

Pyromeloena flammiceps SCHOUTEDEN, 1920, Rev. Zool. Bot. Africaines, vol. 7, p. 191 (Temvo).

Euplectes flammiceps SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, pp. 243, 256 (Mundu; Mbiambana).

Pyromelana hordacea hordacea BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 291 (in part).

Pyromelana hordacea SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 403 (Kwamouth); 1924, idem, vol. 12, p. 275 (Leopoldville; Kidada; Kitobola); 1926, idem, vol. 13, p. 204 (Makaia-Ntete; Temvo); 1937, Bull. Cercle Zool. Congolais, vol. 14, p. 6. LYNES, 1926, Ibis, p. 401.

Pyromelaena hordacea SCHOUTEDEN, 1924, Bull. Cercle Zool. Congolais, vol. 1, p. 48; 1925, Rev. Zool. Bot. Africaines, vol. 13, p. 19 (Bolobo); 1935, Bull. Cercle Zool. Congolais, vol. 11, p. 96 (Buta).

Euplectes hordeacea sylvatica SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 760.

Pyromelana hordeacea sylvatica FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 764 (Mistandunga). VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 23, p. 15 (Pweto).

Euplectes hordacea sylvatica SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 277 (west of Ngoma); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 143 (Mauda; Rungu; Mahagi Port; Poko; Titule; Niangara; Bambili; Dingila; Dungu; Aba; Dramba). GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 72 (Luluabourg).

Euplectes hordeaceus sylvaticus STONE, 1938, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 573 (Kasenyi; Ekibondo; Vube).

Pyromelana hordacea sylvatica SCHOUTEDEN, 1941, Rev. Zool. Bot. Africaines, vol. 34, p. 267; 1943, idem, vol. 37, p. 273 (eastern Ruzizi Valley). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 106 (Ishwa Plain).

Euplectes hordeacea hordeacea BOUET, 1942, Ois. Rev. Française Ornith., new ser., vol. 12, p. 168 (Brazzaville); 1945, idem, new ser., vol. 14, p. 79 (Loudima; Brazzaville).

SPECIMENS: Boma, male, January 24. Dobo, male, July 28. Medje, male, October 16. Pawa, four males, female, October 18. Nzoro, three males, August 2, 4, 6. Faradje, 15 males, February 16, March 29, May 13, 23, July 21, August 4, 11, October 8, 11, 25, 26, December 4; six females, March 5, May 1, October 11, 18, 26, 29; three immature males, February 16, April 28, May 12; immature female, May 12. Aba, male, July 14. Garamba, two males, July 17, 18.

ADULT MALE IN BREEDING PLUMAGE: Iris dark brown or dark grayish brown, bill black, feet brown.

ADULT MALE IN DRY-SEASON PLUMAGE: Iris and feet same, but bill brown, lighter and pinkish brown beneath and whitish toward base of mandible.

ADULT FEMALE AND IMMATURE: Soft parts similar to those of male in eclipse.

DISTRIBUTION: Grasslands along the northern edge of the Lower Guinea forest and adjacent clearings in the forest, from the Cameroon south to the lower and middle Congo River, eastward also to the Ubangi, Uelle, Lake Albert, and the lower Semliki Valley. In all the northern savannas of the Congo this is the common red and black bishop; it extends southward almost to the Nepoko River and around the northeastern corner of the forest to Lake Albert and the northwestern base of Ruwenzori. But I did not see it on the plateau west of Lake Albert.

In the western Congo this race has apparently found its way southward across the forest belt and occupies the clearings in the Mayombe as well as the grasslands from the Lower Congo to Stanley Pool and even to Dobo near Bumba, where I collected a male agreeing in color with those of the Uelle.

The scarlet and black plumage of males is worn during the rainy months,

the prenuptial molt commencing in the Upper Uelle in mid-June. In July some are in full plumage, others still molting. For actual nesting they await a dense growth of grass late in September. The postnuptial molt in the Uelle occurs at the end of November; all males are in streaked brown plumage by the time the grass is being burned. During the drought they gather in flocks and raid native grain fields or feed silently on the ground where the grass has been burned off. Likewise in the Upper Congo near Dobo I noted only brown birds in December. In the clearings in the Mayombe Forest and in the grasslands of the Lower Congo the prenuptial molt begins in early January; the postnuptial change is completed by the end of June.

At the time of nesting the males show off their brillant, plush-like coloration in slow horizontal flights, with flapping wings, over the top of the grass now 2 to 3 yards tall. During flight they produce a rapid succession of weak chirping sounds, not unlike the voices of the species of *Coliuspasser* living in the same region. Males of these two genera were long suspected of polygamy, and for *Euplectes hordeaceus* this was shown to be a fact by Jack Vincent [1] and David Lack.[2] Each male holds a territory but mates with several females in succession, building a nest for each.

A nest found at Faradje on October 11 was well hidden in a patch of high grass well away from any watercourse, woven of strips from grass blades and lined with fine grass tops. It was rather loosely woven and supported by four or five slender grass stalks at a height of 5 feet. Many adjacent grass blades had been drawn to the nest and their ends woven into its walls, thus adding stability. The entrance was at the side, high up. A set of three eggs was complete. The female alone came to the nest, though her mate was very alert and always aware of her whereabouts.

Another similar nest, on October 18, contained two newly hatched young with scanty whitish natal down. A third, on October 29, still held two eggs. Sets are normally of three or of two, light greenish blue, with small, scattered spots of purplish brown most numerous about the larger end. My eggs from Faradje measure 18.7–19.1 by 14–14.3 mm.

In the six stomachs examined there were always seeds, smaller and larger, often recognizably from grasses. One bird had eaten some other tender vegetable material, and remains of insects were noted twice.

Euplectes orix nigrifrons (Böhm)

Pyromelana nigrifrons Böhm, 1884, Jour. Ornith., p. 177 (type locality: Karema, east shore of L. Tanganyika). Hartert, 1900, Novitates Zool., vol. 7, p. 41 (Fort George on L. Edward). Dubois, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (L. Tanganyika). Ogilvie-Grant, 1910, Trans. Zool. Soc. London, vol. 19,

[1] 1933, *in* Delacour and Edmond-Blanc, Ois. Rev. Française Ornith., new ser., vol. 3, pp. 697, 698.

[2] 1935, Ibis, pp. 817–836, pl. 20 (map).

p. 286 (Mubuku Valley, 5000 ft.; Mokia). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 328. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 46 (Urundi; Uvira).

? *Pyromelana franciscana* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (in part. Ruzizi-Kivu). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 46 (Urundi; Usumbura).

Pyromelana sundevalli OGILVIE-GRANT, 1908, Ibis, p. 268 (north of L. Tanganyika, 3000 ft.; east of Kasongo).

Pyromelana leuconota REICHENOW, 1909, Ornith. Monatsber., p. 72 (type locality: Ishangi on L. Kivu); 1909, Jour. Ornith., p. 504; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 328.

Pyromelaena nigrifrons SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 273 (Karimi; Kibati; Masidongo; foot of Mt. Kishasha; Kalembé; Nya-Lukemba; Bigoisagua).

Pyromelana orix nigrifrons GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 45 (Ngoma). FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 764 (Kamaniola). SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 161 (Mabenga; Kabare); 1943, Rev. Zool. Bot. Africaines, vol. 37, p. 273 (Gabiro). VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, p. 3 (Musosa); 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 50 (Munigi).

Euplectes orix sundevalli SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 759 (in part). SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 277 (Kisenyi; Usumbura); 1933, idem, vol. 22, p. 372 (Mutura; Rugegera; Rugobagoba; Muhungwe). BERLIOZ, 1932, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 4, p. 377 (Kadjudju).

Euplectes orix nigrifrons DELACOUR AND EDMOND-BLANC, 1933, Ois. Rev. Française Ornith., new ser., vol. 3, p. 543, map on p. 540. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1448. SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 161 (Tembwe; Kabalo; Elisabethville; Moba; Kinia; Kashobwe; Kasaji).

? *Euplectes orix* GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 72 (Luluabourg). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 105 (Banda).

Pyromelana oryx nigrifrons SCHOUTEDEN, 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 341 (Astrida; Kibingo; forest west of Astrida).

Pyromelana orix wertheri HENDRICKX, 1944, Ostrich, vol. 15, p. 199.

DISTRIBUTION OF THE SPECIES: Cape Province north to southern Angola, the Manyema District, Lake Edward, Toro, and the upper Semliki Valley, central Tanganyika Territory, and Kisumu in Kenya Colony. There appear to be four valid races, and *E. franciscanus* is very closely allied.

The south African *E. o. orix* (Linnaeus) is large, males with wings 74–79 mm. long, and ranges northward about to the Limpopo River. Males from southern Angola have wings only 71–73 mm. From the eastern Transvaal to Nyasaland and Northern Rhodesia lives *E. o. sundevalli,* smaller, with wings of males 65–73 mm. Both those races are apt to have the black of forehead very broad, often reaching back beyond the eye. *Euplectes o. nigrifrons* is scarcely smaller than *sundevalli,* but it usually has a narrower black forehead, and the red-brown of the back is lighter, often

bleaching almost to whitish with wear. It ranges from southwestern Tanganyika Territory to the Katanga, the north end of Lake Tanganyika, the Manyema, the vicinity of Lake Edward, and the western and southern sides of Lake Victoria.

Males from the vicinity of Kisumu on the east side of Lake Victoria are more orange-red on crown, gorget, and rump than *nigrifrons*. They often have the black of the forehead more extensive, too, and may be referable to *E. o. wertheri* (Reichenow) described from the Wembere plains in Tanganyika Territory.

In the Kivu District and Ruanda-Urundi *E. o. nigrifrons* largely replaces *E. hordeaceus*, and, though fond of grassy plains near rivers and lakes, the former ascends considerably more on the highlands, even to 6000 feet and higher. I have no confidence in the supposed records from the Kasai. About Lake Edward and Lake Kivu this small red and black bishop is rather common about patches of high grass, not necessarily close to water. All the behavior is like that of *E. franciscanus*. About Lake Edward the breeding dress seems to be acquired in October or November and worn until may or June. Near Lake Kivu males are assuming their bright colors in December and losing them in early July. I have seen males in full dress from the north end of Lake Tanganyika taken between February and May, inclusive.

But in western Uganda Van Someren collected males in breeding dress during October and November. There he found them nesting in numbers amid elephant grass and reeds, building in the usual *Euplectes* fashion and laying bright blue eggs in sets of two and three.

After the breeding plumage is shed the birds gather in flocks and feed on the ground in native farms. Grass seeds furnish the bulk of their diet all through the year.

[*Euplectes orix sundevalli* Bonaparte]

Euplectes sundevalli BONAPARTE, 1850, Conspectus generum avium, vol. 1, p. 446 (type locality: Caffraria, i.e., eastern Transvaal).

Pyromelana nigrifrons NEAVE, 1910, Ibis, p. 249 (Fort Jameson, Northern Rhodesia).

Euplectes orix sundevalli WINTERBOTTOM, 1939, Revised check list of the birds of Northern Rhodesia, p. 72 (south and east of Muchinga Escarpment).

Specimens that may be referable to *sundevalli* are known from Fort Jameson in Northern Rhodesia, but this race has not been obtained in the Upper Katanga or even in the Mwinilunga District to the westward, so there is little likelihood of its occurring in the Katanga.

Euplectes franciscanus franciscanus (Isert)

Loxia franciscana ISERT, 1789, Schr. Gesellsch. Naturf. Freunde, Berlin, vol. 9, p. 332, pl. 9 (type locality: Accra, Gold Coast).

Pyromelana franciscana DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (in part. "Uelle"). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 287 (lower Semliki Valley). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 328 (Kasenyi). SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 454. BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 292.

Pyromelaena franciscana SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 274 (Bulaimu; Mutiba ?).

Pyromelana nigrifrons SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 273 (in part. Bulaimu).

Pyromelana franciscana franciscana GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 46. SCHOUTEDEN, 1941, Rev. Zool. Bot. Africaines, vol. 34, pp. 267, 365. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 106.

Euplectes orix franciscana DELACOUR AND EDMOND-BLANC, 1933, Ois. Rev. Française Ornith., new ser., vol. 3, p. 544, pl. opposite p. 539, fig. 1, map on p. 540.

Euplectes franciscana franciscana SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 143 (Mahagi Port). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1450.

Euplectes franciscanus franciscanus STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 573.

DISTRIBUTION OF THE SPECIES: Grasslands from Senegal through Upper Guinea and the Sudan to Abyssinia and Somaliland, and southward to Eldama Ravine in Kenya Colony, the shores of Lake Albert, and the lower Semliki Valley. Nominate *franciscanus* extends all across the Sudan and south to Lake Albert and Eldama. The male in breeding dress has red upper and under tail-coverts as long as the rectrices, whereas in *E. f. pusillus* (Hartert) of Abyssinia and British Somaliland the coverts are a little shorter, and the tips of the rectrices remain visible.

There can be no doubt of the close relationship between *E. franciscanus* and *E. orix*. In the eastern Congo they are separated by the band of rain forest that crosses the middle Semliki Valley. Though occurring on the Shari River and in the Bahr-el-Ghazal Province, *franciscanus* does not reach the northern border of the Uelle District, and the supposed record from Mt. Baginze was based on females of *Quelea erythrops*. The two males in the Congo Museum reported as coming from the Uelle were undoubtedly taken in the Lado district.

This is, however, a common bird on both the eastern and western shores of Lake Albert. At Kasenyi it is very numerous in places with high grass, but I never saw it above the escarpment to the west, and the high ground in Toro must prevent its meeting *E. orix nigrifrons* there.

About Lake Albert the breeding plumage is worn by males from April to November, when they are most conspicuous and look like balls of scarlet and black velvet. They perch on tall grass tops and fly about with whirring wings over the grass where the nests are located; females alone incubate. Small grass seeds are the only food I found in the stomachs. From observa-

tions by W. W. Bowen [1] in the northeastern Sudan it became certain that the males are polygamous whenever additional females are available. Bowen found five different nests with eggs between November 5 and 14 in an isolated patch of grass guarded by a single adult male. In another case, under similar conditions, about a dozen nests were located, though it is not certain that all contained eggs. In Nigeria Serle has found that one male may have three mates.

The influences of various internal secretions on the seasonal plumages of this bishop-bird have been studied most carefully by E. Witschi,[2] and experiments with controlled periods of light have been carried out by Brown and Rollo[3] and Rollo and Domm.[4] It would seem remarkable that length of daylight could regulate the dates of molting near Lake Albert, within 2° of the Equator. During the off season both sexes are brown; old and young gather in flocks.

Three males collected at Kasenyi in late August and early September were all in condition to breed, and some young were already on the wing. In the Sudanese belt the nest has often been found, a globular structure apt to be smaller and more neatly woven than that of *E. hordeaceus,* supported on grass stalks or weed stems at 3 to 6 feet from the ground. The lining is of grass tops, which project but little above the lateral entrance. The eggs are two or three, rarely four, turquoise blue in color, and almost always without spots. Dimensions: 15.5–19.1 by 11.5–13.6 mm.

Key to the Species of *Coliuspasser* in or Near the Congo
(Males in breeding plumage only)

1. Tail shorter than wing 2
   Tail slightly longer, or very much longer than wing 3
2. Lesser wing-coverts and rump yellow . . . . . *C. capensis*
   Lesser wing-coverts orange or scarlet, middle and greater wing-coverts cinnamon or at least margined with rufous; rump black . . . . . *C. axillaris*
3. A white patch on primary-coverts and bases of remiges; lesser wing-coverts yellow, rufous, or deep chestnut . . . . . *C. albonotatus*
   No white patch on primary-coverts or adjacent bases of remiges 4
4. Lesser wing-coverts black, and whole plumage blackish, save for a red or orange patch or crescent frequently present on chest . . . . . *C. ardens*
   Lesser wing-coverts ochreous orange to bright yellow. 5
5. Smaller: wing usually 76–86 mm. long; middle wing-coverts black, bordered with brown; whole back very often yellow. . . . . *C. macroura*

[1] 1926, Ibis, p. 441.

[2] 1935, Wilson Bull., vol. 47, pp. 177–188; 1936, Scientia, Milan, vol. 60, pp. 262–270; 1936, Proc. Soc. Exp. Biol. Med., vol. 35, pp. 484–489; 1939, Compte Rendu, IXe Congr. Ornith. Internatl. Rouen, pp. 431–435.

[3] 1940, Auk, pp. 485–498.

[4] 1943, Auk, pp. 357–367.

Larger: wing 91–102 mm. long; middle wing-coverts buffy or yellowish; back always black . . . . . *C. hartlaubi*

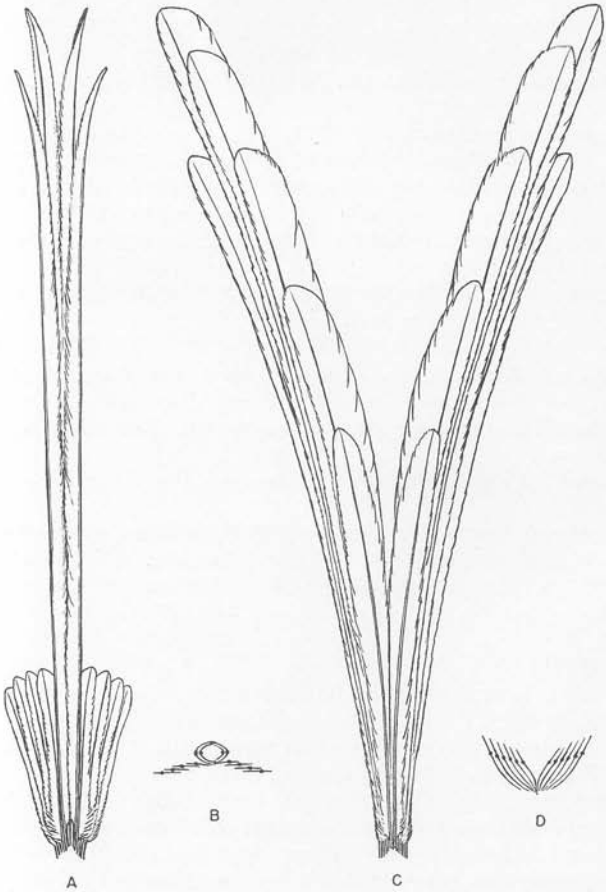

FIG. 30. Tails of widow-birds, or whydahs, of the two distinct groups. A. Tail of *Vidua macroura*, with only four median rectrices lengthened, shown in cross section in B. C. Tail of *Coliuspasser ardens*, with all rectrices lengthened and rotated to form a keel, as shown in cross section in D.

Coliuspasser capensis sabinjo (Reichenow)

Euplectes sabinjo REICHENOW, 1910, Ornith. Monatsber., vol. 18, p. 161 (type locality: north slope of Mt. Sabinyo, Kivu-Uganda border); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 329. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 274 (in part. Tsisilongo; Kibati; Busuenda; Luvungi; Masidongo; Biogo; Beni).

Orynx capensis DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Pyromelana xanthomelas SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 76. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29. OGILVIE-GRANT, 1908, Ibis, p. 268 (northwest of L. Tanganyika, 2800 ft.); 1910, Trans. Zool. Soc. London, vol. 19, p. 287 (Luimi Valley, 6000 ft.; Mubuku Valley, 5000 ft.).

Pyromelana xanthomelaena NEAVE, 1910, Ibis, p. 250 (upper Luangwa Valley, 3000 ft.).

Euplectes xanthomelas REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 329 (Ruanda; Kisenyi; Tshingogo). MOURITZ, 1914, Ibis, p. 36 (Moushosi R.). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 46 (Urundi; Usumbura; Uvira; Baraka; northwest of L. Tanganyika, 2000 m.; Kisenyi).

Euplectes crassirostris SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 274 (in part. Lubilu).

Euplectes xanthomelas xanthomelas SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 349 (Tshisika; Ngombe in Kasai).

Pyromelana capensis xanthomelas GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 47 (Mt. Muhavura, 2400 m.; Burunga). SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 161 (Burunga in Mokoto; Ngesho; Kamatembe; Tshumba; Kanyabayongo; Runyoni, 2200 m.).

Euplectes sp. ? DE RIEMAECKER, 1927, Rev. Zool. Bot. Africaines, vol. 14, p. 277 (Lubumbashi R.).

Euplectes capensis xanthomelas SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 762 (in part). SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 277 (Lulenga); 1933, idem, vol. 22, p. 372 (Nyundo; Muhungwe; Rugegera). BERLIOZ, 1932, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 4, p. 377 (Kadjudju near Katana). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 21, p. 108 (Banda; Kabambaie). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1454, pl. 23, figs. 2, 3 (in part). VERHEYEN, 1940, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 16, no. 2, p. 7 (Kanzenze). PETERS AND LOVERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 270 (Idjwi I.). WHITE AND WINTERBOTTOM, 1949, A check list of birds of Northern Rhodesia, p. 127 (Mwinilunga).

Euplectes capensis sabinjo DELACOUR AND EDMOND-BLANC, 1933, Ois. Rev. Française Ornith., new ser. vol. 3, p. 691, map on p. 689. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 50 (Munigi; Rugari).

Euplectes capensis GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 73 (Luluabourg).

Pyromelana capensis sabinjo SCHOUTEDEN, 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 341 (Kibingo; Astrida): 1943, idem, vol. 37, p. 273 (Kinunu).

Euplectes capensis sabingo A. W. VINCENT, 1949, Ibis, p. 501 (Elisabethville).

Coliuspasser capensis sabinjo SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 161 (Kinda; Mukula Gombe; Sakania; Mpala).

MALE IN BREEDING DRESS: Iris very dark brown; bill light gray, sometimes slightly bluish, with culmen black and small black patches at very base of mandible; feet dull dark brown.

DISTRIBUTION OF THE SPECIES: Cape Province north through eastern Africa to Abyssinia, westward to Angola, and on the northern side of the

equatorial forests to the Uelle, Mt. Cameroon, and other highlands in that region.

Although the tail is relatively short, males of this species differ from those of *Euplectes* in molting their rectrices twice a year. In this they agree with *Coliuspasser,* and in view of the great diversity in tail length in that genus, *capensis* is best included in it.

There are at least seven well-marked races, and several more subdivisions have been proposed. The large *capensis* and *approximans* of South Africa have the remiges even of males rather brownish, narrowly edged with yellowish olive. In *phoenicomerus* of Cameroon the remiges are not so black as in the remaining races. The range commonly assigned to *xanthomelas* of Abyssinia is certainly too vast, and variation in the size of the bill and length of wing deserves further study. In any case, there are two recognizable races in the eastern and southern Congo.

Coliuspasser c. sabinjo surely has a larger bill than *xanthomelas* of Abyssinia and ranges from the vicinity of Lake Edward and the Kivu District to Ruanda, Karagwe, the Katanga, and the Kasai District, perhaps to Northern Rhodesia and Nyasaland. On the eastern border of the Congo the Ruwenzori Range and the Semliki Forest isolate *sabinjo* from the still thicker-billed *crassirostris* to the northward. Nine males of *sabinjo* from the vicinity of the Kivu Volcanoes have the culmen to base 15–16.5 mm., height of bill (from base of culmen to posterior angle of mandible) 11–12 mm., wings 71–77.5 mm., tails 51–56 mm.

While not restricted to highlands, *C. c. sabinjo* is frequently seen on plateaus and mountain slopes where there are tall grasses. On east Ruwenzori it goes up to 6000 feet, and about the Kivu Volcanoes even a little higher. I have seen it at 5000 feet on the southern end of Ruwenzori, and once even at 8000 feet in a field of bracken near Kasanga, west of Lake Edward. In Marungu it was collected by Rockefeller and Murphy at Lubenga, 5650 feet, and Sambwe, 6100 feet. There are of course many records from lower levels, including several places in the Kasai; from Luluabourg we have eight specimens.

In the Kasai the males are in breeding dress from November to April at least, and in the Kivu District from December to June. From February on they are in condition to breed, often seen singly, guarding a territory grown up with high grass and scattered bushes. Perching silently on the top branch of some bush, with upraised yellow rump plumage, the male is very conspicuous. Perhaps he has several mates on their nests, but these I could not locate.

In the Upper Katanga Alfred Vincent noted that nests were well hidden in tall, dense grass growing in marshy places, from 18 inches to 4 feet

up, or occasionally attached to bushes. Oval, with side-top entrance, they were well woven of green grass blades, with yellower grass inside, and grass tops projecting about the entrance. Eggs were two, usually cream color with streaky freckling of olive or sepia-brown and other markings of ashy gray. Dimensions: 17.6–21.4 by 13.0–14.7 mm. Eggs were found near Elisabethville from late February to mid-April.

Coliuspasser capensis crassirostris (Ogilvie-Grant)

Pyromelana crassirostris OGILVIE-GRANT, 1907, Bull. Brit. Ornith. Club, vol. 21, p. 14 (type locality: north end of Ruwenzori, 3500 ft.); 1910, Trans. Zool. Soc. London, vol. 19, p. 287, pl. 10, fig. 3. VAN SOMEREN, 1922, Novitates Zool., vol. 29, p. 150.

Euplectes crassirostris REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 329. SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 454 (Uelle District). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 274 (in part. Bulaimu).

Euplectes sabinjo SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 274 (in part. Bulaimu; Buwissa; Mutiba).

Euplectes xanthomelas SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 274 (Boga). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 46 (in part. Irumu).

Euplectes capensis EMIN, 1919, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 2, p. 427 (Kuterma). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, pp. 239, 277 (southern Makraka).

Pyromelana capensis crassirostris GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 48. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 107 (Mt. Rona; Nioka; Mahagi).

Euplectes capensis crassirostris SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 762. DELACOUR AND EDMOND-BLANC, 1933, Ois. Rev. Française Ornith., new ser., vol. 3, p. 693, map on p. 689. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 143 (Abimva). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 573 (Vube). FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 425.

Pyromelana capensis sabinjo SCHOUTEDEN, 1940, Rev. Zool. Bot. Africaines, vol. 33, p. 287 (Mt. Wago).

SPECIMENS: Pawa, male, October 19. Nzoro, two males, July 31, August 2. Faradje, nine males, January 20, February 24, March 11, April 19, 29, May 13, October 8, 18, November 19; female, March 17. Garamba, male, July 8.

ADULT MALE IN BREEDING PLUMAGE: Iris dark brown; bill with culmen and base of maxilla and mandible black, elsewhere light gray, somewhat bluish; feet rather light brown.

ADULT MALE IN ECLIPSE: The maxilla becomes brown, mandible grayish white.

ADULT FEMALE: Iris dark brown, bill and feet light brown.

DISTRIBUTION: From the grasslands of the lower Semliki Valley and

the northern end of Ruwenzori to the Lendu Plateau west of Lake Albert, the Upper Uelle District, and Pawa in the northern Ituri. In our series of males the culmen to base measures 14–15 mm., and the height of bill (from base of culmen to posterior angle of mandible) 12–13 mm. The wings of males are only 65–69.5 mm. long, tails 44–49.

The type of *crassirostris* from the north end of Ruwenzori was in male breeding plumage on August 19, as was Pilette's specimen from Bulaimu at the northwest base of those mountains on July 1. Thus their breeding season must agree with that of *crassirostris* at Irumu and in the Uelle and come at the opposite time of year from that of *sabinjo* about the southern end of Ruwenzori, where I saw black and yellow males during January and February. In the Uelle the breeding plumage is assumed much earlier than by the other related whydahs and bishop-birds. By mid-April some males begin to molt, losing all the rectrices at once and growing black feathers first on the throat. Within a month the prenuptial molt is virtually complete; it seems not to involve the scapular tracts, and in only a minority of males do the feathers of the lower tibiae all become black. At the same time the pigmentation of the beak changes, and it should be noted that the prenuptial molt is almost over before the testes have begun to enlarge perceptibly. The greatest development of the gonads comes in October and November, so despite its early molt *crassirostris* seems to await the months of very high grass before nesting. The off-season eclipse plumage is acquired rapidly in early December.

This race ascends to the higher levels of the Lendu Plateau, where I have seen it near 6000 feet in the vicinity of Nioka, and is found at around 2500 feet in the Uelle. We failed to see it near Rungu and Niangara, though it was common at Pawa, Nzoro, and Faradje. There must be a wide vacant area between the northeastern Congo and the Cameroon, where *phoenicomerus* seems restricted to the highlands.

Fields of high grass are the characteristic haunts of *crassirostris*. It is not a sociable bird and scarcely forms real flocks even in the dry season. In any dress the adult males attract attention by showing their yellow rumps and wing-coverts in flight. In the breeding season they are wont to sit on some bush with the rump feathers overlying the secondaries so that the fluffy golden area shows most conspicuously.

The nest no doubt is like that of *C. c. sabinjo* but I do not know that it has yet been described. While feeding largely on small seeds of grasses and other plants, this whydah also eats insects. The crops and stomachs of six examples, with only one exception, held seeds, but four birds had added insects to their fare, among them two Hemiptera and an ant. The crop of one bird in March held nothing but winged termites, taken no doubt in flight.

[*Coliuspasser capensis angolensis* (Neunzig)]

Euplectes capensis angolensis R. NEUNZIG, 1928, Zool. Anz., vol. 78, p. 114 (type locality: Angola).

The birds of northern Angola are rather small-billed and have slightly longer wings than *C. c. sabinjo* does in the Kasai District. The breasts of females and males in eclipse are more boldly streaked. The race *angolensis* may well be valid, but it ranges little to the north of the middle Cuanza Valley.

Coliuspasser axillaris bocagei (Sharpe)

Urobrachya bocagei SHARPE, 1871, Catalogue of African birds, p. 63 (type locality: Huilla, Angola).

Urobrachya axillaris SCHALOW, 1886, Jour. Ornith., pp. 432, 434, 435 (Likulwe R.; between Lufira and Kamolondo rivers; L. Upemba).

Urobrachya phoenicea MATSCHIE, 1887, Jour. Ornith., p. 154 (Mbuga). REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 130 (in part). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Tanganyika).

Urobrachya bocagii NEAVE, 1910, Ibis, p. 249 (Kalungwisi R.; Chambezi Valley).

Urobrachya axillaris mechowi SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 765 (Kasai District). VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, p. 4 (Musosa).

Urobrachya axillaris phoenicea BOWEN, 1931, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 296 (Bukama).

Euplectes axillaris mechowi DELACOUR AND EDMOND-BLANC, 1933, Ois. Rev. Française Ornith., new ser. vol. 3, p. 699, map on p. 696. WHITE, 1946, Ibis, p. 217 (Kabompo R. in Mwinilunga district).

Urobrachya phoenicea mechowi LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 108 (upper Lufira R.).

Coliuspasser axillaris bocagei SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 161 (Kando; Lukonzolwa; Kanzenze; Kiambi; Mulungwishi; Kabalo; Kinda; Kinia).

DISTRIBUTION OF THE SPECIES: Pondoland and Natal north through eastern Africa to Abyssinia and Sennar, westward also to Angola and the Kasai district, and then north of the equatorial forests to the Bahr-el-Ghazal, northern Cameroon, and upper Niger River.

Seven or more races are recognizable, of which two are found in the Congo. The Upper Katanga and Kasai are inhabited by *C. a. bocagei,* of which the male has lesser wing-coverts rich orange, while Ruanda, the Kivu District, and the grasslands near Lake Albert have *C. a. phoeniceus,* with orange-red lesser wing-coverts. I consider *mechowi,* described from Malange in northern Angola, to be a synonym of *bocagei,* and *camerunensis* from the highlands of Cameroon is scarcely distinguishable. Yet the lower Cuanza Valley of Angola has a larger race with bigger bill, *C. a. quanzae* (Hartert), which is certainly valid.

The range of *bocagei* thus extends from Angola, with the exception of the lower Cuanza, eastward to Northern Rhodesia and the Katanga. Northward it reaches the region between Lake Moero and Lake Tanganyika, Kabalo on the Lualaba, and the central Kasai. From Luluabourg we have a single adult male in eclipse collected by Callewaert on October 13.

This orange-shouldered whydah is characteristic of open grassy marshes and river plains that are flooded periodically. Near Bukama Bowen found it common along the Lualaba River, going in small flocks in early September. Males are in eclipse in the southern Congo from June to October. In the western part of Northern Rhodesia White found that breeding went on from December to March. The eggs, he said, are like those of *C. ardens ardens,* but greener, with light olive-brown blotches and little speckling.

Coliuspasser axillaris phoeniceus Heuglin

Coliuspasser phoeniceus HEUGLIN, 1862, Jour. Ornith., p. 304 (type locality: Sobat R., Sudan).

Urobrachya phoenicea HARTERT, 1900, Novitates Zool., vol. 7, p. 41 (Holulu R.). REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 130 (in part); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 329 (L. Mohasi; Kisenyi; northwest Ruanda; L. Karago; Tshingogo). OGILVIE-GRANT, 1908, Ibis, p. 269 (Mfumbiro Volcanoes, 5000 ft.). SASSI, 1910, Ornith. Monatsber., vol. 18, p. 178 (Urundi). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 274 (Beni; Masidongo; Boga; Tsisirongo; Kibati; Busuenda; old Mission St. Gustave; Lufungula; Mai-na-Kwenda; Kasenyi; Irumu); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 143 (Djalasinda). HENDRICKX, 1944, Ostrich, vol. 15, p. 199.

Urobrachya phaenicea LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 27 (Rutshuru).

Urobrachya axillaris phoenicea GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 49 (Tabaro). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 764. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 276 (Ngoma; Kibati); 1933, idem, vol. 22, p. 372 (Rwaza); 1935, idem, vol. 27, p. 403 (Katana; Kadjudju). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 573 (Bunia). FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 368. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1456. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 51, 82 (Fuku; Butahu R.).

Urobrachya phoenicea media SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 88, p. 45 (Usumbura; Rutshuru Plain).

Urobrachya axillaris media FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 764 (Luvungi).

Euplectes axillaris phoenicea DELACOUR AND EDMOND-BLANC, 1933, Ois. Rev. Française Ornith., new ser., vol. 3, p. 697, map on p. 696.

? *Coliuspasser* sp. SCHOUTEDEN, 1935, Rev. Zool. Bot. Africaines, vol. 27, p. 403 (near Rutshuru); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 163.

Coliuspasser axillaris phoeniceus SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 162 (Burunga in Mokoto; L. Ndaraga; Munagana; Ruhengeri; Kanyabayongo; Mabenga); 1942, Rev. Zool. Bot. Afri-

caines, vol. 36, p. 341 (Astrida; Kibingo). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 107 (Butembo; Nioka; Djugu–Nizi; Ndélé; Bogoro; Geti).

Coliuspasser axillaris phoenicea SCHOUTEDEN, 1943, Rev. Zool. Bot. Africaines, vol. 37, p. 273 (Gabiro).

MALE IN BREEDING PLUMAGE: Iris very dark brown, bill very pale gray tinged with bluish or blue-green, feet blackish.

DISTRIBUTION: From Sennar in the eastern Sudan south to the Nandi District, Uganda, Karagwe, and the grasslands of the eastern Congo from Lake Albert to the Manyema District. It never enters forested areas but ranges from the lake shores up on plateaus to 6000 feet and more. In the eastern Congo this race is not at all local and finds suitable areas of grass well away from water in many places.

At Kasenyi in August I noticed only one, at Irumu it was numerous, as also near the new post of Beni. From Beni northward the male breeding dress is worn from May or June to late October at least. Breeding was clearly in progress at Irumu in August–September and at Beni in October. From the north shore of Lake Edward south to Karagwe and the Manyema the dates are reversed, and the breeding dress is worn from November or early December to June. In any one locality the molts are apt to be quite regular. At Entebbe in Uganda, however, eggs have been collected in June and in October. Belcher even found in that equatorial belt two breeding periods per year, March to May and October to December.

On the highlands west of Lake Edward this whydah was noted up to 5800 feet, north of Luofu, and at 6200 feet at Kayangira. Males at Luofu had gonads enlarged by the second half of March, and they probably continue breeding in the Kivu until May. We have one male of *phoeniceus* collected by Grauer in the Manyema, some 80 miles west of Baraka.

During the nesting period males of this whydah are extremely conspicuous, and there is very good reason to believe them polygamous.[1] As they fly about over the grass the wings look very broad and are beaten up and down with a windmill motion, as is done by other longer-tailed species of the genus; the tail is spread and slightly depressed in the middle. After perching, the males may raise their red wing-coverts to render them most conspicuous. Of voice, on the other hand, they have little. As in the case of other whydahs and bishop-birds, there are apt to be some second-year males about, which have not acquired any black body plumage.

Nests are woven in tall rank grass, only 2 or 3 feet off the ground, and some of the growing blades are bent down and woven over the top. The entrance is lateral, the nest wall loosely woven of strips from grass, and a generous lining of fine grass tops added. Eggs are two, less often three, greenish or greenish gray, marbled with weak purplish brown and more

[1] See Stark, 1900, The birds of South Africa, vol. 1, p. 135.

finely spotted with heavier brown. Dimensions as given by Jackson are 18–20.5 by 13–14 mm.

It is well known that bishop-birds and whydahs in captivity often develop abnormal colors, partly as a result of food deficiencies. Van Someren[1] called particular attention to melanism in captive whydahs. There are occasional aberrations in the wild state, and the *Coliuspasser* mentioned by Schouteden (1935, 1938) from Rutshuru seems perhaps a wholly black individual of *C. a. phoeniceus* without lengthened rectrices. Its beak is rather small and light-colored, and its dimensions are close to those of females and immature males of *phoeniceus*.

From West Africa Bates[2] described a female of *Coliuspasser macroura* which had become almost entirely black, and I have examined another similar bird from the Cameroon, now in the Carnegie Museum. It too was sexed as a female, and it has a small hidden patch of white down on the mid-line of the upper breast, proving that it really belongs with *macroura*.

Coliuspasser macroura macroura (Gmelin)

Loxia macroura GMELIN, 1789, Systema naturae, ed. 13, vol. 1, pt. 2, p. 845 (type locality: Whidah, Dahomey).

Coliostruthus macrurus JOHNSTON, 1884, The River Congo, p. 365 (Vivi).

Penthetria macrura SHARPE, 1884, Jour. Linnean Soc. London, zool., vol. 17, p. 426 (Ndoruma). REICHENOW, 1887, Jour. Ornith., p. 305 (Leopoldville). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Kisantu; Mayombe; L. Leopold II). OGILVIE-GRANT, 1908, Ibis, p. 269 (northwest of L. Tanganyika; east of Kasongo). SALVADORI, 1914, Ann. Mus. Zool. Napoli, new ser., vol. 4, no. 10, p. 24 (Lobo, in Luapula Valley). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 256 (Mbiambana). DE RIEMAECKER, 1927, Rev. Zool. Bot. Africaines, vol. 14, p. 276 (Munama R.).

Penthetriopsis macrura SHARPE, 1890, Catalogue of the birds in the British Museum, vol. 13, p. 220 (Congo R.). SHELLEY, 1890, Ibis, p. 166 (Lower Congo). OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127. NEAVE, 1910, Ibis, p. 248 (Dikulwe R.; upper Lualaba R.). MENEGAUX, 1918, Rev. Française Ornith., vol. 5, p. 259 (Zambi).

Coliuspasser macroura REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 138; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 330; 1923, Mitt. Zool. Staatsinst. Zool. Mus. Hamburg, vol. 40, p. 64 (Lupungu). LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 15 (Mukimbungu). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 273. SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 289 (Elisabethville); 1949, idem, vol. 42, p. 161 (many localities in Katanga).

Coliuspasser macrourus SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 49. SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 459 (Mt. Baginzi).

Penthetriopsis macroura SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 455 (Zone of Gurba-Dungu).

Coliuspasser macrourus flavopterus HARTERT, 1915, Novitates Zool., vol. 22, p. 262 (west of Baraka).

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[1] 1918, Avicultural Mag., ser. 3, vol. 10, pp. 40, 41.

[2] 1927, Ibis, p. 60.

Penthetria macroura SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 242 (Mundu).

Coliuspasser macrura BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 293.

Coliuspasser macroura macroura SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 349, 403 (Macaco; Kabambaie; Kwamouth); 1924, idem, vol. 12, p. 276 (Kidada); 1925, idem, vol. 13, p. 20 (Bolobo); 1926, idem, vol. 13, p. 205 (Banana; Moanda; Vista; Makaia-Ntete; Ganda Sundi). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 108 (Mahagi; Mt. Rona–Djalasiga).

Coliuspasser macroura camerunensis R. NEUNZIG, 1928, Zool. Anz., vol. 78, p. 116 (type locality: Mbambi, Cameroon; also from Duma; Bondo; Yakoma; Macra-Ssugari).

Coliuspasser macrourus macrourus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 766. STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 573 (Vube). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 144 (Mauda; Niarembe; Buta; Bambili; Niangara; Dungu; Faradje; Aba; Aru; Mahagi Port; Panga; Poko; Api; Titule). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 108. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1463. A. W. VINCENT, 1949, Ibis, p. 504. BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 198, pl. 6.

Euplectes macroura macroura DELACOUR AND EDMOND-BLANC, 1933, Ois. Rev. Française Ornith., new ser., vol. 3, p. 707, map on p. 706. BOUET, 1945, Ois. Rev. Française Ornith., new ser. vol. 14, p. 79. BLANCOU, 1948, Ois. Rev. Française Ornith., new ser., vol. 18, p. 74 (Zémio).

Euplectes macrourus macrourus BOUET, 1942, Ois. Rev. Française Ornith., new ser., vol. 12, p. 169 (Brazzaville).

SPECIMENS: Zambi, male, June 20. Boma, male, January 19. Leopoldville, male, immature male, July 6. Rungu, male, October 29. Niangara, male, November 23. Faradje, 15 males, February 23, March 9, April 29, May 12, 13, July 6, August 11, September 4, October 13, 21, November 25; three females, April 12, 24, May 13; immature male, October 18; immature female, October 21. Garamba, male, July 17.

ADULT MALE IN BREEDING PLUMAGE: Iris dark brown, maxilla black, mandible blue-gray with blackish base, feet black.

ADULT MALE IN ECLIPSE: Iris dark brown, maxilla dark brownish, mandible bluish gray, feet pinkish brown.

DISTRIBUTION OF THE SPECIES: From Senegal eastward along the northern side of the equatorial forests to the Bahr-el-Ghazal and Abyssinia, south through eastern Africa to Nyasaland and Southern Rhodesia, westward again south of the Congo forest to northern Angola and the Gaboon.

There are at least five subspecies. Nominate *macroura* has the back as well as wing-coverts yellow in male breeding plumage, the tail usually 85–110 mm. long. It occupies the grasslands both north and south of the Guinean forests, east to the Bahr-el-Jebel, Uganda, North Kavirondo, the Manyema, and the Katanga. Some subdivisions were proposed by R. Neunzig,[1] but they have not been generally accepted. In many areas close

[1] 1928, Zool. Anz., vol. 78, pp. 116–117.

to the margins of the West African forests males seem to develop relatively short tails. But no one could fail to recognize *C. m. conradsi* Berger of Ukerewe Island in southeast Lake Victoria. There the tail measures 138–152 mm. Between *conradsi* and *macroura* there may not be complete intergradation, but I accept Neunzig's *intermedia,* with tail 114–122 mm., inhabiting western Tanganyika Territory. It appears to reach Marungu.

The two races formerly separated under *C. macrocerca* have the males in breeding dress black except for the wing-coverts. But males and females have the same small hidden patch of white down on the middle of upper breast as *macroura* and *conradsi.* It is strange that across a part of Uganda one sees males of the two distinct color patterns virtually side by side. Since the females appear to be indistinguishable, I cannot believe the males represent two valid species.

Coliuspasser m. soror, with the tail of breeding males 90–103 mm., ranges from the Kavirondo District across Uganda at least to Mbarara, Mubendi,

FIG. 31. Yellow-backed whydah, *Coliuspasser m. macroura.* Male in breeding dress displaying the downy white patch in middle of breast.

Masindi, and Kitgum. In Abyssinia there is a similar form, *C. m. macrocerca* (Lichtenstein), with tails of males 125-148 mm.

In the Congo this yellow-backed whydah is very common in nearly all the lowland savannas but avoids the highlands of the Kivu, Ruanda, and the region west of Lake Albert. During the rainy season in the Uelle males of *C. m. macroura* are conspicuous, characteristic of open tracts of high grass, and especially of wide grassy marshes. This must be true of all the northern savannas, from Duma on the Ubangi to Mahagi Port on Lake Albert. But in the region of Irumu its place is taken by *C. axillaris*. South of the forest, from the Congo coast to the Manyema District and the Katanga, *C. m. macroura* again holds sway.

Breeding males display in an ungraceful, jerky flight, spreading the tail and wagging it up and down. Or perched on a tall grass stalk or the top of some small tree, they flit the wings and tail, raise the nuchal ruff, and often expose the patch of white down in the middle of the black breast. Rarely does a male perch beside a female, but, though many rods away, he keeps continual watch. If she flies he follows, sometimes to perform a dance in mid-air, and then alights at a little distance.

Courtship may be greatly prolonged, for nest building requires high grass. In the Uelle the prenuptial molt begins early, toward the end of April, but goes so slowly that only in early July are males in full dress to be seen. Nesting commences late in September there, and the postnuptial molt follows in late November. In the Lower Congo the prenuptial molt is in progress during December, some birds are fully feathered in January, and the postnuptial molt comes in late June and early July.

In the dry season males become streaked and brown but retain the yellow on lesser wing-coverts. Small flocks are formed which mingle with other whydahs and bishops in numbers up to a hundred or more. Then they feed on the ground, especially after the annual grass burning, and roost at night in papyrus or dense reeds in swamps.

It seems very probable that males are progressively polygamous, and they seem to weave the outer shell of the nest at least. It is suspended in high grass, scarcely a yard above the ground, like the nest of a bishop-bird, constructed of fresh strips torn from grass blades and lined with grass tops. The entrance is wide and lateral. In mid-October at Faradje three nests were found, one with two eggs, the others with young. The male parent stayed at a little distance, only the female really coming to the nest. The eggs are two or three, bluish green to gray-green thickly spotted with dark brown and blackish. Serle's measurements from Nigeria are 17.1–21 by 13.3–14.9 mm.

Near Elisabethville Alfred Vincent found eggs from late January to April 10, colored like those from north of the forest and very similar in size. There

the nests were low down, in grass no more than 3 feet high, usually in marshy dambos.

Grass seeds doubtless furnish most of the food. Notes were kept on only three stomachs, all of which held small seeds. One bird had a winged termite in the esophagus and small bits of insects in the stomach.

Coliuspasser macroura intermedius Neunzig

Coliuspasser macroura intermedia R. NEUNZIG, 1928, Zool. Anz., vol. 78, p. 117 (type locality: Kwa Seroma, Tanganyika Territory).

Penthetria macroura SCHALOW, 1886, Jour. Ornith., p. 420 (Lukumbi R.). DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

DISTRIBUTION: Country east of Lake Tanganyika, south to Ufipa and perhaps Njombe; also around the south end of Tanganyika to Marungu. This race has not received general recognition but seems to me valid. According to Neunzig, breeding males have tails 114–122 mm. long and thus mark some approach to the long-tailed race of Ukerewe Island.

Records from Marungu are very few, and the country is high. But at Mkuli, 5225 feet, Rockefeller and Murphy collected one adult male in breeding condition on February 20. This I regard as *intermedius*. Its wing measures 86 mm., tail 113 mm., while four males of *macroura* from the Manyema have wings 80–83 mm., tails only 90–102 mm. The few specimens I have seen from the vicinity of Elisabethville had tails not longer than 108 mm., so I have left the Upper Katanga records under nominate *macroura*.

It is evident that the geographic variation of this whydah deserves more study. From countries west of the Cameroon I have seen no male with the tail longer than 105 mm. On the other hand, males from northwestern Angola have tails measuring 92–115 mm. long, and one may well expect birds from Southern Rhodesia to equal them.

[*Coliuspasser macroura soror* (Reichenow)]

Penthetria soror REICHENOW, 1887, Jour. Ornith., p. 70 (type locality: Kawanga, Kavirondo District).

? *Penthretriar macrocerca* SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 237 (Tobbo).

? *Penthetria macrocerca* EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 15 (Tunguru).

Coliuspasser macrocercus soror JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1461 (L. Albert).

The black-backed *soror* is not much more than a localized color phase of *C. m. macroura*. Both are said to occur in North Kavirondo, and along the road from Kampala toward Mubendi in July, 1926, I was sure I saw adult males of both kinds and collected one of *soror* at Mitiyana. In general behavior and courtship attitudes there is not the slightest difference between

soror and *macroura,* nor would I know how to distinguish their females.

Emin's use of the name *macrocerca* for birds from Tobbo and Tunguru is of no significance. But the fact that the black-backed *soror* does range from Kavirondo and Mt. Elgon to 20 miles west of Mubendi and to Masindi indicates that it may well reach Lake Albert, where Blaine is said to have taken it. Thus far there is no Congo record.

Coliuspasser hartlaubi hartlaubi (Bocage)

Penthetria hartlaubi BARBOZA DU BOCAGE, 1878, Jor. Sci. Nat. Lisboa, vol. 6, p. 259 (type locality: Caconda, Angola); 1887, idem, vol. 12, p. 85 (Machinge in northern Angola). NEAVE, 1907, Mem. Proc. Manchester Lit. Phil. Soc., vol. 51, no. 10, p. 88 (Chiwali's, Alala Plateau); 1910, Ibis, p. 247 (upper Lualaba R., 4000 ft.; Chambezi Valley; Kalungwisi R.).

Coliuspasser hartlaubi hartlaubi SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 767. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 108 (Biano Plateau). A. W. VINCENT, 1949, Ibis, p. 505 (Elisabethville). SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 161 (Kando; Kansenia; Dilolo; Kapolowe).

Euplectes hartlaubi hartlaubi DELACOUR AND EDMOND-BLANC, 1933, Ois. Rev. Française Ornith., new ser., vol. 3, p. 716, pl. opposite p. 687, map on p. 717. WHITE, 1946, Ibis, p. 218 (Congo border near Mwinilunga). VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, p. 3 (Musosa).

DISTRIBUTION OF THE SPECIES: From southern Angola to the middle Congo River, eastward to the highlands about the north end of Lake Nyasa, and reappearing in the Cameroon to the north of the forest, also in Uganda from Kampala to Mt. Elgon and to Nandi in western Kenya Colony.

The race *humeralis* was described from Nandi, and in that region males have wings 95–102 mm., tails in breeding dress 100–110 mm. Males from the middle Congo River and Akonolinga in Cameroon have wings 91–98, tails 115–116 mm., and they too are referred to *humeralis,* which extends north to Ngaundere. Although here included with *humeralis,* three males in the Congo Museum from Lake Leopold II have wings 96–101 mm., tails 122–125 mm.

Nominate *hartlaubi* ranges from the highlands of Benguella eastward to the Katanga and Northern Rhodesia, reaching the country east of Lake Bangweolo. Males have wings 105-116 mm., tails in breeding dress 150-185 mm. The third race, *psammochromius,* is restricted to highlands near the Nyika and Ubena plateaus and has the middle and greater wing-coverts mainly buff. According to Reichenow, the males have wings 100–108 mm., tails 180–260 mm.

The nominate race, Neave found, is not uncommon in grassy plains and swamps of the Upper Katanga and northeastern Rhodesia. White confirmed this for the border north of Mwinilunga. Near Elisabethville Alfred Vincent says it is confined to certain of the dambos, with a short, dense growth of wiry grass. The males favor a particular perch, often on the outside of the higher vegetation on a large termite mound, from which to circle out over

the nesting area; they do not permit a close approach. The breeding dress is assumed during October and worn until May.

Nests are built low down, only 2 to 8 inches from the ground, Vincent states, and the living grass is coiled over and down to form a bower, so that the nest itself is a ball or oval of fine dry grass within the green bower. It is not well woven and has a large lateral entrance. Eggs were taken from late January to March. These are two in number, light bluish green with coarse markings of olive, ashy gray, and a little chocolate brown. They measure 21.2–23.1 by 14.9–16.1 mm.

The food evidently includes a good many insects, at least in breeding time. Vincent notes that one female had the crop and gullet crammed with locust hoppers and one or two large berries.

Coliuspasser hartlaubi humeralis (Sharpe)

Penthetriopsis humeralis SHARPE, 1901, Bull. Brit. Ornith. Club, vol. 11, p. 57 ("Elgon"; but type really from Nandi, Kenya Colony).

Penthetria hartlaubi DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (L. Leopold II).

Coliuspasser hartlaubi hartlaubi SCHOUTEDEN, 1925, Rev. Zool. Bot. Africaines, vol. 13, p. 20 (Kunungu).

Coliuspasser hartlaubi humeralis JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1462.

DISTRIBUTION: Grasslands in the Cameroon from Ngaundere south to Akonolinga, and in the Congo from Stanley Pool and the middle Congo River to the vicinity of Lake Leopold II; also near the northeast side of Lake Victoria, from the base of Mt. Elgon to Nandi, Kampala, and Entebbe.

This large orange-shouldered whydah is strangely local but should occur somewhere in the Kasai. Near Lukolela in September, 1930, I saw three in a natural grassy area surrounded by forest, one an adult male in eclipse. From the same vicinity Gerard Bourry later sent to the Congo Museum a male in breeding dress. Malbrant has given us a male in fresh nuptial plumage from Brazzaville, and in 1943 I found that this whydah nested in the large marsh adjacent to the native city at Kinshasa.

North of the Cameroon forest and in Uganda the breeding period coincides with the northern season of rains, so that males are in black dress in Uganda from May to August at least and remain so in the Cameroon into late October. South of the forest the males change from eclipse to breeding plumage by November and retain the black dress until April or May.

On March 31, near Kinshasa, I found two adult males in an open, boggy part of a broad marsh, perching high, raising their ruffs and flicking their tails even more energetically than *C. macroura*. They could scarcely be approached within 30 yards. The females are shy and secretive, but I secured one with a soft egg in the oviduct.

Coliuspasser albonotatus albonotatus (Cassin)

Vidua albonotata CASSIN, 1848, Proc. Acad. Nat. Sci. Philadelphia, vol. 4, p. 65 (type locality: Durban, Natal).

Penthetria albonotata SCHALOW, 1886, Jour. Ornith., p. 436 (Katapena). MATSCHIE, 1887, Jour. Ornith., p. 154. NEAVE, 1910, Ibis, p. 248 (upper Loangwa Valley; upper Kalungwisi R.).

Coliuspasser asymmetrura REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 141 (in part).

Coliuspasser albonotatus SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 46.

Urobrachya albonotata albonotata VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 16, p. 10 (Kiambi).

Coliuspasser albonotatus albonotatus VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, p. 3 (Musosa). A. W. VINCENT, 1949, Ibis, p. 502 (Elisabethville). SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 162.

ADULT MALE IN BREEDING PLUMAGE: Iris dark brown, bill light bluish gray, feet blackish.

ADULT FEMALE: Iris dark brown, maxilla brown, mandible whitish flesh color, feet dark flesh color.

DISTRIBUTION OF THE SPECIES: Natal, Transvaal, and Ngamiland north to the Loango Coast, the Katanga, and through eastern Africa to southern Abyssinia and Darfur. At least four races are to be recognized, two with yellow and two with brown lesser wing-coverts in the male.

Of the yellow-shouldered races, nominate *albonotatus* is relatively short-tailed, the males in breeding dress having the tail 67–99 mm. long. It ranges from South Africa to Iringa in Tanganyika Territory, the Upper Katanga, and southern Marungu. The other yellow-shouldered subspecies, *asymmetrura,* grows much longer rectrices, the tail measuring 118–152 mm. Its range is from southern Angola to the Lower Congo, Stanley Pool, and grasslands in the Gaboon.

Both forms with brown wing-coverts are relatively short-tailed, *eques* ranging from southern Tanganyika Territory to southern Abyssinia and Darfur, while *sassii,* with distinctly deeper brown wing-coverts, is limited to the northern shores of Lake Tanganyika and the lower Ruzizi Valley.

Nominate *albonotatus* occupies only the southeastern corner of the Congo, northward to Kiambi but not very far to the westward; it is unknown in the Kasai. Rockefeller and Murphy secured three specimens at Lake Suzi, but this bird prefers river bottoms and marshes, so it is not expected higher up in Marungu or on the Biano.

About Elisabethville Alfred Vincent reported it as fairly common in a few places where high grass covered wet ground. Eggs were found there during April and the first half of May, when the grass was at its highest, and the male nuptial dress is worn probably from January to June. When breeding, the males guard their territories from the tops of bushes or from

tall grass stalks, and individual males have been found with two to three mates. The display consists of a lowering and fanning of the tail; the call note is a rustling sound followed by a throaty double chirp.

Nests were placed in the tall grass at 2½ to 5 feet above the ground, woven of grass strips, and with the fine, stiff grass of the inside projecting as a porch above the entrance. Sets were of two, less often three, eggs, pale bluish green, closely and finely freckled with olive-brown and some ashy gray. Dimensons: 16.5–20 by 12.9–14.1 mm.

Vincent noted that the specimens collected had crops and gullets crammed with grass seeds.

Coliuspasser albonotatus asymmetrura (Reichenow)

Penthetria asymmetrura REICHENOW, 1892, Jour. Ornith., p. 126 (type locality: Angola).

Penthetria albonotata DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Kisantu; Lower Congo).

Coliuspasser albonotatus asymmetrura SCHOUTEDEN, 1924, Rev. Zool. Bot. Africaines, vol. 12, p. 276 (Kidada).

Coliuspasser albonotatus asymetrura SCHOUTEDEN, 1926, Rev. Zool. Bot. Africaines, vol. 13, p. 205 (Temvo).

Coliuspasser albonotatus asymmetrurus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 766 (Angola to Gaboon). BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 206, fig. 23.

Euplectes albonotata asymmetrura DELACOUR AND EDMOND-BLANC, 1933, Ois. Rev. Française Ornith., new ser., vol. 3, p. 703, map on p. 702.

SPECIMENS: Boma, five males, January 11, 14, 17, 20, 27; two females, January 14.

ADULT MALE IN BREEDING PLUMAGE: Iris dark brown, bill pale blue, feet blackish brown.

ADULT MALE IN ECLIPSE: Iris dark brown, bill light blue-gray, feet dusky brown.

ADULT FEMALE: Iris dark brown, bill brownish white shading to brown on culmen, feet pale buff.

DISTRIBUTION: Southern Angola to the Lower Congo, Landana, and the grasslands of the Gaboon, but not known in the Congo from east of Stanley Pool. This yellow-shouldered race is distinguished by the relatively long tail of breeding males.

The nuptial plumage is worn from January to May, and nesting probably begins around March near Boma. There in January these whydahs were to be seen only in grassy valleys, in parties of five to 30, clinging to the tall grasses as they fed on the seeds. Many males were in the prenuptial molt, and by January 10 some were in full dress. The tail becomes "keeled," and the rectrices are so narrow that in rapid, straightaway flight the bird may almost suggest a *Vidua* by its form.

In the wide marsh near Kinshasa and in high grass at Brazzaville I have seen *asymmetrura* still flocking in February and March. At any season the adult males are recognizable by their yellow wing-coverts and the white bases of the remiges. The six stomachs I examined held nothing but small grass seeds.

Coliuspasser albonotatus eques (Hartlaub)

Vidua eques HARTLAUB, 1863, Proc. Zool. Soc. London, p. 106, pl. 15 (type locality: "Kaseh," now Tabora, Tanganyika Territory).

Penthetria eques HARTERT, 1900, Novitates Zool., vol. 7, p. 41 (Holulu R.).

Coliuspasser eques REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 141. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 275 (old Mission St. Gustave; Karimi; Kasindi); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 163.

Euplectes albonotata eques DELACOUR AND EDMOND-BLANC, 1933, Ois. Rev. Française Ornith., new ser., vol. 3, p. 704, map on p. 702.

Coliuspasser albonotatus eques SCHOUTEDEN, 1935, Rev. Zool. Bot. Africaines, vol. 27, p. 403 (Ruindi camp). FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 429. FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 369. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1460 (Katwe).

DISTRIBUTION: From Ugogo and Iringa in Tanganyika Territory north to Shoa and west to Lake Edward, the upper Semliki Valley, and Darfur. Strangely enough, it is not known from the shores of Lake Albert or the Bahr-el-Jebel.

In southern Tanganyika Territory, where one might expect this race to intergrade with *albonotatus,* Lynes and others have found males of both kinds living together as though the yellow or brown of the wing-coverts had no significance. Females look very much alike but can usually be distinguished by the yellow or rufous edgings on lesser wing-coverts.

In the eastern Congo *eques* shuns the higher plateaus and has been found only on the plains north and south of Lake Edward. Near the old post of Kasindi at the end of January I saw small numbers, mostly in off-season dress, and Grauer collected a male in eclipse on the Rutshuru Plain as late as February 23. Ansorge secured males in breeding plumage at Karimi and the Holulu River at the beginning of May. In the lower Rutshuru Plain I found the males in breeding condition and some indeed in worn plumage around May 7, so I doubt if the postnuptial molt there comes later than June. In the region around Mt. Kenya breeding dress is worn from November until the end of May, while in Darfur, Lynes found, it is assumed in July and early August, shed again in October. So the birds about Lake Edward molt at somewhat the same seasons as *albonotatus* in the Katanga and *sassii* near Uvira and at quite different dates from those in Darfur.

In my experience *C. a. eques* prefers areas of rather fine grass, knee to waist high, and does not usually live in just the same places as *C. ardens*. At breeding time, in the lower Rutshuru and Rwindi Plains, the males scatter out over the favored areas, perching upright on bushes and pursuing the females with quick flaps of their broad wings, spreading the tail and depressing it a little in the mid-line. They have been proved by Moreau to be polygamous, one male building nests for three or four mates in succession.

Nests are woven of strips of grass, like the usual work of *Coliuspasser ardens* and *Euplectes hordeaceus*, and hidden in the grass. Eggs number two or three and are pale grayish green with dark gray-brown spots, clustering at the blunt end. Dimensions: 17.5–19.8 by 14–14.8 mm.

Coliuspasser albonotatus sassii Neunzig

Coliuspasser albonotata sassii R. NEUNZIG, 1928, Zool. Anz., vol. 78, p. 117 (type locality: Baraka, Lake Tanganyika).

Coliuspasser eques REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 330 (Usumbura; Uvira). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 275 (in part. Luvungi). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 45 (Urundi; Baraka; Ruzizi Valley).

DISTRIBUTION: Restricted to the northwestern and northern shores of Lake Tanganyika and the lower Ruzizi Valley. A series of 10 breeding males, all collected in that area by Rudolf Grauer in March, April, and May, show that *sassii* is readily distinguished by the deep brown of the lesser wing-coverts. Their wings measure 75–83 mm., tails 80–101. Yet a male taken by Harry Raven at Nyanza on the northeastern shore of Lake Tanganyika agrees with *eques* rather than with *sassii*. East African males of *eques* in breeding dress have tails 76–86 mm., and four from near Lake Edward 76–89 mm.

The dates of molt of *C. a. sassii* must agree closely with those of *albonotatus* in the southeastern Congo. Behavior, nest, and eggs may all be expected to show close resemblance with those of both *albonotatus* and *eques*.

Coliuspasser ardens ardens (Boddaert)

Fringilla ardens BODDAERT, 1783, Table des planches enluminéez, p. 39 (type locality: Cape of Good Hope).

Penthetria ardens DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika); 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Katanga). DE SOUSA, 1886, *in* Capello and Ivens, De Angola á Contra-Costa, vol. 2, p. 446 (Caponda). NEAVE, 1910, Ibis, p. 246 (Kambove, 4500 ft.; Dikulwe R.; upper Lufira R.). DE RIEMAECKER, 1927, Rev. Zool. Bot. Africaines, vol. 14, p. 276 (Elisabethville).

Coliuspasser ardens SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 40 (Mpala). MOURITZ, 1914, Ibis, p. 36 (Moushosi R.). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 27 (Rutshuru). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5,

p. 274 (Beni; Masidongo; Mutiba; Kibati; Lufungula; Mai-na-Ivi; Swima on L. Tanganyika); 1930, idem, vol. 18, p. 289; 1932, Bull. Cercle Zool. Congolais, vol. 8, p. 72. REICHENOW, 1923, Mitt. Zool. Staatsinst. Zool. Mus. Hamburg, vol. 40, p. 64 (Lupungu). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 49 (Kasindi; Tabaro ?). BERLIOZ, 1925, Bull. Mus. Hist. Nat., Paris, vol. 31, p. 347 (Luluabourg). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 82 (Butahu R.).

Coliuspasser ardens var. *tropica* REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 330 (Tshingogo).

Coliuspasser ardens ardens SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 349 (Macaco); 1932, idem, vol. 21, p. 276 (Ngoma); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 163 (Kanyabayongo); 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 341 (Bimba); 1943, idem, vol. 37, p. 273 (Ruzizi R.); 1949, idem, vol. 42, p. 162 (Sakania; Kando; Kinda; Kasaji). NEUNZIG, 1927, Verhandl. Ornith. Gesellsch. Bayern, vol. 17, pp. 236, 238. STRESEMANN AND GROTE, 1928, Verhandl. VI. Internatl. Ornith. Kongr., Copenhagen, for 1926, p. 369. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 767. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 105. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 52. A. W. VINCENT, 1949, Ibis, p. 506.

Coliuspasser ardens tropica SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 45 (Urundi; Usumbura; Uvira; Baraka; Ruzizi Valley; Ishangi; Rutshuru Plain; Irumu ?).

Euplectes ardens ardens DELACOUR AND EDMOND-BLANC, 1933, Ois. Rev. Française Ornith., new ser., vol. 3, pp. 713, 715, pl. opposite p. 720, map on p. 712. VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, p. 3 (Musosa).

DISTRIBUTION OF THE SPECIES: Eastern Cape Province and Orange Free State north to the Lower Congo and Kasai, through eastern Africa to Abyssinia, and from Uganda west along the northern side of the equatorial forests to the Gambia. Geographic variation in color among the males is great.

Breeding males of nominate *ardens* are usually black with a red crescent on the chest. This form ranges from South Africa to the southern Congo, the vicinity of Lake Edward, Unyoro, and central Tanganyika Territory, although in the northern part of its range many males are pure black or partially intermediate in chest color. In the coastal area of East Africa from Morogoro to Taita and the eastern base of Mt. Kenya lives *teitensis,* colored like the preceding but with shorter wings and narrower rectrices.

The highlands of East Africa, from the vicinity of Ngorongoro and Kilimanjaro to Mt. Kenya and the region near Mt. Elgon, have *suahelica,* with the red of the chest spreading up to cover the whole crown. In Abyssinia *laticauda* has that same color pattern but slightly longer wings and shorter tail.

The wholly black *concolor* occupies all the grasslands just north of the Guinean forests, from the Gambia to Lake Albert, and mingles with *ardens* in a large area farther south, from Uganda to the region of Lake Nyasa and westward to northern Angola and the Lower Congo. It once was believed

that these birds represented three distinct species, but the similarity of the females and of the courtship behavior of the males indicates that they are only races. Indeed *concolor* might be regarded as a mere color phase if it did not have a wide exclusive range to the north of the forest. I believe also that it is the only form to be found in the Lower Congo.

The nominate race is common in the southern Congo and in the grasslands of the eastern border as far north as Lake Edward and the upper Semliki. In those regions males with red on the fore-neck usually outnumber the plain black ones, and occasionally the fore-neck is yellow, or it bears but a faint shadow of red. From the lowlands *ardens* ranges up, where suitable grass exists, to levels of 7050 feet in Marungu and 6500 feet near Lake Kivu. It reaches 6600 feet to the west of Lake Edward, where Grauer and I have collected red-collared males.

In the Kasai District the prenuptial molt of males comes in December and January, some are in full breeding dress with long tails by mid-January, and that plumage must be worn into June. Eastward to Lake Tanganyika the dates of molting are much the same, and even in the country around the south side of Lake Edward the males wear nuptial plumage from January to June. Near Entebbe in Uganda eggs have been found in April, May, and June; one set was found even in September.

In most districts, fields of coarse high grass are the homes of the red-collared whydah, and during the nesting period, mainly in March and April, the males occupy separate territories and are polygamous whenever the number of females permits. They sit up on conspicuous perches and then take off on protracted flights over the grass where the nests are hidden, beating the wings ostentatiously and spreading the "keeled" tail vertically so that it will show off to the greatest advantage.

Near Elisabethville Alfred Vincent found *ardens* only on open ground along streams and in dambos. Some nests held eggs as early as January, but most eggs were laid in March and April. Nests were built in grass 8 to 10 feet tall, at 3 to 6 feet from the ground. They were oval or pear-shaped, made of grass blades and lined with finer, yellow grass tops which often protruded around the large side entrance. Two eggs were the rule, three only occasional. Their color was pale greenish blue, varying in depth, and freckled with olive-brown and ashy gray. Dimensions: 17.3–20.4 by 12.7–14.4 mm.

Coliuspasser ardens concolor (Cassin)

Vidua concolor Cassin, 1848, Proc. Acad. Nat. Sci. Philadelphia, p. 66 (Africa; restricted type locality: Sierra Leone).

Penthetria ardens Reichenow, 1887, Jour. Ornith., p. 301 (Manyanga).

Penthetria concolor Emin, 1891, Jour. Ornith., p. 344 (Mswa).

Coliuspasser ardens REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 135 (in part. Rimo).

Coliuspasser concolor REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 134; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 330. SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 44. SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 454 (Uelle District). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 271 (Kilo); 1918, idem, vol. 5, p. 274 (Baraka; Kibati; Bulaimu; Boga). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 273. BANNERMAN, 1920, Rev. Zool. Bot. Africaines, vol. 7, p. 285 (Poko). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 44 (Urundi; Ruzizi Valley; Ishangi).

Penthetria ardeus EMIN, 1922, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 3, pp. 375, 379, 380.

Coliuspasser ardens concolor NEUNZIG, 1927, Verhandl. Ornith. Gesellsch. Bayern, vol. 17, pp. 236, 238. STRESEMANN AND GROTE, 1928, Verhandl. VI. Internatl. Ornith. Kongr., Copenhagen, for 1926, p. 369. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 768. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 276 (Usumbura); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 144 (Rungu); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 164 (Nzulu; Burunga in Mokoto; Rutshuru; road to Djomba); 1940, Rev. Zool. Bot. Africaines, vol. 33, p. 287 (Mt. Wago); 1943, idem, vol. 37, p. 273 (Ruzizi R.); 1949, idem, vol. 42, p. 162 (Elisabethville; Tembwe). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 573 (Bunia; Vube). FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 431. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1465. HENDRICKX, 1944, Ostrich, vol. 15, pp. 201, 209, 210. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 108 (Nioka; Mahagi; Bogoro; Geti; Ishwa Plain). BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 211, pl. 6.

Coliuspasser concolor concolor FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 763 (Nya-Gezi).

Euplectes ardens concolor DELACOUR AND EDMOND-BLANC, 1933, Ois. Rev. Française Ornith., new ser., vol. 3, p. 715, map on p. 712.

SPECIMENS: Pawa, two males, immature male, October 18. Nzoro, two males, April 11, July 31. Faradje, 12 males, March 16, May 11, June 1, August 10, September 4, October 8, November 27, December 5; four females, August 9, 20, October 8, 12; immature male, September 8. Aba, male, July 12.

ADULT MALE IN BREEDING PLUMAGE: Iris dark brown, bill and feet black.

ADULT MALE IN ECLIPSE AND FEMALE: Iris dark brown; bill brown, dark above, light below; feet brown.

DISTRIBUTION: From the Gambia east to the savannas of the Cameroon, the northern Congo, Rimo in the Lado district, and the grasslands near Lake Albert. In those regions no males have any red on the fore-neck, and I believe the same is true of the Lower Congo, where I have seen this whydah near Boma, and near Songololo and Marchal along the Congo Railway.

The areas where black males and intermediates of varying degrees occur alongside the red-collared *ardens* extend from the eastern and southern Congo to northwestern Angola, Northern Rhodesia, Ubena, Uhehe, and

even Morogoro in Tanganyika Territory. It will be noted that many Congo localities given here in published references to *concolor* really are within the range of *C. a. ardens*.

Cassin gave no exact type locality for *concolor*, and we shall do well to accept the statement by Bocage [1] that it was discovered in Sierra Leone. The occurrence in Senegal seems doubtful; in any case the two birds collected there by Riggenbach and identified by Neumann as *concolor* were males of *Euplectes hordeaceus* in eclipse.

This black whydah is common and resident in the savannas of the Uelle and Ituri districts, where the males in long-tailed breeding dress are very conspicuous in the latter half of the rains. In the Uelle the prenuptial molt begins late, in the middle of June, and many males are still in changing plumage two months afterward. The short rectrices of the eclipse plumage are all apt to be dropped at once, so the birds fly about tailless at first.

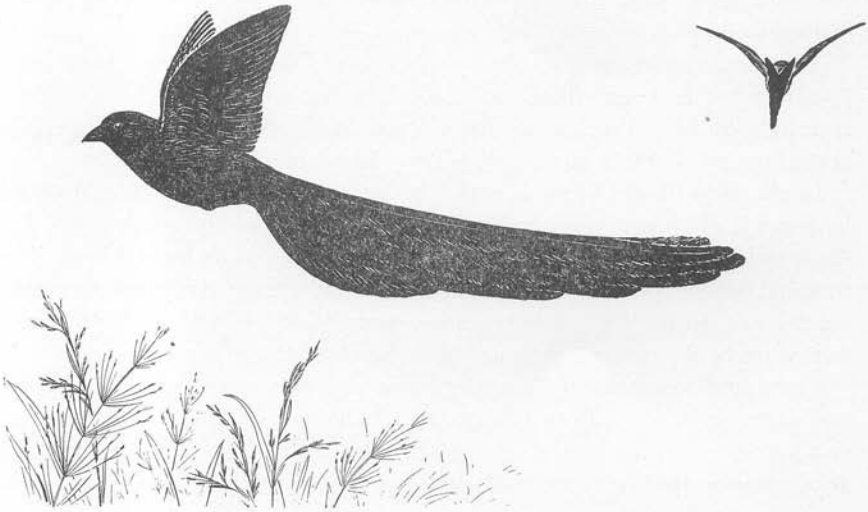

FIG. 32. Black whydah, *Coliuspasser ardens concolor*. Male in display flight; silhouette from rear shown at upper right.

Until the completion of this molt they continue to feed in flocks, as they do in the dry season, up to 200 together. The postnuptial molt begins in the latter part of November and is completed in December and early January.

At Irumu and on the Lendu Plateau the breeding plumage is assumed at about the same period, and that seems to be true for the birds of Bwamba in the lower Semliki Valley. But south of Lake Edward, in the Kasai,

[1] 1881, Ornithologie d'Angola, pt. 2, p. 343.

and in the Lower Congo the seasons are reversed, and black males keep to the schedule of the red-collared *ardens*.

The special display of the male consists of long slow flights with flapping wings over the fields of grass, at no great elevation. The tail is spread, but owing to its keeled condition it expands in the vertical plane like a huge rudder. When speed is the aim, the tail is shut tightly and the bird makes off with no difficulty. Bunches of the long black rectrices of this whydah often adorned the small straw hats worn by men of the Logo tribe; they came from birds caught in traps.

Dissections showed that the gonads of males became fully enlarged by early September. Nesting would not begin until the high grass was well grown, in the first half of that month, and it ended in the latter part of November as the rains ceased. A nest found at Faradje on October 11 was well concealed in tall grasses on a knoll in a marsh, at a yard from the ground, spherical in form, woven loosely of strips of grass and lined throughout with grass tops. These projected above the circular entrance, which opened well up on the side.

The female alone came to the nest, her mate flying anxiously about, often pursuing her and sometimes making a low rasping sound. The eggs were two, light bluish green heavily spotted with dark greenish brown, especially at the larger end. Dimensions: 18.3–19 by 14.4 mm.

In the large flocks formed in the dry season, males, females, and young look much alike save for the black wings and tail of the adult male. His short tail, now measuring 48–61 mm., keeps traces of its forked or double-rounded shape, just enough to distinguish him from males of *Euplectes hordeaceus*. In the Uelle I never saw a male in eclipse with a long tail such as is worn by the races *suahelicus* and *laticauda* in the off season.

Crops and stomachs of 12 examples of *concolor* were examined. Eleven had eaten seeds, usually of grasses and sometimes in green state. One had swallowed a few tiny bits of quartz; three had eaten insects, including seven ants, a few beetles, and one small caterpillar.

Diatropura progne ansorgei Neumann

Diatropura progne ansorgei NEUMANN, 1908, Bull. Brit. Ornith. Club, vol. 23, p. 45 (type locality: Bulu-Bulu, Bihé Province, Angola). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 769. SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 162 (Luombwa; Kasiki; Mukula Gombe). VERHEYEN, 1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 637 (Kibara Plateau, 1700–1830 m.).

Chera delamerei SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 6 (Lukonzolwa).

Psalidura procne SCHOUTEDEN, 1932, Bull. Cercle Zool. Congolais, vol. 8, p. 54 (Lukafu; southern Kwango District).

Euplectes progne ansorgei DELACOUR AND EDMOND-BLANC, 1933, Ois. Rev.

Française Ornith., new ser., vol. 3, p. 725, map on p. 719 (southeastern Belgian Congo).

Diatropura progne LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 105 (between Banda and Idiofa).

Euplectes progne progne BRELSFORD, 1947, Ibis, p. 76 (Kansenga and Mbo I. south of L. Bangweolo). WHITE AND WINTERBOTTOM, 1949, A check list of the birds of Northern Rhodesia, p. 128 (Congo border near Mwinilunga).

DISTRIBUTION OF THE SPECIES: Eastern Cape Province and Natal to the plateau of Angola, the southern Congo, Lake Bangweolo, and the highlands of central Kenya Colony. The three races are supposed to be distinguished by the different proportions of wings and tail of males in breeding plumage, but variation is great. The race *ansorgei* has been said to be longer-winged, but this is questionable.

Nominate *progne* of South Africa has wings 124–156 mm., tails 310–490 mm. Seven males from Angola have wings 135–154 mm., tails 310–415 mm., so they do not differ very noticeably. Five males from the southeastern Congo have wings 148–159 mm., tails 389–445 mm. In Kenya Colony, *delamerei* has wings 130–155 mm., tails 410–585; its tail is distinctively longer. We can accept *D. p. ansorgei* only tentatively, as ranging from Angola to the Kasai District, Northern Rhodesia to the region around Lake Bangweolo, the Katanga, and Marungu.

In Northern Rhodesia and the Congo the great-tailed whydah is not restricted to higher levels but rather to open meadows, often damp, with relatively short grass. Lynes called such areas "pastures" and emphasized their importance in the distribution of many birds. Brelsford found these whydahs on islands and grassy plains in the vicinity of Lake Bangweolo. In Marungu Rockefeller and Murphy obtained a series of specimens at Kasangala, 7050 feet, noted them as common there in open grassy places, but failed to find any elsewhere at lower elevations. Gaston de Witte also secured one at Kasiki in Marungu, and the species is common on the Kundelungu and Kibara plateaus.

In the southern Congo the prenuptial molt is in progress during October and may well begin a month earlier. The black body plumage and long rectrices may be retained until June. No serious study has been made of the behavior of this particular race, but it is certain to be very like that of the nominate form in South Africa.

The old belief that the great-tailed whydah was polygamous is well founded, according to Austin Roberts. For each fully plumaged male there may be six to a dozen females. During the day the male frequents the breeding ground, keeping a lookout for intruders, but goes to roost at night in reed beds. He displays by making a drifting flight with the huge tail expanded vertically, the wings flapping, and may look as if progressing with difficulty. Yet when really frightened he flies off with considerable speed.

FIG. 33. Great whydah, *Diatropura progne ansorgei*. Adult male in breeding plumage.

Nests are placed close to the ground in tufts of rather short grass; the blades of grass are bent over and tied together so as to conceal the spherical nest, woven of fine grass and lined with flowering grass tops. The entrance is lateral. Sets are of three or four eggs, dull white or bluish white with spots, blotches, or dashes of olive, brownish, and gray. Dimensions: 22–23 by 16–17 mm.

SUBFAMILY **ESTRILDINAE**

KEY TO THE SPECIES OF *Lonchura* IN THE CONGO

1. Wing more than 55 mm. long; head black, back dull dark brown . *L. fringilloides*
   Wing less than 55 mm. long 2
2. Head glossy black; back either black or chestnut; remiges and upper tail-coverts with fine black and white barring . . . . . *L. bicolor*
   Head more brownish, but shading to glossy black on crown and throat; back dull dark brown; no distinct black and white barring on secondaries . . . . . *L. cucullata*

Lonchura cucullata cucullata (Swainson)

Spermestes cucullata SWAINSON, 1837, The birds of West Africa, vol. 1, p. 201 (type locality: Senegal). JOHNSTON, 1884, The River Congo, p. 365. OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127. HARTERT, 1899, *in* Ansorge, Under the African sun, app., p. 346 (Mahagi). REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 149 (Nyangabo). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Lower Congo; Kisantu; Bumba; Banalia). LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 15 (Mukimbungu); 1917, idem, vol. 10, no. 24, p. 27 (Rutshuru). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 273, pl. 6, fig. 1. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 275 (Beni; Kamabo; Mai-na-Kwenda). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 168 (Makraka; Mswa). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 49 (Moera; Beni).

Spermestes cucullatus FLOWER, 1894, Proc. Zool. Soc. London, pp. 599, 601 (Ipoto). MENEGAUX, 1918, Rev. Française Ornith., vol. 5, p. 259 (Zambi). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 256 (Mbiambana). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 349 (Basongo; Luebo); 1941, idem, vol. 34, p. 267 (Kasenyi). REICHENOW, 1923, Mitt. Zool. Staatsinst. Zool. Mus. Hamburg, vol. 40, p. 64 (Lupungu). BERLIOZ, 1925, Bull. Mus. Hist. Nat., Paris, vol. 31, p. 347 (Luluabourg).

Spermestes cuculatus EMIN, 1919, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 2, pp. 428, 490 (Kuterma; Tomaya).

Spermestes cucullatus cucullatus BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 294; 1949, The birds of tropical West Africa, vol. 7, p. 224, pl. 7. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 403 (Kwamouth); 1924, idem, vol. 12, pp. 276, 424 (Kidada; Eala; Bikoro; Ikengo); 1925, idem, vol. 13, p. 20 (Bolobo); 1926, idem, vol. 13, p. 205 (Banana); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 144 (Poko; Mauda; Dramba; Mahagi Port; Buta; Bambili; Dingila; Niangara; Faradje; Aba; Aru; Niarembe; Djalasinda); 1941, Rev. Zool. Bot. Africaines, vol. 34, p. 365. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 769. GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 74. STONE,

1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 574 (Bunia; Vube; Ekibondo). VERHEYEN, 1939, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 15, no. 66, p. 7 (Bambesa); 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 52, 82. BOUET, 1942, Ois. Rev. Française Ornith., new ser., vol. 12, p. 170 (Bangui). WOLFF, 1950, Atlantide Report, no. 1, p. 146 (Boma).

Spermestes cucullata cucullata GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 50 (Irumu; Sidabo). R. NEUNZIG, 1927, Zool. Anz., vol. 70, p. 191. SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 164. BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 77 (Brazzaville; upper Kemo R.).

Lonchura cucullata DELACOUR, 1943, Zoologica, New York, vol. 28, p. 82.

SPECIMENS: Leopoldville, male, July 5; five immature males, July 5, 7; two immature females, July 5. Bumba, two males, July 29. Stanleyville, two males, August 21. Avakubi, three males, October 4, 24, November 18; juvenile male, October 4. Bafwabaka, male, January 3. Medje, five males, January 16, March 12, August 10, 18, September 3; female, March 12; two immature males, March 25, April 4; juvenile male, August 4; immature female, March 12. Faradje, two males, March 28, October 30; two females, two immature males, March 31. Garamba, male, July 30.

ADULTS OF BOTH SEXES: Iris dark brown; maxilla black, mandible bluish gray; feet dark gray, sometimes greenish gray.

NESTLINGS: Beak dark gray externally; skin of gape whitish, not greatly swollen or provided with papillae. Buccal decorations consist of two concentric black horseshoe-shaped marks on the palate, a black ring around the tongue, a curved black line inside the mandible, and a small black crescent just in front of that. Otherwise the skin of the palate and tongue is yellowish, the interior of throat flesh color.

DISTRIBUTION OF THE SPECIES: Senegal to Northern Nigeria, Sennar, and Abyssinia, southward to the Transvaal and eastern Cape Province; also on the islands in the Gulf of Guinea, on the Comoro Islands, and introduced in Puerto Rico.

The nominate race, with a well-defined metallic green patch on each side of the body below the wings, inhabits western and central Africa and reaches the western parts of Kenya Colony, the Kivu District, Usumbura on Lake Tanganyika, and the northern half of the Kasai District. In *L. c. scutata* the flank feathers are all broadly tipped with whitish, and the green color is almost absent. This race ranges from Abyssinia through East Africa to South Africa and Angola.

Individual variation makes it impossible to draw any sharp line between the ranges. Birds resembling both forms can be found in western Kenya Colony, near Rutshuru, on the west shore of Lake Tanganyika, in the central Kasai, and in northwestern Angola. Throughout the Congo this small bronze mannikin is one of the most familiar village birds, and in the eastern high-

lands it ascends in places to 7100 feet but does not invade mountain forests. Neither does it live in the shade of the lowland forests, though so common in every clearing.

Unless actually nesting, these mannikins are very sociable, gathering in flocks that may contain a large proportion of dull brown young. Such flocks number anywhere up to 50 or 60 and often associate with waxbills or other species of mannikin, feeding on the ground and in high grasses. They are not shy but allow a close approach, and then fly up in a body with whirring wings and faint churring calls to alight in near-by trees. The food consists mainly if not exclusively of small seeds, especially those of grasses.

Breeding goes on through a large part of the rainy season: in the northern half of the forest belt from May or June to the end of November; in the savannas of the Uelle from August to October at least. Nests are built in a great variety of situations, well above the ground, between the leaf bases of oil palms, in forks of acacia, lemon, orange, mango, and many other trees, beneath the eaves of grass-thatched houses, or even in bunches of green plantains hanging in gardens. Rather often, too, an old nest of some ploceine weaver will be taken over and relined. The nest is decidedly untidy, usually a rough ball of seed-bearing grass tops, packed tightly together, with an opening at the side. The excrement of the young is not removed, so it dries out and forms a floor in the nest. The natal down is light gray. The eggs are pure white; sets number four to six. In a single set I found the dimensions 13.5–14.3 by 10.4–10.6 mm. Near Lagos, Nigeria, P. Maclaren[1] found that *Lonchura cucullata* was most apt to nest in trees containing colonies of the ant *Oecophylla smaragdina.*

Lonchura cucullata scutata (Heuglin)

Spermestes scutatus HEUGLIN, 1863, Jour. Ornith., p. 18 (type locality: Dembea, Abyssinia). NEAVE, 1910, Ibis, p. 250 (Dikulwe R., 4000 ft.; upper Lufira R.).

Spermestes scutata REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 330 (Mawambi ?; Beni; Ishangi; Kisenyi). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 275 (Manakwa; Mboka; Kibati). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, pp. 49, 50 (Baraka).

Spermestes cucullata DE RIEMAECKER, 1927, Rev. Zool. Bot. Africaines, vol. 14, p. 276 (Elisabethville).

Spermestes cucullata scutatus R. NEUNZIG, 1927, Zool. Anz., vol. 70, p. 191.

Spermestes cucullatus scutatus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 769. SCHOUTEDEN, 1935, Rev. Zool. Bot. Africaines, vol. 27, p. 403 (Nyanza on L. Tanganyika); 1949, idem, vol. 42, p. 162 (many localities in Katanga). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 108 (Lusambo). VERHEYEN, 1940, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 16, no. 2, p. 7 (Kanzenze); 1941, idem, vol. 17, no. 23, p. 15 (Musosa). HENDRICKX, 1944, Ostrich, vol. 15, p. 198. A. W. VINCENT, 1949, Ibis, p. 660.

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[1] 1950, Ibis, pp. 564–566.

Spermestes cucullata scutata SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 289.

Spermestes cucullatus SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 276 (Ngoma); 1933, idem, vol. 22, p. 372 (Rugegera); 1942, idem, vol. 36, p. 342 (Kibingo; Kabagari; Karambi); 1943, idem, vol. 37, p. 273 (Gabiro).

DISTRIBUTION: Abyssinia and the adjacent border of the eastern Sudan south through East Africa to eastern Cape Province, and westward to Ruanda, the southeastern Congo, and most of Angola. This is the race characteristic of the Katanga and Ruanda-Urundi; specimens of *scutata* pattern are frequent at Luluabourg in the Kasai and have been collected at Rutshuru and Lulenga in the Kivu. Within the borders of the lowland forest, even in the Manyema, only *cucullata* is to be expected.

Haunts and behavior are exactly like those of nominate *cucullata* on the northern side of the equatorial forest. Near Elisabethville Alfred Vincent found eggs from early February to early May. The ragged, rounded nests were placed in a variety of trees, from 8 to 40 feet up, and quite commonly an old nest of *Textor xanthops* would be used, after having been relined with soft grass tops.

The pure white eggs, in sets of five or of six, measured 13.5–15.5 by 9.3–10.6 mm. Both sexes incubated.

Lonchura bicolor poensis (Fraser)

Amadina poensis FRASER, 1842, Proc. Zool. Soc. London, p. 145 (type locality: Clarence, Fernando Po).

Spermestes poensis SHELLEY, 1890, Ibis, p. 166 (Yambuya); 1905, The birds of Africa, vol. 4, pt. 1, p. 164. HARTLAUB, 1891, Abhandl. Naturwiss. Ver. Bremen, vol. 12, p. 18 (Msukali). FLOWER, 1894, Proc. Zool. Soc. London, pp. 598, 604, 605, 606 (Ipoto; Ulike Urumbi; Muyoméma). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Kisantu; Nouvelle-Anvers). OGILVIE-GRANT, 1908, Ibis, p. 271 (Ponthierville); 1910, Trans. Zool. Soc. London, vol. 19, p. 290 (Mubuku Valley, 6000–7000 ft.; Mawambi). SCHOUTEDEN, 1920, Rev. Zool. Bot. Africaines, vol. 7, p. 191 (Temvo); 1923, idem, vol. 11, pp. 349, 403 (Luebo; Basongo; Macaco; Dumbi; Belenge; Kabambaie; Tshikapa; Ngombe in Kasia; Kwamouth); 1925, idem, vol. 13, p. 20 (Bolobo). BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 295. CHAPIN, 1923, Auk, p. 331.

Spermestes stigmatophorus HARTERT, 1900, Novitates Zool., vol. 7, p. 41 (Tambue).

Spermestes poensis stigmatophora REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 153. CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 273, pl. 4, fig. 4. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 275 (Karimi; Kokoba; Makojoba). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 49 (Moera; Ukaika; Mawambi–Irumu).

Pseudospermestes goossensi DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, pp. 16, 28 (type locality: Kisantu).

Spermestes stigmatophora SALVADORI, 1909, Ann. Mus. Civ. Genova, ser. 3, vol. 4, p. 324 (Buta–Dungu); 1915, idem, ser. 3, vol. 6, p. 280 (Kasai District).

Spermestes poensis stigmatophorus REICHENOW, 1923, Mitt. Zool. Staatsinst.

Zool. Mus. Hamburg, vol. 40, p. 64 (Lupungu). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 51 (Kampi-na-Mambuti). SCHOUTEDEN, 1924, Rev. Zool. Bot. Africaines, vol. 12, pp. 276, 424 (Kidada; Kisantu; Eala; Ikengo). FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 765 (Bumba; Medje; L. Mutanda).

Spermestes poensis poensis SCHOUTEDEN, 1926, Rev. Zool. Bot. Africaines, vol. 13, p. 205 (Makaia-Ntete; Temvo; Tshela). R. NEUNZIG, 1927, Zool. Anz., vol. 70, p. 188 (Kwidjwi I.). BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 229, fig. 26.

Spermestes bicolor poensis SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 770. GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 75 (Luluabourg). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 574 (Saidi; Ekibondo). SCHOUTEDEN, 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 341 (Kayanza; Kibingo).

Spermestes bicolor stigmatophorus SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 144 (Rungu; Poko). FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 371. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 105 (Lusambo). PETERS AND LOVERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 271 (Idjwi I.).

? *Spermestes bicolor mentalis* VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 82 (Nganzi).

SPECIMENS: Avakubi, male, November 11; juvenile male, November 4. Ngayu, male, December 18; female, December 19; two juvenile males, December 19, 22. Gamangui, male, female, February 4. Medje, three males, March 13, July 14; three females, May 12, 14; immature female, March 13; juvenile female, August 29. Niangara, two males, June 10, November 8.

ADULTS OF BOTH SEXES: Iris dark brown, whole bill light bluish gray, feet dark gray.

NESTLINGS: Bill outwardly blackish; the skin of gape whitish and very little swollen. Buccal decorations very like those of *L. cucullata,* palate with double horseshoe of black, tongue ringed, and inside of mandible with double crescent. The ground color of the palate is yellow, of the tongue flesh color.

The young of this species are readily distinguished from those of *L. cucullata* by their more blackish brown upperparts. The type of *Pseudospermestes goossensi* is a young example of *poensis.*

DISTRIBUTION OF THE SPECIES: Portuguese Guinea to Cameroon, Fernando Po, northern Angola, and eastward to Lake Albert, southern Abyssinia, and eastern Africa from the lower Juba River to Zanzibar, Mozambique, and Natal.

Nominate *bicolor* of Upper Guinea and Southern Nigeria is black-backed, without white barring on wings or rump. In western Cameroon some white speckling appears on the inner secondaries, and *L. b. poensis* of Fernando Po and Lower Guinea is conspicuously barred with white on wing quills and rump. In eastern Africa, from the Juba River south to Natal, the back, wing-coverts, and innermost secondaries are chestnut brown; and *L. b. nigriceps*

Cassin ranges westward to Northern Rhodesia and the southeastern corner of the Katanga.

An intermediate race is *L. b. stigmatophora,* with the back not so greenish black as in *poensis,* and the upper wing-coverts distinctly tinged with maroon. It ranges from southern Abyssinia to Uganda, the Kavirondo District, and Bukoba. It may reach the eastern border of the Congo, and it must be admitted that the birds of the Ituri and Uelle districts have wing-coverts not quite so deep black as those of Fernando Po.

Specimens intermediate between *stigmatophora* and *nigriceps* have been reported from the Mau in Kenya Colony and Luashi in the southern Lulua District of the Congo.

For the present I regard *poensis* as ranging from Fernando Po and the Cameroon and Gaboon southward to the Cuanza Valley in Angola, and eastward to the country around Lake Albert, Ruwenzori, and Lake Kivu. This black and white mannikin is only a little less familiar than *L. cucullata,* a little more apt to be seen in damp places. It occurs commonly in the Lower Congo, where I have noted small flocks at Boma and Ganda Sundi, and is rather numerous in clearings of the Ituri forest and along its eastern edge. To the northward we found it up to Niangara but not at Faradje. On the south of the forest it extends far out into the Kasai and is numerous at Luluabourg. In the Kivu and Kigezi districts I have noted small groups even up to 7300 feet.

In behavior it resembles *L. cucullata,* frequenting patches of grass in forest clearings and the borders of marshes in the savannas. It goes in pairs or in flocks of as many as 30, often perching in trees and feeding on the ground or in high grasses. The call note is a faint "kip," uttered with the bill closed and only a slight movement of the throat. The diet of *poensis* consists almost exclusively of tiny seeds.

About Avakubi and Medje the breeding season is from May to November inclusive. A nest found at Avakubi was a covered, globular affair, with dry leaves outside and a lining of fine grass tips. It was placed about 10 feet up in a small tree on the border of a clearing. In the Cameroon Bates found that gray beard lichen was a favorite material for the outer walls of the nest and that broods of five or six were raised. Eggs are pure white and measure about 14 by 10.5 mm.

[*Lonchura bicolor stigmatophora* (Reichenow)]

Spermestes stigmatophorus REICHENOW, 1892, Jour. Ornith., p. 46 (type locality: Bukoba, west shore of L. Victoria).

Spermestes poensis stigmatophorus R. NEUNZIG, 1927, Zool. Anz., vol. 70, p. 188.

Spermestes bicolor stigmatophorus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 770. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1475.

As I explain above, the race *stigmatophora* may be separated from *poensis* not by any difference in the barring of wings or rump but by the more brownish back and wing-coverts. It has been reported from Jimma and Alghe in southern Abyssinia and extends southward to North Kavirondo and Bukoba. Many Uganda specimens are therefore *stigmatophora,* but back and wing-coverts become deeper black to the westward, and I hesitate to refer any eastern Congo birds to that race.

Lonchura bicolor nigriceps (Cassin)

Spermestes nigriceps CASSIN, 1852, Proc. Acad. Nat. Sci. Philadelphia, vol. 6, p. 185 (type locality: Zanzibar).

Spermestes bicolor SCHOUTEDEN, 1938, Bull. Cercle Zool. Congolais, vol. 15, pp. 34, 39 (Luashi in southern Lulua District).

Spermestes nigriceps nigriceps WHITE, 1946, Ibis, p. 218 (Mwinilunga).

Spermestes nigriceps nov. ssp. SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 162 (Kasenga).

Lonchura bicolor nigriceps WHITE AND WINTERBOTTOM, 1949, A check list of the birds of Northern Rhodesia, p. 128 (Ndola). DE SCHAUENSEE, 1951, Proc. Acad. Nat. Sci. Philadelphia, vol. 103, p. 63. VERHEYEN, 1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 642 (Kaziba).

DISTRIBUTION: From Lamu through Kenya Colony to the Great Rift Valley and southward in eastern Africa to Natal. On the west it reaches Mashonaland, Northern Rhodesia, and the Katanga.

This chestnut-backed race was sure to be found in the extreme southeast of the Upper Katanga, since Button secured it at Ndola and White found parties at irregular intervals near the fringes of evergreen forest at Mwinilunga in Northern Rhodesia. At Luanshya, too, Jones [1] reported it to be fairly common in thick bush, especially from January to August. Verheyen has taken it recently in the Upemba National Park.

One may also expect in the Katanga more intermediates between *poensis* and *nigriceps* like that collected at Luashi by Freyne for the Congo Museum. Such birds are much more rufous on back and wings than *stigmatophora.*

Lonchura fringilloides (Lafresnaye)

Ploceus fringilloides LAFRESNAYE, 1835, Mag. Zool., year 5, pl. 48 ("India"; corrected type locality: Liberia).

Amauresthes fringilloides DE SOUSA, 1886, Jor. Sci. Nat. Lisboa, vol. 11, p. 80 (Tenque). OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127. REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 155; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 331. NEAVE, 1910, Ibis, p. 252 (Lualaba R., 3000 ft.). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 274, pl. 7, fig. 7. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 275 (Avakubi); 1923, idem, vol. 11, p. 349 (Luebo); 1925, idem, vol. 13, p. 20 (Kunungu); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 144 (Kotili; Buta). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol.

[1] 1945, Ostrich, vol. 16, p. 182.

38, p. 50 (Mawambi; Mawambi-Irumu). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 771. GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 75 (Luluabourg). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 574 (Saidi). BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 234, pl. 7.

Spermestes fringilloides HARTERT, 1900, Novitates Zool., vol. 7, p. 41 (Ituri R.). SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 161.

? *Spermestes* EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 310 (Msukali).

Spermestes fringilloides fringilloides NEUNZIG, 1927, Zool. Anz., vol. 70, p. 193.

Lonchura fringilloides DELACOUR, 1943, Zoologica, New York, vol. 28, p. 82.

Amaurestes fringilloides BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 77 (upper Kemo R.).

SPECIMENS: Nouvelle-Anvers, female, July 24. Stanleyville, male, August 10; immature female, August 11; juvenile male, August 14. Avakubi, four males, October 6, November 1, 17; three females, October 4, 13; immature male, March 20; immature female, October 6; juvenile male, October 23. Ngayu, immature female, December 18.

ADULTS OF BOTH SEXES: Iris dark brown to brownish red, maxilla black, mandible light bluish gray, feet dark gray.

NESTLING: Bill blackish exteriorly; skin of gape pale gray, scarcely swollen. Palate with a fine black horseshoe-shaped mark encircling internal nares, and a second dusky horseshoe-shaped mark outside that, the intervening skin yellow. Lining of throat mainly dusky, but tongue yellowish with a black spot on each side, and beneath it, inside mandible, a double black crescent.

DISTRIBUTION: From the Gambia to the upper Bahr-el-Jebel and Vanga on the eastern coast, southward through the Cameroon, Gaboon, and Congo to the central Kasai District, the Katanga, Nyasaland, and Natal. Although so widely spread and showing no perceptible geographic variation, the magpie mannikin is of rather irregular occurrence.

Within our limits it is fairly common in clearings of the Upper Congo forest but scarcely extends beyond that forest on the north or east. In the Lower Congo it is still unknown; it appears at Kunungu and Lukolela near the middle Congo River; and in the central Kasai it seems to be numerous about Luluabourg. Rockefeller and Murphy secured specimens at Kama in the northern Manyema.

In the Ituri and about Stanleyville these large mannikins live commonly about clearings, the borders of villages, and along roadsides. Flocks are to be seen numbering 10 to 15. A little farther north, about Medje, the species became rather rare, and we did not notice it in the Uelle. Habits and voice are like those of *Lonchura cucullata*. We heard only low lisping notes and no real song. In captivity, according to A. G. Butler,[1] the male performs a

[1] 1894, Foreign finches in captivity, p. 265.

"humming, hopping love-dance" precisely like that of *cucullata*. The diet is of small seeds and includes rice when obtainable.

In the Ituri breeding seemed to continue throughout the whole year. Nests were built like those of *L. cucullata,* of rounded form with an opening at the side, composed of dry grass and lined with fine seed-bearing grass tops. They were often placed in mango trees and oil palms. One that we examined at Avakubi on November 19 held six pure white eggs, the male incubating at the time. Another nest, on November 11, contained three young, and its floor was plastered with dried excrement. Eggs measure 14.8–17.1 by 10.4–11.3 mm.

Nestlings of this mannikin were found to have been eaten by a large tree cobra (*Dendroaspis jamesoni*) and a hawk (*Gymnogenys typicus*).

[*Amadina fasciata fasciata* (Gmelin)]

Loxia fasciata GMELIN, 1789, Systema naturae, ed. 13, vol. 1, pt. 2, p. 859 (type locality: Senegal).

The cut-throat finch has a very wide range in Africa, from Senegal across the Sudan to Somaliland, then southward through East Africa to the northern Transvaal and westward again to the middle Zambesi Valley and Ngami Flats. It is divisible into at least four races, of which only nominate *fasciata* approaches the boundary of the Congo. It was reported by Emin from Lado and Redjaf on the Bahr-el-Jebel between December and March but has never been found within our limits.

The reference by Shelley[1] to *Amadina marginalis* from the Lower Congo was quite unfounded, and the earlier mention by Hartlaub[2] of *Amadina erythrocephala* from "Congo" was surely based on a specimen from Angola. This red-headed "paradise sparrow" inhabits the drier western regions of southern Africa, extending northward along the coast of Angola but scarcely beyond St. Paul de Loanda.

Pholidornis rushiae rushiae (Cassin)

Diceum rushiae CASSIN, 1855, Proc. Acad. Nat. Sci. Philadelphia, vol. 7, p. 325 (type locality: Moonda R., Gaboon).

Pholidornis rushiae rushiae BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 245.

In 1917 I included the genus *Pholidornis* tentatively in the subfamily Estrildinae, because of a slight external resemblance to *Parmoptila*. We have never been able to examine a nestling to see if it had any spotting on the palate, so I am still in doubt as to its proper systematic position. In the

[1] 1905, The birds of Africa, vol. 4, pt. 1, p. 125.

[2] 1857, System der Ornithologie Westafrica's, opp. p. lix.

meantime George Bates found that the horns of the hyoid were flattened and proposed to group *Pholidornis* with *Hylia* in a small family allied to the sunbirds. Pending further investigation of the nestlings of these birds, I prefer to leave *Pholidornis* here.[1]

DISTRIBUTION OF THE SPECIES: Forests from Sierra Leone to Southern Nigeria, Fernando Po, and Cameroon to northwestern Angola; also eastward across the Congo to the Mabira Forest in Uganda.

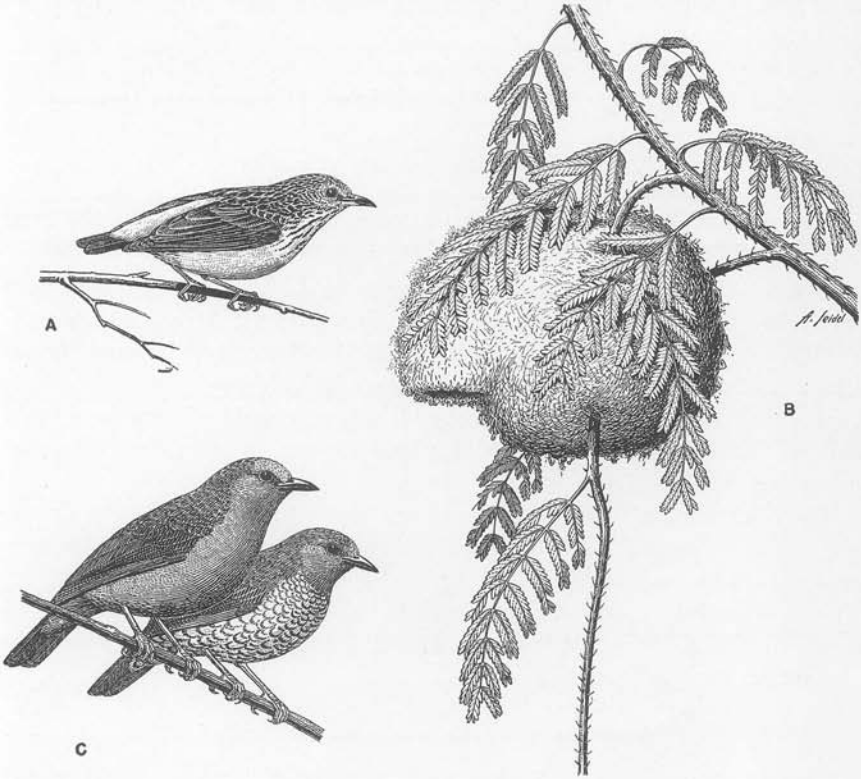

FIG. 34. A. *Pholidornis rushiae*, × 1/2. B. Nest of *Pholidornis rushiae*, after sketch by Holman, × 1/4. C. *Parmoptila jamesoni*, male and female, × 1/2.

The Upper Guinea race, *P. r. ussheri* Reichenow, is rather narrowly streaked on throat and chest and distinctly margined with olive on the outer edges of wing quills and coverts. Nominate *rushiae* is a little more broadly

[1] Beecher (1953, Auk, vol. 70, pp. 302–303) would ally *Pholidornis* and *Hylia* with *Promerops* and treat them as an African subfamily of Meliphagidae.

streaked and has less olive on the wings. It ranges from Southern Nigeria and the forested Cameroon south to northwest Angola. On Fernando Po lives the heavily streaked *P. r. bedfordi* Ogilvie-Grant, also with dark brown wings. In the Upper Congo and Uganda the race *denti* is moderately streaked, has little olive on the wings, but belly and rump are rather bright yellow.

There is as yet no record of *P. r. rushiae* from the Mayombe Forest, but it is certain to occur in the Lower Congo, for Rudolf H. Braun tells me that he has collected it at Quicolungo in northwestern Angola. According to the notes of Sjöstedt and of Bates in the Cameroon, these tiny birds are seen in pairs or parties of three or four, flitting about in the tops of trees, often those in clearings, or foraging amid tufts of parasitic Loranthaceae. Scale insects were most frequently found in their stomachs by Bates. In Southern Nigeria Willoughby Lowe found *Pholidornis* in the tops of high forest trees, or sometimes with sunbirds in silk cotton trees, attracted no doubt by the flowers.

Three nests were examined by Bates, two of them pensile and resembling those of weavers, a third built inside an old weaver-bird nest. They are placed usually in tangles of hanging vines, from 10 to 40 feet above the ground, and contain two tiny white eggs. According to Holman and to Foulkes-Roberts, the nests are relatively large and built of cottony plant down from a *Funtumia* tree, well felted together. When not actually breeding, four and even five of these tiny birds may go to roost in such a nest, which is about 6 inches in diameter. The entrance is narrow and opens downward at one side. Such a nest bears little resemblance to those of *Parmoptila* or of *Hylia,* but it might be confused at first glance with one of *Sylvietta denti.* Mr. Holman has kindly provided me with a sketch of a *Pholidornis* nest, which has been copied in my figure 34B. He tells me that the eggs of one set of *P. r. ussheri* measured 13.5 by 10 and 12.5 by 10.5 mm.

Pholidornis rushiae denti Ogilvie-Grant

Pholidornis denti OGILVIE-GRANT, 1907, Bull. Brit. Ornith. Club, vol. 19, p. 41 (type locality: Avakubi, Ituri District, Belgian Congo); 1910, Trans. Zool. Soc. London, vol. 19, p. 332, pl. 13, fig. 1.

Pholidornis rushiae denti BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 298. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 774. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1479.

Pholidornis rushiae SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 349 (Kabambaie; Ngombe in Kasai); 1939, Bull. Cercle Zool. Congolais, vol. 16, p. 8 (region of Buta); 1940, idem, vol. 16, p. 73 (Kunungu). VRIJDAGH, 1949, Bull. Cercle Zool. Congolais, vol. 19, p. 11 (Bambesa).

ADULT MALE: Iris rather dark red, bill brownish black with base of mandible yellowish buff, feet bright ochreous yellow, claws gray.

DISTRIBUTION: Lowland forests of the Upper Congo and Uganda, east to the Mabira Forest. This race is believed to range westward to Kunungu near the middle Congo River and southward to Luluabourg in the Kasai, where Father Callewaert secured a single male example. Despite its wide distribution, this small bird is rarely seen. I noticed it once at Bafwabaka, never at Avakubi. Brother Joseph Hutsebaut tells me he collected it at Zobia, and on September 21, 1926, my hunter Djega shot an adult male 2 miles southwest of Irumu. He reported that it was entering an empty nest, which I have reason to suppose was built by a weaver.

This most elusive little bird has usually been noted in two's and three's in the tops of trees and is undoubtedly insectivorous. At Kabambaie in the Kasai Schouteden saw it in the blossoming crown of one of the largest forest trees.

Close to the Equator it is likely to nest in almost any month of the year. If a nest can be found the eggs should be allowed to hatch and the mouths of the nestlings examined for any sign of buccal decoration like that of young waxbills. This will provide the evidence most needed before its systematic position can be determined.

KEY TO THE SPECIES OF *Parmoptila* IN THE CONGO

1. Forehead with a red patch (males) 2
   No bright red on forehead, though throat and cheeks are rufous (females) . . 3
2. Whole under surface rufous . . . . . *P. jamesoni*
   Throat rufous, but remaining under surface pale buff with dusky olive spotting or mottling . . . . . *P. woodhousei*
3. Dark markings of breast lunulate, not interrupted in mid-line of each feather . . . . . *P. jamesoni*
   Dark markings of breast mostly interrupted in mid-line of each feather, so that the pattern is not lunulate, but spotted or mottled . . . *P. woodhousei*

Parmoptila woodhousei woodhousei Cassin

Parmoptila woodhousei CASSIN, 1859, Proc. Acad. Nat. Sci. Philadelphia, vol. 11, p. 40 (type locality: Camma R., Gaboon).

Parmoptila woodhousei woodhousei GROTE, 1924, Jour. Ornith., p. 496 (between Nola and Mbaiki).

Parmoptila woodhousei SCHOUTEDEN, 1924, Rev. Zool. Bot. Africaines, vol. 12, p. 424 (Bikoro).

DISTRIBUTION OF THE SPECIES: Southern Nigeria and forested Cameroon, south to the lowland forests of northwestern Angola, east to the French Congo and the Sankuru District. Two other forms, *rubrifrons* of the Gold Coast and *jamesoni* of the Upper Congo, may perhaps be only races of *P. woodhousei,* even though their males become uniform rufous from throat to abdomen.

Nominate *woodhousei* ranges from Southern Nigeria to the French Congo near the Ubangi, south to the Gaboon and probably the Lower Congo. The race *ansorgei* is only a trifle larger and slightly lighter in general coloration; it occupies northwestern Angola and may extend to the Kasai. Males of these two races have the forehead rather red, cheeks and throat rufous, breast and flanks thickly spotted or mottled with olive on a buffy whitish ground. Females are very like the males but lack red on the forehead.

I feel certain that the specimen from Bikoro on Lake Tumba really represents *P. w. woodhousei,* and that race may also be expected along the lower Ubangi River. Since *jamesoni* is known to occur at Lukolela, one may suspect that the ranges overlap in that region. From Lusambo, too, Father Windmolders has sent us two specimens that agree with nominate *woodhousei.*

In the southern Cameroon, according to Bates,[1] *Parmoptila woodhousei* is seen going about in little parties of half a dozen, both in the forest and in the bushes of more open spots. Their food consists of insects, mainly small ants. Four of the birds were once killed with a single shot as they picked from a bush the small ants swarming over it.

The nest is a large, domed pile of dried leaves and grass, lined with fine fibers from plantain leaves, and sometimes has green moss thrown over the outside. It is placed on a forking horizontal bough and may measure 20 cm. from top to bottom. The entrance is lateral. Three or four eggs are laid, pure white, measuring 13–14.5 by 10–10.5 mm.

Nestlings have white lobes or wattles at the corners of the mouth, and such a bird, preserved in spirit, was the type of *Lobornis alexandri* Sharpe. We may be sure the palate has a "domino-pattern," as in *P. jamesoni.*

Parmoptila woodhousei ansorgei Hartert

Parmoptila ansorgei HARTERT, 1904, Bull. Brit. Ornith. Club, vol. 14, p. 72 (type locality: Golungo Alto, northern Angola).

Parmoptila woodhousei ansorgei HARTERT, 1920, Novitates Zool., vol. 27, p. 432. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 773 (Kasai District).

Parmoptila woodhousei ? ansorgei SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 349 (Basongo).

DISTRIBUTION: Forested areas in northwestern Angola, near Golungo Alto and Quicolungo, and extending perhaps to Basongo on the Kasai River. Scouteden's specimen was an adult female, with the dark markings of the breast not lunulate, but more broken and spot-like. Its wing measured 52 mm., as did that of a female from Angola. The wings of females of *P. w. woodhousei* measure 49–52 mm.

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[1] 1908, Ibis, p. 323; 1909, idem, p. 67, pl. 2.

Parmoptila jamesoni (Shelley)

Pholidornis jamesoni SHELLEY, 1890, Ibis, p. 163, pl. 5, fig. 1 (type locality: Yambuya on lower Aruwimi R.). SHARPE, 1890, *in* Jameson, The story of the rear column, p. 416.

Parmoptila jamesoni REICHENOW, 1905, Die Vögel Afrikas, vol. 3, p. 531. SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 267 (Kilo); 1918, idem, vol. 5, p. 288; 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 144 (Nava R.); 1938, Bull. Cercle Zool. Congolais, vol. 15, p. 39 (Buta). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, pp. 255, 274; 1921, Amer. Mus. Novitates, no. 17, p. 16 (Avakubi; Babeyru; Gamangui; Medje). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 33 (Moera; Beni; Mawambi; Ukaika). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 774.

Parmoptila woodhousei jamesoni DELACOUR, 1943, Zoologica, New York, vol. 28, p. 76.

SPECIMENS: Babeyru, male, July 29. Avakubi, two males, January 29, September 27; female, January 8; three immature males, January 8, October 2, November 9. Gamangui, male, February 21; female, February 20. Medje, female, May 13; immature female, September 28.

ADULTS OF BOTH SEXES: Iris dark red or brownish red, bill blackish, feet very pale yellowish or yellowish buff.

NEWLY FLEDGED YOUNG: Iris dark brown, feet yellowish brown. Bill dusky brown; skin of gape black, with three small yellowish balls at each side; interior of mouth pale yellow, with five black spots on palate and a black crescent beneath tongue.

DISTRIBUTION: Forests of Upper and Middle Congo, from the Semliki Valley west to Lukolela, and on the north to Medje and the lower Uelle River. Herroelen tells me he has secured a male at Yokolo in the Tshuapa District. It is difficult to decide whether this should be regarded as a valid species. The adult male, with entire underparts deep rufous, is very different from that sex of *woodhousei;* no intermediates are known, but the females of the two forms are much more alike.

The young male in juvenal dress also has the under surface without dark markings but of a duller lighter rufous than in the adult male, and it lacks red on the forehead. A young bird collected by Schubotz at Angu may have been a female of *jamesoni;* it was tawny beneath and faintly barred from the lower breast to under tail-coverts.

An adult male of *jamesoni* was taken at Lukolela by my hunter Kambulu. He reported finding it in the forest with a mixed bird party. Yet males and females agreeing with *woodhousei* have been collected farther east than Lukolela.

In the Ituri *jamesoni* is not a common bird. We saw it only occasionally, in pairs or family parties, frequenting primary forest and also the scrub around the borders of clearings. It goes silently about the trees or under-

growth, examining the foliage or hanging bunches of dead leaves in search of insects. I never saw it on the ground.

We took breeding individuals in February, May, and September, so the nesting season is a long one, though it may perhaps be interrupted in December and January. Nest and eggs must be similar to those of *P. woodhousei.*

As the slender bill would suggest, the species is wholly insectivorous. The crops and stomachs of nine examples all held remains of insects, their larvae, and even a few tiny cocoons. In at least five cases the insects were ants and their larvae and pupae.

Key to the Species of *Nigrita* in the Congo

1. Entire underparts chestnut or maroon, upperparts largely dusky brown or gray-brown . . . . . *N. bicolor*
   Underparts not red-brown 2
2. Entire underparts pure black, back gray 3
   Underparts gray or whitish 4
3. Forehead black, white spots on many if not all the wing-coverts . *N. canicapilla*
   Forehead yellowish white, or gray tinged with yellow; no white spots on wings . . . . . *N. luteifrons*
4. Underparts and back slate-gray, a black patch around the eye . . *N. luteifrons*
   Underparts white or grayish white; back dull dark brown; crown, upper tail-coverts, and rectrices glossy black . . . . . *N. fusconota*

Nigrita fusconota fusconota Fraser

Nigrita fusconotus Fraser, 1842, Proc. Zool. Soc. London, p. 145 (type locality: Clarence, Fernando Po).

Nigrita fusconota Reichenow, 1904, Die Vögel Afrikas, vol. 3, p. 168 (Kitimba); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 332; 1923, Mitt. Zool. Staatsinst. Zool. Mus. Hamburg, vol. 40, p. 64 (Lupungu). Ogilvie-Grant, 1910, Trans. Zool. Soc. London, vol. 19, p. 293 (northwest of Beni). Schouteden, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 271 (Kilo); 1918, idem, vol. 5, p. 275. Chapin, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 275. Sassi, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 48 (Moera; Beni; Ukaika).

Nigrita fusconota fusconota Bannerman, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 304 (Congo mouth); 1949, The birds of tropical West Africa, vol. 7, p. 261, pl. 8. Gyldenstolpe, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 54 (Kartushi; Kampi-na-Mambuti). Schouteden, 1925, Rev. Zool. Bot. Africaines, vol. 13, p. 20 (Kunungu); 1926, idem, vol. 13, p. 205 (Ganda Sundi); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 145 (Medje; Bondo Mabe). Sclater, 1930, Systema avium Aethiopicarum, pt. 2, p. 776. Gil Lletget, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 76 (Luluabourg). Jackson, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1482. V. and G. van Someren, 1949, The birds of Bwamba, p. 98 (Bwamba).

Specimens: Stanleyville, immature male, November 1. Kamunionge, female, September 21. Babonde, female, May 3. Medje, two males, August

12, September 2; two females, July 9, August 16; juvenile female, September 6.

ADULTS OF BOTH SEXES: Iris dark brown to very dark red, bill black, feet gray.

NESTLING: A dried skin shows that the skin of the gape was blackish and bore some light-colored fleshy balls. Black spots are also visible on the palate.

DISTRIBUTION OF THE SPECIES: Forested countries from the Gold Coast to Southern Nigeria, Fernando Po, Cameroon to northwestern Angola and the eastern Congo, Uganda, and North Kavirondo District.

The race of the Gold Coast, *N. f. uropygialis* Sharpe, is distinguished by a broad patch of whitish brown on the rump, just in front of the black upper tail-coverts. Nominate *fusconota* on Fernando Po appears to be purer white on throat and breast than most specimens from the mainland of Lower Guinea. The wings of Fernando Po specimens measure 52–56 mm., those of specimens from the Kasai and Ituri 50–54 mm. But the race *fusconota* is generally regarded as ranging from Southern Nigeria and Fernando Po to the Cuanza Valley in Angola, the central Kasai and northern Manyema, and North Kavirondo in Kenya Colony. Kavirondo birds have wings 52–56 mm. but are grayish white on the breast.

In the Congo this species is scarcely found above 4500 feet, and in the Uelle it seems not to range out into gallery forests as it does in the Kasai. Nowhere have I found it very numerous. Rather solitary by nature, it frequents second-growth woods, often rather low down, though not on the ground.

Its diet is mixed, consisting of small insects and fruits. The crops and stomachs of six individuals held bits of insects in four cases, including a few small caterpillars, whereas four had eaten small fruits, usually tiny, orange-colored berries such as are commonly eaten by *Nigrita canicapilla, Anthreptes collaris,* and *Pogoniulus leucolaima* and *subsulphureus.*

The breeding season in the northern Ituri is from June or July to September. A nest with three young, brought by natives on September 6, showed much similarity to that of *Nigrita canicapilla,* being a rough mass of brownish materials, not woven in the least, and with lateral entrance. Among the things used in its construction were fine shreds of bark, dry grass, dead leaves, and a little moss. In the bottom was much dried excrement of the young. The natal down is whitish; the juvenal plumage lacks the glossy black patch on the crown, which is merely dusky brown. Throat and flanks are decidedly grayish.

At Ntotoro in Bwamba the Van Somerens found a nest during July, near the end of a branch 20 feet up in a small spiny tree at the forest edge. It contained six white eggs. Measurements of eggs are 14–14.5 by 10.5–11 mm.

In the Cameroon Bates found this small white-bellied weaver-finch gave a distinctive little trill which slowed down until it ended with separate "chip, chip, chip" notes. Its nests were usually placed in the angles of stubs of palm fronds. The Van Somerens described the voice as a prolonged, sizzling "tz tz tz tzeeeeeee," which might be shortened and lowered in tone to "te te te te teee."

Nigrita bicolor brunnescens Reichenow

Nigrita bicolor brunnescens REICHENOW, 1902, Ornith. Monatsber., p. 173 (type locality: Principe I. in Gulf of Guinea). BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 301; 1949, The birds of tropical West Africa, vol. 7, p. 259 (Likandi R.; near Libokwa). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 350 (Luebo); 1926, idem, vol. 13, p. 205 (Tshela); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 145 (Poko; Bondo Mabe; Kotili; Panga; Nava R.; Buta). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 776. STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 574 (Saidi). BOUET, 1942, Ois. Rev. Française Ornith., new ser., vol. 12, p. 171 (Liranga).

Nigrita bicolor SHARPE AND BOUVIER, 1878, Bull. Soc. Zool. France, vol. 3, p. 75 (Condé). SHELLEY, 1890, Ibis, p. 165 (Yambuya).

Nigrita brunnescens REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 167. SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 140. OGILVIE-GRANT, 1908, Ibis, p. 274 (Ponthierville).

Nigrita brunnescens saturatior REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 167 (in part. Yambuya); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 332 (Lenda R.; Avakubi).

Nigrita saturatior SALVADORI, 1915, Ann. Mus. Civ. Genova, ser. 3, vol. 6, p. 280 (Kasai District).

Nigrita bicolor saturatior SCHOUTEDEN, 1924, Rev. Zool. Bot. Africaines, vol. 12, p. 424 (Bikoro); 1925, idem, vol. 13, p. 20 (Kunungu).

Nigrita bicolor brunescens BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 77.

SPECIMENS: Avakubi, four males, November 6, March 9, June 26, July 9; female, June 26; immature male, April 8. Ngayu, male, July 17. Medje, male, female, June 24; immature male, May 19; two juvenile males, September 19; four juvenile females, March 16, September 19. Niangara, immature male, November 17.

ADULTS OF BOTH SEXES: Iris deep scarlet to carmine, bill blackish, feet brown.

NESTLING: Bill dark gray externally, becoming pale pinkish gray beneath mandible. The gape bears four little lemon-yellow balls at each side, the skin about their bases blackish. Palate mostly lemon-yellow, with five black dots, of which the posterior pair is very small. Tongue and floor of mouth flesh color, with a blackish mark across tongue and a crescentic mark on inside of mandible beneath tongue.

DISTRIBUTION OF THE SPECIES: Forested countries from Portuguese

Guinea to the Cameroon, Principe Island, eastward to the Semliki Valley and southward to Quicolungo in northwestern Angola. Nominate *bicolor* of Upper Guinea is somewhat clearer gray on the hind crown and back than *brunnescens,* which ranges widely over Lower Guinea. A third race, *saturatior,* of deeper color throughout than *brunnescens,* appears to be restricted to the eastern edge of the Congo forest.

In the Rothschild Collection there is a single example of *brunnescens* taken by Mocquerys on Principe in 1901, and I am surprised that Correia did not collect this bird on Fernando Po. On the mainland it ranges from Southern Nigeria and Nkongsamba in Cameroon to Duma and Libenge near the Ubangi, the upper Uelle River, the central Ituri, the vicinity of Kasongo, Luluabourg in the Kasai, the Mayombe Forest, and northwest Angola.

The chestnut negro-finch, in my experience, is a rather shy bird usually seen singly or in pairs amid second growth or about the borders of forest clearings. Occasionally it may be seen also in heavy forest, on the ground along roads, or even high up in trees. It utters no loud notes. The crops and stomachs of two of our specimens contained the remains of small insects and several small caterpillars. In the Congo I never noticed any particular fondness for palm nuts such as Bates observed in the Cameroon.

Dissections showed that in the northern Ituri the breeding season extended from late February to September. A brood of four young was brought to us at Medje in March. At Lukolela, south of the Equator, nesting seemed to begin in September and may well continue for six months or more. The juvenal plumage is much lighter beneath than that of adults, with throat grayish; the natal down is whitish.

Bates described the nest as like that of *Estrilda* but larger and composed of a loose mass of dried leaves, lined with grass tops. It was placed in a fork of a small tree and contained five white eggs measuring 16 by 11.5 mm. Serle found a similar nest in the British Cameroons with four eggs measuring 14.5–15 by 11.3–11.5 mm.

Nigrita bicolor saturatior Reichenow

Nigrita bicolor saturatior REICHENOW, 1902, Ornith. Monatsber., p. 173 (type locality: Atyanga in Uvamba, Semliki Valley). BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 302. GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 53 (Kartushi; Kampi-na-Mambuti). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 776. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1481.

Nigrita brunnescens saturatior REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 167. SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 271 (Kilo); 1918, idem, vol. 5, p. 275 (Kilo; Kokoba; Biogo). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, pp. 274, 275, fig. 1, E.

Nigrita bicolor brunnescens SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 47 (Moera; Beni-Mawambi).

ADULT MALE: Iris bright crimson, rim of eyelids bluish gray; bill brownish black; feet rather dark grayish brown. One fully adult bird from near Irumu still showed five black dots on the palate.

DISTRIBUTION: Eastern border of the Congo forest from the region of Kilo southward to the Semliki Valley and perhaps to the lowland forest west of Lake Edward and Lake Kivu. The only specimens I have seen that were definitely deeper and richer in color than *brunnescens* came from the vicinity of Irumu and the Semliki Forest. Two of them I collected myself, and these were adult males. Females of all three races are just a little lighter maroon on the underparts than the males.

In haunts and behavior *N. b. saturatior* is exactly like *brunnescens,* keeping closely to the heavy forest. A male taken about 6 miles west of Pakihoma in the Semliki Forest on February 9 was building a nest of dried leaves, 25 feet up in a smallish tree in a damp part of the forest, where it was well surrounded by foliage. In that equatorial latitude I expect breeding to go on in any month of the year.

This bird had eaten a small naked caterpillar, and I have no doubt that soft-bodied insects and their larvae provide nearly the entire diet.

Nigrita luteifrons luteifrons Verreaux

Nigrita luteifrons J. AND E. VERREAUX, 1851, Rev. Mag. Zool., ser. 2, vol. 3, p. 420 (type locality: Gaboon). REICHENOW, 1887, Jour. Ornith., p. 301 (Manyanga); 1904, Die Vögel Afrikas, vol. 3, p. 168; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 332 (Avakubi). SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 146. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Kisantu). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 293 (Mawambi). SCHOUTEDEN, 1920, Rev. Zool. Bot. Africaines, vol. 7, p. 191 (Temvo). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 47 (Beni). DELACOUR, 1943, Zoologica, New York, vol. 28, p. 76.

Nigrita lucieni SHARPE AND BOUVIER, 1878, Bull. Soc. Zool. France, vol. 3, p. 75 (type locality: Ungomongo in Enclave of Cabinda).

Nigrita luteifrons luteifrons BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, pp. 302, 303; 1949, The birds of tropical West Africa, vol. 7, p. 255, pl. 8 (eastern Congo). SCHOUTEDEN, 1926, Rev. Zool. Bot. Africaines, vol. 13, p. 205 (Makaia-Ntete); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 144 (Buta; Titule; Mokope near Panga). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 776.

Nigrita luteifrons orientalis R. NEUNZIG, 1928, Zool. Anz., vol. 78, p. 111 (type locality: Beni, Semliki Valley).

SPECIMENS: Rungu, female, June 23. Avakubi, immature male, November 16.

ADULT MALE: Iris reddish, bill black, feet brownish flesh color.

ADULT FEMALE: Iris yellow, bill black, feet pale buff.

DISTRIBUTION OF THE SPECIES: Southern Nigeria, Fernando Po, and Cameroon eastward to the Uelle District and the Semliki Valley, south-

ward to the central Kasai and to Quicolungo in northwestern Angola. *Nigrita luteifrons alexanderi* Ogilvie-Grant of Fernando Po is a large race, with wings of males 59–64 mm.; and the yellowish white of its forehead is more extensive than in nominate *luteifrons* of the mainland, which has the wings of males only 57–61 mm. The latter race is usually said to extend to the Upper Congo, but Neunzig may well have been right in his view that Ituri specimens were still less whitish on the forehead and darker gray on the rump. In that case the birds of the Upper Congo and Kasai must be called *N. l. orientalis.*

Nigrita lucieni was based on the adult female, differing from the adult male in having the entire under side gray, only an area about the eye being black. Young males are at first gray beneath, with the whole head also gray.

In the central Ituri and southern Uelle I found this species distinctly rare and frequenting second growth rather than true forest. Both our specimens were shot within 7 yards of the ground; the crop of the female contained remains of small insects. In the forested Cameroon Bates considered *Nigrita luteifrons* the rarest of the negro-finches, and he found that its food always included scale insects. Only once was palm-nut husk present in addition. At Luluabourg Father Callewaert secured seven specimens.

Little is known of the nest or eggs, which are likely to resemble those of *N. canicapilla.* A young bird described by Bates had the margin of the gape black, with four white warts or globules, one just at the angle, two above and one below that. There were also spots on the palate and tongue like those of *Estrilda.*

Nigrita canicapilla canicapilla (Strickland)

Aethiops canicapilla STRICKLAND, 1841, Proc. Zool. Soc. London, p. 30 (type locality: Fernando Po).

Nigrita canicapilla canicapilla SCHOUTEDEN, 1924, Rev. Zool. Bot. Africaines, vol. 12, pp. 276, 424 (Tumba; Eala; Tondu; Bikoro); 1926, idem, vol. 13, p. 205 (Temvo; Tshela). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 775. BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 250, fig. 28.

Nigrita canicapilla SCHOUTEDEN, 1925, Rev. Zool. Bot. Africaines, vol. 13, p. 20 (Kunungu).

SPECIMEN: Coquilhatville, male, December 16.

ADULT MALE: Iris yellow after death, red no doubt in life; bill black; feet dark brownish.

DISTRIBUTION OF THE SPECIES: Sierra Leone to Southern Nigeria, Fernando Po, all Lower Guinea, and eastward to the mountain forests of Mt. Kenya, Kilimanjaro, and the Crater Highlands of Tanganyika Territory. On the south the range extends to Mt. Kungwe, just east of Lake Tanganyika, the central Kasai District, and northwestern Angola.

Nigrita c. emiliae Sharpe, of forested Upper Guinea, has only indistinct gray spotting on its wing-coverts. Nominate *canicapilla,* of Southern Nigeria

and the Lower Guinea coast, east to the Middle Congo, has more whitish on crown and rump, as well as large white spots on wing-coverts and the outermost scapular feathers. *Nigrita c. angolensis* of northwestern Angola and the Kasai is well spotted on the wings but darker grayish on crown and rump. The race *intermedia* is similar to *canicapilla* except for the smaller white spots on wing-coverts and their absence from the edge of the scapular tract. It occupies the eastern Congo forest from the Semliki Valley westward perhaps to Lisala. A little to the eastward the spots disappear from the tips of the greater wing-coverts, and the upperparts become a little darker. These are the characters of *N. c. schistacea,* which ranges from the Lotti Forest in the southeastern Sudan to Uganda, western Kenya Colony, Bukoba, and the Kivu District. *Nigrita c. diabolica* (Reichenow and Neumann) is like *schistacea* in general coloration, but has spots at the tips of greater wing-coverts, and the cutting edge of the maxilla is more sinuate, so that the tip appears to be decurved. That is the race living on Mt. Kenya, Kilimanjaro, and adjacent mountains in East Africa. Mt. Kungwe near Lake Tanganyika seems to have its own race, *N. c. candida* Moreau, with hind crown, nape, and upper mantle whitish.

It is not easy to draw a line between the ranges of nominate *canicapilla* and *intermedia,* but it seems certain that from the Mayombe Forest up the Congo to the region about Coquilhatville and the lower Ubangi one finds only the well-spotted *canicapilla.* It is a bird of second growth and clearings, not of primary forest, and its behavior is exactly like that of *intermedia,* which I discuss below in more detail. In the Cameroon, according to Bates and to Webb, a favorite food of *canicapilla* is the oily husk of palm nuts. This I did not find to be the case in the Upper Congo.

At Kumba, British Cameroons, on July 23 William Serle[1] found a nest 12 feet up in an evergreen tree in a garden. It was as large as a football, built of grass, fibers, moss, and leaves, with a lining of fresh grass heads, and had a lateral entrance. The five white eggs measured 17.2–17.8 by 12.7–13.2 mm.

Nigrita canicapilla angolensis Bannerman

Nigrita canicapilla angolensis BANNERMAN, 1921, Bull. Brit. Ornith. Club, vol. 41, p. 126 (type locality: Ndala Tando, northern Angola). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 350 (Basongo; Luebo; Macaco; Kabambaie; Ngombe in Kasai).

Nigrita schistacea REICHENOW, 1923, Mitt. Zool. Staatsinst. Zool. Mus. Hamburg, vol. 40, p. 64 (Lupungu).

Nigrita canicapilla BERLIOZ, 1925, Bull. Mus. Hist. Nat., Paris, vol. 31, p. 347 (Luluabourg).

Nigrita canicapilla canicapilla GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 76.

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[1] 1950, Ibis, p. 635.

DISTRIBUTION: Forests of northwestern Angola south to Canhoca, of the Kasai District, and probably of the Manyema as well. At Luluabourg Father Callewaert collected a series of 15 adults which agree in color with others from northwestern Angola. On 14 of the labels of Luluabourg specimens the eye color was noted as red, an indication that they must have been snared and examined alive. In Angola Ansorge noted the iris in most cases as yellow or orange, as it usually is after specimens have been shot, and only once as orange-red.

Three adults collected by Rudolf Grauer in the region of Kasongo are too heavily spotted on the wings for *Nigrita c. intermedia* and resemble *angolensis* fairly well, as does even a single example which he secured at 2000 meters on the highland northwest of Lake Tanganyika.

We may be sure that in the Kasai this gray-crowned negro-finch is restricted to the vicinity of gallery forests. It certainly nests there during the rains, for young in complete juvenal dress were collected on November 20, January 15, 30, and 31.

Nigrita canicapilla intermedia Neunzig

Nigrita canicapilla intermedia R. NEUNZIG, 1928, Zool. Anz., vol. 78, p. 111 (type locality: Moera, west of Semliki Valley, eastern Congo; also from Angu and Bambili).

Nigrita canicapilla REICHENOW, 1887, Jour. Ornith., p. 307 (Kibonge); 1904, Die Vögel Afrikas, vol. 3, p. 170. SHELLEY, 1890, Ibis, p. 165 (Yambuya); 1905, The birds of Africa, vol. 4, pt. 1, p. 141. HARTLAUB, 1891, Abhandl. Naturwiss. Ver. Bremen, vol. 12, p. 18 (Uvamba). EMIN, 1894, Jour. Ornith., p. 170 (Irumu). FLOWER, 1894, Proc. Zool. Soc. London, pp. 597, 600, 601 (Ituri R.; Ipoto). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Province Orientale; Umangi). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 294 (Beni). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, pp. 275, 276. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 276 (Moera; Lubilu); 1938, Bull. Cercle Zool. Congolais, vol. 15, p. 87. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 47 (in part. Beni; Moera; Mawambi; Ukaika).

Nigrita sparsimguttata REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 170; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 332 (Lenda R.; Avakubi).

Nigrita schistacea SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 145.

Nigrita canicapilla canicapilla BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 298 (in part. Uelle District; Semliki Valley). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 574 (Saidi; Ekibondo). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 144 (Bondo Mabe; Medje; Djamba; Panga; Poko; Buta). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 82 (Butahu R.; Lume R.; Luhule R.; Kalehe near Lutunguru).

Nigrita canicapilla sparsimguttata GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 52 (Kartushi; Lesse; Bopu; Kampi-na-Mambuti).

Nigrita canicapilla schistacea VRIJDAGH, 1949, Gerfaut, vol. 39, p. 109 (Nioka).

SPECIMENS: Ngayu, male, December 11. Bafwabaka, male, January 11. Medje, five males, March 5, May 19, June 22, October 8; four females, March 10, May 19, June 28, July 5; immature male, March 15; four juvenile females, March 5, September 15, 18. Niangara, two males, May 11, November 23; female, May 11.

ADULTS OF BOTH SEXES: Iris yellow when dead, but in life it is bright red, slightly tinged with orange; bill black; feet black or very dark gray.

NESTLING: Iris light gray, feet brownish gray. Bill externally brownish black, gape with four whitish papillae at each side, and palate spotted with black as in other members of the genus.

DISTRIBUTION: Forested country from the Uelle River south probably to the Lowa District, west to the vicinity of Lisala and east to the Semliki Valley. This is merely an intermediate form between the heavily spotted *canicapilla* and the blacker-winged *schistacea*. Three adults from the vicinity of Kasongo are more like *angolensis,* rather heavily spotted on the wings. Since it occupies so large an area, we shall do well to recognize *N. c. intermedia.*

This gray-crowned negro-finch is a common resident near the northern and eastern margins of the Ituri forest but less numerous about Avakubi, for it is fond of second growth and clearings. It also follows the heavier gallery forests into the Uelle and reaches the base of Ruwenzori but scarcely ascends to more than 5000 feet. Not sociable and keeping mostly to the trees, it hops amid the leafy boughs and feeds to a large extent on small fruits. The song consists of five or six faint but clearly whistled notes and is heard frequently in the morning and late afternoon.

In dead specimens the iris almost always appears yellow. Captive or wounded examples had bright scarlet eyes, and that was found to be true of birds at liberty when watched closely through binoculars. In only a single case did the red color reappear in the eyes after death. I suspect that the iris of *Nigrita luteifrons* may undergo a similar change, due probably to blood supply. It is certain that the eye of *Buphagus africanus* varies from red to yellow, and that of *Agapornis swinderniana* may fade to yellow only after death. According to L. Lippens[1] the red eye of the male *Nyroca erythrophthalma* usually does the same.

From Medje to Niangara eggs or nestlings were seen from March 5 to September 18, and dissections of adults indicated a continuation of breeding into November. Near Irumu and Beni I took specimens with enlarged gonads in September and October; there the breeding season may well occupy most of the year. The nests are rough, bulky masses of dry grass, not woven, some dead leaves, and at times a little soft grass or green moss. They measure

[1] 1938, Gerfaut, vol. 28, fasc. spécial, p. 32.

some 22 cm. in diameter, with entrance at the side, and are supported on leafy branches, 6 or 8 yards above the ground.

One nest contained four pure white eggs, measuring 18.7–20.5 by 12.5–13.7 mm. Another was occupied by four young, and the way the bottom of the nest was fouled showed that the parents lacked the cleanly habits of most other passerine birds. The natal down is grayish white, the juvenal dress almost uniform sooty gray, with rump a little lighter and wing spots faintly indicated.

The crops or stomachs of seven individuals were found to contain only small fruits, generally of orange or reddish color. These fruits were also fed to the nestlings. An eighth bird had eaten three small caterpillars. No special fondness for palm nuts was ever noticed.

Nigrita canicapilla schistacea Sharpe

Nigrita schistacea SHARPE, 1891, Ibis, p. 118 (type locality: Sotik, Kenya Colony). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 294 (Mpanga Forest, 5000 ft.; Mubuku Valley, 6000 ft.).

Nigrita diabolica JACKSON, 1906, Ibis, p. 562 (Ruwenzori).

Nigrita sparsimguttata SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 276 (Loashi; Beni?; Moera?; Kokoba?).

Nigrita canicapilla SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 47 (in part. Rutshuru Plain; forest east of Rutshuru Plain).

Nigrita canicapilla schistacea FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 374. SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 164 (Mugunga, 1500 m.; Rutshuru). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1480.

SPECIMEN: Faradje, male, July 3.

ADULT MALE: Iris orange-red at death, fading rapidly to yellow thereafter; bill black; feet blackish brown.

DISTRIBUTION: Uganda and adjacent parts of the Kivu and western Kenya Colony, north to the Lotti Forest in the Sudan, and south at least to Bukoba. On the west it appears to reach the eastern slopes of Ruwenzori, the Kivu Volcanoes, and also the highland west of Lake Kivu. Grauer secured three examples on Idjwi Island. Even in the northeastern Uelle the spotting on the wings undergoes such great reduction that I have referred my specimen from Faradje to *schistacea*.

There is enough individual variation in pattern to obscure any sharp line of demarcation between *intermedia* and *schistacea*. Specimens from the Semliki Valley often have small white spots at the tips of the greater wing-coverts, while these are usually lacking in *schistacea*, farther east. *Nigrita c. schistacea* is reported to ascend to 6000 feet on the eastern side of Ruwenzori, and I have found it at 6400 feet near Burunga in the Kivu. Grauer took one at 8000 feet on the Volcanoes. But in the eastern Congo it is not a

characteristic bird of montane forests, as both *schistacea* and *diabolica* seem to be in Kenya Colony, and there are no records from the highlands of Ruanda or Urundi.

In general behavior this race is like *intermedia,* usually found about woods, singly or in pairs. The food probably consists largely of small fruits. My example from Burunga had eaten some small red mulberry-like fruits from a vine draped over an *Erythrina* tree. In Uganda *schistacea* has been found breeding from March to July and in October, placing its large nest in trees, from 7 to 30 feet up. Sets of four white eggs are usual; broods of five and six young have been reported.

KEY TO THE SPECIES OF *Clytospiza* OCCURRING IN THE CONGO

1. Whole breast light rufous spotted with white; back dull brown; male with a red stripe on middle of gray throat . . . . . *C. monteiri*
   Throat, chest, and mid-line of breast gray to blackish, white spots only on sides of breast and flanks 2
2. Back deep gray-brown, rump red; flanks and sides of breast wine red with white spots . . . . . *C. cinereovinacea*
   Back feathers with broad red tips, flanks and sides of breast spotted with white on a gray and black ground . . . . . *C. dybowskii*

Clytospiza monteiri (Hartlaub)

Pytelia monteiri HARTLAUB, 1860, Proc. Zool. Soc. London, p. 111, pl. 161 (type locality: Bembe, Angola). EMIN, 1922, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 3, p. 404; 1927, idem, vol. 4, pp. 9, 11, 31, 69.

Pitylia stictilaema REICHENOW, 1887, Jour. Ornith., pp. 213, 305, 308 (type locality: Leopoldville; also from Kasongo).

Pytelia monteirii SCHWEINFURTH AND RATZEL, 1888, Emin-Pascha, eine Sammlung von Reisebriefen, p. 403 (Mangbetu country). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 265.

Hypargus monteiri SHELLEY, 1888, Proc. Zool. Soc. London, p. 30 (Fanjimoro). BERLIOZ, 1925, Bull. Mus. Hist. Nat., Paris, vol. 31, p. 347 (Luluabourg).

Lagonosticta monteiri SHARPE, 1890, Catalogue of the birds in the British Museum, vol. 13, p. 273 (Landana; Leopoldville). OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127.

Hypargos monteiri REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 158 (Tingasi). LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 15 (Mukimbungu). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 168 (Tunguru; Mswa).

Clytospiza monteiri SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 297. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29. SALVADORI, 1909, Ann. Mus. Civ. Genova, ser. 3, vol. 4, p. 324 (Buta-Dungu). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 275, pl. 6, fig. 2. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 350, 403 (Ngombe in Kasai; Kwamouth). DELACOUR, 1943, Zoologica, New York, vol. 28, pp. 73, 75. BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 264 (Luma I.; Mobbai; Guruba R.; Poko).

Pytelia monteiri monteiri GROTE, 1924, Jour. Ornith., p. 488.

Clytospiza monteiri monteiri SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 777. GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 76. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 108 (Tshikapa). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 77 (upper Kemo R.).

Clytospiza monteiri ugandensis SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 777 (Uelle R.). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 574 (Vube). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 145 (Faradje; Mauda). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1483.

SPECIMENS: Leopoldville, immature male, July 6. Rungu, male, October 28. Niangara, two males, May 10, June 10; three females, January 8, November 25, December 13; juvenile male, November 8; juvenile female, December 6. Faradje, three males, March 3, May 10, November 3; four females, March 29, September 24, November 16, 25; three immature males, March 31, May 15; juvenile male, November 9; juvenile female, December 5.

ADULTS OF BOTH SEXES: Iris dark red, rim of eyelids light bluish; bill black with blue base; feet brown.

NESTLING: Iris dark grayish brown, feet pale purplish gray. Bill black, a little blue-gray beneath mandible. Skin of gape considerably swollen, constricted at corner so as to have a bilobed form, and whitish externally, yellow inside with two black spots. Palate yellow with five black spots, the lateral ones largest, posterior pair small. Tongue flesh color, a dusky band across it; beneath tongue a blackish crescent.

DISTRIBUTION: Grasslands near the Lower Guinea forest, from northern

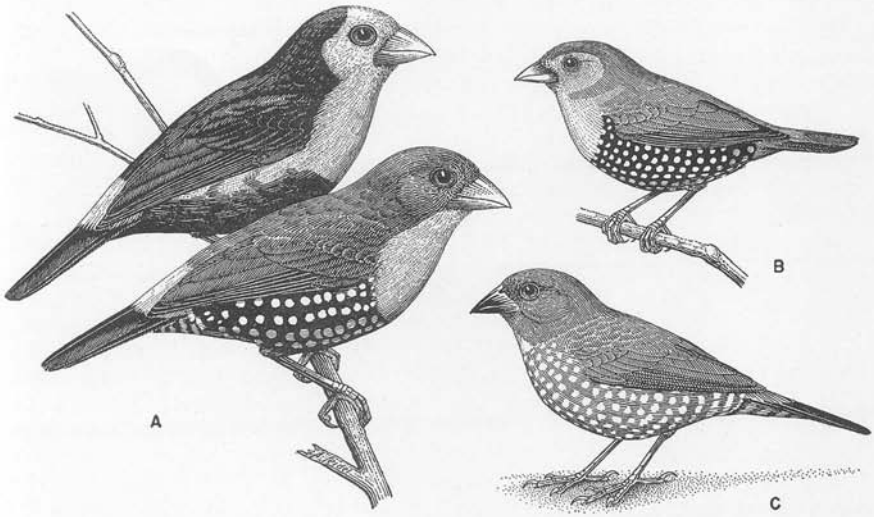

FIG. 35. Weaver-finches. A. *Spermophaga poliogenys*, male and female. B. *Hypargos nitidulus schlegeli*, male. C. *Clytospiza monteiri*, male.

Cameroon eastward to the Ubangi and the Uelle District, southern Bahr-el-Ghazal, and Uganda; also on the south from Pointe Noire, the Enclave of Cabinda, Lower Congo, and northwest Angola to the Kasai and Manyema districts. Absent from the area of solid forest and from the highlands of the Kivu region. I find no differences to support the race *ugandensis*.

Monteiro's twin-spot is a common bird in the Uelle savannas, frequenting high grass and bushes and attracting attention by its short, petulant call note. It was noted at Pawa but never in clearings of the rain forest. Schubotz obtained specimens at Lifaki and Ndekkere, north of the lower Uelle River, and Dybowski collected it north of the Ubangi. Along the eastern edge of the Congo forest the species is lacking, but it is common about Luluabourg in the Kasai and near Stanley Pool. Nowhere in the Congo does it inhabit highlands above 4000 feet.

The breeding season in the Uelle begins rather late and lasts from August into December. Old nests of other birds seemed always to be used, a slight new lining being added. Five such nests were examined. The first was in a large mass of dry leaves, possibly an old nest of *Centropus* or of *Pirenestes*, on a bough 6 feet above a pool in a swampy wood at Faradje, on September 24. Inside there was a soft lining of cast snake skin and matted hair from the droppings of a leopard or other carnivore. The female was incubating six white eggs.

The next three nests were all in one mango tree at Faradje, in old nests of *Lonchura cucullata*. To the rough ovals of grass tops the new tenants had added linings of hair, feathers, and soft vegetable material, with some cast snake skin in each case. Two of the nests each contained five young and one addled egg; the third held three white eggs and three newly hatched young. The nests were not cleaned and became very dirty by the time the young left them. The parents showed themselves but little near the nests.

The last nest, on November 25, was again in an old nest of some unidentified bird in the grass near the bank of the Dungu River. Its lining consisted of bits of shed snake skin and hair; the set of eggs was incomplete, others still to be laid. The fondness for snake skin calls to mind a similar trait on the part of a number of other birds, especially *Spreo bicolor* in South Africa, *Erythropygia galactotes* in North Africa, *Acridotheres gingianus* and *Saxicoloides fulicata* in India, *Myiarchus crinitus, Donacobius atricapillus, Baeolophus atricristatus,* and *Guiraca caerulea* in the New World. No satisfactory explanation appears to have been found.

My measurements of eggs of *Clytospiza monteiri* are 14.4–15.5 by 12.2–12.7 mm. The natal down is whitish; the juvenal plumage differs from that of the adult female in having the throat uniform gray all across, breast and flanks rufous without spots, under tail-coverts barred with whitish, and upper tail-coverts duller red.

The food of this weaver-finch includes both seeds and insects. In crops and stomachs of four examples I noted seeds, including some from grasses twice, and remains of insects, including termites, three times, also one spider.

Clytospiza dybowskii (Oustalet)

Lagonosticta dybowskii OUSTALET, 1892, Naturaliste, ser. 2, vol. 6, p. 231 (type locality: Upper Kemo R., Ubangi-Shari District); 1893, idem, ser. 2, vol. 7, p. 127. BANNERMAN, 1915, Ibis, pp. 658, 659, pl. 7, fig. 2.

Hypargos dybrowskii SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 242.

Cryptospiza sharpei BOYD ALEXANDER, 1907, Bull. Brit. Ornith. Club, vol. 19, p. 46 (type locality: Kemo R.).

Hypargos dybowskii SALVADORI, 1909, Ann. Mus. Civ. Genova, ser. 3, vol. 4, p. 325 ("Zobia"). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 245, fig. 1, B; 1921, Amer. Mus. Novitates, no. 17, p. 16 (Faradje; Aba).

Hypargos sp. EMIN, 1919, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 2, p. 476 (Bellima).

Clytospiza dybowskii SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 777. BANNERMAN, 1932, Ibis, p. 251; 1949, The birds of tropical West Africa, vol. 7, p. 266 (Kibali R.). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 145 (Mauda). DELACOUR, 1943, Zoologica, New York, vol. 28, pp. 73, 75. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 109 (Ishwa Plain).

SPECIMENS: Madrapili's, near Faradje, female, October 5. Aba, male, July 14; two females, July 14, December 20.

ADULTS OF BOTH SEXES: Iris red, bill black, feet dusky brownish. Rim of eyelids slightly swollen and purplish pink in male, less swollen and gray in female.

DISTRIBUTION: From northeastern Sierra Leone eastward to the Manenguba, Banso, and Genderu mountains in Cameroon, the Kemo River north of the Ubangi, the Upper Uelle District, southernmost Bahr-el-Ghazal, and the vicinity of Mahagi. The range thus parallels the northern border of the forest belt, depending upon the type of vegetation rather than the altitude. The record from Zobia is probably erroneous, the country there being too heavily forested.

In the Upper Uelle we found Dybowski's twin-spot very local in occurrence. One was taken near the border of a heavy gallery forest between Faradje and Aba; otherwise I saw the species only in a few places about the bases of hills near Aba and Nzoro. On August 3 a pair was seen hopping on the road near Mt. Gaima. About Aba these birds were fairly common in July as well as December, but my scanty supply of ammunition prevented the collecting of a more adequate series.

Together with *Lagonosticta rubricata* and *rara* they frequented grass and tilled lands about the bases of granite hills, feeding on the ground and perching in small trees. On the Ishwa Plain near Mahagi Vrydagh noted that they seemed to frequent rocky places. My four specimens had eaten only small

seeds of grasses and the like. From the little evidence available it would seem that September and October are the months for nesting in the Uelle.

Clytospiza cinereovinacea graueri (Rothschild)

Lagonosticta graueri ROTHSCHILD, 1909, Bull. Brit. Ornith. Club, vol. 23, p. 102 (type locality: Highland northwest of Baraka, L. Tanganyika). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 336.

Estrilda cinereovinacea rudolfi HARTERT, 1919, Novitates Zool., vol. 26, p. 141 (new name for *graueri*).

Estrilda cinnereovinacea rudolfi SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 53 (Urundi; northwest of L. Tanganyika, 2000 m.).

Lagonosticta cinereovinacea rudolfi SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 793.

Clytospiza cinereovinacea graueri SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 162 (Kasiki).

ADULTS OF BOTH SEXES: Iris dark red to reddish brown, narrow rim of eyelids purplish red; bill grayish black; feet deep brown.

DISTRIBUTION OF THE SPECIES: Highlands of Angola, Marungu, country northwest of Lake Tanganyika, Urundi, and Ruanda. The nominate race is restricted to Angola, while *graueri,* which is darker, especially on fore-neck and chest, and deeper red on flanks, occupies the remainder of the range. It occupies highlands to the west of Lake Tanganyika and the plateau of Ruanda-Urundi, extending north to Lake Chahafi in the Kigezi District where J. C. Phillips collected two adults.

This is a twin-spot restricted to highlands, mostly between 5500 and 6500 feet, although Grauer collected one specimen to the west of Baraka at only 4260 feet. In Marungu Rockefeller and Murphy obtained three adults at Kitendwe, 6050 feet, and noted that it was a shy bird, found in open grasslands where there were bushes as well. In addition to a series taken to the west of Baraka, Grauer also secured two in the Rugege Forest, where he labeled them as coming from thickets. No doubt the general behavior is like that of *C. dybowskii,* to which this species is plainly allied.

The only example I have seen in the nearly uniform sooty brown juvenal plumage was taken on July 30, and as adults in late February were found to be in non-breeding condition, the breeding season must come in the second half of the rains, from about April to June.

KEY TO THE SPECIES OF *Spermophaga* IN THE CONGO

1. Head entirely red; lower breast black in male, spotted with white in female . . . . . *S. ruficapilla*
   Head not entirely red, the crown being black, or gray with a wash of red, or black behind and red in front 2
2. Middle of lower breast black 3
   Middle of lower breast spotted with white 4

3. Crown and forehead black, cheeks gradually becoming red like throat . . . . . *S. haematina*
   Fore-crown scarlet like cheeks, hind crown black like back . . . *S. poliogenys*
4. Sides of head red or strongly washed with red, which may show as a wash on forehead and above eye . . . . . *S. haematina*
   Sides of head, forehead, and crown all gray, not washed with red . *S. poliogenys*

Spermophaga poliogenys (Ogilvie-Grant)

Spermospiza poliogenys OGILVIE-GRANT, 1906, Bull. Brit. Ornith. Club, vol. 19, p. 32 (type locality: 20 miles north of Beni, Semliki Valley); 1908, Ibis, p. 278 (below Kasongo); 1910, Trans. Zool. Soc. London, vol. 19, p. 283 (Beni–Irumu). NEUMANN, 1910, Jour. Ornith., p. 525. REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 327. BANNERMAN, 1920, Rev. Zool. Bot. Africaines, vol. 7, p. 286; 1922, idem, vol. 9, pp. 306, 308. GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 54, pl. 2, fig. 1 (Kartushi; Lesse). SCHOUTEDEN, 1924, Rev. Zool. Bot. Africaines, vol. 12, p. 424 (Tondu); 1938, Bull. Cercle Zool. Congolais, vol. 15, pp. 60, 86 (upper Lindi R. basin; Buta). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 67 (Moera; Beni; Beni-Mawambi; Ukaika).

Spermospiza poliogengs BANNERMAN, 1919, Bull. Brit. Ornith. Club, vol. 40, p. 9 (Poko).

Spermophaga poliogenys SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 778. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 145 (Bondo Mabe). YAMASHINA, 1936, Tori, vol. 9, p. 215, fig. 78.

Spermospiza poliogyna JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1485.

SPECIMENS: Avakubi, nine males, January 29, March 20, April 2, 15, May 16, September 6, November 5, 23; three females, April 13, May 27, October 6; two immature males, February 23, November 30; three immature females, November 3, 4, December 7; juvenile female, November 9. Penge, female, April 28. Ngayu, male, December 14; female, July 25. Gamangui, two males, February 6, 7. Bafwabaka, male, January 3. Medje, male, January 23; female, March 29.

ADULTS OF BOTH SEXES: Iris dark brown, rim of eyelids pale blue; bill bright red at tip, shading to pearly blue at base, the red running back along the tomia; feet greenish brown.

YOUNG: Our specimen was too well grown to show any swellings at the gape; its yellowish palate bore only three black spots, the posterior pair was lacking. There was a dusky ring around the tongue, broken above, and a dark crescent on the mandible beneath the tongue.

DISTRIBUTION: Upper Congo forest from Poko and Zobia on the north to the Lualaba River below Kasongo, and from the Semliki Valley on the east to the vicinity of Lake Tumba.

This weaver-finch is readily overlooked in the forest, and it is apt to be confused in life with *Spermophaga ruficapilla,* the commoner species which

often ventures out into clearings. The home of *poliogenys* is really in the uncut forest, where it moves actively about in the lower undergrowth and patches of low phrynium plants, even hopping on the ground in damp places and keeping cleverly out of sight. Though found occasionally in tangled second growth, it seldom comes out along the edges of clearings. A short, hoarse "chip" was the only note I ever heard, and that was given by a young bird. The proportion of immature specimens is rather high in our series; adult birds are very wary.

The nest is unknown, and breeding may continue through the whole year, since we examined adults with gonads enlarged in January, February, May, and September. Young birds did seem most numerous toward November.

The food was noted in 12 birds; every one had eaten seeds, often rather large and oval in form, from which a hard husk may have been removed. Three birds had also eaten insects, and one a spider.

Spermophaga ruficapilla (Shelley)

Spermospiza ruficapilla SHELLEY, 1888, Proc. Zool. Soc. London, p. 30 (type locality: Bellima, Upper Uelle District, Belgian Congo). REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 103; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 327 (west Ruwenzori, 2500 m.; Kirk Falls; Avakubi). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 271 (Kilo); 1918, idem, vol. 5, p. 273 (Beni; Zambo; Lesse; Moera; Busuenda); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 165. BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, pp. 306, 308 (Poko). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 55 (Tabaro). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 68 (Mawambi).

Spermospiza EMIN, 1887, Mitth. Ver. Erdkunde Leipzig, p. 45 (Mangbetu country). SCHWEINFURTH AND RATZEL, 1888, Emin-Pascha, eine Sammlung von Reisebriefen, pp. 199, 403.

Spermospiza haematina EMIN, 1888, Emin Pasha in Central Africa, pp. 200, 404; 1921, *in* Schubotz, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 277.

Spermospiza rubricapilla SHARPE, 1890, Catalogue of the birds in the British Museum, vol. 13, p. 500. SHELLEY, 1905, The birds of Africa, vol. 4, pt. 2, p. 296.

Spermospiza haematina ruficapilla NEUMANN, 1910, Jour. Ornith., p. 524 (west of Baraka; west of Ruzizi Valley; Ituri forest; Mpanga Forest).

Spermophaga ruficapilla ruficapilla SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 778. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 145 (Panga; Poko; Medje; Abimva; Dika; Mauda; Buta). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 82 (Butahu R.).

Spermophaga ruficapilla SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 276 (Burunga). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1484. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 109 (Loda Forest, 2100 m.).

? *Spermophaga haematina pustulata* GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 76 (Luluabourg).

SPECIMENS: Banalia, male, September 22. Avakubi, four males, October 24, November 5, 6, December 21; seven females, March 4, August 5, October

8, 15, 20, 23, November 8; immature male, January 9; immature female, November 4. Medje, male, May 8; female, August 18. Niangara, male, June 5; female, June 15.

ADULTS OF BOTH SEXES: Iris brown, not dark, and sometimes tinged with reddish; bill pearly grayish blue, light scarlet at tip and along tomia; feet dusky greenish, soles dull yellowish.

IMMATURE: Iris dark brown, bill very dark bluish with a little red at tip, feet dusky or greenish black. The nestling has three small yellow swellings at each side of the gape and only three black spots on the palate, the posterior pair being absent.

DISTRIBUTION: From the base of Mt. Kenya to the Lotti Forest, southeastern Sudan, to Uganda, the Uelle, and the eastern Congo forest; also on Kungwe-Mahare, east of Lake Tanganyika, and westward to Banalia on the Aruwimi River, Kabinda in the Lomami District, Luluabourg in the central Kasai, and even to Roça Congulu in western Angola.[1] I feel that *S. cana* Friedmann of Usambara should be regarded as specifically distinct, but I am puzzled by the relationship of *ruficapilla* with *S. haematina* of western Africa. I have seen no intergradation between them, yet their ranges appear to be complementary.

This red-headed *Spermophaga* is not usually found in virgin forest but rather in natural or artificial openings in it. In the eastern parts of its range it ascends to 6500 feet or more, but within our limits it is not at all characteristic of mountain forests. Far more frequently it is seen in the lowlands, in thickets near the edges of clearings or in patches of tall grass, often near streams. It feeds mostly near the ground and darts into the bushes when disturbed but will also strip the seeds from high grasses or perch higher up in shady trees. Seldom are more than five seen together. Beyond the borders of the solid forest the species is restricted to gallery forests.

In the Ituri and Uelle, adults ready to breed were taken from June to November inclusive, and that is surely the breeding season north of the Equator. In the Kasai one may expect nesting in the latter half of the rains. Only in Uganda has the nest been found, 10 feet up in a tree, a large, untidy structure of coarse grass, covered with loose, dry ferns and lined with finer grass. Three newly hatched young were in it, in October.

In juvenal dress the male already differs from the female in being more uniformly colored, sooty blackish with head and chest dark brown, dull red on tips of upper tail-coverts. The young female shows diffuse barring of brown and blackish on lower breast and flanks.

Of eight birds examined, all had seeds in crop or gizzard. Five had also taken insects, recognizable in two cases as winged termites.

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[1] Sick, 1934, Ornith. Monatsber., p. 171.

Spermophaga haematina pustulata (Voigt)

Fringilla pustulata VOIGT, 1831, *in* Cuvier, Das Thierreich, vol. 1, p. 581 (type locality: Malimba, Enclave of Cabinda).

Spermospiza guttata BARBOZA DU BOCAGE, 1881, Ornithologie d'Angola, pt. 2, p. 348 ("Zaire"). REICHENOW, 1887, Jour. Ornith., p. 307 (Kibonge); 1904, Die Vögel Afrikas, vol. 3, p. 102. SHELLEY, 1890, Ibis, p. 166 (Yambuya); 1905, The birds of Africa, vol. 4, pt. 2, p. 294. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29. LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 15 (Mukimbungu). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 275, pl. 6, fig. 6. SCHOUTEDEN, 1920, Rev. Zool. Bot. Africaines, vol. 7, p. 191 (Temvo).

Spermospiza haematina guttata NEUMANN, 1910, Jour. Ornith., p. 524.

Spermospiza haematina pustulata BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, pp. 306, 308 (Mobaye). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 350, 403 (Luebo; Kamaiembi; Kwamouth); 1925, idem, vol. 13, p. 20 (Bolobo); 1926, idem, vol. 13, p. 205 (Ganda Sundi; Kisala). COLLIN AND HARTERT, 1927, Novitates Zool., vol. 34, p. 51.

Spermophaga haematina pustulata SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 778. BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 275 (Uelle R.).

Spermospiza haematina SCHOUTEDEN, 1938, Bull. Cercle Zool. Congolais, vol. 15, p. 39 (Lower Congo).

SPECIMENS: Nouvelle-Anvers, immature female, December 14. Stanleyville, male, without date; female, November 8.

ADULTS OF BOTH SEXES: Iris brown to red-brown, rim of eyelids pale blue above and below eye; bill pearly blue, shading to scarlet on tip and along cutting edges (this red more extensive in the male); feet brownish green to blackish green.

NESTLING: Gape wattles yellow, a small black dot just inside the uppermost. Palate yellow with three prominent blackish spots; a narrow dusky bar across tongue, broken in middle; a black crescent beneath tongue.

DISTRIBUTION OF THE SPECIES: From the Gambia through forested Upper Guinea to the Cameroon, thence eastward to Mobaye on the Ubangi River, Yambuya on the Aruwimi, and Kita-Kita in the Manyema District. On the south it reaches Luebo in the Kasai, the Lower Congo, and perhaps the forested areas of northwest Angola.

The close relationship of *Spermophaga h. pustulata* to *S. ruficapilla* is plain; their haunts and behavior are very similar, and specimens should be collected between Yambuya and Banalia, or between Luebo and Luluabourg, to determine the exact conditions where the two forms meet.

Spermophaga h. haematina (Vieillot) of the Gold Coast has males with the black of the crown extending down over the whole cheek and with upper tail-coverts usually black. This nominate race is supposed to extend to the Gambia. Males of *pustulata* are distinguished by their bright red upper tail-coverts and the gradual change on the cheeks from the red of the throat to

the black of the crown. This is the Lower Guinea race, and males with upper tail-coverts of intermediate color, deep red, are found in Togoland and southwestern Nigeria. They have been named *S. h. togoensis* (Neumann).

The female of *pustulata* is less washed with red on the fore-crown than that of *haematina* and has brighter red upper tail-coverts. From Southern Nigeria *pustulata* extends eastward to the lower Aruwimi, Stanleyville, and the Manyema District. Schouteden found it in the northwestern Kasai, and Rudolf Braun tells me he has taken it at Quicolungo in Angola. Nowhere is its range known to overlap that of *ruficapilla,* but *pustulata* and *S. poliogenys* must occur together in the forested Upper Congo basin.

Spermophaga h. pustulata, like *ruficapilla,* is a bird of second growth, bushy clearings, and river banks. It goes in pairs, family parties, but never in flocks. Not infrequently food is sought on the ground, and when alarmed the birds take refuge in the thickest cover. I have found this weaver-finch to be rather common at Stanleyville, at Lukolela on the middle Congo, and at Ganda Sundi in the Mayombe Forest. Rockefeller and Murphy secured an adult male at Kita-Kita in the Manyema. According to Bates the song is of separated, rambling notes but rarely heard.

Nests, found by him in the Cameroon, were placed near the ground, were as large as footballs, and composed of grass tops, with many dry leaves or ferns outside and a lining of soft pappus or even some feathers. They opened at the side. The eggs were three to a set, pure white, and measured 19–19.5 by 13.5–14 mm.

I have myself examined five stomachs of *pustulata,* finding seeds of various kinds in every case, while two birds had also eaten insects and one a fair-sized spider. It may well be assumed that the stout beak serves to remove hard husks from many seeds.

Key to the Species of *Cryptospiza*

1. No olive coloration anywhere; underparts almost entirely blackish gray; forehead, sides of head, back, and rump red . . . . . *C. jacksoni*
   Coloration partly olive or gray tinged with olive, with red on back and sometimes on head 2
2. Beak scarlet, or at least largely reddish; wing more than 63 mm. long; no red on the inner secondaries . . . . . *C. shelleyi*
   Beak blackish; wing less than 60 mm. long; inner secondaries with red areas on their outer webs. 3
3. Breast distinctly dark olive in color; male with a red area about the eye . . . . . *C. reichenovii*
   Breast lighter olive-gray; male without red on head, but loral region more sooty than that of the female . . . . . *C. salvadorii*

Cryptospiza salvadorii ruwenzori Sclater

Cryptospiza salvadorii ruwenzori Sclater, 1925, Bull. Brit. Ornith. Club, vol. 46, p. 45 (type locality: Mubuku Valley, 7000 ft., east Ruwenzori): 1930, Systema avium

Aethiopicarum, pt. 2, p. 780. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1487.

Cryptospiza salvadorii OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 296, pl. 11, fig. 3 (Mubuku Valley, 6000–7000 ft.; Butagu Valley, 7000 ft.).

Cryptospiza salvadorii ruwenzorii GRANVIK, 1934, Rev. Zool. Bot. Africaines, vol. 25, p. 167.

DISTRIBUTION OF THE SPECIES: Highlands of eastern Africa from Shoa to Kilimanjaro, Ruwenzori, and the mountains northwest of Lake Tanganyika. The male of *C. salvadorii* never becomes red about the eye and differs from the female only by the sootier coloration of the loral region and the general area about the eye. The breast of *salvadorii* is somewhat more grayish, less greenish, than that of *C. reichenovii.* Immature birds are not easily distinguished.

Nominate *salvadorii* is believed to range from Abyssinia to the Imatong Mountains and northern Kenya Colony. The race *ruwenzori* lacks distinct buffy areas on lores and throat, is a little more grayish on head and breast. Its range is stated to extend from Mt. Kenya and the Aberdares to Elgon, Ruwenzori, and other mountains of the eastern Congo. On the Chyulu Hills in Kenya Colony lives *C. s. chyuluensis* Van Someren, said to be the darkest race of all; and on Kilimanjaro and Mt. Meru *C. s. kilimensis* Sclater, intermediate perhaps between *chyuluensis* and *ruwenzori* in color.

Beyond doubt, this "crimson-wing" is a most elusive bird, and the proportion of immature specimens among those collected is very high. In juvenal dress the back is only faintly tinged with red, and the red color on rump and innermost secondaries is very dull.

Few specimens are known from the Congo. The British Museum expedition is reported to have taken six on the eastern side of Ruwenzori and one on the western slope. I sought it in vain until I reached Mt. Kandashomwa, west of the Ruzizi Valley. There amid a patch of bamboos that had flowered and died, near 8800 feet, I came upon a party of half a dozen on July 16. They kept low down and made no noise. All the specimens I could secure were plainly immature, and only one had a red back more or less like that of the adult. In the Rothschild Collection there is a single female in what appears to be adult plumage, taken by Grauer at 6200 feet on the highland northwest of Lake Tanganyika.

According to Van Someren, *C. s. ruwenzori* in Kenya Colony feeds in grassy patches amid mountain forest, but when disturbed slips away to the foliaged mid-growth. Its nest is built of grass and tendrils, forming a ball slightly longer than broad, with the opening toward the top and side. This is placed at 6 to 12 feet up in saplings or lianas. On Mt. Elgon Granvik believed that these birds bred both in June and in November.

Cryptospiza reichenovii ocularis Sharpe

Cryptospiza ocularis SHARPE, 1902, Bull. Brit. Ornith. Club, vol. 13, p. 8 (type locality: Ruwenzori). OGILVIE-GRANT, 1908, Ibis, p. 270 (Mfumbiro Volcanoes, 7000 ft.); 1910, Trans. Zool. Soc. London, vol. 19, p. 296 (Mubuku Valley, 6000-7000 ft.; Butahu Valley, 7000 ft.).

Cryptospiza reichenowi REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 174, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 333. SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 278. JACKSON, 1906, Ibis, p. 562. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 276. VAN SOMEREN, 1922, Novitates Zool., vol. 29, p. 156.

Cryptospiza reichenowi ocularis SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 779. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 276 (Mt. Mikeno above Lulenga); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 166. VINCENT, 1933, Bull. Brit. Ornith. Club, vol. 53, pp. 148, 149. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1485.

DISTRIBUTION OF THE SPECIES: Fernando Po and the highlands of the Cameroon, then from Ruwenzori and neighboring mountains of the Kivu to Usambara, Uluguru, Nyasaland, and the eastern edge of Southern Rhodesia. The young have sometimes been confused with *C. salvadorii,* and even the adult female bears considerable resemblance to that species, since she lacks the scarlet area about the eye but is light olive or olive buff there.

The races are not well understood. Birds from Ruwenzori may really not be separable from those of the Cameroon, and I find two males from Uluguru only a trifle lighter, more grayish olive on the breast, than two from Ruwenzori. Two males from Nyasaland seem to me more dusky beneath than all the others. Benson[1] has shown that all Nyasaland specimens belong to *C. reichenovii australis* Shelley. Just where lines can be drawn between the three supposed races, *reichenovii, ocularis,* and *australis,* is not at all clear.

For the present, we may perhaps consider the range of *ocularis* as extending from the eastern Congo to Usambara and Uluguru. It lives mainly from 6000 to 7500 feet in the Congo and comes down even to 700 feet in Usambara. On east Ruwenzori it has been said to frequent old cultivation and millet patches. The only indication that this "crimson-wing" inhabits the highlands west of Lake Edward is a young bird in juvenal plumage which I collected at 7500 feet, about 21 miles south of Lubero, on March 14, 1927. In general coloration it is much duskier than the young of *C. salvadorii ruwenzori.* It was one of a couple seen in a patch of scrub at the edge of a native farm.

In the forests near Amani, Usambara, Moreau found this species abundant, shy, and usually silent. They feed in small parties on seeds of the grass that

[1] 1936, Bull. Brit. Ornith. Club, vol. 56, p. 100.

springs up along roads or stream beds in the forest. When approached they disappear into the thickest ground cover and seldom rise above 6 feet except when visiting their nests. A high-pitched staccato chirp is often given, and birds kept in an aviary sang a good deal. The "tiny" song is audible for only about 10 yards and consists of four long-drawn notes, soft and sweet, descending in major thirds, each followed by the staccato chirp.

Nests in Usambara are placed 15 to 20 feet up, often in tree ferns or forest papaws, both of which have thorny stems. They are flattened spheroids with wide-porched entrances pointing slightly upwards and measure around 4 by 5 inches. The materials include fine grass, dead leaves sometimes on the outside, and feathery grass heads and black fungus fibers as a lining.

The eggs are white, probably three in the set. Nestlings, according to Mrs. Moreau, have four pale yellow protuberances at each side of the gape, outlined in black. The palate is pale yellow, with "three black crescents in a line, and below and between them two short vertical black strokes." The tongue bears two black marks. My young bird from west of Lake Edward had "five black spots on the palate, the two posterior ones small."

Cryptospiza jacksoni Sharpe

Cryptospiza jacksoni SHARPE, 1902, Bull. Brit. Ornith. Club, vol. 13, p. 8 (type locality: Ruwenzori). REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 175; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 333 (west Ruwenzori; northwest of L. Tanganyika). SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 280, pl. 35, fig. 2. JACKSON, 1906, Ibis, p. 563; 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1486. OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 297 (Mubuku Valley, 6000–7000 ft.). VAN SOMEREN, 1922, Novitates Zool., vol. 29, p. 156. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 49 (northwest of L. Tanganyika, 2000 m.; Kisenyi–Rutshuru). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 56 (Mt. Muhavura, 3200 m.; Burunga). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 779. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 275 (Nya-Muzinga; Lulenga; Kibati); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 165 (Kamatembe, 2100 m.; Bitashimwa, 1950 m.); 1940, Bull. Cercle Zool. Congolais, vol. 16, p. 71 (region of Mongbwalu). BERLIOZ, 1935, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 7, p. 164 (Kironda); 1936, idem, ser. 2, vol. 8, p. 492 (Mbwahi). DELACOUR, 1943, Zoologica, New York, vol. 28, p. 76.

Cryptospiza jacksoni pilettei SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 276 (type locality: Mt. Karisimbi).

ADULTS OF BOTH SEXES: Iris dark brown, rim of eyelids dull pinkish; bill black; feet dark gray-brown to blackish brown.

YOUNG: Palate yellowish white with three large dusky spots and only a faint indication of a smaller posterior pair of spots. Gape wattles resembling those of *Estrilda* are shown by two skins of very young birds.

DISTRIBUTION: Mountain forests of Ruwenzori, Ruanda, and the eastern Congo from the region of Kilo south to that just northwest of Baraka. No

geographic variation has been proved. Adult males usually differ from females in having the red of the face and forehead a little deeper and extending back somewhat farther on the crown.

This is certainly the commonest species of *Cryptospiza* in the eastern Congo, living from about 5000 feet up to 10,000 feet. It is not sociable, usually not more than two are seen together, and it is very shy. Feeding in weed patches or grassy openings near the edges of forest or bamboos, it darts at the first alarm into bushes or thickets. The red back is apt to attract attention, and I am sure that I saw one fly across the road near Masikini on the Lendu Plateau. At Kalongi on the west side of Ruwenzori it was not infrequent, and I have collected one specimen at Mohanga, west of Lake Edward. Grauer also secured one in that region.

On the lower slopes of the Kivu Volcanoes the species has been secured a number of times. I did not notice it there above 9000 feet, but on Mt. Muhavura Gyldenstolpe collected one at almost 10,500 feet. Babault obtained the species west of Lake Kivu, Grauer did so in the Rugege Forest, and Rockefeller and Murphy found it on Mt. Kandashomwa and at Luvumba, to the west of the Ruzizi Valley. There they considered it a common bird, hiding in thick lower growth and bracken.

On the highland northwest of Baraka Grauer obtained about a dozen specimens, mostly in June and July. The gray of the juvenal dress is even a little more blackish than in the adult plumage, the red of the back darker and duller. At first there is no red about the head, but a patch of scarlet soon appears on the lores and around the eye, and this color later spreads to supercilium and forehead.

The nest has not been found but may be expected to resemble that of *C. reichenovii*. Breeding very probably goes on during most of the year, for a male with gonads enlarged was taken at Mt. Kandashomwa even in early July. Very young birds were collected in June to the northwest of Lake Tanganyika. I myself examined the crops and stomachs of seven individuals, all of which had eaten small seeds, and these seeds were of several quite different kinds, some evidently of grasses. No trace of insects was found, but one bird had also swallowed eight tiny snails.

Cryptospiza shelleyi Sharpe

Cryptospiza shelleyi SHARPE, 1902, Bull. Brit. Ornith. Club, vol. 13, p. 21 (type locality: Ruwenzori). REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 175. JACKSON, 1906, Ibis, p. 563; 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1488. OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 298. VAN SOMEREN, 1922, Novitates Zool., vol. 29, p. 156. GYLDENSTOLPE, 1923, Bull. Brit. Ornith. Club, vol. 43, p. 98 (Mt. Karisimbi, 3400 m.); 1924, K. Svenska Vetensk. Akad. Handl, ser. 3, vol. 1, no. 3, p. 56, pl. 1, fig. 3 (Mt. Mikeno, 3300 m.); 1926, Arkiv Zool., vol. 19 A, no. 1, p. 114. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 780. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 276 (Burunga; Lulenga); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9,

p. 165. HACHISUKA, 1932, Ois. Rev. Française Ornith., new ser., vol. 2, p. 613; 1933, Nat. Hist. Mag., London, vol. 4, p. 26 (Albert National Park). DELACOUR, 1943, Zoologica, New York, vol. 28, p. 76. V. AND G. VAN SOMEREN, 1949, The birds of Bwamba, p. 100 (upper Humia R.).

ADULT MALE: Iris very dark brown, rim of eyelids dull light pink; bill deep scarlet, becoming pink around very base; feet and claws very dark brown.

ADULT FEMALE: Bill reddish, shading to horn brown on culmen and base of maxilla and on the middle of the base of mandible.

DISTRIBUTION: Forested mountains from Ruwenzori south to the Kivu Volcanoes and the Rugege Forest in southwestern Ruanda. This very distinctive species of *Cryptospiza* has the beak more rounded in outline than the others and appears to be the rarest of all.

Archer's specimen from east Ruwenzori shows by its greenish head that it is a female, for males have the crown, cheeks, and hind-neck red like the back. The Van Somerens collected a male in the upper Humia Valley, on the opposite side of the range. In the Rugege Forest Grauer collected two males in December, 1907, and he obtained another to the northwest of Lake Kivu. From the Kivu Volcanoes at least five specimens are known, one of which I shot at 10,500 feet on the southwest slope of Mt. Mikeno. The altitudinal range is from 6200 to 11,150 feet.

Gyldenstolpe found this weaver-finch scarce and difficult to obtain. It always kept to dense undergrowth and when flushed would fly a short distance with great speed and suddenly dive down amid the herbage, to disappear for good. At one place, high on Mt. Karisimbi, he saw it hopping about on the ground in search of seeds and by long waiting was able to shoot it.

On Mikeno I had the good fortune to see one fly across a path into a tangle of bushes where I could still catch a view of it. The stomach of my specimen contained pieces of small seeds and insect shell. The Van Somerens found the crop of theirs packed with minute seeds of balsams (*Impatiens*) and noted the call as a series of twittering notes, rising and falling.

KEY TO THE SPECIES OF *Pirenestes* IN OR NEAR THE CONGO

1. Body color largely black; whole head, chest, flanks, and upper tail-coverts glossy red . . . . . *P. ostrinus*
   Body color brown, red coloration on head less extensive 2
2. Red of face ending rather abruptly on hind crown and the posterior border of ear-coverts, but extending in a clearly marked patch over the chest, not to the flanks. . . . . *P. minor*
   Red of the face changing rather gradually to brown on top of head and on throat or chest (females) 3
3. Red of face covers most of crown, whole of ear-coverts, and often extends as feather tips to the upper chest . . . . . *P. ostrinus*
   Red of face mostly restricted to forehead, cheeks, and upper throat . *P. minor*

Pirenestes ostrinus rothschildi Neumann

Pyrenestes ostrinus rothschildi NEUMANN, 1910, Jour. Ornith., p. 528 (type locality: Warri, Niger Delta). CHAPIN, 1924, Bull. Amer. Mus. Nat. Hist., vol. 49, pp. 423, 426, 427, 430, 433, 440 (Isangi; Boyulu; Ngayu; Avakubi; Gamangui; Medje; Bosobangi; Luluabourg; Bondo; Stanleyville). FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 765 (Budja-Lie). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 76 (Brazzaville; upper Kemo R.).

Pyrenestes coccineus SHARPE AND BOUVIER, 1878, Bull. Soc. Zool. France, vol. 3, p. 76 (Condé). REICHENOW, 1887, Jour. Ornith., p. 301 (Manyanga). SHELLEY, 1890, Ibis, p. 166 (Yambuya). OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127. SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 453.

Pyrenestes personatus REICHENOW, 1887, Jour. Ornith., p. 305 (Leopoldville).

Pyrenestes ostrinus REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 106 (in part). SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 284 (in part). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Kisantu; Banalia). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 283 (Mawambi). SCHOUTEDEN, 1924, Rev. Zool. Bot. Africaines, vol. 12, p. 424 (Ikengo); 1926, idem, vol. 13, p. 205 (Makaia-Ntete). BERLIOZ, 1925, Bull. Mus. Hist. Nat., Paris, vol. 31, p. 347.

Pyrenestes ostrinus gabunensis NEUMANN, 1910, Jour. Ornith., p. 528 (type locality: Lambarené, Ogowé R., Gaboon; also from Manyanga; Buta). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 276. BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 311. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 403 (Kwamouth); 1924, idem, vol. 12, p. 276. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 48 (Beni–Mawambi).

Pyrenesthes ostrinus gabunensis SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 350 (Luebo; Ngombe in Kasai).

Pyrenestes ostrinus rotschildi SCHOUTEDEN, 1925, Rev. Zool. Bot. Africaines, vol. 13, p. 20 (Mongende).

Pyrenestes ostrinus schoutedeni R. NEUNZIG, 1928, Zool. Anz., vol. 78, p. 112 (type locality: Luluabourg, Kasai District).

Pyrenestes ostrinus camerunensis R. NEUNZIG, 1928, Zool. Anz., vol. 78, p. 112 (type locality: Yaunde, Cameroon; also from Angu; Bondo).

Pirenestes ostrinus rothschildi SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 781. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 145 (Kotili). BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 287, fig. 32.

Pirenestes rothschildi MACKWORTH-PRAED AND GRANT, 1947, Ibis, pp. 269–272

SPECIMENS: Isangi, two males, December 10. Boyulu, juvenile male, September 22. Avakubi, six males, January 28, August 5, October 1, 8, November 4, December 2; two females, October 23, 26; juvenile male, November 7. Ngayu, juvenile female, December 18. Gamangui, male, February 18. Medje, male, May 23.

ADULT MALE: Iris dark brownish red to brown, bare rim of eyelid broadened above and below eye and pale blue; bill dark blue, shading to black at tip; feet greenish brown or yellowish brown.

ADULT FEMALE: Iris dark brownish red, eyelid only slightly widened above and below, pale bluish; bill bluish black; feet greenish brown.

NESTLING: Iris dark grayish brown, naked rim of eyelids light yellow.

The skin of gape bears three fleshy balls, light yellow, at each side. Between the first and second, as well as at the base of the third, the skin is blackish, and between the second and third there is a small additional pale yellow papilla. Interior of mouth yellow, with five black spots on the palate, of which the posterior pair is very small. A dusky ring almost encircles the tongue; beneath it there is a black crescent.

DISTRIBUTION OF THE SPECIES: Gold Coast eastward to the southern edge of the Bahr-el-Ghazal Province and Uganda, south to northwestern Angola, the southern Kasai, and the Lower Katanga. *Pirenestes sanguineus* Swainson replaces *P. ostrinus* in Upper Guinea, from Liberia to the Gambia, and differs mainly in that males never become black-bodied. The difference may perhaps not be specific; it would be well to compare male specimens from the region where the two groups meet.

Within the *ostrinus* group, as also in *P. sanguineus,* the variation in size is most impressive, especially that of the beak. Length of beak and of wing usually vary together, but the width of the mandible at its base is the most convenient index of size. In the more central parts of the Lower Guinea forest minimum dimensions are the rule; the mandible is usually 10.2–14.5 mm. wide, the wing 58–68 mm. Those are the characters of *P. o. rothschildi,* and I now doubt the validity of *gabunensis* in the Ogowé basin.

Around the outer margins of the range of *P. ostrinus,* from Togoland, Northern Nigeria, the Ubangi-Shari, and the southern Bahr-el-Ghazal, in parts of Uganda, and at various places, it seems, in the southern Congo, specimens with massive beaks are of regular occurrence. These I call *P. o. maximus;* their mandibles measure 17.5–21.1 mm. in width, and their wings are 65–74 mm. long. Sexual differences in size are slight.

Birds of intermediate size, such as the type of *P. o. ostrinus,* which had the mandible 15 mm. wide and wing 64 mm., are found in many places, to the north and south of the Equator, most frequently near the margins of the heavily forested area. In this respect there is sufficient irregularity of distribution to make it difficult or impossible to fix any exact limits for the ranges of the subspecies. It is a well-known fact that birds of dimensions corresponding to *ostrinus* and to *rothschildi* have been found together in a considerable area of forested southern Cameroon, in the western Gaboon, and in the Kasai District near Luluabourg. Still farther south, at Kasaji, the mandibular width varies from 12 to 19 mm. Even more perplexing is the occurrence at Stanley Pool and on the bank of the Lualaba at Stanley Falls of examples of the large *P. o. maximus,* whereas the majority of birds in the surrounding areas are markedly smaller. Lastly, on the Sesse Islands in Lake Victoria there may be a rather large race with comparatively small bill, *P. o. centralis* Neumann.

species. The gap is completely bridged by intermediates in one or another

It will not suffice to treat the smallest and the largest birds as distinct

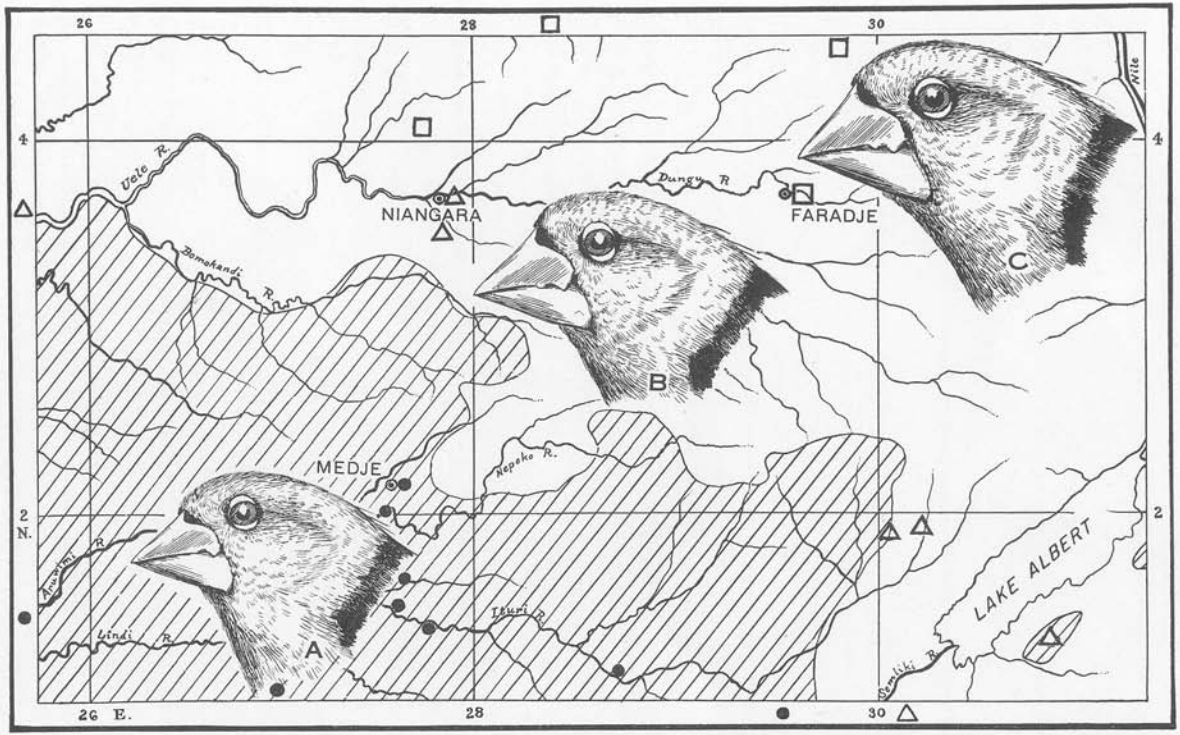

FIG. 36. Map of distribution of *Pirenestes ostrinus* in the northeast corner of the Congo Basin. The shaded area is rain forest, the remainder mostly savanna with gallery forests. Black dots indicate occurrences of *P. o. rothschildi* (A), triangles those of *P. o. ostrinus* (B), and squares those of *P. o. maximus* (C). A few records from just beyond the map limits are indicated in the margins.

part of the range. The present confusing conditions are best explained, I believe, by changes in the vegetation due to the recent activity of man. The small *rothschildi* is largely confined to forested areas with an annual rainfall of 60 inches or more. It intergrades still in the northeastern Congo with the large *maximus,* which tends to occupy the swampy borders of gallery forests in areas of 45 to 50 inches of rainfall with a pronounced dry season. The intermediates occupy the outer margin of the solid forest.

Extensive blocks of forest, detached from the main body of the Lower Guinea forest, especially on its southern side, may well have retained populations of small size. But extensive clearing of forest land for agriculture, with the invasion of grasses and development of bushy second growth, seems to have permitted the intermediates, of *ostrinus* dimensions, to enter regions formerly populated exclusively by *rothschildi.* That birds of differing sizes may mate with each other cannot be doubted. At Nkumajap, Cameroon, in August, 1937, A. I. Good collected a male with mandible 16.5 mm. wide, and wing 67 mm., apparently mated with a female whose mandible was only 12 mm. wide and wing 63 mm. long. At Kasaji in the Lulua District the Reverend W. S. Fisher found a male with mandible 16.5 mm. wide accompanied by a female with that width 19 mm. Yet there must be some reluctance toward mating with a bird of markedly different size, otherwise each population would quickly approach a mean.

It is not possible to raise *rothschildi* to specific rank, nor is it wise to discard the subspecific names and ignore the curious geographic variation in size. We must identify specimens on the basis of individual size, admitting that the boundaries of the races are anything but sharp. It will be useful to collect other mated pairs, compare their measurements, and study the nature of vegetational cover in each spot where a *Pirenestes* is taken.

The approximate range of the small *P. o. rothschildi* includes forested areas from the Gold Coast and Southern Nigeria eastward to the forests of the Ituri and Manyema. A single female has been reported even from Mbale in Uganda. This race scarcely goes beyond the eastern edge of the Congo forest. At the new post of Beni I obtained a female with mandible 12.5 mm. wide; at Kita-Kita in the Manyema Rockefeller and Murphy collected a younger female with mandible of 11.5 mm. The species rarely ascends to more than 5000 feet in the eastern Congo.

Despite the wooded nature of its habitat, *P. o. rothschildi* is not a dweller in primary forest but prefers old clearings with grass and scrub. Wherever rice is grown it is apt to visit the fields, but it usually contents itself with patches of weeds and bushes and seems fond also of the neighborhood of streams. Shy, and not very sociable, the birds feed near the ground, and when disturbed they dart with swift, direct flight into the nearest cover.

Seldom do they utter a note. One evening at Isangi I found a considerable number going to roost in some high grass in a rubber plantation.

Just north of the Equator, from Avakubi to Medje, breeding seemed to go on during the rains, at least from July to November. I once saw a male carrying a seed-bearing grass top for its nest. At Beni a female was about ready to lay on October 9; in Bwamba a male with gonads enlarged was reported in July. South of the Equator, at Lukolela, another female in similar condition was taken on December 18, but males in September and early November were not yet ready for breeding. A nest found by Bates in the Cameroon in November was in the forks of a bush; estrildine in type, it was built of dry leaves and held two young.

Crops and stomachs of 10 individuals have been examined. Seeds were present in every case, sometimes soft white ones like those often seen in stomachs of *Spermophaga,* occasionally grass seeds, and once grains of rice, still green. I was anxious to know if the hard-shelled seeds of *Scleria,* a sedge, were cracked and eaten, but only once, at Beni, could I be sure that was the case. One bird had also swallowed small bits of green leaves, and three had eaten small spiders, from one to three apiece.

Pirenestes ostrinus ostrinus (Vieillot)

Loxia ostrina VIEILLOT, 1805, Histoire naturelle des plus beaux oiseaux chanteurs, p. 79, pl. 48 ("Africa and India"; restricted type locality: southern Gaboon coast).

Pyrenestes ostrinus SHELLEY, 1888, Proc. Zool. Soc. London, p. 30 (Tingasi); 1905, The birds of Africa, vol. 4, pt. 1, p. 284 (in part). SCHWEINFURTH AND RATZEL, 1888, Emin-Pascha, eine Sammlung von Reisebriefen, p. 403 (Mangbetu country). EMIN, 1894, Jour. Ornith., p. 170 (Irumu). REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 106 (in part. Duki R.; Irumu; Tingasi); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 327. SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 453 (Uelle District). BOWEN, 1933, Ecology, vol. 14, pp. 250, 252, fig. 3 C.

Pyrenestes coccineus SHARPE, 1890, Catalogue of the birds in the British Museum, vol. 13, p. 253 (in part).

Pyrenestes ostrinus centralis NEUMANN, 1910, Jour. Ornith., p. 529 (in part. Ndussuma; Ituri forest). BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 312 (in part).

Pyrenestes SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, pp. 258, 259.

Pyrenestes (*ostrinus* ?) SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 277 (Bellima).

Pyrenestes ostrinus ostrinus CHAPIN, 1924, Bull. Amer. Mus. Nat. Hist., vol. 49, p. 439 (Niangara; Stanleyville?; Pompari; Angu).

Pyrenestes ostrinus ugandae R. NEUNZIG, 1928, Zool. Anz., vol. 78, p. 113 (type locality: Mabira Forest, Uganda; also from Ndussuma).

Pirenestes ostrinus ostrinus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 781. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1489. MACKWORTH-PRAED AND GRANT, 1947, Ibis, pp. 269, 270, 272 (Bwamba District). BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 284, pl. 9. VERHEYEN, 1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 643 (Masombwe, 1200 m., in Upemba Park).

Pirenestes ostrinus GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 77 (Luluabourg). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 105. V. AND G. VAN SOMEREN, 1949, The birds of Bwamba, p. 100 (Bundibugyo).

SPECIMENS: Stanleyville, female, November 8. Niangara, two females, April 30, June 15; two juvenile females, November 28.

ADULT FEMALE: Iris dark red-brown, thickened portion of eyelids pale blue; bill dark blue; feet brownish green.

NESTLING: Iris dark brownish, edges of eyelids thickened and yellowish; bill brownish black with three yellow balls at each corner of mouth; feet dusky brownish.

DISTRIBUTION: From the interior of the Gold Coast eastward along the northern margin of the Cameroon and Congo forests to the Lendu Plateau, the Semliki Valley, and some of the forests of Uganda. The range in the southern Cameroon overlaps somewhat that of *rothschildi,* and specimens of *P. o. ostrinus* have also been taken in Spanish Guinea, in the Fernan Vaz district of the Gaboon, northern Angola, the Kasai, and the Lulua District. We may expect this race to extend toward the Manyema grasslands and thus to encircle the range of *rothschildi* except in the Kivu region where the species scarcely known, doubtless because of higher altitude. I have seen a male, apparently of *ostrinus* size, at Tshibati, 6400 feet, just southwest of Lake Kivu.

Birds referable to this nominate race have mandibles 14.5–17.6 mm. wide, wings 62–73 mm. long. There is no appreciable difference in size between the sexes. Many of the specimens on which the published references were based have been examined by me, but variation is considerable and we must not be dogmatic. A male from the Bwamba Forest is said to have the mandible 15 mm. wide; a female, 17 mm. Another bird collected by Hackars in the Semliki Valley has that measurement 16.5 mm. On the eastern side of the Ituri forest *ostrinus* must extend almost to Lake Edward.

The distribution of the races in the southern Congo is very confusing. Near Luluabourg Father Callewaert collected both *rothschildi* and *ostrinus,* about one-third belonging to the latter race. He also took one female with the mandible 20 mm. wide, referable to *maximus.* At Mérode Father Windmolders has secured a few examples which seem large enough for *maximus,* and others with beaks small enough for *rothschildi.* Father Van Assche at Katombe found three birds with mandibles 18 mm. wide, but a much larger number with that width only 11.5–13 mm. The small birds all came from swampy woods; the larger ones, from a small patch of rather low trees isolated in the grasslands.

At Kasaji in the Lulua District the mandibular width varies from 12 to 19 mm. Rev. W. S. Fisher reports that there the birds are always found in gallery forests, and it is not yet clear that there is any distinct segregation by size. In the Upemba Park the variation is almost as great. These southern

localities would be especially favorable for an ecological study of this remarkable weaver-finch.

In the forested Cameroon, where Bates[1] knew both small and medium-sized forms, the birds may have had a choice between the ordinary bushy clearings and the swampy places overgrown with sedges, on the hard seeds of which they sometimes feed. In the Kasai it seems likely that the smaller birds may be found to favor the more heavily wooded situations.

This seems never to be a bird of fields of grass or open savannas, but always skulking near thickets, often eluding observation. At Niangara in the Uelle breeding was in progress in the latter part of the rains, for nestlings were brought to us late in November, while adults in April and June were non-breeding.

A nest belonging to a female of *ostrinus* size in southern Cameroon, according to Bates, was found in a swamp. It was a large globular mass of dry broad leaf strips from a rattan palm, laid or woven together loosely, with an opening at one side, and lined with a few grass tops. The three eggs were plain white, measuring 19–20 by 14 mm.

In Uganda Seth-Smith and Pitman have found nests in April and September, large as coucals' nests, built of coarse grass, but with a lining of finer grass. They were supported on boughs or placed in the top of a screw pine (*Pandanus*). The three eggs were white, measuring about 18 by 14 mm., and males were sometimes found incubating.

Pirenestes ostrinus maximus Chapin

Pyrenestes ostrinus maximus CHAPIN, 1923, Amer. Mus. Novitates, no. 56, p. 8 (type locality: Faradje, Upper Uelle District; also from Stanleyville); 1924, Bull. Amer. Mus. Nat. Hist., vol. 49, pp. 428, 432, 439 (Stanleyville; Stanley Pool). BANNERMAN AND BATES, 1924, Ibis, p. 275.

Pyrenestes ostrinus REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 106 (in part. Stanley Pool). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 276, pl. 6, fig. 3.

Pyrenestes ostrinus gabunensis NEUMANN, 1910, Jour. Ornith., p. 528 (in part).

Pyrenestes sp. SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, pp. 258, 259 (in part. Tomaya).

Pirenestes ostrinus maximus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 781. BATES, 1930, Handbook of the birds of West Africa, p. 514. BOWEN, 1932, Ibis, p. 604 (Rangu in southern Bahr-el-Ghazal Province). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 145 (Titule; Mauda). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 574 (Ekibondo). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1490. WOODMAN, 1938, Sudan Notes, vol. 21, p. 324. BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 286, fig. 32.

Pyrenestes ostrinus maximus ? BLANCOU, 1933, Ois. Rev. Française Ornith., new ser., vol. 3, p. 333 (Madonguéré in southern Ubangi-Shari).

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[1] 1908, Ibis, p. 347; 1911, idem, p. 588.

Pirenestes maximus MACKWORTH-PRAED AND GRANT, 1947, Ibis, pp. 269–272. VERHEYEN, 1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 643 (Munoi; Masombwe).

SPECIMENS: Stanleyville, male, August 24. Faradje, four males, April 14, October 11, November 3, 16; three females, March 11, April 14, November 5; juvenile male, juvenile female, November 16.

ADULTS OF BOTH SEXES: Iris dark red to reddish brown, widened parts of lids above and below eye pale blue, narrower parts in front and behind blackish; bill dark bluish, often black at tip; feet yellowish brown or greenish brown.

NESTLING: Iris dark brown, eyelids dull greenish yellow; bill externally brownish black, with a little gray beneath mandible and some yellow along tomia near gape. Gape wattles and interior of mouth exactly as in young of *P. o. rothschildi,* though the whole beak and its appendages are so much larger. Feet grayish brown.

DISTRIBUTION: Across the northern Guinean savannas from Togoland and Northern Nigeria to the Ubangi-Shari, northeastern Uelle, and southern Bahr-el-Ghazal to Lugalambo in Uganda. Also in the southern Guinean savannas, perhaps in northern Angola, certainly in the southern Kasai, Sankuru, and Lulua districts; likewise in the region near Lake Upemba. In the Upemba National Park, Dr. Verheyen kindly informs me he secured specimens with mandibles 14, 16.5, and 18 mm. wide. Moreover, *maximus* seems to extend northward to Stanley Pool, where Teusz collected one very large male, and to Stanleyville in the forest belt, where in 1909 I myself collected a male with mandible 18.7 mm. wide and wing 71 mm. In 1914 I found a female at the same place with mandible 17.1 mm. wide and wing 64 mm., more like *ostrinus* in size.

As a rule, *P. o. maximus* has the mandible 17.5–20 mm. wide, wing 65–74 mm. It is characteristic of savanna countries with relatively small gallery forests near the streams. About Faradje we found it not at all common and living mostly in swamps or about the edges of swampy woods, where the hard-seeded sedges of the genus *Scleria,* often known as razor grasses, are most apt to grow. Pairs or family parties are the rule, never true flocks.

The breeding season seemed limited to the end of the rains, October and November. During the latter month I saw a pair of adults accompanied by four young just out of the nest. The male parent uttered short but pleasant warbling notes, the others chattered, and one young bird was heard to give a low metallic "peenk."

The male obtained at Stanleyville was shot in low scrubby second growth not far from the river bank. The female taken there several years later was a little smaller, more like *ostrinus* in dimensions. Elsewhere in the vicinity of Stanleyville only the small *rothschildi* has been found. It is my firm belief that the large-billed birds have followed the banks of the Lualaba northward

from the savannas near the Lower Katanga, thus reaching the Equator. Since 1914 the clearings about Stanleyville have been expanded enormously, and this should be a most propitious spot for a study of the relations between the large and small forms of *Pirenestes*.

The crops and stomachs of five of these large-billed *Pirenestes* were found to contain nothing but seeds and often rather soft white ones. But I suspect that hard seeds are often cracked open with the massive beak and the shells discarded. The irregular notching of the edges of the maxilla certainly indicates that the beak performs some rough service. It would surprise me if the hard-shelled seeds of *Scleria* sedges were not one common source of food.

[*Pirenestes minor frommi* Kothe]

Pyrenestes ostrinus frommi KOTHE, 1911, Ornith. Monatsber., p. 70 (type locality: Kitungulu, Urungu, Tanganyika Territory).

Pyrenestes minor frommi CHAPIN, 1924, Bull. Amer. Mus. Nat. Hist., vol. 49, pp. 429, 441.

Pirenestes frommi MACKWORTH-PRAED AND GRANT, 1947, Ibis, p. 268.

In eastern Africa *Pirenestes minor* Shelley ranges from the vicinity of Beira northward to the Uluguru Mountains and Pugu in eastern Tanganyika Territory. Males remain brown and red throughout life; the red on the head is more restricted than in *P. ostrinus*. Many adults of *minor* have the mandible only 9.5 to 11 mm. wide; but others have been taken with mandibles 13–15 mm. wide, in the region of Nyasaland and even in Uluguru.

I see no reason for not admitting considerable variation in size, even among birds that may mate with each other. Near Furancungo in the interior of Portuguese East Africa Jack Vincent[1] collected a female with beak 13 mm. wide, which he believed to be the mate of a male measuring only 10 mm. across the base of the mandible.

Near the southeast shore of Lake Tanganyika Fromm collected a single *Pirenestes* in juvenal plumage, with mandible 16 mm. wide and wing 69 mm. long. On geographic grounds this bird would seem to represent the species *minor*, but we must admit that the range of *P. m. frommi*, if it is valid, is not yet understood. The possibility remains that some form of *P. minor* may reach the southeastern Katanga. Benson[2] has reported that his hunter saw a *Pirenestes* at the edge of a forest on the Muchinga Mountains, in the region of Muzyatama.

KEY TO THE SPECIES OF *Ortygospiza*

Wing more than 48 mm. long, no red on face or wing-coverts . . . *O. atricollis*
Wing less than 48 mm. long, red on wing-coverts; male with red cheeks, throat, and fore-neck . . . . . *O. locustella*

[1] 1936, Ibis, p. 98.

[2] 1949, Bull. Brit. Ornith. Club, vol. 69, p. 59.

Ortygospiza atricollis ugandae Van Someren

Ortygospiza atricollis ugandae VAN SOMEREN, 1921, Bull. Brit. Ornith. Club, vol. 41, p. 121 (type locality: Mumias, North Kavirondo District).

ADULT MALE: Iris bright ocher; bill very dark crimson, washed with blackish on maxilla; feet dull light buff, claws grayer.

ADULT FEMALE: Iris light ochreous brown; bill dull dark crimson, maxilla shading to blackish brown on culmen; feet pale buff, claws gray.

DISTRIBUTION OF THE SPECIES: Senegal to Eritrea, south through eastern Africa to Cape Province, westward also to Damaraland, Angola, and Gaboon, but not found in heavy forests of Lower Guinea. It does invade open grassy areas on the southern margin of the Congo forest but seems wanting near the northern edge.

About 10 races may be recognizable. Nominate *atricollis* ranges across the Sudan from Senegal to the Nile Valley. The male often has a narrow white chin patch but no white around the eye. From Portuguese Guinea to Sierra Leone lives the more deeply colored *ansorgei.* Other races with no white on the chin and the chest narrowly barred live on the borders of the Lower Guinea forest from the Gaboon to Stanley Pool, the Kasai, the Katanga, the Kivu, and southwest Uganda. These have been named *gabonensis, fuscata,* and *dorsostriata.*

The race *fuscocrissa* of Eritrea and Abyssinia has a conspicuous white chin patch and white markings around the eye, as have *mülleri* of East Africa, *polyzona* of South Africa, and two or three other races in southern Africa. Of intermediate pattern is *ugandae,* with small white chin patch, narrow white lines about the eye, and chest very narrowly barred. It was described from North Kavirondo and ranges presumably across Uganda, for very similar birds are found about Kasenyi on the west shore of Lake Albert. There, in September, 1926, I collected five specimens.

These quail-finches feed on the ground amid the grass in pairs or in parties numbering seven or eight. They are invisible until flushed, when they rise steeply into the air with fast-beating wings, usually making a churring or repeated rasping sound. Reaching a height of 25 or 30 yards they make off to some considerable distance, or occasionally they circle around and drop down to a new spot perhaps 80 yards away. They prefer places where the grass is moderately high and grows in tufts that hide the intervening bare earth. Never will they perch on a tree, a bush, or even a tall grass stalk.

The crops are large and usually well filled with tiny grass seeds. Breast muscles are exceptionally well developed, and the sternum is so long as to leave but little of the abdomen showing. The legs of *O. atricollis,* however, are no better developed than in the ordinary waxbills and are not nearly so muscular as in *O. locustella.*

One female of *O. a. ugandae* almost ready to lay was taken at Kasenyi in early September, while two other specimens were plainly immature, one still in juvenal dress. In Northern Nigeria the nearly allied *atricollis* is reported to breed from late September to the end of December. Nests are like those of waxbills but lined with feathers and placed on the ground at the foot of a grass tuft or bush. Sets consist of three to five white eggs, measuring 13.3–16 by 10.5–11.2 mm. Both sexes are known to incubate.

[*Ortygospiza atricollis atricollis* (Vieillot)]

Fringilla atricollis VIEILLOT, 1817, Nouveau dictionnaire d'histoire naturelle, vol. 12, p. 182 (type locality: Senegal).

Ortygospiza atricollis atricollis SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 455 (Kajo-Kaji).

Ortygospiza atricollis SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 263 (Makraka).

Ortygospiza alticollis alticollis BOWEN, 1931, Catalogue of Sudan birds, pt. 2, p. 99.

The quail-finch of the Sudan has not yet been found in the Uelle District, but it does occur not far north of the Congo border. Specimens from the Lado district, according to Sclater and Mackworth-Praed, are apt to have some white on the chin and may show some approach to the birds I call *ugandae,* found on the west shore of Lake Albert.

Ortygospiza atricollis dorsostriata Van Someren

Ortygospiza atricollis dorsostriata VAN SOMEREN, 1921, Bull. Brit. Ornith. Club, vol. 41, p. 115 (type locality: South Ankole, western Uganda). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 50 (Kasindi). SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 166 (Kabare). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1493.

Ortygospiza gabonensis VAN SOMEREN, 1916, Ibis, p. 424 (Butiti in Toro).

ADULT MALE: Iris ochreous yellow to orange-ocher, bill rather dull scarlet, feet pale buff.

ADULT FEMALE: Iris brownish ocher; bill dusky brown, becoming pink or brownish red on basal part of mandible; feet light grayish buff.

DISTRIBUTION: From the northwest shore of Lake Victoria to Toro, the vicinity of Lake Edward, and then north to Bogoro on the Lendu Plateau. This race usually lacks any distinct chin spot or any white around the eye and is really very similar to *O. a. gabonensis.* The backs of both are diffusely streaked with black. Two males in the Rothschild Collection from Entebbe in Uganda seem somewhat intermediate between *dorsostriata* and *ugandae.* It is reasonable to expect deeply colored birds like *dorsostriata, fuscata,* and *gabonensis* all around the southeast side of the Congo forest, and the proper division into races is still to be decided on.

It was a surprise to find that near Bogoro, at 4500 feet on the top of

the escarpment, the quail-finches were distinctly different from those living down at Kasenyi, that they lacked white about the face and had the back more streaked with black. Their behavior was exactly the same, and five specimens were secured on September 11 about a spot where the grass had recently been burned. One male had gonads enlarged, and one female had an egg in the oviduct, so nesting must have commenced. A few more were seen near Dele, but none at Irumu, where the grass no doubt is too high.

The next areas in which I noticed *dorsostriata* were in the Lubilia Valley, near Kasindi, and on the plain just west of Katwe. Four more specimens were taken there in January, and at that time none had sexual organs enlarged. At Kabare on the south shore of Lake Edward and in the lower Rutshuru Plain *dorsostriata* was again collected in mid-May, when it seemed not to be breeding.

This is a bird of level grassy plains, which I never saw above 5000 feet. It usually keeps well hidden between grass tussocks, going in small parties except when actually nesting. Then they break up into pairs. Not infrequently they will settle where there is a little water, so that the grass is higher and greener. Once I was able to watch a male on the ground near a small pool. Its mode of progression was more like walking than like hopping, though sometimes almost intermediate.

The crops of nine individuals were found to contain only tiny grass seeds.

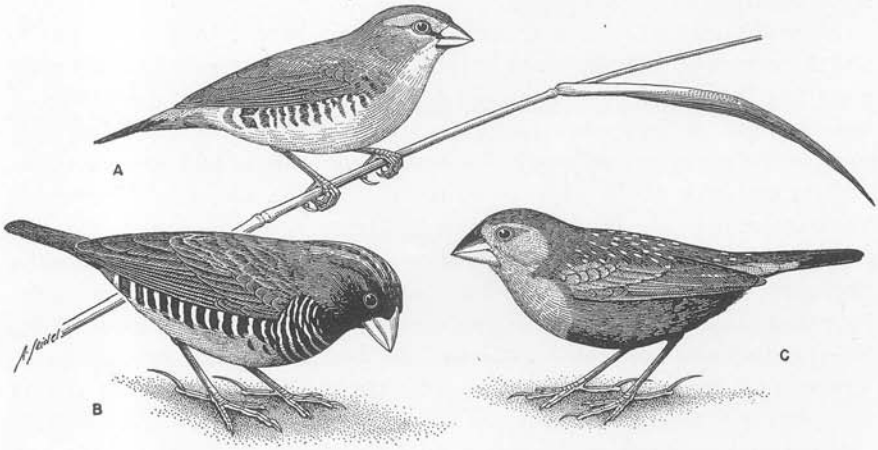

FIG. 37. Grass-dwelling weaver-finches. A. *Amandava s. subflava*, male. B. *Ortygospiza atricollis fuscata*, male. C. *Ortygospiza l. locustella*, male.

Ortygospiza atricollis fuscata Sclater

Ortygospiza atricollis fuscata W. L. SCLATER, 1932, Bull. Brit. Ornith. Club, vol. 52, p. 142 (type locality: Kawambwa, Northern Rhodesia). LYNES, 1938, Rev.

Zool. Bot. Africaines, vol. 31, p. 105 (Kayoyo; Dilolo; Banda). SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 162. WHITE AND WINTERBOTTOM, 1949, A check list of the birds of Northern Rhodesia, p. 128 (Ndola).

Ortygospiza gabonenais SCHOUTEDEN, 1930, Bull. Cercle Zool. Congolais, vol. 7, p. 46 (vicinity of Bolobo; Kasai District).

DISTRIBUTION: From the plains about Lake Moero to Upper Katanga, Dilolo, Banda in the Kasai District, and Lukolela on the middle Congo; perhaps even to Stanley Pool. This was described as the darkest race of the species, and it does seem duskier, less brownish, on crown and back than *gabonensis*. The difference from *dorsostriata* is slight.

At Luluabourg Father Callewaert collected 20 specimens, and a small series which I myself obtained at Lukolela in 1930–1931 is similar to the birds of Luluabourg. It would seem that *fuscata* extends to the region of Bihé in Angola, where Ansorge secured two females at Caiala and Cambo Caquenje. But from Balovale on the upper Zambesi White [1] described *O. a. minuscula,* much more like the southern *polyzona* and with conspicuous white chin patch.

This quail-finch is evidently rather numerous in the Kasai and Katanga, in places where open plains have moderately short grass. I shall be surprised if it does not turn up in the southern Manyema. Near Lukolela I found it even in grassy fields and marshes encircled by woods. At one place close to Mompoto a dozen were noted in a rather narrow grassy marsh in March, when the river level was low.

They always feed on the ground, completely hidden by tufts of grass, and there at close range they can be heard giving short rasping or chippering notes like those uttered as they fly up. In March there was no evidence of breeding, but on September 19 I collected two young birds which had just completed the postjuvenal molt. They still showed three little greenish blue balls at each side of the gape, two black dots on the tongue, and a narrow black crescent on the floor of the mouth. The most notable feature was the presence of six black spots on the yellowish palate. The usual median anterior spot of the common "domino" pattern was divided into two. This increased number of spots in young quail-finches was first pointed out by St. Quintin [2] and confirmed by Serle.[3] At Luluabourg Father Callewaert secured only one juvenile example, on September 22, so nesting appears to take place at the end of the rains or in the dry season.

Crops and stomachs of five examples all contained tiny grass seeds, but the two young birds had each eaten in addition a couple of tiny blackish spiders.

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[1] 1946, Ibis, p. 218.

[2] 1910, Avicultural Mag., ser. 3, vol. 1, pp. 103, 104.

[3] 1938, Oologists' Rec., vol. 18, pp. 61, 62.

Ortygospiza atricollis gabonensis Lynes

Ortygospiza gabonensis LYNES, 1914, Bull. Brit. Ornith. Club, vol. 33, p. 131 (type locality: Gaboon).

DISTRIBUTION: From Benito in Spanish Guinea and the coastal region of the Gaboon southward no doubt to the Lower Congo and possibly northwestern Angola. I have found the species not rare in open grasslands close to Kinshasa, but no specimens are yet available from that vicinity. The race *gabonensis* is even more likely to be found near the coast at the mouth of the Congo.

Little if anything has been reported of the behavior or the haunts of this race, but we may be sure they are closely similar to those of *fuscata* and *dorsomaculata.*

Ortygospiza locustella locustella (Neave)

Paludipasser locustella NEAVE, 1909, Bull. Brit. Ornith. Club, vol. 25, p. 25 (type locality: Upper Luansenshi R., 4000 ft., northeast of L. Bangweolo); 1910, Ibis, p. 251, pl. 3. SCLATER, 1932, Bull. Brit. Ornith. Club, vol. 52, p. 141 (5 miles south of Abercorn; northeast corner of L. Bangweolo). YAMASHINA, 1936, Tori, vol. 9, p. 216, fig. 8. SCHOUTEDEN, 1938, Bull. Cercle Zool. Congolais, vol. 15, p. 61 (Katanga); 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 162 (Kakyelo).

Ortygospiza locustella locustella LYNES AND SCLATER, 1934, Ibis, p. 49. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 106 (Missão de Luz in Angola). WHITE AND WINTERBOTTOM, 1949, A check list of the birds of Northern Rhodesia, p. 129 (Itawa near Ndola).

DISTRIBUTION OF THE SPECIES: Upper Uelle District in the northeastern Congo to the Middle Congo near Bolobo, the Katanga, southwest Tanganyika Territory, Nyasaland, and Southern Rhodesia. Nominate *locustella* has the back in both sexes conspicuously speckled with white. It ranges from Southern Rhodesia northward to the region of Lake Bangweolo, the Loömbwa River in the southeastern Katanga, and Missão de Luz in Angola. The race *uelensis* lacks spotting, except for minute traces often visible on the back of females. It was first found in the savannas north of the equatorial forest, from Niangara to the southeast border of the Bahr-el-Ghazal, but has since been found at Kotili and at Kunungu on the southern margin of the forest. One race or the other must be expected in the Kasai. I have examined a few specimens from Southern Rhodesia and found no proof of the validity of *irisae.*[1]

Several observers have emphasized the similarity in behavior between the locust-finch and the quail-finch; in recent years these have usually been treated as members of a single genus, *Ortygospiza,* a course here fol-

[1] Roberts, 1932, Ann. Transvaal Mus., vol. 15, p. 33 (25 miles south of Marandellas, Southern Rhodesia).

lowed with some reluctance. The beak of *locustella* is much deeper, with culmen more strongly ridged, and it actually shows a certain resemblance to that of *Anomalospiza.* The wings of *locustella* seem to me much smaller, proportionately, and its powers of flight not nearly so great. The legs, on the other hand, are exceptionally stout and muscular in *locustella,* more so than in any other estrildine finch I have dissected. The form of the gape wattles and the palatal spotting of the young are still unknown, so I suspect we have more to learn of the relationships of *locustella.*

Neave's types of *locustella* were two young birds in juvenal dress, the plumage of their upperparts heavily margined with brown, lower underparts blackish barred with white. They were captured in an open marsh covered with fine, matted grass to a depth of 2 feet. In such places the "locust-finch" lives in pairs, or in the off season in small flocks numbering up to a dozen, feeding on the ground and taking wing only when approached closely. It does not perch on grass stalks or bushes. A squeaking "chip-chip" is occasionally uttered in the air, as Alfred Vincent pointed out, but the locust-finch calls far less often than does *O. atricollis.* The altitudinal range of *locustella* is from 1600 to 6000 feet, its presence depending upon suitable open grassland, usually somewhat marshy during the rains.

Breeding seems to be confined to the rainy season, mainly from February to May. The nests are placed on the ground between stems of wiry grass but not attached to them, ball-shaped, composed of fine, soft grasses, with a few feathers in the lining. The round entrance is lateral, high up. Sets of five white eggs are perhaps the most frequent, others of three or even two having been found; they measure 12.2–13 by 9.9–10 mm.

Ortygospiza locustella uelensis (Chapin)

Paludipasser uelensis CHAPIN, 1916, Bull. Amer. Mus. Nat. Hist., vol. 35, pp. 24, 26, fig. 2 (type locality: Faradje, Upper Uelle District, Belgian Congo); 1930, Bull. Cercle Zool. Congolais, vol. 7, p. 45 (Lower Uelle District; vicinity of Bolobo). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 784; 1932, Bull. Brit. Ornith. Club, vol. 52, p. 141. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 145 (Mauda; Kotili); 1938, Bull. Cercle Zool. Congolais, vol. 14, p. 104 (Kunungu); 1938, idem, vol. 15, p. 61.

Paludipasser uellensis SCHOUTEDEN, 1929, Bull. Cercle Zool. Congolais, vol. 5, p. 102. ROBERTS, 1932, Ostrich, vol. 3, p. 63.

Ortygospiza locustella uelensis LYNES AND SCLATER, 1934, Ibis, p. 50.

Paludipasser locustella uellensis SCHOUTEDEN, 1940, Bull. Cercle Zool. Congolais, vol. 16, p. 73.

SPECIMENS: Niangara, male, June 8. Faradje, six males, three females, January 18, March 12. Garamba, two males, June 15, 20.

ADULTS OF BOTH SEXES: Iris yellow; maxilla mostly blackish, but its lower edge, as well as whole of mandible, bright red; feet brown.

DISTRIBUTION: From the southern border of the Bahr-el-Ghazal Province through the Uelle District to Kotili; wanting in the equatorial forests and reappearing at Kunungu near Bolobo to the southward. It is likely to have found its way across the Equator through grassy marshes such as those of the Ngiri and Likwala-Esobé, for the species is not known from the eastern margin of the Congo forest.

In the Uelle, during the dry season, low marshy spots which have dried up and been burned over seem to be the favored haunts of these silent little birds. They are not at all common but associate in companies of three to 15, feeding on the ground amid the burned tussocks and long, charred grass stalks. They rise with a faint whirring of wings, when approached very closely, and fly off in a body to a distance of 50 or 100 yards before alighting again. On two occasions they were found also on higher ground in old fields, but they never perched on bushes or grass and on the ground were invisible. Specimens could only be secured in the air. The flight is steady and direct, but not rapid, and I heard no vocal note.

The resemblance in behavior between this locust-finch and *Ortygospiza atricollis* is mentioned above. Another species of rather similar habits is *Amandava subflava,* but this third bird is much more addicted to perching.

About Faradje we noted the locust-finch in two successive years but only from January to March inclusive. This was plainly its off season. Males taken at Garamba in June were still non-breeding, and one found at Niangara on June 18 showed but slight enlargement of the gonads. Schouteden's specimens from Kotili and Mauda were collected in January and March. There may prove to be a northward movement to some other area to breed, in the latter half of the rains. At the southern limit of *O. l. locustella* in Southern Rhodesia, Priest [1] found that race only in the rains, from October to December.

The crops and stomachs of eight examples of *O. l. uelensis* held nothing but small seeds, mostly or entirely of grasses.

KEY TO THE SPECIES OF *Hypargos* IN THE CONGO

Crown, back, and wings olive-green; tail less than 40 mm. long . . . *H. nitidulus*
Crown gray-brown, back and wings warmer brown; tail more than 45 mm. long . . . . . *H. niveoguttatus*

Hypargos niveoguttatus (Peters)

Spermophaga niveoguttata W. PETERS, 1868, Jour. Ornith., p. 133 (type locality: Inhambane, Portuguese East Africa). REICHENOW, 1887, Jour. Ornith., p. 309 (Kibondo).

Spermospiza niveiguttata SCHALOW, 1886, Jour. Ornith., p. 422 (Luvua R.).

Spermospiza niveoguttata DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique,

[1] 1936, The birds of Southern Rhodesia, vol. 4, pp. 309–313.

vol. 4, p. 148 (L. Tanganyika). HARTLAUB, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 145.

Hypargos niveiguttata MATSCHIE, 1887, Jour. Ornith., p. 154.

Hypargos niveoguttatus REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 157. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 785. SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 289 (Elisabethville); 1949, idem, vol. 42, p. 162 (Musosa; Kangué; Kasaji). PRIEST, 1936, The birds of Southern Rhodesia, vol. 4, p. 314, fig. 94. FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 377. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1495. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 108 (Kayoyo; Nasondoye).

Hypargus niveoguttatus DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Kibongo; Tembwe).

Hypargos niveiguttatus SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 240.

Lagonosticta niveiguttata NEAVE, 1910, Ibis, p. 252 (Bunkeya R., 3000 ft.).

DISTRIBUTION: From Lamu and Meru in Kenya Colony south through eastern Africa to Beira, and westward to Lake Tanganyika, the Manyema, Katanga, Northern Rhodesia, and Mashonaland. Grauer collected a series of specimens on the northwest shore of Lake Tanganyika.

Peters' twin-spot is a shy inhabitant of thickets and bushy borders of woodlands, going in pairs or small family groups, generally at levels below 5000 feet. Jack Vincent described its voice as a silvery, tinkling trill; others have noted a hissing call and other weaker sibilant notes.

Nesting is in progress during the second half of the rains or from March to May in the Nyasaland region. Nests have been found on the ground in a thicket and 4 feet up in a bush. They are domed, made of grass, fibers, and rootlets or a few feathers; the entrance is lateral. Eggs are white, measuring 15.7–16 by 12.2–12.5 mm. Benson found a set of three.

Hypargos nitidulus schlegeli (Sharpe)

Pytelia schlegeli SHARPE, 1870, Ibis, p. 482, pl. 14 (type locality: Fanti, Gold Coast Colony). SHELLEY, 1890, Ibis, p. 165 (Yambuya). FLOWER, 1894, Proc. Zool. Soc. London, pp. 599, 600 (Ipoto).

Hypargos schlegeli REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 159. CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 276, pl. 7, fig. 10.

Hypargos nitidulus SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 242.

Mandingoa nitidula chubbi GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 57 (Lesse; Kampi-na-Mambuti).

Mandingoa nitidula schlegeli SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 786. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 146 (Poko; Buta). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1497. BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 299, pl. 10.

SPECIMENS: Panga, four males, September 14, 15, 17; two females, September 14, 15; immature female, September 15. Avakubi, five males, February 26, March 9, September 2, 3; female, May 11; two immature males,

February 26; juvenile female, January 17. Bafwabaka, male, July 25. Faradje, immature male, September 9.

ADULT MALE: Iris dark brown, rim of eyelids pink; bill scarlet with some blackish at base; feet light brownish or brownish pink.

ADULT FEMALE: Iris dark brown, rim of eyelids blackish; bill blackish at base, scarlet at tip and sides; feet rather light dull brownish.

YOUNG: Iris dusky, feet light grayish brown. Maxilla externally brownish black, mandible pinkish white, brownish at sides of base. At the gape there are three small wattles on each side, similar in form to those of *Estrilda astrild,* and bluish white, with two black spots near them. Five dusky spots on the whitish palate, two on the tongue.

DISTRIBUTION OF THE SPECIES: Wooded areas from Natal northward to Alghe in southern Abyssinia, Mabira in Uganda, and the northern edges of Lower and Upper Guinea forests, west to Sierra Leone. Nominate *nitidulus* of southeastern Africa has a small dark bill, the male with red only on the face, and the chest olive-green in both sexes. It extends northward to Nyasaland and the Mukutu Mountains in Northern Rhodesia, sometimes reaching elevations of 5000 feet or a little more near the northern end of its range. This race is also reported from the southern Lulua District of the Congo.

Hypargos nitidulus chubbi (Ogilvie-Grant) has the fore-neck and chest of adult males washed with orange or orange-red. This race extends from Tanganyika Territory and Zanzibar to Marsabit and southern Abyssinia, ascending to 6000 feet. It is replaced in the lowland forests of Uganda by *H. n. schlegeli,* with beak a little larger and more reddish and chest of males still redder. The range of *schlegeli* covers the whole of Upper and Lower Guinea, from Sierra Leone to northwestern Angola, the central Kasai District, Uganda, and the Upper Uelle. A single adult male from Fernando Po is more heavily washed with orange on the back than any mainland example I have seen.[1]

This is a bird of thickets and second-growth woods rather than of true forest. It is by no means so rare in the Congo as the few published records might suggest, for it is elusive and often diffcult to secure. We have specimens from Vungu in the Lower Congo, Luluabourg in the Kasai, and the Semliki Forest at the west base of Ruwenzori.

In the Ituri the green-backed twin-spot is a regular visitor to fields of mountain rice when the grain is ripening or being cut. But these birds are not easily seen, for they feed on fallen rice seeds on the ground, keeping well concealed, and darting swiftly and silently when alarmed into the nearest thicket. Rarely do they alight again in the rice. To protect their fields

[1] It is now the type of *H. n. virginiae* Amadon, 1953, Bull. Amer. Mus. Nat. Hist., vol. 100, p. 432 (Opu R., Fernando Po).

from birds the natives frequently erect a small shelter for a watcher on some commanding termite hill. Long strips of bark serving as cords are run out to bushes or other large plants all across the field, then knotted together so that jerking one or two strands serves to frighten the birds from a large section of the field. This twin-spot is by no means the most conspicuous of the birds pillaging the rice fields. They include *Textor cucullatus, Lonchura bicolor* and *fringilloides, Pirenestes ostrinus,* and *Francolinus squamatus.*

Near Avakubi the rice harvest lasts from August to January or February, for different fields are planted at wide intervals. At other seasons the twin-spots frequent the all but impenetrable thickets about old plantations or villages and are rarely seen along pathways. In early September they are paired and preparing to nest; by February they form small flocks with their young. Little seems to be known of the nest, which is doubtless well hidden in a thicket.

Of 15 examples whose crops and stomachs were examined, 13 had eaten rice. Only two had swallowed other seeds. No insect remains were noted, but in three cases there were also grains of sand or small bits of stone.

Hypargos nitidulus nitidulus (Hartlaub)

Estrilda nitidula HARTLAUB, 1865, Ibis, p. 269 (type locality: Natal).

? *Hypargos nitidulus* VERHEYEN, 1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 644 (Pelenge, 1250 m.).

DISTRIBUTION: From Natal northward to Mashonaland, Nyasaland, the Mukutu Mountains in Northern Rhodesia, and also to the Katanga. This little finch lives on or near the ground in evergreen woods, in the lowlands and on mountains up to 5000 or 6000 feet, so it is easily overlooked. Schouteden tells me that the Congo Museum has received one specimen taken at Kasaji by the Rev. W. S. Fisher.

The behavior is much like that of *H. n. schlegeli;* in Nyasaland the breeding season is believed to be from March to May. In an aviary at Durban a nest was built in a small tin in a bush, and three white eggs were laid. One of them measured 16.6 by 11.3 mm.

KEY TO THE SPECIES OF *Pytilia* OCCURRING IN OR NEAR THE CONGO

1. Face red 2
   Face not red 4
2. Back gray; wing feathers margined externally with yellow or red . . . . . *P. hypogrammica*
   Back greenish 3
3. Wing feathers margined with red or orange . . . . . *P. afra*
   Outer margins of wing feathers greenish like back . . . . . *P. melba*
4. Back gray or gray-brown 5
   Back greenish 6

5. Wing feathers margined with red . . . . . *P. phoenicoptera*
   Wing feathers margined with yellow . . . . . *P. hypogrammica*
6. Wing feathers margined with orange or yellow; flanks with a greenish wash . . . . . *P. afra*
   Outer margins of wing feathers green like back; flanks without greenish wash . . . . . *P. melba*

Pytilia melba melba (Linnaeus)

Fringilla melba LINNAEUS, 1758, Systema naturae, ed. 10, p. 180 ("China"; corrected type locality: Angola).

Pytelia melba melba SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 451 (north to Landana). PRIEST, 1936, The birds of Southern Rhodesia, vol. 4, p. 318, pl. 9 (Portuguese Congo; Angola).

Pytilia melba angolensis REICHENOW, 1919, Jour. Ornith., p. 227 (Angola; Loango).

Pytilia melba melba SCHOUTEDEN, 1926, Rev. Zool. Bot. Africaines, vol. 13, p. 205 (Moanda); 1949, idem, vol. 42, p. 162 (Kasenga; Sakania). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 787 (Portuguese Congo and Angola). YOUNG AND WINTERBOTTOM, 1938, Ostrich, vol. 9, p. 95 (L. Bangweolo). VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 23, p. 15 (Kabuta on Rhodesian frontier). WHITE, 1946, Ibis, p. 220 (Mwinilunga).

SPECIMENS: Boma, male, January 25. Matadi, two males, December 26, 27; female, December 26.

ADULT MALE: Iris yellowish brown, bill rose color, feet grayish brown.

ADULT FEMALE: Iris and feet as in male. Bill dusky brown above, shading to rose at sides and below.

NESTLING: According to Hoesch and Niethammer,[1] the palate bears a single median black spot toward its anterior end, while on each side of the internal nares there is a pale blue spot. The gape shows two swellings at each side. A single black spot on the palate is characteristic of the nestling of *Steganura paradisaea* as well.

DISTRIBUTION OF THE SPECIES: Natal and Damaraland north to the Loango Coast, southern Katanga, East Africa and eastern Congo border, western Somaliland and Eritrea; also across the Sudan to Senegal. It does not enter the Guinean forests but approaches the forest border in the Lower Congo and Kivu districts.

There are about seven geographic races. All across the drier parts of the Sudan, from Senegal to the White Nile, lives the pale *citerior,* lightly barred on the breast and with the red of the face extending back behind the eye. At the opposite extreme is nominate *melba* of southern Africa, much deeper in color, with white spots on the breast and the red of the face not extended behind the eye. Several races in eastern and northeastern Africa are intermediate in body color. *Pytilia melba belli* of the eastern

[1] 1940, Jour. Ornith., vol. 88, Sonderheft, p. 357.

Congo and adjacent regions has the gray of the ear-coverts extending forward below the eye to the lores, while the red of the throat tends to extend down over the yellowish chest. Still redder on the chest are males of *grotei,* the race of southern Tanganyika Territory and northern Mozambique. The rather pale birds of northeastern Africa are usually called *soudanensis,* those of the Kenya Colony coast *kirki,* and from the Juba River Van Someren has named a still paler form, *jubaensis.* The race *soudanensis* occurs at Redjaf on the Bahr-el-Jebel but is not known to reach the Congo border.

The nominate race of the melba-finch extends from South Africa to Landana, the Lower Congo, Stanley Pool, northern Angola, and the boundary of the Katanga and Northern Rhodesia. About Boma and Matadi I found it living on the rather barren hills, keeping for the most part within a few yards of the ground, either singly or in pairs. It seemed more numerous at Matadi than at Boma, but it has also been reported right along the coast, and I have seen one example from Brazzaville.

My four specimens were all in non-breeding condition, and in South Africa this species is known to breed at the end of the rains and especially during the dry season. Nests are placed in small trees and thorny bushes at 5 to 15 feet from the ground, and are round structures of grass stems, usually containing four or five white eggs. Dimensions are 16.3–17.4 by 12.3–13.5 mm.

There is good reason to believe that the eggs of *Steganura paradisaea* are frequently deposited in the nests of *Pytilia melba,* where they can be distinguished by their larger dimensions: 18–19 by 13.5–14 mm.

In Southwest Africa Andersson noted that the food consisted of insects. The crops or stomachs of our specimens were found to contain the heads of worker termites in every case. Once there seemed to be bits of other insects as well, but only a single bird had eaten some small grass seeds.

Pytilia melba belli Ogilvie-Grant

Pytelia belli OGILVIE-GRANT, 1907, Bull. Brit. Ornith. Club, vol. 21, p. 14 (type locality: Mokia, southeast of Ruwenzori, Uganda); 1908, Ibis, p. 274 (northwest of L. Tanganyika, 3000 ft.); 1910, Trans. Zool. Soc. London, vol. 19, p. 291, pl. 11, fig. 4.

Zonogastris melba DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Pytelia melba SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 273 (L. Edward). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28.

Pytilia melba tanganjicae REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 332 (type locality: Usumbura, L. Tanganyika).

Pytelia melba belli SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 451 (L. Albert). SCHOUTEDEN, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 340 (Nyanza on L. Tanganyika).

Pytelia melba tanganjicae SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 452 (Usumbura).

Pytilia melba belli SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 275;

1932, idem, vol. 21, p. 275 (Lulenga; Usumbura-Bugarama); 1933, idem, vol. 22, p. 372 (Kisenyi); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 166. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 51 (Urundi; Uvira; Baraka; Ruzizi Valley). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 788. LYNES, 1934, Jour. Ornith., Sonderheft, p. 144; 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 106 (Kasenga). GRANVIK, 1934, Rev. Zool. Bot. Africaines, vol. 25, p. 169. JACKSON, 1939, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1500 (Butiaba).

Pytelia melba centralis NEUNZIG, 1928, Zool. Anz., vol. 78, p. 110 (type locality: Urundi Province).

Mandingoa nitidula schlegeli SCHOUTEDEN, 1935, Rev. Zool. Bot. Africaines, vol. 27, p. 404 (Nyanza on L. Tanganyika).

ADULT MALE: Iris reddish orange; bill dull rose color, shading to dusky brown on culmen and distal half of gonys; feet gray-brown.

ADULT FEMALE: Iris dull scarlet, bill a little duller than that of male.

DISTRIBUTION: From Torit in the southeast Sudan to Uganda, the Loita plains in Kenya Colony, Kivu District, and shores of Lake Tanganyika. It is not yet known from the western shore of Lake Albert, and near Lake Edward it seems mainly restricted to the northeastern shores. The favored haunts are in low and relatively dry savannas, so this finch is not often seen on the Kivu highlands. In the Kagera and Ruzizi valleys and around the shores of Lake Tanganyika, it again becomes common, but it seems not to spread into the Manyema and is unknown in the Kasai.

Specimens from the northern shores of Lake Tanganyika may average a little lighter beneath than those of western Uganda but not enough for racial separation. I am inclined to question Lynes's identification of *belli* from Kasenga on the Luapula, where *melba* seems more likely to occur.

The appearance and behavior of *belli* are very like those of the nominate race. It lives in pairs amid low bushes and small trees and is likely to breed at the end of the rainy season. A newly built nest found by Woosnam near the southern end of Ruwenzori was placed about 18 inches from the ground in an acacia bush. It was domed and composed of fine grass and some plant down, and the entrance was small and at one side near the top. The eggs must be similar to those of *melba*.

A male which I collected at Luvungi in July showed some slight enlargement of the gonads, and its crop was filled with fair-sized grass seeds. An adult female taken between Kasindi and Katwe in January was not ready for breeding. Two young in complete juvenal dress were taken by Grauer at Nsaza in eastern Ruanda on July 12 and three others on the northwest shore of Lake Tanganyika on May 27, August 10, and September 2.

Pytilia afra (Gmelin)

Fringilla afra GMELIN, 1789, Systema naturae, ed. 13, vol. 1, pt. 2, p. 905 (type locality: Angola).

Pytelia afra HARTLAUB, 1857, System der Ornithologie Westafrica's, opposite

p. lix (Congo). SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 269. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Mpala). NEAVE, 1910, Ibis, p. 254 (upper Lufira R., 3600 ft.; Kambove, 4000 ft.). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 403 (Kwamouth). FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 439.

Pytelia wieneri DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 149 (L. Tanganyika).

Pytelia pyropteryx SCHALOW, 1886, Jour. Ornith., p. 413 (Lufuku R.).

Pytilia cinereigula MATSCHIE, 1887, Jour. Ornith., p. 154.

Pitylia afra SCHALOW, 1887, Jour. Ornith., p. 242 (Likulwe R.). REICHENOW, 1887, Jour. Ornith., p. 301 (Manyanga).

Pytilia afra REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 162 (Kasongo); 1923, Mitt. Zool. Staatsinst. Zool. Mus. Hamburg, vol. 40, p. 64 (Lupungu). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 350 (Kabambaie; Ngombe in Kasai; Kwamouth); 1930, idem, vol. 18, p. 290 (Elisabethville); 1949, idem, vol. 42, p. 162 (Kabalo; Baudouinville; Kayoyo; Mukula Gombe; Kimbundji; Kiambi; Dilolo). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 787. GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 77 (Luluabourg). FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 378. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 108 (Banda). A. W. VINCENT, 1949, Ibis, p. 663 (Elisabethville). BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 307, fig. 38.

Pytilia afra afra DELACOUR, 1943, Zoologica, New York, vol. 28, p. 77.

ADULT MALE: Iris red-brown to blood red; bill dark red-brown above, becoming vermilion at tip, below vermilion, shading to gray at base of mandible; feet flesh color or pinkish brown.

ADULT FEMALE: Iris dull red; maxilla dusky brown with distal part of tomia brownish pink, as is the whole mandible; feet brownish flesh color.

DISTRIBUTION: From southern Abyssinia to Lake Albert and through eastern Africa to Zanzibar Island, the vicinity of Beira, and the northern Transvaal; westward also, south of the Congo forest, to most of Angola and to Landana, north of the Congo mouth. *Pytilia hypogrammica* Sharpe, which ranges from the Ubangi-Shari District to the Ivory Coast, differs mainly in lacking yellowish pigment in the body plumage and in having a blackish bill. Perhaps it should be regarded as a race of *P. afra.*

Though frequently occurring in the same districts with *P. melba,* the species *afra* is apt to occupy regions that are somewhat better watered. Thus it is more common in the Katanga and extends to the Manyema, the Kasai District, and Kwamouth. In the Kivu, however, *afra* is almost unknown, though Grauer did obtain two specimens on the northwest shore of Lake Tanganyika. In Marungu Rockefeller and Murphy collected others at Selembe, 3600 feet, and Mukuli, 5450 feet.

On the northeastern edge of the Congo I saw a couple of pairs on the plain of Kasenyi and collected a female. Others have been taken in the Lado district but none in the Uelle or the Bahr-el-Ghazal.

Usually seen in pairs, this species of *Pytilia* haunts high grass savannas

where there are a good many bushes and feeds on the ground, eating small grass seeds. In Northern Rhodesia and the Katanga it breeds from early February to mid-May, placing its nests in shrubs or small trees from 5 to 8 feet up. These are more or less ball-shaped, loosely constructed of long grass stems, weed stems, and sometimes with feathers in the lining. The white eggs number three to four; dimensions: 15.5–17.1 by 11.7–12.3 mm. North of the Equator laying may be expected around September and October.

In one nest near Elisabethville Alfred Vincent found six white eggs, of which two were exceptionally large (17.9 by 13 and 18.2 by 13.1 mm.); these he suspected of being laid by *Steganura paradisaea obtusa,* occurring rather commonly in the vicinity.

[*Pytilia hypogrammica* Sharpe]

Pytelia hypogrammica SHARPE, 1870, Ibis, p. 56 (type locality: Fanti, Gold Coast Colony).

Pytilia hypogrammica SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 787 (Bamingui R.).

This gray *Pytilia* with red-faced males has not been collected within our limits, but it does occur at Fort Crampel and may perhaps be looked for in the savannas near the northern edge of the forest belt along the Ubangi. The female of *hypogrammica* resembles that of *phoenicoptera* except that the wings are edged with yellow instead of reddish. *Pytilia lopezi* Alexander, described from the Shari River, was stated to differ from the male of *hypogrammica* only by its redder wings. It certainly is not a valid species.

Pytilia phoenicoptera emini Hartert

Pytelia phoenicoptera emini HARTERT, 1899, Novitates Zool., vol. 6, p. 413 (type locality: Lado, on Bahr-el-Jebel). SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 453 (Kajo-Kaji; Yei).

Pytilia phoenicoptera emini CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, pp. 276, 277, pl. 7, fig. 8. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 146 (Mahagi Port). DELACOUR, 1943, Zoologica, New York, vol. 28, p. 77.

SPECIMENS: Faradje, four males, October 25, November 19, 22; four females, October 25, November 8, 19, 26; two juvenile females, November 16. Garamba, male, June 21.

ADULTS OF BOTH SEXES: Iris red, bill blackish with a little blue at base, feet light brown.

NESTLING: Iris brownish gray, feet grayish pink. Bill black externally, skin of gape bilobate (much as in *Clytospiza monteiri*) and bluish white in color, with two black spots on the inner sides of these lobes. Roof of mouth whitish anteriorly, then becoming bright rose color, with a large

light bluish area at each side of the internal nares. No black spots on palate. Tongue rosy at base, flesh color at tip.

DISTRIBUTION OF THE SPECIES: From the Gambia and Portuguese Guinea to the Gold Coast Colony, Benue River, Bahr-el-Ghazal Province, northern Uganda, and Abyssinia. Nominate *phoenicoptera* of the western part of the range seems to have under wing-coverts whitish and the breast and flanks with somewhat lighter gray barring than *emini*. The latter race may extend from northern Cameroon to northern Uganda. Both the foregoing have blackish beaks. In Abyssinia and the adjacent part of Sennar lives *P. p. lineata* Heuglin, a trifle deeper in color than *emini* and with reddish beak.

We saw *Pytilia p. emini* only in the northeastern Uelle District, where it was apparently migratory and arrived in the middle of October. About Faradje it seemed to remain only until January, in two successive years. On the hills near Aba I noticed it also during December but not in July. A little farther north the species may remain through the whole year, for at Garamba we did find one example in June.

During their stay in the Uelle these weaver-finches are usually seen about roads and cleared or burned spots, feeding on the ground, singly or in pairs. This is their breeding season; a pure white egg was taken from the oviduct of a female on November 8. The following year, on November 16, a nest was found in a small savanna tree, 6 feet up. It was built almost entirely of fine seed-bearing grass tops, with some old crumpled blades of dry grass and a few feathers. In it were two nestlings, rather similar to the adult female in color, and with greater wing-coverts and secondaries already lightly margined with red. Some of the natal down, still retained, was gray. When begging for food with open mouths they would raise the base of the tongue unusually high and wag their heads from side to side as though strangling. The floor of the nest was filthy; the parents evidently did not remove excrement. In Northern Nigeria Serle found nests of nominate *phoenicoptera* on November 15, December 21, and February 1, so the species appears to favor the dry season for its nesting and is very probably a fosterer of *Steganura paradisaea*.

I examined crops and stomachs of eight individuals of *emini*, finding that four had eaten grass seeds, four others only termites (workers, not winged examples).

KEY TO THE SPECIES OF *Nesocharis* IN THE CONGO

Whole head and throat black; male with breast yellow-green, the breast and abdomen of female gray . . . . . *N. ansorgei*

Crown light gray; eye region, cheeks, and ear-coverts whitish; chin and throat black; sexes alike . . . . . *N. capistrata*

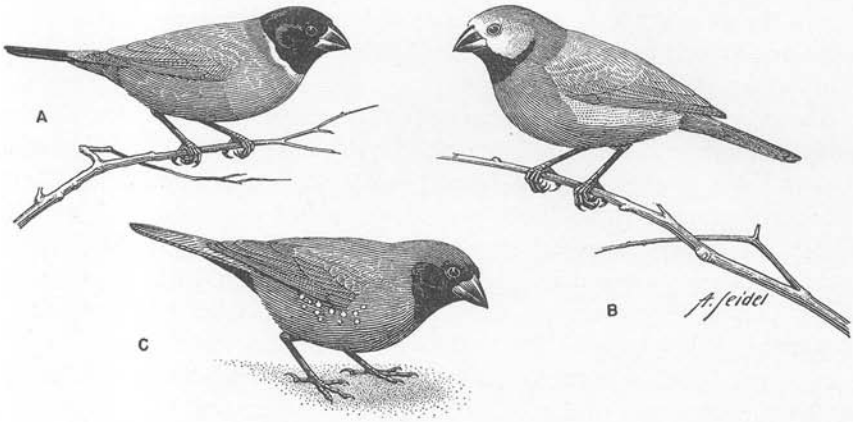

FIG. 38. Weaver-finches. A. *Nesocharis ansorgei*, male. B. *Nesocharis capistrata*, male. C. *Lagonosticta larvata nigricollis*, male.

Nesocharis capistrata (Hartlaub)

Pytelia capistrata HARTLAUB, 1861, Jour. Ornith., p. 259 (type locality: Bissao, Portuguese Guinea). EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 56 (Nyamsansi).

Munia capistrata HARTLAUB, 1891, Abhandl. Naturwiss. Ver. Bremen, vol. 12, p. 18 (Mswa; Buguera).

Cryptospiza capistrata REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 175; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 333 (Kirk Falls).

Chlorestrilda capistrata SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 178.

Nesocharis capistrata CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 278. BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 317 (Kaga Djirri near Kemo R.); 1949, The birds of tropical West Africa, vol. 7, p. 359, pl. 13 (Uelle R.; Meridi; Bogoro). GROTE, 1924, Jour. Ornith., p. 489. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 803. VAN SOMEREN, 1932, Novitates Zool., vol. 37, p. 324. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 147 (Abimva; Faradje).

"Astrilden-Art" EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, pp. 24, 31.

Astrilde capistrata EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 42.

Estrilda capistrata DELACOUR, 1943, Zoologica, New York, vol. 28, pp. 78, 79 (Gambia to L. Albert).

SPECIMENS: Nzoro, two females, April 7, 17. Faradje, five males, March 23, April 2, July 4, October 18, 23; four females, February 15, 28, August 12, December 28; immature male, November 5; immature female, October 25.

ADULTS OF BOTH SEXES: Iris dark red, bill black, feet dark gray.

YOUNG: Bill externally grayish flesh color with dusky tip and some blackish color at base. The three little swellings at each corner of the mouth

are of the same shape as in *Estrilda astrild* but pale bluish green, backed up by black skin. The palate bears five blackish spots, and there is a dusky band across the tongue.

DISTRIBUTION: Savannas north of the Guinean forests from the Gambia and Portuguese Guinea to Togo, northern Cameroon, the Ubangi-Shari, Upper Uelle, southern Bahr-el-Ghazal, and the country around Lake Albert. Emin's specimens from Mswa and Buguera are now in the Rothschild Collection, as are three of Van Someren's from Masindi, Uganda. At the Berlin Museum I examined Schubotz's example from Kirk Falls on the lower Semliki River. To the localities in the Uelle I can add Dungu and Niangara, where we also observed this olive-backed weaver-finch.

It is not a bird of open grass fields but is seen most frequently in bushes or trees, often near the edge of swamps. Sometimes it hops about the branches in such a manner as to suggest a titmouse, the white cheeks strengthening that illusion. Quite silent as a rule, it has nevertheless a song, a pleasant "chwee-chwee-chwee-chwĭ," descending in pitch and not loud, which I have heard only in August. Single birds or pairs are the rule, unless there is a brood of newly fledged young. To judge from our dissections, the breeding season in the Uelle is from July to October. At Irumu in the eastern Ituri, on August 14, 1937, I watched one of these birds building its nest in a row of thickly foliaged bushes about 9 feet from the ground. It was placed in a fork and composed of dry weed and grass stems. The lateral entrance was rather high up, and the whole nest measured about 18 cm. from top to bottom. The lining was not complete, and no eggs had yet been laid.

Crops and stomachs of eight examples were examined. Six birds had eaten seeds, sometimes of grasses; and one of these had swallowed some sand as well. In two cases there were insect remains and two tiny caterpillars. One bird, in addition to seeds, had eaten six very small snails. In Nigeria also, Serle noted that ants and fruit seeds were found in stomachs of this weaver-finch.

Nesocharis ansorgei (Hartert)

Pytelia ansorgei HARTERT, 1899, Bull. Brit. Ornith. Club, vol. 10, p. 26; 1900, Ibis, p. 362 (type locality: Wemi, i.e., Wimi, R., Toro, Uganda). NEUMANN, 1908, Bull. Brit. Ornith. Club, vol. 23, p. 47 (Kwidjwi I.).

Nesocharis ansorgei OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 295, pl. 11, figs. 1, 2 (Mpanga and Kibera forests in Toro). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 803 (Irumu). SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 165. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1518. V. AND G. VAN SOMEREN, 1949, The birds of Bwamba, p. 101 (Bugarama Valley; Hakitengya).

Neocharis ansorgei VAN SOMEREN, 1922, Novitates Zool., vol. 29, p. 156.

Cryptospiza (*Nesocharis*) *ansorgei* SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 49 (Rutshuru Plain).

ADULTS OF BOTH SEXES: Iris very dark brown; bill black, becoming blue-gray at very base; feet blackish gray.

YOUNG: Bill black externally. Gape wattles like those of *Estrilda,* a little curved ridge and two balls, all vivid light green-blue, separated by black skin. On the palate there seemed to be only one median black spot.

DISTRIBUTION: From Irumu, in the eastern Ituri, and Toro in western Uganda south to Lake Kivu. The altitudinal range is from 3000 feet up to about 6500 feet. This is not a bird of mountain forest, but rather of open marshy spots, with bushes and trees not far away, and sometimes at the forest edge.

My first specimen was an adult male, with the yellow-green breast patch which distinguishes that sex, secured by a native hunter near Irumu on September 17. The following day I went to the same spot, a grassy river bottom lined with woods. There I found two young, already able to fly but still showing the greenish blue gape wattles. The next example seen, on March 27 at 5200 feet, a few miles south of Luofu, was a female with gray breast in a small marsh overgrown with broad-leaved sedges. It escaped to some bushes, then took wing and disappeared.

Grauer collected one female on Idjwi Island in Lake Kivu, and on the west shore of that lake, just south of Katana, I saw a male on July 7. It was in an open marshy area but too shy to allow approach. At Tshibati, 6400 feet, just west of Katana, we have recently found *N. ansorgei* to be rather common, hiding in bushes near marshes and streams. It appears to breed from mid-December to June and regularly relines old nests of ploceine weavers with plant down. One set of two white eggs, laid about December 24, measured 14.5 and 14.7 by 10.9 mm.

The form of the gape wattles of nestlings shows that the genus *Nesocharis* is allied to *Estrilda,* but it has little of the sociable nature of the typical waxbills. In its color pattern *Nesocharis shelleyi* of Fernando Po and the Cameroon highlands shows a marked similarity to *N. ansorgei,* but the former is smaller, with shorter tail and much slenderer bill.

KEY TO THE SPECIES OF *Lagonosticta* IN AND NEAR THE CONGO

1. Whitish spots, sometimes widened almost to bars, extend across upper breast, are not restricted to its sides 2
   White spots either absent from breast or few in number and restricted to sides . 4
2. Breast gray-brown, spotted with white; ninth primary (next to outermost) emarginate on inner web near tip . . . . . *L. senegala*
   Upper breast vinous red with small white spots or irregular little bars; ninth primary not emarginate 3
3. Upper tail-coverts red . . . . . *L. rufopicta*
   Upper tail-coverts dusky brown . . . . . *L. nitidula*
4. Head and body almost entirely clear ashy gray; tip of ninth primary not emarginate 5
   Head and body not so gray 6

5. Both under and upper tail-coverts red . . . . . *L. caerulescens*
   Under tail-coverts blackish, upper ones red . . . . . *L. perreini*
6. Cheeks and throat black, body plumage largely gray, sometimes washed with vinous pink . . . . . *L. larvata*
   Cheeks and throat not black 7
7. Bill bluish, usually with black tip, but without any reddish or pink area even on mandible 8
   Bill not so dark, mandible reddish or pink basally or laterally, maxilla sometimes partly pinkish 10
8. Whole throat and breast gray washed with light brown, small white spots at sides of breast, upper tail-coverts dark vinous red . . . . . *L. larvata*
   Throat and breast red or pinkish 9
9. Ninth primary (next to outermost) emarginate on inner web near tip . . . . . *L. rubricata*
   Ninth primary not emarginate, of normal width near its rounded tip . . . . . *L. jamesoni*
10. Underparts with a large patch of black extending from lower breast to under tail-coverts; no white spots at sides of breast . . . . . *L. rara*
    Lower breast not black in middle, though abdomen is sometimes blackish . 11
11. Under tail-coverts not black but gray-brown; cheeks bright red like lores and throat . . . . . *L. senegala*
    Under tail-coverts black or blackish, sometimes margined with buff; cheeks may be gray, pink, or red 12
12. Cheeks and throat grayish, chest and flanks pink or pale red; ninth primary only slightly emarginate . . . . . *L. rara*
    Cheeks and throat pink or red, like breast; ninth primary strongly emarginate near tip . . . . . *L. rubricata*

Lagonosticta rara rara (Antinori)

Habropygia rara ANTINORI, 1864, Catalogo descrittivo, p. 72 (type locality: between White Nile and Bahr-el-Ghazal).

Habropyga oenochroa HARTLAUB, 1882, Ornith. Centralbl., p. 91 (type locality: region of Lado). EMIN, 1922, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 3, p. 418 (Mswa).

Lagonosticta rara SHELLEY, 1888, Proc. Zool. Soc. London, p. 31 (Tingasi). REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 201. CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 277, pl. 7, fig. 11. SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 265 (Mangbetu country). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 77 (upper Kemo R.). BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 319, pl. 11.

Lagonosticta rara ? OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127.

Lagonosticta melanogastra melanogastra BANNERMAN AND BATES, 1924, Ibis, p. 272.

Lagonosticta rara rara SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 790 (Uelle R.). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 146 (Mauda; Faradje; Mahagi Port). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1503. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 109 (Niarembe Escarpment).

SPECIMENS: Niangara, immature male, November 10. Faradje, three males, February 14, May 14, September 15; two females, October 14, 26;

immature male, immature female, February 24; juvenile female, November 1. Garamba, two males, June 23, July 15.

ADULTS OF BOTH SEXES: Iris dark brown, rim of eyelids light gray; maxilla blackish, mandible blackish distally and beneath, but a large patch of purplish pink at each side; feet dusky brown.

NESTLING: Iris dark brownish gray, eyelids dark gray; feet dark bluish gray. Bill blackish externally, skin of gape swollen, purplish red, with two little white balls at each side. Tongue and palate cream color, throat flesh color; five black spots on palate, lateral pair largest. A blackish band, nearly divided in two spots, crosses tongue; beneath this a black crescent on inside of mandible.

DISTRIBUTION OF THE SPECIES: Savannas from Sierra Leone, Northern Nigeria, and Cameroon eastward to the Uelle, Bahr-el-Ghazal, northern Uganda, and North Kavirondo. The birds of Nigeria and Sierra Leone are separated as *L. r. forbesi* Neumann because of their brighter red coloration on chest and upper tail-coverts. The remainder of the range is occupied by *L. r. rara*.

In the grasslands of the northern Congo the black-bellied fire-finch is common, and it extends a little way south on the northwest shore of Lake Albert. We noted it in the Uelle from Rungu northward throughout the year. During the dry season small parties may be seen feeding amid the bushes and burned grass; at other times they are less sociable. The song of the male is a dry attempt at a trill, with little music in it.

The breeding season is short, from September to November, inclusive. This may be due, as with the bishop-birds and whydahs, to the need for dense high grass. The two nests I saw were both placed low down in clumps of grass. The first, on October 14, was a rather loose ball of soft seed-bearing grass tips, with some dry grass blades around the outside and a number of feathers inside, from *Francolinus icterorhynchus*. The female was incubating four white eggs. An egg was taken from the oviduct of another bird on October 26. My measurements of eggs are 15.2–16 by 11.8–12.2 mm.

A second nest, constructed of similar materials and also with some feathers, was occupied on November 1 by two young. The juvenal plumage is duller than that of the adult female, only lightly washed with red on lower back and flanks, but red on upper tail-coverts and blackish on abdomen.

Spending much of their time on the ground, these fire-finches eat small seeds and a good many worker termites, as shown by the contents of crop and stomach in four instances. One specimen was trapped by the use of winged termites as bait.

Lagonosticta rubricata congica Sharpe

Lagonosticta congica SHARPE, 1890, Catalogue of the birds in the British Museum, vol. 13, p. 280 (type locality: Kasongo, Lualaba R., Belgian Congo). REICHENOW,

1904, Die Vögel Afrikas, vol. 3, p. 199; 1923, Mitt. Zool. Staatsinst. Zool. Mus. Hamburg, vol. 40, p. 64 (Lupungu). SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, pp. 251, 255. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Kisantu). SALVADORI, 1915, Ann. Mus. Civ. Genova, ser. 3, vol. 6, p. 280 (Kasai District).

Lagonosticta polionota REICHENOW, 1887, Jour. Ornith., p. 305 (Leopoldville). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28.

Lagonosticta rhodoparia OGILVIE-GRANT, 1908, Ibis, p. 272 (Mfumbiro Volcanoes, 5000 ft.; L. Kivu); 1910, Trans. Zool. Soc. London, vol. 19, p. 302 (Mubuku Valley, 6000 ft.).

Lagonosticta rhodopareia REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 335.

Lagonosticta rubricata congica SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 350, 403 (Luebo; Ngombe in Kasai; Tshisika; Kwamouth); 1925, idem, vol. 13, p. 20 (Kunungu); 1932, idem, vol. 22, p. 275 (Ngoma); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 146 (Faradje; Dika; Mahagi Port; Mauda; Djalasinda); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 166. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 790. GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 78. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1502. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 106 (Tshikapa; Kabambaie).

Lagonosticta rubricata ugandae GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 65 (Burunga). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 110 (Mt. Mé; Mahagi plateau, 1750 m.).

Lagonosticta rhodopareia congica SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 51 (Baraka).

? *Lagonosticta landanae* BERLIOZ, 1925, Bull. Mus. Hist. Nat., Paris, vol. 31, p. 347 (Luluabourg).

Lagonosticta subricata EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 257 (Madjamboni).

Lagonosticta rubricata EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 69 (Mswa).

? *Lagonosticta cinereovinacea* GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 79 (Luluabourg).

SPECIMENS: Kwamouth, female, December 19. Niangara, male, May 27; two females, May 27, December 23. Nzoro, male, April 10. Faradje, three males, February 20, March 31, August 9. Garamba, female, July 15.

ADULTS OF BOTH SEXES: Iris dark brown, rim of eyelids pink; bill dark bluish basally, shading to black toward tip; feet dusky or dark bluish gray.

FLEDGLING: Iris dusky brown, rim of eyelids faintly pinkish; bill dark bluish gray, pale gray beneath. Skin of gape with two pinkish white swellings at each side, a black dot on inner side of each swelling. Palate with five black spots, the posterior pair smaller than the others; a blackish bar across tongue near base, and a black crescent beneath it. Feet dark brownish gray.

DISTRIBUTION OF THE SPECIES: Widespread in grasslands from Portu-

guese Guinea to Eritrea, southward through eastern Africa to eastern Cape Province, and westward again, south of the Equator, to Angola and the Loango Coast.

There would seem to be about nine races. Nominate *rubricata* is the southernmost, ranging northward only to the Transvaal. In Abyssinia *rhodopareia* is the resident form; in Upper Guinea, *polionota*. Four races may occur in the Congo but none of them in the rain forests. In the Uelle, Kivu, Manyema, Kasai, and westward to Leopoldville and Kisantu lives *L. r. congica*. The crown of the male is deep gray-brown but rather often has a rosy wash over it. The bill of both sexes is wholly bluish and black. This race extends to western Uganda and the southern Bahr-el-Ghazal. Similar in color but more heavily tinged with red on the crown is *haematocephala* of southwest Tanganyika Territory, Nyasaland, Rhodesia, and the Upper Katanga.

In the Lower Congo lives *L. r. landanae,* with the bill largely rose color beneath. This well-defined race extends to northwestern Angola and the Kwango River. The dark-billed *sannagae,* on the other hand, differs very little from *congica.* If really valid, it may perhaps be looked for near the great bend of the Ubangi.

The wide-ranging *congica* is a lowland bird but occurs in fair numbers up to 5000 and even 6000 feet on east Ruwenzori and in the Kivu. I found it rather common at Luofu, 5500 feet, and saw it at 8000 feet between Matembe and Kasanga on the highland west of Lake Edward. Grauer secured specimens on Idjwi Island and at the edge of the Rugege Forest. A male collected by Rockefeller and Murphy at Kampia, 4525 feet, in Marungu, seems to belong with *congica,* not *haematocephala.*

In the savannas of the Upper Uelle this fire-finch is fairly common, extending southward to Rungu. It is somewhat less numerous there than *L. rara,* with which it often associates. Pairs or small parties, probably single families, are the rule, feeding on the ground and alighting also in bushes and trees. At Kwamouth and in the Kasai, likewise, it is rather common.

In addition to short, lisping call notes, the males have a very pleasing song, not very loud, which consists of sweet ringing notes, repeated so as often to produce a trilling or warbling effect. They sing from bushes or trees. Breeding takes place only in the latter half of the rains. In the Uelle a male with gonads enlarged was taken in August, a female ready to lay as late as December 23; but birds collected from February to July were all non-breeding. West of Lake Albert, too, I have taken breeding specimens in August and September. In the southern Congo the nesting season is evidently between February and May.

The nest of this race seems not to have been described, but like those of the others it is doubtless a ball of grass and feathers, placed in a low bush amid high grass, with three or four white eggs. I have been able to

examine a fledgling in western Uganda in early August and note its mouth decoration.

Six of the eight examples whose crop and stomach were examined had eaten only small seeds, mainly from grasses. The two others had taken small insects, in one case a considerable number of minute termites.

[*Lagonosticta rubricata sannagae* Reichenow]

Lagonosticta sannagae REICHENOW, 1921, Jour. Ornith., p. 48 (type locality: Sanaga R., Cameroon).

? *Lagonosticta landanae* OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127. BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 77 (upper Kemo R.).

Even with a series of seven adults from the Cameroon for comparison, I find it very difficult to say how *sannagae* differs from *congica*. But I am convinced that *landanae* cannot occur north of the equatorial forest, so either *congica* or *sannagae* may be expected in the grasslands near the Ubangi River.

Lagonosticta rubricata haematocephala Neumann

Lagonosticta rubricata haematocephala NEUMANN, 1907, Ornith. Monatsber., p. 168 (type locality: Songea, southern Tanganyika Territory). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 789. FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 379. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 106 (upper Lufira R.). WHITE, 1946, Ibis, p. 220 (Mwinilunga). A. W. VINCENT, 1949, Ibis, p. 665 (Elisabethville). SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 162 (Sakania; Kansenia; Kiambi).

Lagonosticta haematocephala NEAVE, 1910, Ibis, p. 253 (Dikulwe R.; Kaluli R.; Kambove, 4500 ft.).

Lagonosticta rhodopareia haematocephala SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 290 (Elisabethville).

DISTRIBUTION: From the Melsetter District of Southern Rhodesia north to Tanganyika Territory, the Upper Katanga, and Northern Rhodesia west to Mwinilunga and possibly Balovale.

Near Elisabethville Alfred Vincent noted this fire-finch as fairly common along the borders of savanna woods, amid bushes and shrubs interspersed with grass clumps, and also in small stretches of more open grassland. They keep largely out of sight, give a sharp, explosive chittering when alarmed, and feed on small seeds, particularly of grasses. He found nests from early February to fairly late April, in forks in bushes 2 to 7 feet from the ground, often well concealed by grass or weeds. They were ball-shaped, outwardly of broad grass blades, the inside of finer seeding grass. A few small feathers might be included in the lining. Sets were of three to five white eggs; measurements: 14–15.9 by 10.9–11.8 mm.

Lagonosticta rubricata landanae Sharpe

Lagonosticta landanae SHARPE, 1890, Catalogue of the birds in the British Museum, vol. 13, p. 283 (type locality: Landana, Enclave of Cabinda). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 790. BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 318 (Portuguese Congo and northern Angola).

Estrilda rubricata landanae DELACOUR, 1943, Zoologica, New York, vol. 28, p. 77.

SPECIMENS: Boma, male, female, January 3. Matadi, male, December 26.

ADULTS OF BOTH SEXES: Iris brown, maxilla dark gray, mandible pale rose color with dusky tip, feet dusky brown. In dried skins a pale area is often noticeable on each side of the maxilla. This is not visible in freshly killed birds, and a similar change often takes place in specimens of *L. rara.*

FLEDGLING: According to W. J. Ansorge, who wrote a brief note on a label, the palate has five round black dots, and the gape has two lumps at each side, whitish at the top, black at base. This is in general agreement with my note on the young of *congica.*

DISTRIBUTION: From the Enclave of Cabinda and Lower Congo south to Canhoca and Pungo Andongo in Angola, eastward also to Tembo Aluma on the Kwango River and Pedreira in the Bihé district. I am satisfied that this is a race of *L. rubricata,* especially since it has the same attenuated outer primary. Except for the color of the bill, adults of both sexes are really very similar to those of *L. r. congica.*

About Boma, in 1915, I found this a common savanna bird, and at Matadi it lived alongside *Lagonosticta jamesoni.* Its behavior is like that of the other races of *L. rubricata,* and since my specimens were all in non-breeding condition, it may well be supposed that nesting is delayed until the second half of the rains, toward April and May. Two of my birds had eaten small seeds.

Lagonosticta jamesoni jamesoni Shelley

Lagonosticta jamesoni SHELLEY, 1882, Ibis, p. 355 (type locality: Tatin R., Matabeleland).

Lagonosticta jamesoni taruensis SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 162 (Kabalo).

Lagonosticta jamesoni jamesoni WHITE AND WINTERBOTTOM, 1949, A check list of the birds of Northern Rhodesia, p. 130 (Luapula Valley).

DISTRIBUTION OF THE SPECIES: From Zululand and the Transvaal north through eastern Africa to Lamu on the coast, Gardulla in southern Abyssinia, Luluabourg in the Kasai, and Matadi on the lower Congo River. Its range overlaps widely that of *L. rubricata,* but adults of *L. jamesoni* can easily be recognized by their lacking an attenuated tip to the long outer primary. This character may not be very evident in the juvenal remiges of *rubricata,* so caution will be needed in determining young specimens. A

spot of bright red on the lores often characterizes the female of *jamesoni*. In many districts the two species may occur on the same ground, yet in general *L. jamesoni* seems to favor a slightly drier environment. It is a lowland bird, ascending to 4500 feet in Nyasaland and to 4000 feet in the Katanga.

The proper division into races is still uncertain. In the original descriptions comparisons were apt to be made mistakenly with forms of *L. rubricata*. But it is plain that *L. j. ansorgei* is of a much deeper, richer red on face and under surface than *L. j. jamesoni*. The nominate race ranges from South Africa to Nyasaland, the Katanga, and perhaps to the interior of East Africa. The range of *ansorgei* is in Angola and the Lower Congo. The Congo Museum has one male from Luluabourg of doubtful subspecific status.

The coastal region of East Africa, north to Lamu, is the home of *L. j. taruensis* Van Someren, described as brighter than nominate *jamesoni*, with a distinct reddish wash over crown, nape, and back. Its wings measure 45–49 mm. The validity of this race must remain in doubt until more adequate comparisons can be made. I can find little support for any color difference. The wings of nominate *jamesoni* were said by Roberts to measure 47–50 mm., and it seems to me that specimens from the southeastern Congo agree with the southern race.

The range of the species certainly extends to southern Abyssinia, where it is represented by *L. j. fricki* Mearns.[1] The type and topotypes of this form all have broad tips to the outer primaries and differ from *jamesoni* and *taruensis* by showing little if any red wash over the brown back.

Despite the paucity of published records, Jameson's fire-finch is widely distributed in the southeastern Congo. At Kabengere near Bukama, in December, 1926, J. T. Zimmer collected two males for the Chicago Museum, and at Kinia, 3925 feet, in southern Marungu, Rockefeller and Murphy obtained a male in April, 1929. There is a female in the Congo Museum from Elisabethville, and along the Luapula near Kasenga White secured two males and a female. I am not sure that this nominate race does not extend to Luluabourg.

At Iringa in Tanganyika Territory Lynes noted that nesting began toward March, while Alfred Vincent[2] in Southern Rhodesia found two nests in May. These are balls of coarse, dry grass blades, lined with fine grass blades and feathers of doves or francolins. They are placed at 4 inches to a foot above the ground, in bushes with grass growing up through them, or even in clumps of grass. Both sexes incubate; sets are of three or of four white eggs measuring 13.4–15.9 by 11.2–11.9 mm.

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[1] 1913, Smithsonian Misc. Coll., vol. 61, no. 14, p. 4 (Gato R. near Gardulla).

[2] 1949, Ibis, p. 666.

Lagonosticta jamesoni ansorgei Neumann

Lagonosticta rhodopareia ansorgei NEUMANN, 1908, Bull. Brit. Ornith. Club, vol. 21, p. 58 (type locality: Kabisombo R., Angola).

? *Lagonosticta congica* REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 199 (in part. Chinchoxo).

Estrilda jamesoni benguellensis DELACOUR, 1943, Zoologica, New York, vol. 28, p. 84.

SPECIMENS: Matadi, two males, December 26, 28.

ADULT MALE: Iris brown; bill blue, shading to black at tip; feet dark bluish.

DISTRIBUTION: Western Angola from Capelongo and Quillengues northward, the Lower Congo, and perhaps the Loango Coast. At Chinchoxo Falkenstein collected *L. rubricata landanae* and also a bird which Reichenow identified as *L. congica,* doubtless because of its dark-colored bill. We know that *congica* does not occur there, whereas *L. j. ansorgei* may.

About Matadi in December, 1914, I found *ansorgei* rather common, living in the same dry, stony country as *L. r. landanae* and distinguishable at once by its wholly bluish bill. Their behavior seemed exactly the same; they sought refuge in low bushes and tall grass. The specimens of *ansorgei* which I took were not breeding; the crops of both held only very small seeds. Nesting is probably delayed until late in the rainy season.

Lagonosticta larvata nigricollis Heuglin

Lagonosticta nigricollis HEUGLIN, 1863, Jour. Ornith., p. 273 (type locality: Djur District, Bahr-el-Ghazal Province).

Estrilda nigricollis nigricollis SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 445 (Ubangi R.). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 801.

Estrilda larvata nigricollis GROTE, 1924, Jour. Ornith., p. 490. DELACOUR, 1943, Zoologica, New York, vol. 28, p. 77.

SPECIMENS: Faradje, two males, January 25, February 2. Garamba, four males, June 5, 10, 11, 21; three females, June 3, 8, July 13.

ADULTS OF BOTH SEXES: Iris brown to rull dark red, rim of eyelids grayish blue; bill blue with black tip; feet dusky brown.

DISTRIBUTION OF THE SPECIES: From the Casamance across the whole Sudan to Abyssinia. The westernmost race, *vinacea,* has the body plumage of males strongly washed with pale purplish rose color. It occupies southern Senegal and Portuguese Guinea. From the interior of the Gold Coast to Northern Nigeria and western Darfur the rosy color is nearly lost, the body plumage of *togoensis* mainly light gray. Next comes the distinctly darker gray *nigricollis,* often with a light vinous wash on the breast, in the grasslands of the Ubangi-Shari, Bahr-el-Ghazal, northern Congo, and northern Uganda. Abyssinia and adjacent districts of the eastern Sudan have

the much more dusky *larvata,* heavily suffused with purplish red on temporal region, breast, and flanks.

Thus the race found in the Uelle savannas is *L. l. nigricollis,* and it seems restricted to the northern part of that area. Right at the post of Faradje we did not see it, but within a few hours' march to the northwest a few could be found in the dry season about burned spots in the scrubby savanna. At Garamba on the frontier of the Bahr-el-Ghazal, during the early rains, it was much more common. Feeding on the ground, it spends most of its time there and becomes very restless when chased into the trees. The lisping call note is very weak; the song resembles that of *L. rubricata.* This race of *L. larvata* was sometimes seen in company with *L. rara* and *L. rubricata.* Neglected farmlands are especially favored, such as are grown up with grass and weeds or covered with a worthless second growth of durra.

None of our specimens was in condition to breed; it is safe to assume that reproduction does not begin before July. In Northern Nigeria Serle[1] found nests of the closely allied *togoensis* in July and August, placed a couple of feet above the ground in a small bush and in a pile of brushwood. They were balls of withered grass, lined with grass tops and a few feathers and contained three or four white eggs. These measured 13.7–14.5 by 10.8–11.4 mm.

My examination of crops and stomachs of four *nigricollis* showed small seeds in every case, insect remains in three. Two of the birds had eaten small termites of the worker caste.

Lagonosticta perreini perreini (Vieillot)

Fringilla perreini VIEILLOT, 1817, Nouveau dictionnaire d'histoire naturelle, vol. 12, p. 179 (type locality: Malimba, Enclave of Cabinda).

Estrelda perreinii HARTLAUB, 1850, Beitrag zur Ornithologie Westafrica's, p. 32.

Estrelda perreini SHELLEY, 1886, Ibis, p. 328.

Estrilda poliogastra SHELLEY, 1901, Ibis, pp. 165, 169 (Kalungwisi R.).

Estrilda perreini NEAVE, 1910, Ibis, p. 256 (Lualaba R., 3500 ft.; Lufupa R., 4000 ft.). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 404 (Kwamouth); 1924, idem, vol. 12, p. 276 (Kisantu); 1926, idem, vol. 13, p. 206 (Moanda).

Estrilda incana hapalochroa REICHENOW, 1916, Ornith. Monatsber., p. 168 (type locality: Urungu, at south end of L. Tanganyika).

Estrilda perreini perreini SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 800. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 108 (Nchanga in Northern Rhodesia). WHITE, 1946, Ibis, p. 221 (Congo border near Mwinilunga). A. W. VINCENT, 1949, Ibis, p. 670 (Elisabethville). BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 350, fig. 37.

Estrilda coerulescens perreini DELACOUR, 1943, Zoologica, New York, vol. 28, p. 77.

Lagonosticta perreini perreini SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 162 (Kangué; Sakania).

[1] 1938, Oologists' Rec., vol. 18, p. 44.

SPECIMENS: Boma, male, January 3; two females, January 8, 17.

ADULTS OF BOTH SEXES: Iris dark brown; bill light blue, blackish at tip and along cutting edges; feet rather dark blue-gray.

DISTRIBUTION OF THE SPECIES: From the coast of Natal north to Mozambique, Nyasaland, and southwest Tanganyika Territory, then from Lake Tanganyika and Northern Rhodesia west to Angola and the Loango Coast. Nominate *perreini* ranges from the Congo mouth and Angola eastward to Lake Tanganyika and northern Nyasaland. It has deeper gray coloration throughout than *L. p. incana* (Sundevall), which dwells from southern Nyasaland to Natal. According to Austin Roberts, birds from the region of Inhambane are even paler than those of Natal and should be separated as *L. p. poliogastra* (Reichenow).

The nominate race is not uncommon in the Katanga and extends northward to the vicinity of Baraka, where Grauer obtained half a dozen examples. There seem to be no records from the Kasai, yet one from Kwamouth. Malbrant also collected it at Brazzaville. Near Boma on the lower Congo I found this black-tailed lavender-finch singly or in pairs amid the grass and other low growth about shady groves of rubber trees. They seemed fond of the banks of brooks.

In behavior *perreini* resembles the other species of *Lagonosticta* far more than those of *Estrilda,* as it does in the form of the bill and the shortness of the tail. The next to outermost primary is not emarginate at the tip, but this character varies in *Lagonosticta.* Despite its evident affinity with the red-tailed *L. caerulescens* of grasslands in Upper Guinea and Cameroon, *perreini* may be said to deserve specific rank. The two birds are completely isolated by the Lower Guinea forest. *Lagonosticta thomensis* (Sousa), described from São Tomé and represented by a single specimen (the type of *cinderella*) from Angola, has the posterior flanks red; it should prove to be a third species.

The breeding season of *perreini* comes late in the rains. At Boma one of our female specimens was in condition to lay on January 8. Near Elisabethville Alfred Vincent found nests on April 1 and 23. They were roughly retort-shaped but with very short spout, thickly constructed of long grass stems with a few flowering tops. Locations were in forks of shrubs and trees in open woodland, 8 to 14 feet up. Both sexes incubate. The white eggs number three or four and measure 14.1–15.2 by 10.9–11.5 mm. In southern Africa Austin Roberts found that deserted nests of weavers and waxbills were sometimes relined and used by this species.

Vincent noted that the crops of his specimens were crammed with grass seeds, and at Boma I found only small grass seeds to have been eaten by mine.

[*Lagonosticta caerulescens* (Vieillot)]

Fringilla caerulescens VIEILLOT, 1817, Nouveau dictionnaire d'histoire naturelle, vol. 12, p. 176 (type locality: Senegal).

Estrilda caerulescens SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 800 (Shari district of French Equatorial Africa).

The red-tailed lavender-finch seems to inhabit rather drier country than *L. perreini* and ranges from Senegal to the Ubangi-Shari. Bates described it as a bird of trees, seen in pairs or straggling groups exploring the branches and getting tiny larvae as well as seeds of small fruits. It does not seem very likely that this species would reach the great bend of the Ubangi.

Lagonosticta senegala ruberrima Reichenow

Lagonosticta brunneiceps ruberrima REICHENOW, 1903, Ornith. Monatsber., p. 24 (type locality: Bukoba on L. Victoria); 1904, Die Vögel Afrikas, vol. 3, p. 198 (Nyangabo); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 335 (Kisenyi; Beni). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 277 (Boga); 1923, idem, vol. 11, p. 350 (Luebo). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 51 (Usumbura; Baraka).

Lagonosticta brunneiceps SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 258 (L. Edward).

Lagonosticta ruberrima OGILVIE-GRANT, 1908, Ibis, p. 271 (north of L. Edward; north of L. Tanganyika, 3000 ft.).

Lagonosticta minima SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 453 ("Uelle").

Lagonosticta senegala ruberrima GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 64 (Ngoma; Kabare; Angi). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 792. NEUMANN, 1932, Anz. Ornith. Gesellsch. Bayern, vol. 2, p. 155. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 275 (Lulenga); 1933, idem, vol. 22, p. 371 (Nyundo; Rugegera); 1935, idem, vol. 27, p. 404 (Nyanza on L. Tanganyika; Gabiro; Katana); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 146 (Mahagi Port); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 166; 1941, Rev. Zool. Bot. Africaines, vol. 34, pp. 267, 365 (Kasenyi); 1942, idem, vol. 36, p. 342 (Kibingo). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 574 (Bunia). FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 445. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1504. LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 106; 1939, idem, vol. 32, p. 323.

Lagonosticta senegalla ruberrima FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 765 (Uvira). SCHOUTEDEN, 1943, Rev. Zool. Bot. Africaines, vol. 37, p. 273.

Lagonosticta senegala kassaica NEUMANN, 1932, Anz. Ornith. Gesellsch. Bayern, vol. 2, p. 155 (type locality: Luluabourg, Kasai District).

Lagonosticta senegala senegala GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 78 (Luluabourg).

Lagonosticta landanae? GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 78 (Luluabourg).

Lagonosticta senegale ruberrima VRIJDAGH, 1949, Gerfaut, vol. 39, p. 110 (Ndele; Bogoro).

ADULTS OF BOTH SEXES: Iris dark red, rim of eyelids olive to lemon-yellow; maxilla dark gray, a little rosy at sides, blackish on culmen, mandible rose madder with a black stripe on gonys; feet grayish brown.

DISTRIBUTION OF THE SPECIES: Senegal to Eritrea and southern Arabia, in open countries, southward through eastern Africa to Natal and the Transvaal, and west again to Ovamboland, Angola, and the Kasai District. About nine races are recognizable; they differ mainly in the depth and extent of red coloration and in the brownish colors of crown, back, or abdomen. The species does not approach the northern edge of the Congo forest and thus is not found in the savannas of the Ubangi or Uelle. Salvadori's specimen of *"minima"* must have come from the Bahr-el-Jebel.

On the eastern edge of the Congo it crosses Lake Albert and occupies the Lendu Plateau. The race *ruberrima* extends from there across Uganda and southward between Lake Victoria and the Congo forest to the Ubena highland, Lake Tanganyika, the Lualaba, and westward to the central Kasai District. Males of *ruberrima* have deep purplish red coloration, and their backs are heavily washed with that same hue. Abdomen and under tail-coverts are dark gray-brown.

In the Upper Katanga the species is supposed to be represented by *L. s. rendalli,* but I am inclined to admit that *ruberrima* may extend to Bukama, and records from the more southerly parts of that region are very few. Males of *rendalli* are lighter red, have more brownish backs, the abdomen and under tail-coverts lighter, warmer brown. This is the race of southeastern Africa.

The deeply colored *ruberrima* occurs at Dele in the eastern Ituri but was not seen at Irumu. In the upper Semliki Valley it reaches the old post of Beni. It is found even on the west shore of Lake Kivu but avoids the mountain slopes above 6500 feet and areas that are wooded or have dense elephant grass. Rather dry lowlands are preferred. A male in worn breeding dress from Kalombwa on the Lualaba River seems to belong with *ruberrima,* and at Luluabourg in the Kasai Father Callewaert collected a sizable series.

In the eastern Congo this is a familiar, confiding bird, often seen feeding on the ground near villages, in pairs rather than in flocks like *L. rufopicta.* The food is of small seeds. It sometimes nests in the thatched roofs or in crevices about buildings, otherwise in low bushes, perhaps even on the ground. The breeding season is very long. At Entebbe Jackson noted nests from March to June, while in other parts of Uganda Van Someren reported them at all seasons. At Kasenyi I found a pair just beginning to breed in early September. In the southern Congo the evidence indicates laying from December on to August.

Nests are built of dry grass and usually lined with feathers. Three to

five white eggs are the rule, measuring 13–14 by 10–10.5 mm. This firefinch is believed to be the most frequent fosterer of *Hypochera,* so when any discrepancy of size is noticed among the eggs it will be wise to allow them to hatch and to study the nestlings closely.

Lagonosticta senegala rendalli Hartert

Lagonosticta senegala rendalli HARTERT, 1898, Novitates Zool., vol. 5, p. 72 (type locality: Upper Shiré R., Nyasaland). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 792 (Katanga). PRIEST, 1936, The birds of Southern Rhodesia, vol. 4, p. 324, fig. 98. SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 162 (Kilwa; Lusaka; Baudouinville; Kadia).

? *Lagonosticta senegala ruberrema* BOWEN, 1931, Proc. Acad. Nat. Sci. Philadelphia, vol. 83, p. 297 (Bukama).

Estrilda senegala rendalli VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 23, p. 16 (Musosa).

DISTRIBUTION: From Natal and the Transvaal northward to the Loangwa Valley, Nyasaland, supposedly the Katanga, and probably the eastern coastlands near Morogoro. The status of this race in the Katanga is uncertain. Neave collected it at Petauke in the Loangwa Valley but not on the Katanga highland. Benson found that in northern Nyasaland there was a noticeable approach to *ruberrima* in coloration. According to Verheyen, however, Brédo collected three adult males and a female of *rendalli* at Musosa, northeast of Lake Moero, and Schouteden reports others from the eastern Katanga.

In behavior this race is very like *ruberrima* and apt to be found near human habitations, not higher than 5000 feet. Its usual call is a single weak whistle. Nesting is to be expected from February to May and may continue into the first half of the dry season.

Lagonosticta rufopicta lateritia Heuglin

Lagonosticta (*Estrelda*) *lateritia* HEUGLIN, 1864, Jour. Ornith., p. 262 (type locality: Djur, Bahr-el-Ghazal Province).

Lagonosticta rufoptica EMIN, 1919, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 2, p. 490 (Tomaya).

Lagonosticta rufopicta EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 261 (Madjamboni).

Lagonosticta rufopicta lateritia SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 792. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 146 (Mahagi Port; Faradje; Aru).

SPECIMENS: Niangara, three males, April 11, May 15; two females, May 15. Dungu, two males, female, June 26.

ADULTS OF BOTH SEXES: Iris dark brownish gray, rim of eyelids light bluish gray; bill rose color, lightest at base, with dusky brownish culmen and a faint median stripe of the same color beneath mandible; feet dark brownish.

DISTRIBUTION OF THE SPECIES: From the Gambia and Sierra Leone eastward to the Bahr-el-Ghazal, Bahr-el-Jebel, and the Boma Plateau in the southeast Sudan. Two races are recognized, the eastern *lateritia* being supposedly grayer on crown and back. The difference is slight. Nominate *rufopicta* ranges from West Africa to the Ubangi-Shari District.

Lagonosticta r. lateritia extends from the southern Anglo-Egyptian Sudan into the grasslands of the Uelle and was reported by Emin from the Lendu Plateau on April 19. He was also said to have found it at Kibiro on the eastern shore of Lake Albert. In the Upper Uelle we observed this small fire-finch only seldom, in the region around Niangara and Dungu, from April to June inclusive. Schouteden obtained it at Faradje in July. They went about in flocks of eight to 20 individuals, feeding on the ground about roads and villages, flying up frequently to perch in small trees. During this first half of the rainy season they were clearly not breeding, nor were there any young in the flocks. Nesting must be limited to the second half of the rains, we knew not where. The song has been described as a musical twittering.

At Boma, 3500 feet, in the southeastern corner of the Sudan, Weekes[1] found a nest on September 22, hidden about 2 feet up in tall grass and attached to three grass stalks. It was domed, made of fine grass, and lined with soft grass heads. The eggs, pure white, numbered four, and measured 14 by 11 mm. Nests of the nominate race, examined by Serle[2] in Northern Nigeria on July 19 and October 5, were built in tussocks of grass within a few inches of the ground, and had feathers as an innermost lining.

The food we noted in the crops of five individuals consisted wholly of small seeds, including in one case *Eleusine* millet.

[*Lagonosticta rufopicta rufopicta* (Fraser)]

Estrilda rufopicta FRASER, 1843, Proc. Zool. Soc. London, p. 27 (type locality: Cape Coast Castle, Gold Coast).

Lagonosticta rufopicta rufopicta SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 792 (Shari-Ubangi region).

This western race may be just a little browner on crown and back than *lateritia* and perhaps a little lighter grayish on abdomen and under tail-coverts. It is reported to reach the Shari River, and thus it may be looked for in grasslands just within the great bend of the Ubangi.

Lagonosticta nitidula Hartlaub

Lagonosticta nitidula HARTLAUB, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 145, pl. 4, fig. 2 (type locality: Mpala, L. Tanganyika). DUBOIS, 1886,

[1] 1948, Ibis, p. 118.

[2] 1938, Oologists' Rec., vol. 18, p. 44.

Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148; 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Mpala). REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 195; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 335. SHARPE, 1907, Bull. Brit. Ornith. Club, vol. 21, p. 31 (near Kambove). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 793. SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 290 (Elisabethville); 1938, idem, vol. 31, p. 107 (Kasenga). SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 162 (Kabalo; Tembwe; Kinia; Moba; Albertville; Baudouinville; Kadia).

Hypargus harterti SHELLEY, 1903, Bull. Brit. Ornith. Club, vol. 14, p. 30 (new name for *Lagonosticta nitidula* HARTLAUB).

Hypargos harterti SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 244.

Lagonosticta harterti NEAVE, 1910, Ibis, p. 252 (upper Lualaba R.; Bunkeya R.).

Lagonosticta nitidula nitidula HARTERT, 1919, Novitates Zool., vol. 26, p. 147 (80 km. north of Kasongo).

Estrilda harterti VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 16, p. 11 (Kiambi).

Estrilda rufopicta harterti DELACOUR, 1943, Zoologica, New York, vol. 28, pp. 77, 84.

Lagonosticta rufopicta nitidula WHITE AND WINTERBOTTOM, 1949, A check list of the birds of Northern Rhodesia, p. 131 (Mwinilunga; Ndola; Bangweolo).

ADULTS OF BOTH SEXES: Iris dark brown to reddish brown; beak light purplish red at base, crimson along the sides, with a dark steel-blue stripe along culmen and a blackish line on gonys; feet slate-gray.

DISTRIBUTION: From the lower Cuanza Valley in Angola eastward to the Lualaba River near Kasongo, the southwest shore of Lake Tanganyika and the Katanga, southward also to Victoria Falls on the Zambesi. The supposed record of *L. nitidula* from Biogo near the upper Semliki Valley was based on a juvenile *Vidua macroura.*

At first glance this fire-finch might easily be taken for a southern race of *L. rufopicta.* Yet the lack of red on the upper tail-coverts is a character of some importance, and I prefer to separate them as species. There is some geographic variation in *nitidula,* for birds from the vicinity of Lake Tanganyika and Kasongo have smaller white spots on the chest and slightly darker underparts than those of Angola and Northern Rhodesia. I do not know where a line may be drawn between them, and the name *harterti* cannot be applied to a western race, since Shelley proposed it merely as a substitute name for *Lagonosticta nitidula* Hartlaub when he transferred this species to the genus *"Hypargus."*

In the main this is a lowland species. White has sent us specimens from near Balovale, Mwinilunga, and Ndola in Northern Rhodesia. J. T. Zimmer obtained a small series for the Chicago Museum at Katobwe on the Lualaba River. Rockefeller and Murphy collected others at Moba on Lake Tanganyika and one male even at Kitendwe, 6025 feet, in Marungu. In behavior *L. nitidula* seems to differ somewhat from the northern *L. rufopicta,* since Neave and subsequent observers report that it is a rather shy inhabitant

of thickets and reeds, coming out occasionally to feed on the ground in farmlands. White noted that it is also found in mixed parties with *L. rubricata.*

At Moba in mid-February three males were just coming into condition to breed, so it is evident that reproduction takes place in the latter half of the rains. White mentioned an egg found on March 4. Thus far I have seen no description of the nest.

Amandava subflava subflava (Vieillot)

Fringilla subflava VIEILLOT, 1819, Nouveau dictionnaire d'histoire naturelle, vol. 30, p. 575 (type locality: Senegal).

Sporaeginthus subflavus OGILVIE-GRANT, 1908, Ibis, p. 275 (Mfumbiro Volcanoes, 5000 ft.); 1910, Trans. Zool. Soc. London, vol. 19, p. 301 (north Ruwenzori, 3500 ft.; lower Semliki Valley, 2500 ft.). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 277.

Estrilda subflava REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 334 (in part. Kisenyi). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 172 (Tunguru).

Sporaeginthus subflavus subflavus BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 315. SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 167.

Estrilda subflava subflava SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 53 (Rutshuru Plain). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 798. SCHOUTEDEN, 1933, Rev. Zool. Bot. Africaines, vol. 22, p. 371. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1516. BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 341, pl. 12 (region of Mfumbiro Volcanoes).

Estrilda (Sporaeginthus) subflava subflava SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 146 (Mauda; Djalasinda; Mahagi; Angodia).

? *Estrilda melpoda fucata* VRIJDAGH, 1949, Gerfaut, vol. 39, p. 110 (Nioka; Loda Forest).

SPECIMENS: Niangara, two males, June 16. Faradje, seven males, March 13, August 11, 14, 31; six females, August 14, 31, October 3, 19; juvenile female, January 18.

ADULTS OF BOTH SEXES: Iris orange-red; bill red, with culmen, lower side of mandible, and a spot on maxilla near gape blackish; feet brownish.

NEWLY FLEDGED YOUNG: Iris yellow; feet grayish buff. Bill externally rather dull red, with culmen dark brown and a little blackish on maxilla near corners of mouth and beneath mandible. Five small black dots on palate, two dark spots on back of tongue, and a blackish crescent on inside of mandible beneath tongue. Skin of gape no longer swollen.

DISTRIBUTION OF THE SPECIES: Grasslands from Senegal to Abyssinia, south through eastern Africa to Natal and Pondoland, and westward again to Angola and the Lower Congo. It avoids the rain forests of Upper and Lower Guinea.

The nominate race occupies the countries north of the Equator; it is much the more brightly colored, the males with a wash of orange-red all over

the breast. *Amandava subflava clarkei,* of which the males have at most a reddish patch on the middle of the chest, is widely distributed over the regions south of the equatorial forest and north in East Africa to Nairobi and Witu. In the eastern Congo nominate *subflava* ranges south to Lake Kivu, and it also occupies Uganda, but in these regions it lives below 5500 feet. In Abyssinia it has been found up to 7000 feet. I have seen it in the Rutshuru Plain, at the new post of Beni, at Irumu, and at Kasenyi. It occurs at the northern end of the Lendu Plateau and on through the Upper Uelle.

About Niangara and Faradje the northern zebra waxbill was seen rather frequently from July to January but scarcely noted during the other part of the year. In August it was sometimes quite common and congregated in flocks numbering up to two dozen. They spent most of their time on the ground amid grass or weeds, often near villages and in cultivated fields. There was a certain resemblance in behavior to *Ortygospiza locustella,* except that these zebra waxbills often perched on grass or corn stalks. When alarmed, the whole flock rose in a body, their flight steady but rather slow, with vigorous wing action. The voice is a very weak twittering.

Near Faradje breeding seemed to commence toward September, when the birds were seen in pairs, often near swamps. A female with an egg in the oviduct was taken on October 19 and a young bird not long out of the nest on January 18. Nests have been found by Serle in Northern Nigeria on November 18, by Cheesman in Abyssinia on December 3 and 17; so breeding continues on into the dry season. These nests were all located in the grass, up to 4 feet from the ground, and it is likely that some of them were built by other birds, then relined with grass tops and feathers. Both sexes incubate. Eggs are in sets of five, white, and measure 12.5–13.5 by 10.2–10.5 mm.

The crops or stomachs of nine of our specimens always contained tiny seeds, and only one bird had eaten some very small insects as well.

Amandava subflava clarkei (Shelley)

Coccopygia clarkei SHELLEY, 1903, Bull. Brit. Ornith. Club, vol. 13, p. 75 (type locality: Richmond Road, Natal).

Estrilda subflava REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 186 (in part. L. Moero); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 334 (in part. Usumbura); 1923, Mitt. Zool. Staatsinst. Zool. Mus. Hamburg, vol. 40, p. 64 (Lupungu). LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 16 (Mukimbungu).

Sporaeginthus subflavus DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Kisantu). NEAVE, 1910, Ibis, p. 254 (upper Lualaba R.). BERLIOZ, 1925, Bull. Mus. Hist. Nat., Paris, vol. 31, p. 348 (Luluabourg).

Estrilda clarkei SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 209 (Mpala).

Sporaeginthus subflavus subflavus SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 350 (Kabambaie).

Estrilda (*Sporaeginthus*) *subflava* GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 79.

Estrilda subflava clarkei LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 107 (Banda). A. W. VINCENT, 1949, Ibis, p. 669 (Elisabethville).

Sporaeginthus subflavus clarkei SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 162 (Kabalo; Tembwe; Kansenia; Kasiki; Kasaji).

SPECIMENS: Leopoldville, male, December 22. Kinshasa, male, female, December 22.

Colors of eyes, bill, and feet like those of *A. s. subflava.*

DISTRIBUTION: From Pondoland and the Transvaal north to Witu on the East African coast, and on the islands of Mafia, Zanzibar, and Pemba; also to Nairobi, to the north end of Lake Tanganyika, the Kasai, Stanley Pool, and the lower Congo River.

In all its behavior this southern race agrees with the northern one. At Kinshasa and Boma, where I found it common in December and January, large flocks were to be seen feeding on the ground in dry spots and alighting occasionally on the grasses. Seeds of grasses provide most of their food. At that season they were not breeding. At Luluabourg Father Callewaert secured a considerable series, scattered over the months of April, May, August, October, and December. We have specimens also from Moba on Lake Tanganyika and Mukuli, 5450 feet, in Marungu.

Near Elisabethville Alfred Vincent found this zebra waxbill common in open grassy stretches and reported nests with eggs from April to the end of May and others containing young in June. All these nests, amid high grass, were apparently built by other birds: *Coliuspasser ardens, albonotatus,* and *capensis,* as well as *Euplectes hodeaceus.* In other regions old nests of *Euplectes orix, Amblyospiza,* other ploceines, probably of *Estrilda* and *Ortygospiza,* and even those of *Prinia* and *Cisticola,* have been found so appropriated. They are relined with grass tops and feathers and then receive sets of four or of five white eggs, measuring 12.5–14.9 by 9.9–10.8 mm.

On one occasion Jack Vincent in Natal found four eggs of *Amandava s. clarkei* in a nest with two of *Coliuspasser ardens.* This suggests a possible origin of the nest parasitism characteristic of *Vidua* and its allies.

Coccopygia quartinia kilimensis Sharpe

Coccopygia kilimensis SHARPE, 1890, Catalogue of the birds in the British Museum, vol. 13, p. 307 (type locality: Kilimanjaro). SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 238 (Ruwenzori). JACKSON, 1906, Ibis, p. 561.

Neisna dufresneyi nyansae NEUMANN, 1905, Jour. Ornith., p. 350 (type locality: Bukoba, L. Victoria).

Neisna minima OGILVIE-GRANT, 1906, Bull. Brit. Ornith. Club, vol. 16, p. 116 (type locality: Mubuku Valley, 6000 ft., Ruwenzori).

Neisna nyansae OGILVIE-GRANT, 1908, Ibis, p. 274 (Mfumbiro Volcanoes, 7000 ft.; L. Kivu); 1910, Trans. Zool. Soc. London, vol. 19, p. 302, pl. 10, fig. 4.

Neisna kilimensis REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 336. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 277. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 52 (northwest of L. Tanganyika, 2000 m.).

Coccopygia melanotis nyanzae SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 794. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 275 (Busingizi); 1933, idem, vol. 22, p. 372. FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 381. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1506. PETERS AND LOVERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 273 (Idjwi I.). V. AND G. VAN SOMEREN, 1949, The birds of Bwamba, p. 102 (Bundibugyo; northwest Ruwenzori, 7000 ft.).

Coccopygia quartinia nyanzae SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 167.

Coccopygia melanotis kilimensis VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 52 (Tshumba).

Coccopygia quartinia kilimensis VRIJDAGH, 1949, Gerfaut, vol. 39, p. 110 (Mt. Aboro, 2200 m.).

ADULTS OF BOTH SEXES: Iris deep red; maxilla blackish, mandible scarlet; feet dark gray-brown.

DISTRIBUTION OF THE SPECIES: Northern Abyssinia to the highlands of East Africa and the eastern Congo, Nyasaland, and the eastern edge of Southern Rhodesia. The nominate race is found in Abyssinia and has also been reported from the Didinga Mountains in the southeastern Sudan. The remainder of the range seems to be occupied by *C. q. kilimensis,* a slightly smaller race, differing but little in color.

The closely allied *Coccopygia melanotis* (Temminck) has adult males with black covering the cheeks and upper throat, yet is often regarded as conspecific. Nominate *melanotis* ranges from the Cape Province and Natal to eastern Transvaal, while *C. m. bocagei* Shelley, with much more yellow on the belly, is found in Angola from the Mossamedes District over the plateau and north to Pungo Andongo.

Both sexes of *C. quartinia* look much alike, with cheeks and throat pale gray. It may be that the throat and cheeks of eastern Congo specimens are a little more whitish than those of East African birds, but I scarcely think *nyansae* worthy of recognition. Within our limits these small waxbills are seen in pairs or in flocks of eight to 20, usually above 4000 feet and mainly around the lower border of mountain forests. On west Ruwenzori they were not uncommon, and a few were noted on the grassy southwest base of that range at only 4500 feet. The Van Somerens report them still lower down in Bwamba. One of Grauer's specimens is labeled as coming from the Rutshuru Plain. Others I have seen at Mulu, northwest of Lake Edward, yet few specimens have been taken on the Kivu Volcanoes.

The behavior is much like that of *Estrilda,* from which *Coccopygia* should scarcely be separated. These birds frequent grassy situations, even old farm-

lands in the mountain forest zone. They perch on the grasses from which they pick seeds and give a weak "sree" as a call.

In general their breeding season comes late in the rains. At Mt. Avu, northwest of Nioka, I found a pair ready for reproduction on August 19. Close to the Equator one may expect great irregularity in dates of nesting. The Van Somerens reported breeding in Bwamba in April and July–August. Farther south nesting is expected between February and May. Rockefeller and Murphy collected one non-breeding female on February 24 at Kitendwe, 6025 feet, in Marungu and noted that small flocks lived there in open savannas and the edges of farms.

The rounded nests are reported to be made largely of grass and placed in forks of shrubs or small trees at a height of 5 or 7 feet. They are lined with a quantity of white plant down and may have seeded grass tops projecting above the entrance. The white eggs usually number four and measure about 13.5 by 11 mm. On one occasion, near the base of Mt. Kenya, I saw three of these waxbills sitting near an old nest of *Othyphantes reichenowi,* which they seemed to have relined with grass tops and probably used as a roost.

Key to the Species of *Estrilda* Occurring in or Near the Congo

1. Crown entirely black, contrasting with white or light gray cheeks and throat . 2
   Crown not black, but brown or gray, sometimes finely barred 3
2. Abdomen and under tail-coverts black or sooty blackish . . . . *E. atricapilla*
   Abdomen and under tail-coverts whitish or pale gray . . . . . *E. nonnula*
3. Cheeks, ear-coverts, and more or less of chin black; wing-coverts and inner secondaries broadly barred with blackish; bill dark-colored. *E. erythronotos*
   No black anywhere about head, or only just around eye 4
4. A red or orange patch on sides of head, enclosing eye; or a red stripe through eye region 5
   No red about head or face, except that the bill is usually red or orange . . . 8
5. A large red or orange patch on each side of head, including all the ear-coverts; rump red; no barring on underparts, which are light gray, the abdomen paler but often with a wash of pink or light orange . . . . *E. melpoda*
   Only a red stripe through region of eye, never covering more than upper margin of ear-coverts 6
6. Upper tail-coverts black, like all save outermost rectrices . . . . *E. troglodytes*
   Upper tail-coverts brown or red 7
7. Bill partially or entirely dusky; greater wing-coverts and inner secondaries with considerable red on their outer webs; upper tail-coverts red, not noticeably barred . . . . . *E. rhodopyga*
   Bill wholly of light color, orange to red in life; greater wing-coverts and secondaries not more washed with red than adjacent feathers; upper tail-coverts always barred with dusky, and often brown without even a wash of red . . . . . *E. astrild*
8. Lores and all the feathering about the eye gray or brown, no dark barring on flanks . . . . . *E. paludicola*
   Lores black, and a little black encircling the eye, flanks and lower back distinctly barred . . . . . *E. nigriloris*

Estrilda paludicola paludicola Heuglin

Estrelda paludicola HEUGLIN, 1863, Jour. Ornith., p. 166 (type locality: middle course of Bahr-el-Ghazal). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Ituri).

Estrilda paludicola REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 184 (Tingasi); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 334. OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 299 (60 miles north of Beni). V. AND G. VAN SOMEREN, 1949, The birds of Bwamba, p. 101 (Bwamba).

Habropyga paludicola EMIN, 1921, *in* Schubotz, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 256 (Mbiambana); 1922, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 3, p. 377 (Mswa); 1927, idem, vol. 4, p. 27.

Estrilda paludicola paludicola GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 61 (Tabaro; Irumu). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 799. GRANVIK, 1934, Rev. Zool. Bot. Africaines, vol. 25, p. 172. STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 574 (Bunia; Ekibondo). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1515. VRIJDAGH, 1949, Gerfaut, vol. 39, p. 110 (Mt. Mé).

Estrilda (Sporaeginthus) paludicola paludicola SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 147 (Mahagi Port; Mauda).

SPECIMENS: Medje, male, female, July 2. Faradje, three males, March 27, 28, 31; four females, March 28; immature female, March 27.

ADULTS OF BOTH SEXES: Iris red, bill orange-red, feet dark brownish.

DISTRIBUTION OF THE SPECIES: From Southern Nigeria to the Uelle, the Bahr-el-Ghazal, and central Abyssinia, southward through Uganda and the eastern Congo to southwestern Tanganyika Territory, and westward again to the Benguella Province of Angola and the middle Congo River.

This is a waxbill of rather dull gray or brownish coloration with lighter underparts and often with a splash of rose on the belly. The race *poliopareia* of Southern Nigeria stands apart by its very brown coloration and the light red of its upper tail-coverts, and *anambrae* appears to be a synonym. In Abyssinia the race *ochrogaster* is characterized by unusually yellowish underparts.

Estrilda p. paludicola is only lightly washed with yellowish buff below and has a gray crown distinct from the brown back. It ranges from the Bahr-el-Ghazal and the Lower Uelle eastward to Boma in the southeastern Sudan and across Uganda to North Kavirondo. In southwestern Uganda and adjacent parts of Tanganyika Territory and the Kivu it is replaced by *E. p. roseicrissa,* with the crown brown like the back, and breast somewhat whiter. The allied form *marwitzi* in the Uhehe highlands is deeper reddish brown above, grayer below.

Still another race, *benguellensis,* gray-crowned but heavily washed with ochreous below, extends from Lake Tanganyika and the country around Lake Bangweolo westward across the Katanga and Northern Rhodesia to the highlands of Angola. Finally, along the middle Congo River near Bolobo

and Lukolela, there is *E. p. ruthae,* more similar to nominate *paludicola* but with the whole underparts very whitish. In a general way the ranges of *Estrilda paludicola* and *E. melpoda* are complementary. That they cannot be called conspecific is proved by the occurrence of both in Southern Nigeria and along the middle Congo River.

Nominate *paludicola* seems widely separated from the very distinct race in Southern Nigeria, for it has not been reported farther west than Buta in the Lower Uelle. It occupies the savannas of the Uelle and enters the clearings of the northern Ituri forest as far as Medje. In the eastern Ituri District it is common at Irumu, Bogoro, and Kasenyi and appears to extend around the southern shore of Lake Albert to the Bugoma Forest in Uganda. I was convinced that this was the race I saw at Beni and even in the upper Semliki Valley. But it is replaced by *roseicrissa* to the east of Ruwenzori and on the south side of Lake Edward. To avoid confusion it must be remembered that the young of *paludicola* have the crown brown. Specimens of *paludicola* from North Kavirondo and adjacent parts of Uganda have the breast more whitish and tail averaging slightly longer than do those of the Uelle District.

The commonest waxbill in the Upper Uelle is *Estrilda p. paludicola.* It gathers in considerable flocks, frequenting grassy situations, often near swamps but also about villages. It will sit high up in the seeding grasses, and faint lisping call notes were all that I heard. Specimens taken at Faradje in late March were non-breeding, and a pair at Medje in early July did show enlargement of gonads. Nesting certainly goes on during the heavy rains.

At Boma in the Sudan Weekes[1] found nests on July 30 and August 27. They were domed, built of fine grass heads, and placed on the ground at the roots of tall grass. In at least one case a frail "cock-nest" was constructed on top of the nest with eggs. The normal set of eggs appears to be four or five, yet one nest held 10. In Uganda Belcher found four eggs of *E. p. paludicola* with one of *Vidua.* A nest was reported at Entebbe in January. The white eggs measure about 12.5 by 10 mm.

Estrilda paludicola roseicrissa Reichenow

Estrilda roseicrissa REICHENOW, 1892, Jour. Ornith., p. 47 (type locality: Bukoba on L. Victoria); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 334. OGILVIE-GRANT, 1908, Ibis, p. 276 (L. Kivu); 1910, Trans. Zool. Soc. London, vol. 19, p. 300 (Mokia). SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 167.

Estrilda paludicola SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 214 (in part. Ruwenzori).

Estrilda roseicrissa roseicrissa GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 61 (Butalia). SCLATER, 1930, Systema avium Aethio-

[1] 1948, Ibis, p. 118.

picarum, pt. 2, p. 800. FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 383.

Estrilda paludicola roseicrissa JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1516 (Toro; Kigezi). SCHOUTEDEN, 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 342 (Kibingo); 1943, idem, vol. 37, p. 273 (Gabiro).

ADULTS OF BOTH SEXES: Iris bright red, bill scarlet, feet dark brown.

DISTRIBUTION: From Mubendi in Uganda and the west shore of Lake Victoria to the eastern and southern shores of Lake Edward, then southward through the Kivu to Ruanda and Urundi. While I did not see it at the higher elevations west of Lake Edward, it was not uncommon at Luofu and was collected at 6000 feet between Luofu and Kabasha. A party of five was also noted at 6000 feet, east of Rutshuru; others have been found at 6400 feet, southwest of Lake Kivu.

In behavior *roseicrissa* is exactly like *paludicola* and frequents fields of high grass in flocks. Grauer collected specimens in the Rutshuru Plain and between Ishangi and the Rugege Forest. Harry Raven obtained two at Nyanza on Lake Tanganyika.

The food is primarily of small grass seeds. Nest and eggs are doubtless very similar to those of *paludicola* and to be looked for in the rainy months of the year.

Estrilda paludicola benguellensis Neumann

Estrilda paludicola benguellensis NEUMANN, 1908, Bull. Brit. Ornith. Club, vol. 21, p. 96 (type locality: Que R., Benguella Province, Angola). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 799 (L. Bangweolo). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 108 (Kayoyo; Nasondoye). WHITE, 1946, Ibis, p. 221 (Mwinilunga district). A. W. VINCENT, 1949, Ibis, p. 670 (Elisabethville).

Estrilda benguellensis NEAVE, 1910, Ibis, p. 255 (upper Lualaba R.; upper Lufira R.).

Estrilda paludicola poliopareia SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 162 (Kansenia).

DISTRIBUTION: From the southwest side of Lake Tanganyika and the region of Lake Bangweolo westward to the neighborhood of Kabinda in the Lomani District, Balovale on the upper Zambesi, then to the highlands of Angola and northward in that colony to Duque de Bragança. A female was taken by Rockefeller and Murphy at Kitendwe, 6025 feet, in Marungu. In the Upper Katanga Neave found this waxbill in flocks, frequenting grass and reeds near rivers in the open parts of the country. Alfred Vincent believes it prefers the thinner woodland where shrubs are interspersed with grass growing in clumps.

In such a place Vincent found a nest on December 27, placed 4 inches above the ground in the middle of a clump of rough grass 18 inches tall. It was rounded, 3½ inches in diameter, built of fine, stiff grass, with a funnel

entrance 1 inch long, sloping downward. On the top was a bower almost equal in size to the nest. The white eggs were five and measured 12.6–13.8 by 9.7–10 mm.

Estrilda paludicola ruthae Chapin

Estrilda paludicola ruthae CHAPIN, 1950, Bull. Brit. Ornith. Club, vol. 70, p. 23 (type locality: Lukolela, middle Congo R.; also from Kunungu and vicinity).

SUBADULT MALE: Iris light reddish brown, bill dull scarlet, feet dusky brown.

DISTRIBUTION: Grasslands and grassy clearings in forest along the middle Congo River, from the region near Bolobo up to that around Lukolela. This small, light-colored race, with very whitish under surface, is represented by the type from near Lukolela and by other specimens taken by Schouteden's native collectors at Kunungu and neighboring villages in the district just east of Bolobo.

One day in late March, 1931, at the Mompoto sawmill just above Lukolela, I noticed a flock of waxbills in a field of tall grass. On looking them over with the field glass I was surprised to find not only *Estrilda astrild* and *melpoda,* the common species of that area, but also four *paludicola,* so one was shot and skinned. I wondered at the time whether this waxbill might not have crossed the equatorial forest by way of the Likwala and Ngiri marshes.

Only many years later did I happen to look more carefully at the series of *Estrilda paludicola* in the American Museum. This single specimen stood out from all the others by its white under surface. The upperparts, too, are paler than in *E. p. paludicola.* More recently at the Congo Museum I have seen 10 more specimens of similar coloration from the region of Bolobo. The race *ruthae,* named for my wife, appears to be a rather local one but may be expected to occur in the grasslands of the French Congo. Its behavior is exactly like that of nominate *paludicola,* but so close to the Equator its breeding season is likely to be longer and less regular.

[*Estrilda paludicola poliopareia* Reichenow]

Estrilda poliopareia REICHENOW, 1902, Ornith. Monatsber., p. 185 (type locality: "Congo"); 1904, Die Vögel Afrikas, vol. 3, p. 185. SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 216.

Estrilda paludicola poliopareia SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 799 ("probably from Stanley Pool").

This race is mentioned here not because it may inhabit the Congo but only to dispel any such belief. It is all but certain that the type of *poliopareia* came from the region of the Niger Delta, and thus the name has five years' priority over *anambrae* Kemp.[1] From a note written on a label in the Roth-

[1] 1907, Jour. Ornith., p. 624 (Anambra Creek, Agoulerie, Southern Nigeria).

schild Collection it is clear that Oscar Neumann was aware of their close similarity. Recently Hermann Grote examined the type of *poliopareia,* once thought to have been collected at Stanley Pool by Teusz or Bohndorff, and compared it with two of Kemp's specimens from Nigeria. He found no appreciable difference, and no new specimen of *poliopareia* has ever been taken in the Congo or the Cameroon.

Estrilda melpoda melpoda (Vieillot)

Fringilla melpoda VIEILLOT, 1817, Nouveau dictionnaire d'histoire naturelle, vol. 12, p. 177 (west coast of Africa; restricted type locality: Senegal).

Estrelda melpoda SHARPE AND BOUVIER, 1878, Bull. Soc. Zool. France, vol. 3, p. 76 (Condé). JOHNSTON, 1884, The River Congo, p. 365.

Habropyga melpoda REICHENOW, 1887, Jour. Ornith., p. 301 (Manyanga).

Estrilda melpoda REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 186. SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 212. LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 16 (Mukimbungu). SCHOUTEDEN, 1920, Rev. Zool. Bot. Africaines, vol. 7, p. 191 (Temvo); 1924, idem, vol. 12, p. 276 (Kidada); 1926, idem, vol. 13, p. 206 (Moanda; Makaia-Ntete). BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 316 (in part). CHAPIN, 1928, Amer. Mus. Novitates, no. 308, p. 2 (in part. Boma; upper Kwango R.).

Sporaeginthus melpoda DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (in part. Kisantu; Lower Congo).

Estrilda melpoda melpoda BANNERMAN AND BATES, 1924, Ibis, p. 271. BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 344.

Estrilda melpoda melpoda ≷ *fucata* NEUMANN, 1932, Anz. Ornith. Gesellsch. Bayern, vol. 2, p. 155 (western Congo; northern Angola).

DISTRIBUTION OF THE SPECIES: From Senegal through Upper Guinea to Lake Chad, the Cameroon, Gaboon, and northwest Angola, then eastward to the Lower Uelle, the central Ituri District, the north end of Lake Tanganyika, Lake Moero, and the whole Kasai region. Introduced long ago in Puerto Rico.

Sexual difference in coloration is scarcely noticeable, but immature birds must not be expected to aid in separating races. In the region of Senegal, which has been designated as the type locality of *melpoda,* the cheeks do not become as bright red as they do in many other wetter countries to the southeast. In the region between Adamawa and Lake Chad, too, the body color is also pale, and that is the home of *Estrilda m. tschadensis* Grote. To draw any satisfactory line between nominate *melpoda* and the redder-faced *fucata* of the Kasai District is all but impossible. Neumann regarded birds from Liberia to the Cameroon and the coastal region south to Angola as intermediate. These I include with nominate *melpoda.* Specimens from Southern Nigeria seem particularly dull and orange on the cheeks; those from the Lower Congo are variable. The range of *fucata* may extend from Stanley Pool eastward.

Estrilda melpoda is a familiar waxbill in all the well-watered countries of

West Africa, living in high-grass savannas and in clearings within the forest where grasses have sprung up. Usually it is seen in flocks perching on the grass stalks and picking off the seeds or hopping on the ground in weedy places. Their calls are weak, lisping, or squeaky. In the Lower Congo this is one of the common waxbills in the savannas and in the clearings of the Mayombe Forest.

It may be expected to breed in that region of the Congo at almost any period during the rains. In Sierra Leone Walker observed a courtship dance by the male, holding a grass stalk aloft in his beak and singing shrilly. Rounded nests with a short tubular entrance are built of grass blades, stems and tops, and are placed very low down in the grass or on the ground. Sometimes a "cock-nest" is added. Five or six white eggs form a set; they measure 11.5–13.2 by 8.9–11.1 mm.

Estrilda melpoda fucata Neumann

Estrilda melpoda fucata NEUMANN, 1932, Anz. Ornith. Gesellsch. Bayern, vol. 2, p. 153 (type locality: Luluabourg, Kasai District, Belgian Congo). LYNES, 1939, Rev. Zool. Bot. Africaines, vol. 32, p. 323. WOLTERS, 1942, Ornith. Monatsber., pp. 57, 58. SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 162 (Lukonzolwa).

Sporaeginthus melpodus OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127. BERLIOZ, 1925, Bull. Mus. Hist. Nat., Paris, vol. 31, p. 348 (Luluabourg).

Sporaeginthus melpoda DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (in part: Banalia; Nouvelle-Anvers). OGILVIE-GRANT, 1908, Ibis, p. 275 (north of L. Tanganyika, 3000 ft.; Ponthierville).

Estrilda melpoda REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 334 (Ruzizi Plain); 1923, Mitt. Zool. Staatsinst. Zool. Mus. Hamburg, vol. 40, p. 64 (Lupungu). CHAPIN, 1921, Amer. Mus. Novitates, no. 17, p. 16 (Stanleyville; Panga); 1928, Amer. Mus. Novitates, no. 308, p. 2 (in part). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 351, 404 (Basongo; Luebo; Tshikapa; Tshisika; Kabambaie; Kwamouth); 1924, idem, vol. 12, p. 424 (Eala; Ikengo; Bikoro); 1925, idem, vol. 13, p. 21 (Bolobo); 1932, idem, vol. 22, p. 275 (Usumbura). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 53 (Uvira; Baraka).

Estrilda melpoda melpoda SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 798 (in part. Djabir on Uelle R.). FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 766 (Mistandunga). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 107 (Banda; Idiofa). BOUET, 1942, Ois. Rev. Française Ornith., new ser., vol. 12, p. 175 (Bangui); 1945, idem, new ser., vol. 14, p. 78 (upper Kemo R.).

Estrilda (Sporaeginthus) melpoda kassaika ? GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 80 (Luluabourg).

Estrilda (Sporaeginthus) melpoda melpoda SCHOUTEDEN, 1936, Ann. Mus. Congo, Zool., ser. 4, vol. 1, fasc. 2, p. 147 (Kotili; Buta).

SPECIMENS: Suata, juvenile female, July 14. Ukaturaka, two females, July 25. Ikengo, near Bolengi, male, July 20. Stanleyville, three females, August 13, 14, 25; immature female, August 14. Panga, two males, Sep-

tember 13, 18; two females, September 13, 16; immature female, September 13.

ADULTS OF BOTH SEXES: Iris rather light brown, sometimes gray on inner rim or slightly reddish on outer edge; bill scarlet, sometimes duller in female; feet rather dark grayish brown.

NESTLING: As shown by the drawing of G. L. Bates,[1] the decorations of mouth and gape are closely similar to those I describe for *Estrilda astrild occidentalis.*

DISTRIBUTION: From the vicinity of Stanley Pool eastward to Bondo and Buta in the Uelle, the central Ituri, and the northern end of Lake Tanganyika; on the south to Lake Moero and to Tshisika in the Kasai District. It must be admitted that the western limit is arbitrary and that this brightly colored race may extend north of the Ubangi and even to the interior of the Cameroon.

Specimens from Fumu Djale on the middle Congo River and from the Aruwimi River do not differ from others taken at Luluabourg, Usumbura, and Luvungi in the Ruzizi Valley.

Within the limits of the Upper Congo forest this red-cheeked waxbill is dependent on clearings with fields of grass and is common along many of the larger rivers. We never saw it in the Ituri, where three or four other species of *Estrilda* are at home in clearings, and when coming down the Aruwimi in 1914 we saw it first a few miles above Panga.[2] At Stanleyville, and from there all the way down the Congo River, it was common. But it was seen only about villages and patches of tall grass. At Lukolela it associated sometimes with *E. astrild.* It was a surprise to find this red-cheeked waxbill common in the lower Ruzizi Valley.

Near the southern edge of the forest breeding seems to cease during July and August, but fledglings appear again in November and December, so nesting probably continues through all the rainy months of the year. At Ikengo, Ukaturaka, and Stanleyville, adults in breeding condition were taken even in July and August, at Panga in September.

The nest and eggs of *fucata* are doubtless the same as those of nominate *melpoda.* Crops and stomachs of eight examples were found to contain only small grass seeds.

Estrilda astrild occidentalis Jardine and Fraser

Estrelda occidentalis JARDINE AND FRASER, 1851, Contrib. Ornith., p. 156 (type locality: Clarence, Fernando Po).

Estrilda astrild var. *rubriventris* OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127.

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[1] 1911, Ibis, p. 595, fig. 17c; 1930, Handbook of the birds of West Africa, p. 495.

[2] The range may be extending eastward in the Ituri, for in 1953 we found this waxbill at Mambasa.

Estrilda astrild minor CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 278, pl. 7, fig. 9. SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 170 (Mswa; Tunguru).

Estrilda astrild occidentalis SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 444 (upper Uelle R.). CHAPIN, 1928, Amer. Mus. Novitates, no. 308, p. 3 (Avakubi). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 796. VERHEYEN, 1939, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 15, no. 66, p. 7 (Bambesa). BOUET, 1942, Ois. Rev. Française Ornith., new ser., vol. 12, p. 175 (Bangui); 1945, idem, new ser., vol. 14, p. 77 (upper Kemo R.). VRYDAGH, 1946, Ostrich, vol. 17, p. 201, 1 illus. BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 335, fig. 36 (upper Uelle R.).

Estrilda (*Estrilda*) *astrild occidentalis* SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 146 (Mahagi Port; Buta).

Estrilda astrild nyansae VRIJDAGH, 1949, Gerfaut, vol. 39, p. 111 (Nioka; Kasenyi).

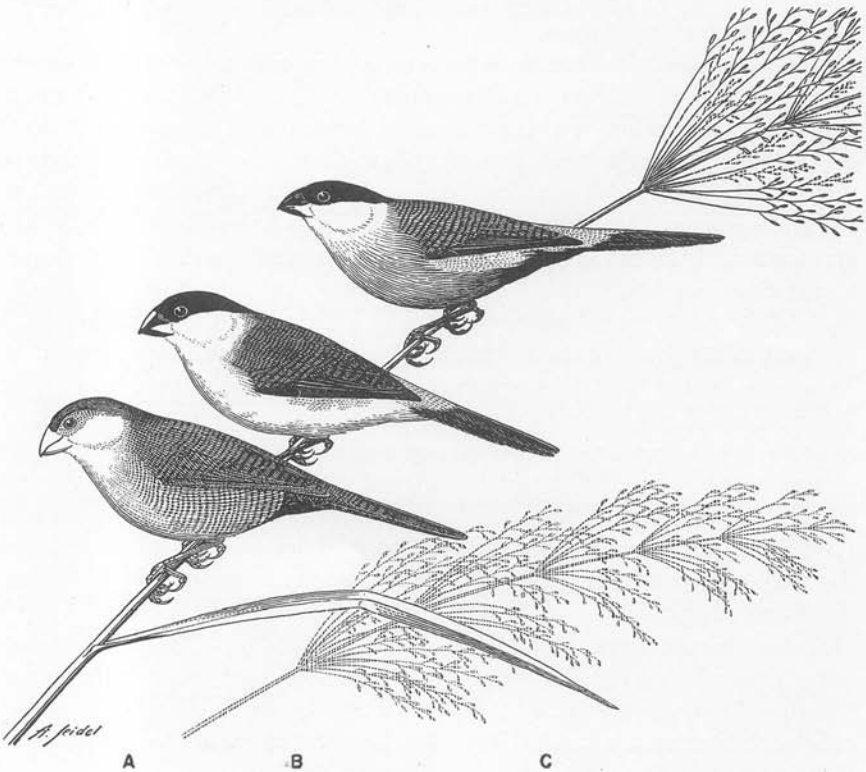

FIG. 39. Three waxbills living together in a forest clearing at Avakubi, Ituri. A. *Estrilda astrild occidentalis*. B. *Estrilda n. nonnula*. C. *Estrilda a. atricapilla*.

SPECIMENS: Avakubi, eight males, October 2, 4, 7, 13, November 10; female, October 2; juvenile female, October 17. Medje, male, July 18; im-

mature female, August 10. Faradje, five males, May 3, 5, 10; three females, March 25, May 3, October 25; juvenile male, juvenile female, October 17.

ADULTS OF BOTH SEXES: Iris dark brown, bill orange-red, feet black.

NESTLING: Iris brownish gray, feet dusky brown. Bill brownish black exteriorly; skin of gape blackish but bearing on each side one crescentic and two globular swellings of pale blue color. Interior of mouth flesh color, with five blackish spots on palate and two on sides of tongue; upper margins of mandible grayish white.

DISTRIBUTION OF THE SPECIES: Sierra Leone to Abyssinia and south over most of Africa except in the forested center of Lower Guinea and apparently the Kasai District. Introduced on Madagascar and other islands in the Indian Ocean, also Tahiti and New Caledonia; present on Fernando Po, São Tomé, Cape Verde Islands, Ascension, and St. Helena, and doubtless introduced on many of these.

About a dozen races are to be recognized, but only a few of them can be discussed here. In general, the forms inhabiting South and East Africa tend to have a well-marked red stripe from the lower breast down the middle of the abdomen. From northwestern Angola to the coast of the Gaboon the red of the under side becomes intensified, so that in *E. a. rubriventris* most of the underparts are heavily washed with red. From Lake Victoria northward and westward the red stripe on the underparts tends to disappear, though a pink tinge persists.

Estrilda astrild occidentalis, with only a light wash of pink below, is believed to range along the northern side of the Lower Guinea forest from Fernando Po and the Cameroon to the Uelle and eastern Ituri. From Lake Edward and Uganda south to Lake Tanganyika it is replaced by *E. a. nyansae,* which is a little redder on the middle of the underparts. The race occupying the Upper Katanga is believed to be *cavendishi,* a little more heavily barred on the chest, which extends to Nyasaland and Portuguese East Africa. Specimens from the western parts of Northern Rhodesia are not very different from *nyansae,* and the species seems virtually lacking in the Kasai District.

It does reappear on the middle Congo River, where I have seen it frequently near Lukolela. The birds there are not so red-bellied as on the Lower Congo and may be referred tentatively to *E. a. angolensis.* The richly colored *rubriventris* certainly ranges from the Lower Congo to the coast of the Gaboon.

In the grasslands of the northern Congo, from Bangui to Aba and Lake Albert, and also in the larger clearings of the Ituri forest the species is represented by *E. a. occidentalis.* Specimens even from the new post of Beni seem more like that race than *nyansae.* At Avakubi and Medje *occidentalis* was common, living in flocks amid grass in the clearings. Small seeds of

grasses formed virtually its entire diet. About Faradje it was usually found in the vicinity of marshes and seemed much less numerous there than *E. paludicola.* The behavior of the two waxbills is much the same and also very like that of *E. melpoda.* The ranges of these three species overlap in various parts of the Congo.

The nesting of *occidentalis* occupied the second half of the rains. At Avakubi breeding adults and a nestling were taken in October, and by November 10 the gonads had dwindled in size. At Medje a breeding male was secured in July, a bird in juvenal plumage in August. At the new post of Beni a nest was found on November 3.

About Faradje non-breeding adults were noted in March and June, a breeding female on October 15, and a nest with three young on October 17. Nests of this waxbill are placed near the ground amid high grass and built of seed-bearing grass tips, not woven but packed firmly together in a pear-shaped structure, about 15 cm. long by 9 cm. high. The materials protrude in a short spout around the lateral entrance, and there may or may not be a superimposed "cock-nest." The nest is not cleaned; its floor becomes badly fouled as the young develop. The white eggs are either four or five and measure 12.4–13 by 10–10.5 mm.

The palatal markings and gape wattles of the nestling, which I describe above, are remarkably similar to those of the young of *Vidua macroura,* and there can be no doubt that *Estrilda astrild* is one of the common fosterers of young pin-tailed whydahs. This question and the meaning of buccal decorations in the young of certain groups of Ploceidae have been discussed at length by R. Neunzig.[1] I believe, however, that the Estrildinae and Viduinae are closely allied and that the latter have retained such markings and papillae ever since the two groups diverged. Natural selection, of course, may aid in keeping them so closely alike.

Estrilda astrild nyansae Neumann

Estrilda astrild nyansae NEUMANN, 1907, Jour. Ornith., p. 596 (type locality: Bukoba on L. Victoria). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 59 (Zombia; Beni). FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 766 (Kibati). SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 167 (Mugunga; Nzulu; Burunga in Mokoto); 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 342 (Kibingo).

Habropyga astrild REICHENOW, 1887, Jour. Ornith., p. 309 (Kibondo).

Estrilda astrild minor REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 180; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 333 (Kisenyi). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 27 (Rutshuru). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 276 (Beni; Mai-na-Kwenda; Kalembé).

[1] 1929, Beiträge zur Fortpflanzungsbiologie der Vögel, vol. 5, pp. 7–17, pls. 1, 2; 1929, Jour. Ornith., vol. 77, pp. 1–21, figs. 1–6, pls. 1, 2.

Estrilda minor OGILVIE-GRANT, 1908, Ibis, p. 275 (Mfumbiro Volcanoes, 5000 ft.; north of L. Tanganyika); 1910, Trans. Zool. Soc. London, vol. 19, p. 299 (Mubuku Valley, 5000 ft.; Mokia).

Estrilda astrild adesma REICHENOW, 1916, Ornith. Monatsber., p. 168 (type locality: Kisenyi on L. Kivu).

Estrilda astrild nyanzae SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 443. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 795. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 274 (Ngoma–Kisenyi; Lulenga); 1933, idem, vol. 22, p. 371; 1935, idem, vol. 27, p. 404 (Nyanza on L. Tanganyika; Gabiro; Katana). BERLIOZ, 1936, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 8, p. 492 (Mbwahi). FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 449. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1509. PETERS AND LOVERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 273 (Idjwi I.). HENDRICKX, 1944, Ostrich, vol. 15, pp. 198, 211.

Estrilda astrild angolensis GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 60 (Burunga; Ngoma).

Estrilda astrild nyassae SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 54 (Beni).

Estrilda astrild angolensis ? BERLIOZ, 1932, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 4, p. 377 (Kadjudju).

Estrilda astrild munzneri DELACOUR, 1943, Zoologica, New York, vol. 28, p. 84.

DISTRIBUTION: From Mt. Elgon and the adjacent parts of Uganda to Lake Edward and the country west and south of it, through the Kivu District to the shores of Lake Tanganyika and the Manyema. There may be some doubt as to whether *nyansae* or *occidentalis* is the race found in the upper Semliki Valley, but specimens from the Rutshuru Plain, Usumbura, and Nyanza on Lake Tanganyika all agree with *nyansae*.

While largely a lowland bird, this waxbill spreads up on the highlands wherever they are not forested, and I have seen it in areas of scrub and bracken, sometimes associating with *Estrilda atricapilla graueri,* on the highland west of Lake Edward. A specimen was secured near Kasanga at 7900 feet. At Luofu it was abundant.

Haunts and behavior are usually like those of *occidentalis,* but the breeding season comes in the Kivu between February and May, correlated no doubt with the rains.

Estrilda astrild cavendishi Sharpe

Estrilda cavendishi SHARPE, 1900, Ibis, p. 110 (type locality: Mapicuti, Cheringoma, Portuguese East Africa).

Habropyga astrild SCHALOW, 1886, Jour. Ornith., p. 422 (Luvua R.).

Estrelda cinerea DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Habropyga cinerea MATSCHIE, 1887, Jour. Ornith., p. 154. SCHALOW, 1887, Jour. Ornith., p. 242.

Estrelda astrild var. *minor* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Mpala).

Estrilda astrilda NEAVE, 1907, Mem. Proc. Manchester Lit. Phil. Soc., vol. 51, no. 10, p. 94 (Ndola).

Estrilda minor NEAVE, 1910, Ibis, p. 255 (Bunkeya R.).

Estrilda astrild cavendishi SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 795 (Katanga ?). VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 23, p. 16 (Musosa). A. W. VINCENT, 1949, Ibis, p. 668.

Estrilda astrild niassae SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 290 (Elisabethville).

Estrilda astrild nyassae SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 162 (Tembwe; Kabalo; Lukafu; Kansenia; Sakania; Kole).

DISTRIBUTION: From Portuguese East Africa through Nyasaland to Northern Rhodesia and the Katanga. Without examining more adequate material I cannot be certain that Katanga birds are as heavily barred below as *cavendishi*. A male from Moba on Lake Tanganyika seems even too pale on throat and breast for *nyansae*.

In any case the species is not very abundant in the Katanga; perhaps it is more so in Marungu and on the adjacent shore of Lake Tanganyika. Rockefeller and Murphy reported it in flocks about the cornfields at Kakonde, 6000 feet, on the Marungu highland. The breeding season in the southeast Congo must include the rainy months of February, March, and April. Near Elisabethville Alfred Vincent found a nest on March 6, placed 3½ feet above the ground in a tight group of low saplings and well hidden by matted climbing plants. A little open cup was added on top, at the end opposite the nest entrance, but such a little bower, possibly used by the bird that is not incubating, is very often omitted. Eggs are four or five, white, and measure 13–13.7 by 9.9–10.6 mm.

This is believed to be the common fosterer of *Vidua macroura* and *Hypochera,* the white eggs of the parasites being distinctly larger.

Estrilda astrild angolensis Reichenow

Estrilda astrild angolensis REICHENOW, 1902, Ornith. Monatsber., p. 173 (type locality: Malanje, Angola).

? *Estrilda astrild* SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 351, 404 (Ngombe in Kasai; Kwamouth); 1925, idem, vol. 13, p. 20 (Kunungu).

DISTRIBUTION: The higlands of Angola and the Cuanza Valley, extending northward perhaps to the middle Congo River. The race *angolensis* is really an intermediate between the duller southern forms and the red-washed *rubriventris*. It is very likely to occur within our limits along the Kwango River.

Schouteden reported seeing waxbills of this species in the southern Kasai, where one might perhaps expect *angolensis*. None has been taken in the region of Luluabourg. At Kwamouth and Kunungu they certainly occur, but along this middle course of the Congo, where I have seen them often

around Lukolela, the coloration seems scarcely more reddish than that of *occidentalis*. Unfortunately I have only a single specimen, from Kassa on the right bank opposite Lukolela, but it shows no tinge of red on the upper tail-coverts and but little pink wash below. It may well be suspected that this waxbill has reached the region of Lukolela across the equatorial forest from the north. It is well established there and is seen in small parties of six to 10, feeding on the tall grasses along the river and in artificial clearings.

Estrilda astrild rubriventris (Vieillot)

Fringilla rubriventris VIEILLOT, 1823, Encyclopédique et méthodique . . . ornithologie, vol. 3, p. 992 ("Senegal"; corrected type locality: Portuguese Congo).

? *Estrilda cinerea* JOHNSTON, 1884, The River Congo, p. 365.

Estrilda rubriventris SHARPE, 1890, Catalogue of the birds in the British Museum, vol. 13, p. 393 (Landana).

Estrilda astrild gaboonensis SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 443 (type locality: Landana). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 61 (Kingoyi).

Estrilda astrild gabonensis SCHOUTEDEN, 1926, Rev. Zool. Bot. Africaines, vol. 13, p. 206 (Makaia-Ntete; Ganda Sundi; Kisala).

Estrilda astrild angolensis SCHOUTEDEN, 1926, Rev. Zool. Bot. Africaines, vol. 13, p. 206 (Banc d'Anvers near Boma).

Estrilda astrild rubriventris CHAPIN, 1928, Amer. Mus. Novitates, no. 308, p. 3 (Lower Congo). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 796. BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 338.

SPECIMENS: Boma, three males, January 1, 5, 16; female, January 1.

ADULTS OF BOTH SEXES: Iris dark brown, bill scarlet, feet dark brown.

DISTRIBUTION: Coastal area from the northwest corner of Angola across the Lower Congo and along the seacoast of the Gaboon. Very richly colored specimens have been taken at Setté Cama, like those to be found at Boma, in the clearings of the Mayombe Forest, and at Vungu. I doubt that *rubriventris* extends inland even to Stanley Pool, and it is to be noted that birds from the upper Ogowé River are scarcely more reddish than *angolensis*.

About Boma *rubriventris* seemed not very generally distributed and was found feeding in small parties on the tall grasses of a marsh. At Ganda Sundi in the northern Mayombe I noted it even more commonly right in the post. Its food and behavior are like those of the other races, and breeding had evidently begun at Boma in January.

Estrilda nigriloris Chapin

Estrilda nigriloris CHAPIN, 1928, Amer. Mus. Novitates, no. 308, p. 1 (type locality: Kiabo on Lualaba R.). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 797. YAMASHINA, 1936, Tori, vol. 9, p. 213, pl. 3. DELACOUR, 1943, Zoologica, New York, vol. 18, pt. 2, p. 78.

Estrilda astrild nigriloris VERHEYEN, 1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 652 (Mabwe on L. Upemba).

ADULTS OF BOTH SEXES: Iris very dark brown, bill rather dull scarlet, feet dusky brown.

DISTRIBUTION: Banks of the Lualaba River near latitude 8° 46′ S., and shores of Lake Upemba. Only in recent years have a few more specimens of *nigriloris* been collected, on the same section of the Lualaba and the east shore of Lake Upemba.

FIG. 40. A waxbill restricted to the lowlands near Lake Upemba: *Estrilda nigriloris*.

During a short visit at Kiabo, early in the morning of August 10, 1927, I was surprised to see a flock of 20 to 30 waxbills, very similar in behavior and appearance to *E. astrild* but with no red about the eye. Instead they had a black patch in the same position, of slightly smaller extent. They were in a level grassy plain, probably swampy when the river rises during the rains, and they perched on tall grasses and bushes. Through the field glass they all seemed exactly alike. This was in the dry season; the three examples collected were in non-breeding condition, and their crops contained only tiny grass seeds.

Schouteden now informs me that two additional specimens of *E. nigriloris* have been collected by Dewit at Zombe, only 14 kilometers south of Kiabo. Verheyen reports one more in his own collection from Mabwe on Lake Upemba.

It has been suggested that *nigriloris* is merely a color phase or a localized subspecies of *E. astrild*. That question can be settled only after more specimens are taken. I cannot be sure that any red-faced *astrild* occurs near Kiabo, but it does not seem to me that *nigriloris* can be a member of

that wide-ranging species. Its beak is smaller and blunter; it has a very faint light stripe of pinkish or whitish above the lores and eye, and the black ocular patch is smaller than the red one of *E. astrild*. The red-faced *E. astrild* certainly occurs lower down the Lualaba at Kabalo and to the southeast in the valleys of the Lufwa, Bunkeya, and upper Lufira rivers. I myself have collected it at Kipaïla on the Luvua River.

Estrilda nonnula nonnula Hartlaub

Astrilda nonnula HARTLAUB, 1883, Jour. Ornith., p. 425 (type locality: Kudurma, southern Bahr-el-Ghazal Province).

Habropyga tenerrima REICHENOW, 1887, Jour. Ornith., pp. 213, 307 (type locality: Stanleyville; Kibonge).

Estrelda nonnula SHELLEY, 1888, Proc. Zool. Soc. London, p. 31 (Bellima); 1890, Ibis, p. 165 (Yambuya). HARTLAUB, 1889, Jour. Ornith., p. 48. EMIN, 1894, Jour. Ornith., p. 163 (Ndussuma). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Banalia).

Estrilda nonnula SHARPE, 1890, Catalogue of the birds in the British Musuem, vol. 13, p. 400 (Kubbi). REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 188; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 335 (Mugarura I. in L. Kivu; Mt. Karisimbi, 2500 m.). SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 226 (L. Edward). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 300 (Mubuku Valley, 6000 ft.). CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 278, pl. 7, fig. 12. LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 27 (Rutshuru). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 277 (Boga). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 174 (western Makraka; Mswa). FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 766 (Bumba).

Estrilda kandti REICHENOW, 1902, Ornith. Monatsber., p. 184 (type locality: L. Kivu); 1904, Die Vögel Afrikas, vol. 3, p. 188.

Estrilda atricapilla SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 262.

Habropyga atricapilla EMIN, 1921, *in* Schubotz, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 277.

Habropyga nonnula EMIN, 1922, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 3, p. 380; 1927, idem, vol. 4, pp. 31, 42, 43, 69, 257, 282 (Madjamboni; Budjungwe–Buvovo).

Estrilda nonnulla SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 54 (northwest of L. Tanganyika, 2000 m.). SCHOUTEDEN, 1935, Rev. Zool. Bot. Africaines, vol. 27, p. 404 (Kabare near L. Kivu).

Estrilda nonnula nonnula GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 63 (Angi; Rutshuru and Ruindi plains; north of L. Edward; Irumu). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 801 (Ubangi R.). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 574 (Ekibondo). FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 383. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1511. PETERS AND LOVERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 273 (Idjwi I.). BOUET, 1942, Ois. Rev. Française Ornith., new ser., vol. 12, p. 176 (Bangui); 1945, idem, new ser., vol. 14, p. 78 (upper Kemo R.). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 53 (Tshumba). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 111 (Nioka; Mahagi; Mt. Aboro. 2200 m.; Loda Forest

1850 and 2100 m.). BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 351, pl. 13 (Uelle R.). V. AND G. VAN SOMEREN, 1949, The birds of Bwamba, p. 102 (Bwamba).

Estrilda nonnulla nonnulla SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 275 (Lulenga–Busingizi); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 168 (Mabenga; Kibumba, 2000 m.); 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 342 (Kibingo; Astrida).

Estrilda (Sporaeginthus) nonnulla nonnulla SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 147 (Mauda; Faradje; Buta; Panga; Rungu; Medje).

Sporaeginthus nonnula nonnula VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 83 (Lepi near Lutunguru).

SPECIMENS: Bumba, male, female, July 29. Stanleyville, two males, two females, August 5, 24. Avakubi, two males, October 15, November 5; female, October 11; two juvenile males, November 9, 26; juvenile female, September 25. Ngayu, female, immature female, December 22. Medje, male, September 15; five females, May 11, August 18, 19, September 15, 28; two juvenile males, August 8. Faradje, male, female, April 29.

ADULTS OF BOTH SEXES: Iris dark brown; bill black with a red patch on each side of the maxilla, as well as on each side of the mandible at its posterior end; feet black.

NESTLING: Iris dark brown, feet black with yellowish gray soles. Bill black externally; skin of gape black, with two curved swollen ridges, bluish white in color, at each side. Palate pale yellow with five black dots, two blackish spots at sides of tongue toward base, and a small black crescent beneath it on inside of mandible.

DISTRIBUTION OF THE SPECIES: From Fernando Po, Mt. Cameroon, and the highlands farther north, east to the Ubangi, southern Bahr-el-Ghazal, and the Mau Plateau in Kenya Colony. Southward it is found in clearings of the Cameroon forest, at Bumba and Stanleyville on the upper Congo, Kindu on the Lualaba, and along the eastern border of the Congo south to the highland near Baraka, also to Bukoba on Lake Victoria. Over all the mainland area I can find no stable geographic variation, but specimens from Fernando Po were said to be distinctly grayer beneath and separated as *E. n. elizae* Alexander.

This black-capped waxbill is very common in the forested northeastern Congo, yet seen only in clearings where grasses have become established. In the savanna country around Faradje it is encountered only in spots where there are many bushes and trees. In the highlands northwest of Lake Edward it ascends frequently to 7700 feet, and on Mt. Mikeno I have collected it at 6700 feet. In the Kigezi District near Behungi I have noted it even at 7200 feet.

At Avakubi and Medje it gathered in flocks of 40 or 50; in the highlands the parties were smaller. Their calls are faint and lisping. Often a number of birds perch in a row on some grass stalk bent over by their

weight. In short, the behavior is very like that of *E. astrild* and *atricapilla*. The last-named is so closely allied that if it did not occur together with *nonnula* in many parts of equatorial Africa they would probably be regarded as conspecific. It may well be that originally *nonnula* was a race living along the northern edge of the forest belt, *atricapilla* on the southern margin. Recent changes in the forest and its destruction on the east may have favored extension and overlapping of their ranges. Only *atricapilla* has developed a distinct highland race in the east. In juvenal dress *nonnula* is easily recognized by its whitish underparts, with only a light wash of brown at most.

In the northern Ituri the breeding season of *nonnula* lasts from July into November, but south of the Equator these dates are reversed. A male in captivity has been seen giving the courtship dance characteristic of *Estrilda,* holding a long piece of hay in his beak. Nests are built in small trees, even up to 20 feet above the ground, and several may be placed in the same tree. They are enclosed and built of grass tops, which project around the small lateral entrance to form a spout. "Cock-nests" may also be built on the top. Eggs are white, four to six in a set, and measure 13–15 by 10–11 mm.

The food must consist mainly of small grass seeds, but on cloudy days when termites were flying we would see these small birds posting themselves on trees and flying up in pursuit, along with *Lonchura cucullata* and *fringilloides*.

Estrilda atricapilla atricapilla Verreaux

Estrelda atricapilla J. AND E. VERREAUX, 1851, Rev. Mag. Zool., ser. 2, vol. 3, p. 421 (type locality: Gaboon).

? *Estrelda atricapilla* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Kibongo).

Estrilda atricapilla SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 351 (Macaco).

Estrilda atricapilla atricapilla SCHOUTEDEN, 1926, Rev. Zool. Bot. Africaines, vol. 13, p. 206 (Temvo; Tshela). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 802 (Ituri and Kasai districts). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 575 (Saidi). BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 355, pl. 13.

Estrilda (Sporaeginthus) atricapilla atricapilla GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 80 (Luluabourg).

SPECIMENS: Stanleyville, female, October 25. Avakubi, three males, October 4, November 4, December 8; female, November 5; two immature males, August 14, November 4; immature, August 20.

ADULTS OF BOTH SEXES: Iris dark brown; maxilla wholly black, mandible black with a triangular crimson patch on each side near base; feet blackish.

DISTRIBUTION OF THE SPECIES: Forested Cameroon, south to the Belgian

Mayombe and central Kasai, and eastward to the Ituri, the Kivu, and the highlands of Kenya Colony. Nominate *atricapilla* is the western lowland race. Adults from the Kasai and Ituri seem definitely whiter on throat and cheeks than those from the Cameroon, Gaboon, and Mayombe. But for the present I shall not try to draw any line between them and regard this race as extending eastward at least to Angumu and the vicinity of the Epulu River. Within our limits *atricapilla* does not reach the northern edge of the forest belt. On the eastern highlands of the Congo, Mt. Elgon, the Aberdares, and Mt. Kenya it is replaced by *E. a. graueri,* with the back more narrowly barred with black, the red of the rump darker.

It was a great surprise at Stanleyville and Avakubi to find two species of black-capped waxbill so much alike as *nonnula* and *atricapilla* living together in the same clearings. They seemed to show no aversion to mingling, and at Avakubi were in about equal numbers, at Stanleyville *atricapilla* being less common. At Ngayu and Medje only *nonnula* was seen. Father Callewaert collected half a dozen specimens for us at Luluabourg, so *atricapilla* is probably more widely distributed in the Kasai than published records indicate. We have specimens from Ouesso on the Sanga River, but I never noticed it at Lukolela.

There seems to be no difference in the behavior between this black-bellied species and *nonnula.* At Avakubi they both gathered in flocks in the clearings, hopping on the ground or picking seeds from the tall grasses, where they displayed great talent for balancing. Occasionally a few *atricapilla* could be seen right in a party of *nonnula.* The only possible indication of hybridism is that a single male from Avakubi does show a light area at each side of the maxilla, and its belly and under tail-coverts are not quite black.

What little evidence I have points to a breeding season at Avakubi from June to October inclusive. In the Cameroon Bates found the nest to be of the usual "water-bottle" shape, built of grass tops and placed in the forks of a shrub at shoulder height. One at least was double, with five white eggs in one compartment. Eggs from two sets measured 13–14.5 by 10–10.5 mm.

The food consists almost wholly of grass seeds, yet one immature bird was found to have eaten 18 small ants, in addition to seeds.

Estrilda atricapilla graueri Neumann

Estrilda atricapilla graueri NEUMANN, 1908, Bull. Brit. Ornith. Club, vol. 21, p. 55 (type locality: Mt. Sabinyo, 2700 m., Kivu Volcanoes). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 335. HARTERT, 1919, Novitates Zool., vol. 26, p. 141. GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 62 (Mt. Muhavura, 3000 m.; Burunga; Mt. Mikeno, 3500 m.). GRANVIK, 1934, Rev. Zool. Bot. Africaines, vol. 25, p. 173 (Mt. Karisimbi). GRANT AND MACKWORTH-PRAED, 1945, Bull. Brit. Ornith. Club, vol. 65, p. 31.

Estrilda kandti REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 334 (southern Bugoie Forest).

Estrilda atricapilla kandti SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 802. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 274 (Ngoma; Kisenyi; Lulenga); 1933, idem, vol. 22, p. 371 (Mutura; Bigogo); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 168 (Kibati, 1900 m.; Burunga in Mokoto, 2000 m.; Kundhuru-ya-Tshuve, 2600 m.; Kibumba). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1512.

ADULTS OF BOTH SEXES: Iris dull dark brown; bill black with a patch of light rose color at each side of mandible; feet blackish.

DISTRIBUTION: Highlands above 5000 feet, from northwest of Lake Edward through the Kivu to Ruanda and the mountains northwest of Lake Tanganyika, also on Mt. Elgon, the Aberdares, and Mt. Kenya. This waxbill is not believed to occur on Ruwenzori or on the Lendu Plateau.

The type of *Estrilda kandti* was a young bird which may originally have been preserved in alcohol. Grote has reëxamined it, found its under side to be light brownish, and does not believe it can possibly belong with the species *atricapilla*. Two cotypes, he says, are undoubtedly *nonnula*. The proper name for this race is therefore *graueri*. It may be that adults from the Aberdares and Kenya are somewhat whiter on throat and cheeks than those of the Kivu, but until some such difference can be proved we need not recognize *keniensis* Mearns.

Flocks of these waxbills, numbering up to 25, are to be seen about the Kivu Volcanoes and the highland west of Lake Edward, from the level of Lake Kivu up to 8300 feet and occasionally to 11,000 feet. They are plainly more fond of forest borders, openings in the mountain forest and bamboos, and roads through woods than is *E. nonnula,* and sometimes they associate with *Coccopygia q. kilimensis*. I was rather surprised by the high proportion of young birds among them. The juvenal dress is smoky brown on back, lower breast, and abdomen. Very young birds were collected in early March and late June. So close to the Equator I should expect no definite breeding season. On Mt. Kandashomwa, much farther south, Rockefeller and Murphy took a juvenile on June 29, a breeding male on July 8. That would suggest nesting late in the rains.

A nest found by Belcher on the Kinangop Plateau in Kenya Colony, November 19, was placed 9 feet up in a *Hagenia* sapling and had a lining of feathers. There was no "cock-nest." The four white eggs measured 13.7–14.5 by 10–10.2 mm.

At least four examples had crops filled with small seeds, doubtless from sedges or grasses.

Estrilda rhodopyga centralis Kothe

Estrilda rhodopyga centralis KOTHE, 1911, Ornith. Monatsber., p. 70 (type locality: Kisenyi on L. Kivu). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 798. SCHOUTEDEN, 1933, Rev. Zool. Bot. Africaines, vol. 22, p. 371; 1935, idem,

vol. 27, p. 404 (Luvungi); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 169. FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, pp. 451, 452. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1511 (Katwe).

Estrelda rhodopyga EMIN, 1894, Jour. Ornith., p. 163 (Ndussuma).

Estrilda rhodopyga REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 334. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 276 (Beni). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 171 (south of Boki on L. Albert; Tunguru).

ADULTS OF BOTH SEXES: Iris brown to red-brown; bill blackish brown with a trace of reddish at sides of maxilla and base of mandible; feet blackish brown.

DISTRIBUTION OF THE SPECIES: Khartoum to western Somaliland and south through East Africa and grasslands in the eastern Congo to Lake Tanganyika, Ugogo, and Lake Nyasa. Nominate *rhodopyga* is a light-colored race, apparently restricted to arid regions near northern Abyssinia and the White Nile. The more deeply colored *centralis* of East Africa and the eastern Congo may even extend to southern Abyssinia. There appears to be a third race, *E. r. frommi* Kothe,[1] more grayish above, which ranges from the eastern shore of Lake Tanganyika to Lake Nyasa. This race is not known to cross Lake Tanganyika.

Despite the paucity of records from the Kivu highland, Grauer collected three specimens at Kisenyi, and I obtained one at 5400 feet just north of Goma. This *Estrilda* is characteristic of rather dry areas and does not ascend the mountains. It is rather numerous at Kasenyi on the west shore of Lake Albert, going in flocks in the grass and behaving much like *E. astrild*. Yet it must be rare on the Lendu Plateau. I saw it in the Rwindi Plain, and Grauer collected it in the Rutshuru Plain, the lower Ruzizi Valley, and at Usumbura.

Breeding appears to go on during the second half of the rains. At Kasenyi we found a nest on September 8, built of grass tops, with lateral entrance and placed right on the ground amid some rather short grass. The male was incubating six white eggs, two of which were markedly larger than the others and no doubt had been laid by *Vidua macroura*, numerous and active in the vicinity. One of the waxbills' own eggs measured 13.7 by 10.8 mm., the two large eggs 15.8 by 11.8 and 16.3 by 12 mm.

Estrilda troglodytes troglodytes (Lichtenstein)

Fringilla troglodytes M. H. C. LICHTENSTEIN, 1823, Verzeichniss von Vögeln . . . Doubletten des Zoologischer Museums, p. 26 (type locality: Senegambia).

Estrilda troglodytes BOWEN, 1931, Catalogue of Sudan birds, pt. 2, p. 101 (Kajo-Kaji). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1510 (Wadelai). VRIJDAGH, 1949, Bull. Cercle Zool. Congolais, vol. 19, p. 11 (Ishwa Plain); 1949, Gerfaut, vol. 39, p. 111.

[1] 1911, Ornith. Monatsber., p. 70 (Karema, L. Tanganyika).

ADULTS: Iris light brown to reddish hazel; bill purplish red; feet blackish brown.

DISTRIBUTION OF THE SPECIES: Senegal east to Darfur and the Blue Nile, mostly in rather dry country, but reported from near Accra on the Gold Coast and extending southward near the Bahr-el-Jebel to the north end of Lake Albert. This is the range of the nominate form. In southwestern Arabia lives the allied *rufibarba,* with fine dark barring on back and flanks, a dark-colored bill, but with similar red ocular patch and black rump and tail. It may be regarded as an eastern race.

Three specimens of *troglodytes* have been collected by J. M. Vrydagh in a cotton field on the Ishwa Plain near Mahagi in December and January. It is not known whether the birds live there also during the rains. The black-rumped waxbill is a sociable bird, fond of cultivated lands and taking refuge in thickets. It breeds during the rains; three nests were found by Shuel in Northern Nigeria during July and August. They were pear-shaped, built of dry grass tops and placed on the ground at the foot of a tall grass tuft or bush. Each had a semi-covered, cup-like extension on one side, where the bird not busy with incubation rested. The eggs were white, six in number, 11.5–15.5 by 9.5–11.2 mm.

[*Estrilda erythronotos delamerei* Sharpe]

Estrilda delamerei SHARPE, 1900, Bull. Brit. Ornith. Club, vol. 10, p. 102 (type locality: Athi R., Kenya Colony).

Estrilda charmosyna JACKSON, 1906, Ibis, p. 564 (Ankole, 5000 ft.).

Estrilda erythronotos delamerei JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1513 (Ankole).

The range of the species extends from the Orange and Vaal rivers north to Mossamedes and in dry regions of East Africa to southern Abyssinia and north Somaliland. There are two deeply colored races, *erythronotos* of South Africa and *delamerei* of eastern Africa, from Iringa and the Loita plains to the eastern shore of Lake Albert. The pale races of northeastern Africa, from Taita to Somaliland, are often separated as a distinct species, *E. charmosyna* (Reichenow), because the males have no black on the abdomen.

Estrilda erythronotos delamerei approaches the Congo border in two different areas. It has been collected by Archer in southern Ankole, not far from northeastern Ruanda, and I obtained a pair on the low escarpment close to Butiaba on August 9, 1926. It would not be surprising if this black-cheeked waxbill were to reach the western shore of Lake Albert.

KEY TO THE CONGO SPECIES OF *Uraeginthus*
(Adult males only)

With a crimson patch on the ear-coverts . . . . . *U. bengalus*
Ear-coverts entirely blue . . . . . *U. angolensis*

Uraeginthus angolensis angolensis (Linnaeus)

Fringilla angolensis LINNAEUS, 1758, Systema naturae, ed. 10, p. 182 (type locality: Angola).

Estrelda phoenicotis HARTLAUB, 1857, System der Ornithologie Westafrica's, opposite p. lix (Congo).

Estrelda cyanogastra SHARPE, 1873, Proc. Zool. Soc. London, p. 717 (Congo R.).

Uraeginthus bengalus REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 207 (in part. Congo mouth). SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 186 (in part). SCHOUTEDEN, 1925, Rev. Zool. Bot. Africaines, vol. 13, p. 21 (Bolobo).

Uraeginthus bengalus angolensis LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 16 (Mukimbungu).

Uraeginthus angolensis SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 351, 404 (Kisantu; Moanda; Kwamouth); 1924, idem, vol. 12, p. 276 (Kisantu); 1926, idem, vol. 13, p. 206.

Uraeginthus angolensis angolensis SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 805. BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 367, fig. 39.

SPECIMEN: Boma, male, January 14.

ADULT MALE: Iris reddish brown; bill light pinkish purple, shading to dusky at tip; feet pale buff.

DISTRIBUTION OF THE SPECIES: Natal, Transvaal, and northern Damaraland to the Lower Congo and the Loango Coast, the southern Katanga, Kilosa in Tanganyika Territory, and Lake Jipe near Kilimanjaro; also on the island of São Tomé. It is often asserted that *U. bengalus* is conspecific, differing mainly by the red cheek spots of adult males. Yet the ranges of the two groups have been found to overlap in places, and their females appear to be distinguishable in regions where such overlapping might be expected. There is a third species, *U. cyanocephalus* (Richmond), in East Africa.

The races of *U. angolensis* appear to be three. The nominate form, rather light in color, extends from the Loango Coast to southern Angola and Southern Rhodesia. In the region of northern Damaraland lives *U. a. damarensis* Reichenow, still a little paler. The easern race, *niassensis,* ranging from Natal north to Tanganyika Territory, has the deepest brown back.

The Angola cordon-bleu is a common bird near towns and villages along the lower Congo River, at Boma, Noki, and Matadi. At Landana Petit found it numerous and familiar, rearing broods of five and six in grass nests placed in orange trees, oleanders, or even in a bunch of growing bananas. This race has been reported to extend inland as far as Kwamouth and may reach Bolobo, but it is certainly not common beyond Stanley Pool. The breeding season comes late in the rains, and birds are still to be seen about their nests late in June.

Uraeginthus angolensis niassensis Reichenow

Uraeginthus angolensis niassensis REICHENOW, 1911, Mitt. Zool. Mus. Berlin, vol. 5, p. 228 (type locality: Songea, southern Tanganyika Territory). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 108 (upper Lufira R.).

Estrilda angolensis NEAVE, 1910, Ibis, p. 255 (Bunkeya R., 3000 ft.).

Uraeginthus angolensis WHITE, 1946, Ibis, p. 222 (Ndola).

Uraeginthus angolensis angolensis VERHEYEN, 1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 654 (Mabwe; Kilwezi; Kabenga).

DISTRIBUTION: From the coastlands of Natal north to the base of Kilimanjaro, to Nyasaland, Ndola in Northern Rhodesia, and the Lufira Valley. Specimens from Natal appear to have slightly longer wings and tail than those from the northern parts of the range.

Uraeginthus angolensis niassensis is common at Kilosa in Tanganyika Territory, where one male of *Uraeginthus bengalus* was also collected by Loveridge. In Northern Rhodesia the ranges have not yet been proved to overlap, but Verheyen collected both species in the Upemba National Park. Females of *niassensis* are distinguished from those of *U. bengalus katangae* by their paler underparts, with blue extending lower on the chest, and sometimes even to the flanks. If the females were not so different, then the presence or absence of red on the cheeks of adult males would seem less important.

In countries just south of the Katanga this race of the Angola cordon-bleu is seen in pairs or small parties, mostly at levels below 4500 feet, feeding on the ground in dry places. Besides a sharp rattling alarm note, it gives a squeaky whistled "sweet-sweet-sweet." The breeding season lasts from February to June, and nests are placed in thorn bushes or trees at 4 to 17 feet from the ground. They are ball-shaped, made of grass, and have a fairly large side entrance. A few feathers may be used in the lining. Three to five white eggs are laid, measuring 14–15 by 10–11.3 mm.

Occasionally these birds will take over an old nest of a weaver-bird or sunbird. In many cases they build within a foot or less of an active colony of paper wasps. The latter seem not at all disturbed by the birds and must provide them with a measure of protection from enemies.

Uraeginthus bengalus ugandae Zedlitz

Uraeginthus bengalus ugandae ZEDLITZ, 1911, Jour. Ornith., p. 606 (type locality: Entebbe, Uganda). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 805. SCHOUTEDEN, 1935, Rev. Zool. Bot. Africaines, vol. 27, p. 404 (Gabiro); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 147 (Faradje; Niarembe; Mahagi Port); 1943, Rev. Zool. Bot. Africaines, vol. 37, p. 273. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1519 (Kibirau in Toro). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 112 (Ishwa Plain).

Uraeginthus phoenicotis DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (in part. "Ituri"; Uelle). SALVADORI, 1911, Ann. Mus. Civ. Genova,

ser. 3, vol. 5, p. 453. EMIN, 1919, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 2, p. 490 (Tomaya).

Uraeginthus bengalus CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, pp. 278, 279, pl. 6, fig. 5, pl. 10 (Faradje). SASSI, 1924, Ann. Naturhist. Mus., Wien, vol. 38, p. 54 (Urundi).

Uraeginthus phoenicopis EMIN, 1921, *in* Schubotz, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 256 (Mbiambana).

SPECIMENS: Faradje, eight males, February 16, 17, 23, March 8, May 15, 23, September 22, October 30; five females, February 17, 20, July 8, September 22; two immature males, February 20, April 13; three immature females, February 20, March 31, April 13; juvenile female, November 5. Garamba, female, July 15.

ADULT MALE: Iris light red-brown or pinkish buff; tip of bill and lower border of maxilla blackish, rest of bill bright pink; feet light brownish.

ADULT FEMALE: Similar, but iris was noted as light brown.

NESTLING: Bill pinkish gray at base, with upper edge of mandible whitish but shading to blackish distally. Skin of gape has only one slightly swollen blue spot at each side, rather high up. Tongue and inside of mouth whitish, with only three black spots on palate—posterior pair absent. Around the tongue a narrow blackish ring; beneath it a black crescent extending back to angles of mouth.

DISTRIBUTION OF THE SPECIES: Senegal and Portuguese Guinea eastward in savannas to Darfur, the northern Uelle, Abyssinia, and Eritrea, then south through eastern Africa to Ugogo and Iringa, the Upper Katanga, Kasai District, and the region of Balovale in Northern Rhodesia. The exact number of races may still be debated; there must be seven or eight.

Nominate *bengalus* crosses the entire Sudan from Senegal to Eritrea. Toward the northern edge of the Guinean forests the coloration may deepen, but the race *camerunensis* is very poorly differentiated. Abyssinia has *schoanus,* definitely richer in color, and the rather similar *ugandae* ranges from the Bahr-el-Ghazal and northern Uelle to Uganda, Kavirondo, and eastern Ruanda. In the highlands of Kenya Colony the race *brunneigularis* is distinguished by the fact that the females have cheeks and throat mostly brownish. That character is shared by *ugogensis* of eastern Tanganyika Territory, a slightly smaller race. The Kasai, Katanga, and some neighboring regions have the race *katangae,* its males with very dark red cheek patch, females blue on cheeks and throat, but with breast and flanks mostly brown.

The Uganda cordon-bleu is common at Faradje and near the northern end of Lake Albert, yet is apparently lacking around Lake Edward and Lake Kivu. Specimens from Ruanda-Urundi should receive further study. In the northeastern Uelle these birds feed in groups of four to six among

weeds and about hedges near villages, spend a great deal of their time on the ground, and pick up small seeds and occasionally termites. A faint lisping call was all that I noted.

My dissections showed that the period of reproduction lasted from August to November. One pair was found on September 22 to have three white eggs in an abandoned nest of *Textor luteolus* hanging from a small thorny acacia tree. Two other nests, on September 22 and October 13, were built by these birds themselves, of seed-bearing grass tops, in small trees at a height of 4 or 5 yards. They were round, some 14 centimeters in diameter, and rough on the outside. Sets are usually of four eggs, white, measuring 13.9–15.2 by 10.3–10.8 mm. Males share in the duty of incubation.

One of these nests had special protection in the form of a large nest of paper wasps *(Belonogaster)* that hung a foot below it, looking with all its occupants clustered on it about as large as the nest of the birds. I had no doubt the birds had built purposely close to the wasps. This frequent custom of *Uraeginthus* has been observed in many different parts of Africa,[1] and it is shared by a number of other small birds. In tropical America, too, certain cassiques, flycatchers, and other birds commonly place their abodes in the same trees with large carton nests of wasps.

Uraeginthus bengalus camerunensis Reichenow

Uraeginthus bengalus camerunensis REICHENOW, 1911, Mitt. Zool. Mus. Berlin, vol. 5, p. 228 (type locality: Banyo, Cameroon).

Estrilda phoecotis OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 127.

Uraeginthus bengalus bengalus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 804 (in part. Ubangi-Shari District). BOUET, 1942, Ois. Rev. Française Ornith., new ser., vol. 12, p. 176 (Bangui); 1945, idem, new ser., vol. 14, p. 77 (upper Kemo R.).

DISTRIBUTION: Savannas of the Cameroon, doubtless east to the Ubangi-Shari, since it is a lowland bird. At most this race can only be intermediate between nominate *bengalus* and *ugandae*. While it may be expected in the savannas along the Ubangi River, it is not likely that specimens taken there will differ very much from those of the eastern Uelle.

Uraeginthus bengalus katangae Vincent

Uraeginthus bengalus katangae J. VINCENT, 1934, Bull. Brit. Ornith. Club, vol. 54, p. 174 (type locality: Elisabethville, Upper Katanga). A. W. VINCENT, 1949, Ibis, p. 671. SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 163 (Kabalo; Kanzenze; Kangué; Mukula Gombe; Lukafu; Dilolo). VERHEYEN, 1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 653 (Mabwe; Kanonga).

[1] See especially Moreau, 1936, Ibis, pp. 460–471; 1942, idem, pp. 240–263; 1943, idem, pp. 97–101.

Uraeginthus phoenicotis MATSCHIE, 1887, Jour. Ornith., p. 154 (Kaué Brook). BERLIOZ, 1925, Bull. Mus. Hist. Nat., Paris, vol. 31, p. 348 (Luluabourg).

Estrelda angolensis REICHENOW, 1887, Jour. Ornith., p. 308 (Kasongo).

Estrilda phoenicotis SHARPE, 1890, Catalogue of the birds in the British Museum, vol. 13, p. 400 (in part). NEAVE, 1910, Ibis, p. 255 (Lofu Valley).

Uraeginthus bengalus REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 207 (in part). SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 186 (in part). SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 290 (Elisabethville).

Uraeginthus bengalus subsp. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 351 (Kabambaie; Ngombe in Kasai; Tshisika; Luebo; Macaco; Dumbi; Tshikapa). LYNES, 1926, Ibis, pp. 356, 372, 374. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 805.

Uraeginthus angolensis LYNES, 1926, Ibis, p. 375 ("Baraka").

Uraeginthus bengalus congica ? GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 80 (Luluabourg).

DISTRIBUTION: From the vicinity of Luebo in the Kasai District eastward to the grasslands of the Manyema but not actually to Baraka, and southward to the Upper Katanga. I expect that *U. b. semotus* White [1] from the Balovale District will scarcely prove separable from *katangae*. The birds collected by Neave at the south end of Lake Tanganyika were doubtless *katangae*, as are three specimens taken by Rockefeller and Murphy at Lake Suzi in southern Marungu. There it was not common, and a pair ready to breed was collected on March 22.

In the Kasai these birds must be numerous; we have 16 skins from Luluabourg. In the Upper Katanga Alfred Vincent found them scattered along the borders of savanna woods, especially on roadsides and partly cleared ground. He examined nests near Elisabethville on March 17 and May 11, in forks of shrubs at 6 to 9 feet above the ground. They were loosely built of dry grass tops, broadly oval, with largish entrance; one had a few feathers inside. Each contained four white eggs; the dimensions were 13–14.9 by 10.6–11.1 mm.

SUBFAMILY **VIDUINAE**

KEY TO THE SPECIES OF *Hypochera* IN OR NEAR THE CONGO
(Males in breeding plumage only)

1. Primaries, outer secondaries, and rectrices distinctly brownish 2
   Primaries, outer secondaries, and rectrices blackish, sometimes with narrow outer edgings of brown 4
2. Head and body black, with only slight luster and tinged with violet or purplish . . . . . *H. funerea*
   Head and body black, with more pronounced luster, bluish or greenish but not violaceous 3
3. Gloss on head and body distinctly greenish . . . . . *H. nigeriae*
   Gloss bluish or greenish blue 4

[1] 1944, Bull. Brit. Ornith. Club, vol. 65, p. 7 (Chingi, Chavuma, Northern Rhodesia).

4. Gloss greenish blue, feet usually whitish or pale brown . . . *H. amauropteryx*
   Gloss more bluish, feet light salmon red . . . . . *H. chalybeata*
5. Head and body black with a bluish or violaceous gloss . . . . . *H. chalybeata*
   Head and body black with a greenish gloss 6
6. Gloss distinctly green, feet salmon red . . . . . *H. codringtoni*
   Gloss more bluish green, feet usually whitish or pale brownish . *H. amauropteryx*

Hypochera funerea nigerrima Sharpe

Hypochaera nigerrima SHARPE, 1871, Proc. Zool. Soc. London, p. 133 (Angola; type said to have been from Golungo Alto); 1890, Catalogue of the birds in the British Museum, vol. 13, p. 311.

Hypochera ultramarina REICHENOW, 1887, Jour. Ornith., p. 308 (Kasongo).

Hypochera nigerrima REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 216. SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 11. LYNES, 1926, Ibis, p. 398 (south Congo savanna district).

Hypochera funerea nigerrima SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 449. MOLTONI, 1925, Atti Soc. Italiana Sci. Nat., Milan, vol. 64, p. 48. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 808 (Angola to Kasongo).

Vidua funerea funerea DELACOUR AND EDMOND-BLANC, 1934, Ois. Rev. Française Ornith., new ser., vol. 4, pp. 76, 78, map on p. 77 (in part. Southern Belgian Congo).

DISTRIBUTION OF THE SPECIES: Eastern Cape Province, Natal, and Transvaal north to the Kasai, Manyema, Tanganyika Territory, the Kivu, and then from the upper Nile across the Sudan to Senegal.

Nominate *funerea* is believed to extend from South Africa northward to Nyasaland. Males are rather dull black, with a little violet-blue gloss and remiges brownish. In Angola and the Kasai region it is supposed to be replaced by *nigerrima,* of which the males are blue-black, not very glossy; and in Tanganyika Territory, the Katanga, and the Kivu by *purpurascens,* probably more purplish, though not very glossy. The Sudanese race is *wilsoni,* also purplish and a little more glossy. Males of all races have rather brownish remiges, except for the inner secondaries.

I find it difficult to fix the limits between *nigerrima* and *purpurascens* and can only assume that the former ranges from Angola west to the Lualaba River near Kasongo. Five males from Luluabourg and one from Ngabe near the middle Congo agree well in color with others from Angola. The wings of the Congo specimens measure 63–68 mm., those of four Angolan males 67–70 mm.

In the region of the Kasai the males of *nigerrima* wear breeding plumage from November 19 to May 7 at least. Labels state that the beak and the feet are whitish, whereas the feet of nominate *funerea* have been described as red. We have no information as to behavior, but the species of *Hypochera* are all much alike in that respect.

Despite the several revisions of the group, the arrangement of species and races of *Hypochera* is still far from satisfactory. Delacour and Edmond-

Blanc (1934) reduced the species to six, but Mackworth-Praed and Grant (1949) have again raised the number to eight. There may really be only three. I cannot agree that *aenea* and *nigerrima* are valid species.

I must confess that I cannot distinguish between females of some of the species most commonly recognized, and that makes me wonder whether we are justified in separating the males on slight differences in the shade of their lustrous black plumage. Even if the color of gloss is significant, it does vary geographically. Blackness or brownness of the primaries and rectrices is a relatively stable character and a useful one. At first glance one is apt to conclude that these quills are brown mainly because they were assumed at a postnuptial molt some six months earlier and have undergone considerable exposure and abrasion. In the "brown-winged" forms that is probably true. One hesitates to assume that the "black-winged" males have renewed their primaries and rectrices at the prenuptial molt, yet on looking over a series of *H. chalybeata* I find specimens from Senegal and from Abyssinia that are molting primaries and rectrices in May and June, at the very beginning of the prenuptial molt.

We still have much to learn about the combassous. Surely their eggs are always laid in the nests of *Lagonosticta, Estrilda,* and perhaps some allied members of that same group. True pairs are not formed, and we need to know whether males of different colors may not associate with the same party of brownish birds. How can they recognize females of their own kind, so a species can preserve its separate existence? The case is very like that of *Steganura paradisaea,* especially in the regions where two forms of paradise whydah occur together. In *Steganura* the form of the tail is evident at a distance; in *Hypochera* the colors of bill and feet are sometimes distinctive, and they should always be carefully noted.

Hypochera funerea purpurascens Reichenow

Hypochera purpurascens REICHENOW, 1883, Jour. Ornith., p. 221 (type locality: Usegua, Tanganyika Territory).

Hypochera ultramarina DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 149 (L. Tanganyika).

Hypochaera ultramarina DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Karema).

Hypochaera funerea NEAVE, 1910, Ibis, p. 254 (Dikulwe R., 4000 ft.). SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 274.

Hypochera funerea REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 336 (Kisenyi). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 277 (Kibati; Yamba-Yamba; Kalembé; northwest of L. Tanganyika).

Hypochera ultramarina purpurascens SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 808 (in part. Katanga). VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, p. 4 (Musosa).

Hypochaera purpurascens SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 290 (Elisabethville).

Vidua funerea purpurascens LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 107 (Biano Plateau).

Hypochaera funerea purpurascens SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 163 (Kasiki; Kilwa; Kando; Tembwe; Kabalo; Baudouinville).

DISTRIBUTION: Southern and central Tanganyika Territory, westward to the Katanga, Manyema, and Kivu districts. This statement is admittedly arbitrary, for the distinctions between the races of *H. funerea* are slight and elusive. I certainly should not grant specific rank to *nigerrima,* and in the Kivu area I have often found difficulty in separating *H. f. purpurascens* from *H. chalybeata orientalis.* The correct allocation of published references is still more perplexing. Birds from east of the Lualaba are probably to be called *purpurascens,* but some confusion with *orientalis* is still to be feared. I have examined a number of specimens from the Katanga, Manyema, and Kivu in the Congo Museum and found their wings to measure 65–71 mm. in length. In the few cases where colors were noted, the beak was whitish, and the feet were whitish or pinkish.

In Marungu, where Rockefeller and Murphy collected two males in April at Chiansi, 4700 feet, this combassou was found to be fairly common on cultivated ground near villages. In the southeastern Congo the breeding plumage seems to be worn from December or January to early June. Either this or a closely related form in southwest Tanganyika Territory is reported to remain in flocks until early May; then each male selects a tree from the top of which he delivers his weak twittering or warbling song. To this tree he returns constantly during the next several weeks.

It seems all but proved that pairs are not formed and that the females deposit their eggs in nests of waxbills of the *Estrilda* group. In Natal Jack Vincent[1] found an egg which he regards as that of *Hypochera f. funerea,* measuring 14.9 by 12.3 mm., in a nest of *Estrilda astrild.*

[*Hypochera funerea wilsoni* Hartert]

Hypochaera wilsoni HARTERT, 1901, Novitates Zool., vol. 8, p. 342 (type locality: Yelwa, middle Niger).

Hypochera funerea wilsoni SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 448 (Mongalla). BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 377, pl. 14.

? *Hypochaera funerea wilsoni* SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 147 ("Dungu").

Wilson's combassou ranges from Senegal or at least Portuguese Guinea eastward to the Bahr-el-Jebel and the upper Turkwell River but is rather seldom collected. I doubt that Salvadori's record of *"nigerrima"* from the Uelle should be assigned to this race, yet it seems to approach the northern

[1] 1936, Ibis, pp. 109, 113. Also A. W. Vincent, 1949, Ibis, p. 668.

edge of the forest rather closely in Southern Nigeria and Cameroon and so may perhaps occur somewhere in the grasslands of the northern Congo. Males can readily be distinguished from those of *H. c. ultramarina* by their duller, more purplish black body color and more brownish primaries. We have males of *wilsoni* in breeding plumage taken in October and November, so their period of reproduction is doubtless the same as that of *ultramarina* and *camerunensis* to the north of the equatorial belt.

Hypochera chalybeata orientalis Reichenow

Hypochera ultramarina var. *orientalis* REICHENOW, 1894, Deutsch-Ost-Afrika, vol. 3, Vögel, p. 188 (type locality: Paré Mountains, Tanganyika Territory).

? *Hypochera nitens* DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 149 (L. Tanganyika).

? *Hypochera ultramarina purpurascens* SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 53 (Urundi; Baraka; Uvira; Usumbura; Kisenyi).

Hypochera chalybeata centralis R. NEUNZIG, 1928, Zool. Anz., vol. 78, p. 113 (type locality: Kisenyi on L. Kivu).

Hypochera ultramarina orientalis STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 575 (Kasenyi). MACKWORTH-PRAED AND GRANT, 1949, Ibis, p. 100 ("Uganda and Kenya Colony to the Belgian Congo and Tanganyika Territory").

Hypochera amauropteryx orientalis SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 169 (Rutshuru).

Hypochaera amauropteryx orientalis SCHOUTEDEN, 1941, Rev. Zool. Bot. Africaines, vol. 34, p. 267; 1943, idem, vol. 37, p. 273 (Gabiro).

ADULT MALE: Iris dark brown; bill pinkish white, a little dusky at very tip of maxilla; feet light salmon color, with claws more grayish.

DISTRIBUTION OF THE SPECIES: Across the whole Sudan from Senegal to Abyssinia and Eritrea and south in eastern Africa to Lake Albert, the Kivu region, Kenya Colony, and northern Tanganyika Territory.

Nominate *chalybeata,* living west of Nigeria, has the male breeding plumage glossed with greenish blue. From Nigeria to Lake Chad and Darfur the luster is more blue, the main character of *H. c. neumanni.* Farther east, from the Bahr-el-Ghazal to Abyssinia, males are very lustrous and still more violet-blue; they are *H. c. ultramarina.* These three northerly races all have blackish remiges, and wings 59–65 mm. Their beaks are white or pinkish white, feet usually reddish in the breeding season.

In eastern Africa *H. c. orientalis* is distinctly less glossy, less violaceous, than *ultramarina,* and has wings 65–71 mm. Its remiges are also blackish, as a rule, but some specimens from the Kivu have them rather brownish. The light red feet of males in the breeding season aid in identification. Many examples of *orientalis* show some resemblance to *H. a. amauropteryx* but do not have red beaks. It seems that *amauropteryx* does range from South Africa up the east coast to Bagamoyo, where Emin collected two males with

rather brown primaries and noted the beak and feet as light red. Even at Malindi C. R. S. Pitman has seen on several occasions a combassou with red bill.

Over most of Kenya Colony and Uganda, *H. c. orientalis* is the only combassou to be seen. On the low shores of Lake Albert and Lake Edward this is likewise the case, but about Lake Kivu and at the north end of Lake Tanganyika its range may overlap that of *H. funerea*. In the region of Nairobi the breeding plumage of *orientalis* is worn from November to June, as it seems also to be near Usumbura, in accordance with the southern seasons. Much the same conditions may prevail northward to Lake Edward, but at Kasenyi on Lake Albert I took black males with gonads somewhat enlarged in August and September. These birds were evidently adjusted to the northern rainy season.

About Lake Albert and Lake Edward this indigo finch is not very numerous and is seen on the ground along roads and near villages. The food consists of small seeds, and at Kampala I saw two black males in early August feeding on the ground in company with *Vidua serena* and *Lagonosticta senegala*. This *Hypochera* may be expected to parasitize nests of *Lagonosticta senegala*.

At Kisenyi on Lake Kivu Grauer collected several black males of *orientalis* in December, January, and March. To my surprise he noted the feet of all as light brown in color. By July, in that district, no black males are to be noted. At Usumbura Grauer described the feet of several males as red. The primaries of these Usumbura males seem rather brown, but otherwise they agree with *orientalis*.

[*Hypochera chalybeata ultramarina* (Gmelin)]

Fringilla ultramarina GMELIN, 1789, Systema naturae, ed. 13, vol. 1, pt. 2, p. 927 (type locality: Abyssinia).

Hypochaera ultramarina HARTERT, 1901, Novitates Zool., vol. 8, pp. 342, 343 (Niam-Niam; Lado).

Hypochera ultramarina REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 213.

Hypochera ultramarina ultramarina SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 448 (Mongalla).

Hypochaera ultramarina ultramarina SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 147.

The race *ultramarina* is smaller than *orientalis* and much more glossy violet-blue. It has been reported from the Azande country in the Bahr-el-Ghazal and Lado on the Bahr-el-Jebel but is not expected to reach the border of the Congo. It is a familiar bird about villages, and its eggs are certainly laid in nests of *Lagonosticta senegala*. According to Rudolf Neunzig[1] the

[1] 1929, Jour. Ornith., p. 5, figs. 5, 6.

mouth markings of the young are very much alike in these two species, and I think it more than a mere coincidence that both species are absent from the Uelle District.

Strong evidence for the parasitizing of *Lagonosticta senegala* by *Hypochera chalybeata* has already been quoted by Bannerman,[1] although its full significance may not have been appreciated. In the Gambia E. Hopkinson found a nest of *Lagonosticta,* out of which flew two young fire-finches and one young combassou. Even after this last bird was captured, it was fed by the adult fire-finches.

At Lokoja, Nigeria, R. Shuel[2] found nests of *Lagonosticta senegala* with eggs measuring 13–13.5 by 10.4 mm. But one single egg measured 14.7 by 11.5 mm. and very probably was laid by a *Hypochera.* To complete the picture we have Shuel's own account of another nest similar to nests of *L. senegala,* with four unincubated eggs, which measured 13.4–13.7 by 10.7–10.9 mm. This nest he attributed to *Hypochera chalybeata* merely because a female combassou, dead and decayed, lay just outside the nest and had an egg in the oviduct. Her foot had evidently become entangled as she came to lay. Unfortunately the egg in the oviduct was not compared with those in the nest, for it seems more than likely that the combassou merely came to lay, and her struggles and death caused the fire-finches to abandon their home. I have still to see a description of a nest of any *Hypochera* from any part of Africa that appears authentic.

[*Hypochera codringtoni* Neave]

Hypochaera codringtoni NEAVE, 1907, Mem. Proc. Manchester Lit. Phil. Soc., vol. 51, no. 10, p. 94, fig. 2 (type locality: Molilo's, near Petauke, Northern Rhodesia); 1910, Ibis, p. 254.

Vidua codringtoni DELACOUR AND EDMOND-BLANC, 1934, Ois. Rev. Française Ornith., new ser., vol. 4, p. 72 (Molilo's; Iringa).

Hypochera codringtoni WINTERBOTTOM, 1936, Ois. Rev. Française Ornith., new ser., vol. 6, p. 82 (Lupande R. in Loangwa Valley).

Hypochera aenea codringtoni MACKWORTH-PRAED AND GRANT, 1949, Ibis, p. 99.

Hypochera chalybeata codringtoni VON BOETTICHER, 1951, Anz. Ornith. Gesellsch. Bayern, vol. 4, pp. 17, 20.

This large, greenish combassou, with blackish primaries and wings measuring 66–70 mm., ranges from Iringa in southwest Tanganyika Territory to southern Nyasaland and to the upper Loangwa Valley. The beak of the male is whitish; the feet are salmon orange.

If not a valid species, *codringtoni* may perhaps be a southeastern race of *H. chalybeata,* more greenish than *H. c. orientalis* but of similar size. It is a lowland bird found from 200 feet up to 5000 feet. In Nyasaland the

[1] 1949, The birds of tropical West Africa, vol. 7, pp. 323, 324, 372, 375.

[2] 1935, Ibis, pp. 661, 662.

Bensons found the behavior and song of the male identical with those of *H. amauropteryx* and *H. funerea*. Breeding begins about March, and the male nuptial dress is worn at least until June. It would seem not unlikely that *codringtoni* may reach the southeastern Katanga.

Hypochera amauropteryx camerunensis Grote

Hypochera chalybeata camerunensis GROTE, 1922, Jour. Ornith., p. 398 (type locality: between Nola and Mbaiki, French Congo); 1924, Jour. Ornith., pp. 491, 492 (Congo region). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 807.

Hypochera amauropteryx REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 215 (Kasongo); 1923, Mitt. Zool. Staatsinst. Zool. Mus. Hamburg, vol. 40, p. 64 (Lupungu). SHELLEY, 1905, The birds of Africa, vol. 4, pt. 1, p. 12. MACKWORTH-PRAED AND GRANT, 1949, Ibis, p. 100 (Kasai District).

? *Hypochera nigerrima* SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 454 (Uelle District).

Hypochera ultramarina CHAPIN, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, p. 279.

Hypochera chalybeata amauropteryx SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 449 (Kasai District; Ubangi R.).

Hypochera chalybeata sharii BANNERMAN, 1922, Bull. Brit. Ornith. Club, vol. 43, p. 29 (type locality: Ratu, Gribingui R., Ubangi-Shari; also from Kemo and Tomi rivers).

Hypochera chalybeata subsp. BANNERMAN, 1922, Bull. Brit. Ornith. Club, vol. 43, p. 30 (Pania Mutombo).

Hypochaera chalybeata SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 351 (Luebo).

Hypochaera chalybeata amauropteryx SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 351, 404 (Kwamouth).

Hypochaera chalybeatas camerunensis SCHOUTEDEN, 1924, Rev. Zool. Bot. Africaines, vol. 12, p. 424 (Luebo).

Hypochera camerunensis LYNES, 1926, Ibis, p. 398 (Ubangi savanna district). BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 379.

Hypochera amauropteryx camerunensis BATES, 1933, Bull. Brit. Ornith. Club, vol. 53, p. 179.

Vidua camerunensis DELACOUR AND EDMOND-BLANC, 1934, Ois. Rev. Française Ornith., new ser., vol. 4, p. 76, map on p. 75.

Hypochaera chalybeata camerunensis SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 147 (Api).

Hypochera funerea camerunensis VON BOETTICHER, 1951, Anz. Ornith. Gesellsch. Bayern, vol. 4, p. 21.

SPECIMENS: Niangara, immature male, December 16. Faradje, five males, September 7, 9, November 22; three females, September 9, 12; immature male, juvenile, December 6.

ADULT MALE: Iris dark brown; bill dirty whitish, or faintly tinged with pink, and tip sometimes a little dusky; feet pale brownish, with at most a trace of pink.

NEWLY FLEDGED YOUNG: Bill dull horn color externally, darker above.

Interior of mouth whitish, with five dusky spots on palate, the lateral pair largest. Two dark spots on back of tongue and a black crescent on inside of mandible beneath the tongue. Skin of corners of mouth pink but no longer showing any swelling.

DISTRIBUTION OF THE SPECIES: Bechuanaland and the Transvaal north to the southern edge of Angola, the Kasai, Nyasaland, and apparently the East African coast north to Kenya Colony. If one considers *camerunensis* to be a race of this species, the range must be further extended, north of the equatorial forest from the Bahr-el-Jebel westward to the Gambia and perhaps even to western Abyssinia.

Nominate *amauropteryx* has males with only moderate bluish luster and brownish primaries. Their beaks and feet in the breeding season are red. From South Africa this race extends to Ovamboland, southern Angola, Nyasaland, and probably along the eastern coast to Malindi. Were it not for the color of the beak one might be inclined to treat *orientalis* as a race of *amauropteryx* rather than of *chalybeata*.

The same objection might be raised against including *camerunensis* as a race of *amauropteryx*. But I prefer to keep the number of species as low as possible. It has been said that nominate *amauropteryx* extends to the Kasai, but eight male specimens which I have examined from that region of the Congo had a more greenish blue luster and resembled *camerunensis*, except that their primaries were a little more blackish. North of the forest belt, from the Gambia to Lado and possibly to Abyssinia, is the home of *camerunensis*, and to that I add provisionally the southern area, from Kwamouth to Luluabourg and the Lomami District. One male from Luluabourg had beak and feet whitish, according to Father Callewaert's notation. The wings of the southern Congo males measure 63–66 mm.; those of males from the Uelle, 63–67 mm.

It seems clear that *camerunensis* cannot be conspecific with *H. chalybeata* or *H. funerea*. In the Kasai these greenish blue males occur alongside the more violet-blue *H. funerea nigerrima*, and it is not easy to believe them mere color phases. In the Upper Uelle we saw no violaceous birds, and there *camerunensis* appeared to spend only a part of the year. At Faradje it arrived in 1911 and 1912 during the first week of September, increased rapidly in numbers, and was last observed on January 8. We noted a few flocks at Niangara in December, 1910, but none whatever from March to July, 1913. In the Frankfort Museum I saw males collected by H. Schubotz at Duma near the Ubangi on October 1 and 9, 1910. The remainder of the year must be spent to the northward in the Sudan.

During their whole stay in the savannas of the Uelle the adult males are in blue-black breeding dress and show decided enlargement of the gonads. In company with females and brown second-year males they frequent road-

ways and cultivated land in small flocks, hopping on the ground, and not entering villages. The crops of six examples were found to contain nothing save tiny seeds. Occasionally they mingled with *Vidua macroura*. The common call note, often given in flight, is a harsh "chă-chă-chă-chă-chă . . . ," and the song consists of fine twittering "chwees." Black males sometimes hover in the air beside females in the manner of *Vidua*, and a brown second-year male was seen to go through the same evolutions.

No doubt they bred in the Uelle, laying their eggs in nests of fire-finches or waxbills, although *Lagonosticta senegala* was not available there. It may well be that the choice of fosterers varies with the different species of *Hypochera*. A young bird in juvenal plumage but fully grown was taken on December 6, and the adults seemed to continue to flock all through the season of reproduction. The few old accounts of nests supposedly built by *Hypochera* were surely erroneous. The great difficulty is to recognize the white eggs or the dull brown young when they are found in estrildine nests.

A curious anatomical feature of *Hypochera a. camerunensis* and no doubt all the other combassous is the thin area of bone in the frontal region of the skull roof. Such a condition usually indicates immaturity among Passeres, but I have found it in every skull of *Hypochera* that I have examined and in *Vidua serena, Steganura paradisaea, Salpornis spilonota,* and *Anthoscopus flavifrons*. This is only one of many proofs of the close relationship of *Hypochera* with *Vidua*.[1]

[*Hypochera amauropteryx amauropteryx* Sharpe]

Hypochaera amauropteryx SHARPE, 1890, Catalogue of birds in the British Museum, vol. 13, p. 309 (type locality: Rustenburg, Transvaal).

Vidua amauropteryx R. M. DE SCHAUENSEE, 1951, Proc. Acad. Nat. Sci. Philadelphia, vol. 103, p. 62 (Lundazi).

Inasmuch as this combassou is believed to range widely through southern Africa and to extend up the eastern coast, to Nyasaland and even to Lundazi in Northern Rhodesia, there may be a possibility of its occurrence in the southeastern Katanga. If *camerunensis* is really a race of the species *amauropteryx*, the likelihood becomes greater. From *H. funerea* the male of *H. a. amauropteryx* differs in the breeding season by its red beak.

Hypochera nigeriae Alexander

Hypochera nigeriae BOYD ALEXANDER, 1908, Bull. Brit. Ornith. Club, vol. 23, p. 33 (type locality: Kiri, Gongola R., Northern Nigeria). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 809 (Upper Uelle District). MACKWORTH-PRAED AND GRANT, 1949, Ibis, p. 101. BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 375, pl. 14.

[1] Chapin, 1917, Bull. Amer. Mus. Nat. Hist., vol. 37, pp. 258, 259. White, 1948, Ibis, p. 329.

Hypochaera aenea HARTERT, 1901, Novitates Zool., vol. 8, p. 343 (in part. Rimo).

Hypochera ultramarina REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 213 (in part. Rimo).

Vidua nigeriae DELACOUR AND EDMOND-BLANC, 1934, Ois. Rev. Française Ornith., new ser., vol. 4, p. 74, map on p. 73.

Hypochaera nigeriae SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 147.

SPECIMEN: Faradje, male, November 19.

DISTRIBUTION: Savannas north of the equatorial forest from Portuguese Guinea and Sierra Leone to the Cameroon, Upper Uelle, and Nimule on the Bahr-el-Jebel; northward to Darfur. Males of this form are like *H. a. camerunensis* but with a distinctly greener gloss. The primaries are brown, and the wing length is 61–66 mm. I am really not convinced that they represent a valid species.

Like Lynes and Bates, I failed to recognize the difference in the field and neglected to note the colors of beak and feet for my single male specimen, which was in breeding condition. I am convinced that the bill was whitish, the feet very pale brownish, just like those of *camerunensis*. Emin's specimen from Rimo is now in the Rothschild Collection; it was taken on August 28, 1887, and Schubotz collected another male at Yei on September 7, 1911. So the dates of occurrence are much the same as for *camerunensis*, and I have always wondered if *nigeriae* were really different.

Vidua macroura (Pallas)

Fringilla macroura PALLAS, 1764, *in* Vroeg, Catalogue raisonné, Adumbratiunculae, no. 144, p. 3 ("East Indies"; corrected type locality: Angola).

Vidua principalis JOHNSTON, 1884, The River Congo, p. 365. SCHALOW, 1886, Jour. Ornith., p. 432 (Likulwe R.). DE SOUSA, 1886, Jor. Sci. Nat. Lisboa, vol. 11, p. 80 (Tenque). REICHENOW, 1887, Jour. Ornith., pp. 301, 305, 308 (Manyanga; Leopoldville; Riva-Riva). SHELLEY, 1888, Proc. Zool. Soc. London, p. 32 (Tingasi). SHARPE, 1890, *in* Jameson, The story of the rear column, p. 399 (Congo da Lemba). EMIN, 1894, Jour. Ornith., p. 163 (Ndussuma); 1921, *in* Schubotz, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 256 (Mbiambana); 1922, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 3, p. 379 (Mswa).

Vidua serena REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 217 (Sassa); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 336 (Kisenyi; L. Galago; Beni; Usumbura; Tshingogo); 1923, Mitt. Zool. Staatsinst. Zool. Mus. Hamburg, vol. 40, p. 64 (Lupungu). OUSTALET, 1905, Bull. Mus. Hist. Nat., Paris, vol. 11, p. 15 (Bangui). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Tanganyika; Ituri; Banalia; Kisantu). LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 16 (Mukimbungu). NEAVE, 1910, Ibis, p. 245 (upper Lualaba R.). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 303 (Butagu Valley. 4000 ft.). MOURITZ, 1914, Ibis, p. 38 (Elisabethville; Moushosi R.). SCHOUTEDEN, 1914, Rev. Zool. Bot. Africaines, vol. 3, p. 271 (Kilo); 1918, idem, vol. 5, p. 277 (Kamabo; Uvira; Baraka; Irumu; Kalembé; Lufungula; old Mission St. Gustave; Boga; Bulaimu; Sanghé-Ruzizi; Mai-na-Kwenda; Molekera; Bigoisagua); 1920, idem,

vol. 7, p. 191 (Malela); 1923, idem, vol. 11, pp. 351, 404 (Kabambaie; Kwamouth); 1924, idem, vol. 12, p. 424 (Eala); 1926, idem, vol. 13, p. 206 (Makaia-Ntete; Tshela). EMIN, 1921, *in* Schubotz, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 177. GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 67 (Ngoma; Abeli; Tabaro; Bogoro). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 44 (Urundi; Uvira).

Lagonosticta nitidula SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 277 (Biogo).

Vidua macroura SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 809. FRIEDMANN, 1930, The African Republic of Liberia and the Belgian Congo, vol. 2, p. 762 (Bumba; Kamaniola). SCHOUTEDEN, 1933, Rev. Zool. Bot. Africaines, vol. 22, p. 371 (Nyundo; Rugegera; Rwaza); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 148 (Niangara; Poko; Medje; Buta; Dramba; Mahagi Port; Djalasinda; Faradje); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 169 (Rutshuru; Kibati; Nzulu; Mugunga; Kibumba; Katanda; Kanyabayongo; Bweza); 1940, Rev. Zool. Bot. Africaines, vol. 33, p. 287 (Mt. Wago); 1940, idem, vol. 34, p. 61 (Kawa Forest); 1941, idem, vol. 34, p. 267 (Kasenyi); 1942, idem, vol. 36, p. 342 (Kibingo; Kirinda); 1943, idem, vol. 37, p. 274 (Gabiro; Shangugu), 1949, idem, vol. 42, p. 163 (many localities in Katanga). DELACOUR AND EDMOND-BLANC, 1934, Ois. Rev. Française Ornith., new ser., vol. 4, pp. 82, 84, pl. opposite p. 68, map on p. 83. GIL LLETGET, 1935, Bol. Soc. Española Hist. Nat., vol. 35, p. 81 (Luluabourg). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 575 (Bunia; Ekibondo). PETERS AND LOVERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 274 (Idjwi I.). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 80 (Ubangi R. below Bangui). VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, p. 3 (Musosa); 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, pp. 53, 83 (Munigi). VRIJDAGH, 1949, Gerfaut, vol. 39, p. 112 (Nioka; Ndele; Geti). BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 381, pl. 14.

SPECIMENS: Ikengo (near Bolengi), two males, two immature males, July 20. Coquilhatville, male, December 15. Dobo, male, July 28. Avakubi, male, June 28. Medje, five males, July 17, 18, 26, August 29, September 5; three females, July 26, 27, 30; immature male, July 18. Niangara, male, May 17. Nzoro, male, July 30. Faradje, 10 males, February 28, May 25, July 26, August 11, 25, 30, September 3, 20, November 20; four females, March 10, July 5, August 25, 29; five immature males, March 10, July 7, November 21, 22; two juvenile males, October 18, November 21; juvenile female, October 15. Garamba, male, immature male, July 19.

ADULT MALE: Iris dark brown; bill light orange-red; feet rather dark gray.

IMMATURE MALE OF SECOND YEAR: Iris dark brown; bill orange-red; feet brownish gray.

ADULT FEMALE: Iris dark brown; bill mainly dusky brown, but pinkish brown at base of culmen, sides of maxilla, and beneath base of mandible; feet dark gray.

YOUNG MALE, NEWLY FLEDGED: Bill at first blackish externally but soon becoming dull light reddish; palate with five blackish dots, and two dark

spots on tongue. The skin of the gape showed some blue color, and from its appearance in dried skins I believe it bears little swellings of the same form as in *Estrilda astrild* and *melpoda*.

DISTRIBUTION: Senegal to Eritrea and south over most of the continent, save in rain forests, deserts, and on high mountains, to the Orange River and eastern Cape Province; also on the islands of Fernando Po, São Tomé, Mafia, Zanzibar, and Mayotte.

No races are recognized, but the wing seems to average 3 or 4 mm. longer in males from eastern and southern Africa than in those from northwestern areas. The black chin spot is variable but far more apt to be well developed among males from the northern border of the equatorial forest than from anywhere else throughout the range. Even in the Congo it is more often noticeable in those from the Uelle than in those from the Kivu, Kasai, or Lower Congo.

The pin-tailed whydah is one of the common and characteristic birds of savannas in the Congo, up to elevations of 6000 feet and occasionally on plateaus to 7500 feet. It invades the clearings near the margins of the equatorial forest and along the larger rivers, especially the upper Congo. I saw it a few times even at Avakubi and Bomili on the Ituri. The male wears his black and white nuptial plumage with elongated middle rectrices only during the breeding season, which comes in the latter part of the rains when various species of *Estrilda* are nesting.

Because the adult males at that time are in the minority, being accompanied by parties of streaked brown birds, they were long supposed to be polygamous, as are *Euplectes* and *Coliuspasser*. The fact was often overlooked that many of the brown birds were immature males, which do not assume the adult dress during their second year. These immature males are slightly larger than the females, have blacker markings about the head and neck, and orange-red beaks. In the off season large flocks are often found.

It is abundantly proved that *Vidua macroura* is a nest parasite, and I believe the males to be promiscuous rather than polygamous. We became best acquainted with the species in the Uelle. During the rainy season adult males are very active and pugnacious. Not only do they pursue the females with hovering flight and fluttering tails, but they also dart after the second-year males or even other birds such as wagtails or weavers. While hopping on the ground in search of fallen seeds, they may drag their long black rectrices along the earth or raise them slightly in a graceful arc. In rapid flight these feathers are no impediment. While perching or on the wing the males utter twittering notes; less often, while resting, they may give a low, whistled "pēēēē. . . ."

In the Uelle and northern Ituri, over a period of four years, I found the male nuptial plumage to be assumed in May, but the four long tail feathers

are of slow growth and usually have sheaths at the base until late in July. Actual breeding seemed to be delayed till late in August. Two of our specimens have normal breeding dress, except that the median rectrices lie flat on the others and project only 10 mm. or less beyond them. The postnuptial molt in that same region takes place regularly in the latter part of November. In the grasslands about Lake Albert the molts came at the same times, but near Lake Edward the dates seemed to be reversed, with the prenuptial molt in December. In the region of Butembo and Beni, however, I have seen many males in full nuptial dress at the end of July.

South of the forest, of course, in the Kasai the breeding plumage is worn between October and June; the eclipse plumage in July, August, and September. About Lake Kivu the southern system of molts prevails, many males are in full plumage by November, and on the north shore of Lake Edward in January and February I saw parties of six and eight brownish birds often accompanied by a male with moderately long tail feathers. Breeding was soon to begin. Yet on the northern margin of the Semliki Forest, in Bwamba, the Van Somerens found that the breeding dress was worn between July and October, and eggs were found then in *Estrilda* nests.

In Uganda Jackson wrote of two distinct breeding periods in the year, as though males might be divisible in two groups, molting at opposite dates. Where the Congo River crosses the Equator, there must be a rather abrupt change. At Lukolela I saw a male in nuptial dress first on October 9 and others during the months that followed. At Kwamouth a few long-tailed males were noticed as late as mid-July. But in the vicinity of Coquilhatville males in prenuptial molt were collected on July 20, and others with long tails were noted there on December 15. Nowhere, to my knowledge, is the eclipse plumage omitted.

Adults in eclipse are not distinguishable from immature males by the condition of the skull, for all members of the Viduinae retain what amounts to a juvenile condition of the skull roof throughout life. This I have explained under *Hypochera amauropteryx camerunensis*. The juvenal plumage of both sexes differs markedly from that of the adult female, being duller and lighter, without streaks. The type of *Pseudospermestes microrhynchus* Reichenow was such a young example. This dress is worn for only a brief period. In the Uelle we did not see any juveniles until early in October, and within two months they had all molted into streaked plumage. From Luluabourg in the Kasai we have a newly fledged *Vidua serena* taken as early as January 23.

For many years the nest of this widow-bird was sought in vain, until Austin Roberts[1] found its nestlings and its pure white eggs in nests of

[1] 1907, Jour. South African Ornith. Union, vol. 3, pp. 9–11; 1912, idem, vol. 8, pp. 45, 46; 1917, Ann. Transvaal Mus., vol. 5, pp. 259, 260; 1939, Ostrich, vol. 10, pp. 106–109.

Estrilda, Coccopygia, Lagonosticta, and supposedly even *Coliuspasser ardens.* In East Africa Jackson and his collector Baraka also made sure that *Vidua macroura* laid in the nests of *Estrilda astrild,* and Van Someren[1] added his evidence, showing the fosterers to include three or four species of *Estrilda.* One or sometimes two eggs of *Vidua* are deposited in a nest, and the young widow-bird does not inconvenience its nest mates. The laying widow-bird has been accused of destroying one of the legitimate eggs.

The egg of *Vidua macroura* usually differs from eggs of the waxbills by its slightly larger size, but there is danger that eggs of *Hypochera* may be confused with it, especially in nests of *Lagonosticta.* Rudolf Neunzig[2] was well justified in his belief that waxbills of the genus *Estrilda* are the usual fosterers of *Vidua macroura,* but other species besides *E. astrild* are surely imposed on. Measurements of eggs of this widow-bird are 15–16.3 by 11–12.1 mm. Cheesman's supposition that in Abyssinia various grass warblers served as fosterers was due to the misidentification of young of *Anomalospiza.* In the Congo the eggs and young of *Vidua macroura* are to be looked for especially in the nests of *Estrilda astrild, melpoda, paludicola,* and *rhodopyga,* also in those of *Amandava subflava.* At Kasenyi on September 8 I found a nest of *Estrilda rhodopyga* containing four legitimate eggs and two larger ones measuring 15.8 by 11.8 and 16.3 by 12 mm., which I believed to have been laid by *Vidua.* Whenever time allows, such eggs should be left to hatch in the nest, so the young can be identified and their development studied in relation to those of the fosterer.[3]

Neunzig pointed out the close similarity in palate spots and gape wattles between nestlings of *Vidua macroura* and *Estrilda astrild.* But I cannot agree that the Viduinae owe the possession of such buccal ornaments wholly to mimicry of their fosterers. In my opinion this parasitic group of weaver-finches is very closely allied to the Estrildinae, and doubtless their young had similar ornaments before the Viduinae developed into nest parasites. The surprisingly close parallels that now are evident may well have been retained or even perfected by natural selection. In South Africa *Vidua macroura* has been said to lay sometimes in nests of *Lonchura.* If so, careful study should be made to test the importance of dissimilar mouth decorations.

The food of *Vidua macroura* consists mainly of small seeds. In the crops of 12 of the 13 examples studied, only seeds were present—usually those of wild grasses, but in one instance of *Eleusine* and in another of meal made from that same kind of millet. The remaining bird had eaten two winged termites, which I watched him capture in the air.

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[1] 1918, Novitates Zool., vol. 25, p. 282; 1923, Avicultural Mag., ser. 4, vol. 1, p. 110.

[2] 1929, Jour. Ornith., pp. 3–6, fig. 1.

[3] For the question of parasitism by the Viduinae, see especially Friedmann, 1950, Smithsonian Report for 1949, pp. 307–311.

Steganura paradisaea paradisaea (Linnaeus)

Emberiza paradisaea LINNAEUS, 1758, Systema naturae, ed. 10, p. 178 (Africa; restricted type locality: Angola).

Steganura sphenura DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika).

Steganura paradisea var. *sphenura* DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 29 (Tanganyika).

Steganura paradisaea paradisaea VERHEYEN, 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, p. 3 (Musosa).

DISTRIBUTION OF THE SPECIES: Senegal eastward to Kordofan, Eritrea, and Somaliland, and south through eastern Africa to Natal and the Transvaal, then westward again to Damaraland, Angola, and the southern Congo. Absent from the equatorial forests and the higher mountains, not known from the grasslands of the Lower Congo and Gaboon, and very rare in the Kivu area except perhaps in the lower Ruzizi Valley.

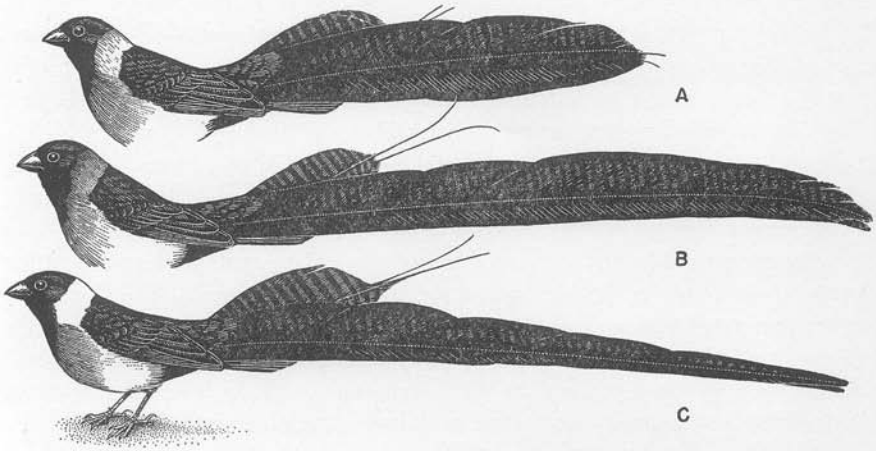

FIG. 41. The three races of paradise widow-bird occurring in the Congo. A. *Steganura p. obtusa*. B. *S. p. interjecta*. C. *S. p. paradisaea*. Males in breeding plumage.

That vast range includes the six "broad-tailed" subspecies, which have sometimes been grouped together under *Steganura aucupum* or *orientalis,* as well as *S. p. paradisaea,* easily recognized by the tapering ends of the longest rectrices of the breeding male, which measure 245–344 mm. The wings of this race are 76–83 mm. long. Nominate *paradisaea* occupies an extended area, from Natal and Damaraland to southern Angola, Nyasaland, eastern and northern Kenya Colony, Lado on the Bahr-el-Jebel, Abyssinia, Eritrea, and British Somaliland. Its range overlaps those of some of the other races, even during the breeding season.

Steganura p. obtusa, with the central rectrices of breeding males very

broad and short, ranges from Angola to Beira in Mozambique, to the Kasai and Manyema districts, Lake Kivu, and central Kenya Colony. The characters of the breeding male are very distinctive, yet there is an extensive overlapping of ranges with *paradisaea,* from southern Angola to Mozambique and even to Kenya Colony.

The race *interjecta,* with tail feathers longer than those of *obtusa,* yet not tapered and breast not so dark brown, occupies savannas north of the Lower Guinea forest from the Lado district and Upper Uelle to the Cameroon. In Eritrea and the Blue Nile region lives *S. p. orientalis* (Heuglin) with shorter tail feathers and yellower hind-neck. Supposedly it extends to Darfur and the Shari River, yet males from southern Kordofan are darker and more extensively brown on the breast, and I think we must recognize *S. p. kadugliensis* Bowen.[1] In Eritrea and southern Abyssinia both *orientalis* and *paradisaea* have been collected.

West of Lake Chad, as far as Senegal, lives *S. p. aucupum* Neumann, with hind-neck browner than in *orientalis* and tail feathers a little longer. The very long-tailed males from just north of the Upper Guinea forest, between Togoland and Sierra Leone, are *S. p. togoensis* Grote.

Overlapping by males of *S. p. paradisaea* with at least two other "broad-tailed" forms of the same species is proved. If we could show that each mated with a different kind of female, then *paradisaea* would have to be treated as a species. But no one has been able to separate such females. It has been suggested that the tail form of males is a mutational character, determined by a single pair of genes and thus to be compared with color phases among other birds and especially with *Coliuspasser ardens.* Pairing would be indiscriminate, no intermediates would result, and were it not that each form does occupy an area mainly its own, they should not even be dignified with trinomials. Such a view is reasonable but will not be easy to prove by either field observation or breeding experiments. *Steganura,* like *Vidua* and *Hypochera,* is surely a nest parasite.

Rudolf Neunzig[2] believed that its usual fosterers are *Pytilia melba* and *afra,* to which *P. phoenicoptera* should probably be added. He pointed out the close similarity in mouth markings between the nestlings of *Steganura* and of *Pytilia.* The nestling of *S. p. paradisaea* has a single black spot on the palate and black areas just inside the gape wattles, so that its open mouth looks very like that of *P. melba.* The young *P. afra* may agree, but *P. phoenicoptera* has a nestling with no black spot on its palate. If Neunzig was right about the exactness of this mimicry, the young of *Steganura p. interjecta* may turn out to have a spotless palate.

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[1] 1931, Proc. Acad. Nat. Sci. Philadelphia, vol. 83, p. 230 (Kadugli, southern Kordofan).

[2] 1929, Jour. Ornith., pp. 11–13, fig. 4.

The evidence for parasitism has gradually been accumulating. Belcher[1] found large white eggs in nests of *Pytilia melba* and *afra* which he felt sure were laid by *Steganura.* At Bulawayo Stevenson watched a female *Steganura* at a nest of *melba* and found a large egg in it, while Carlisle is reported to have seen two young *Steganura* with a party of young *melba.*[2] At Pretoria Robertson[3] noted that females of *Steganura paradisaea* in captivity laid eggs in nests of *Pytilia melba* and of Australian zebra-finches. Young paradise whydahs were reared with young melba-finches in two successive seasons. The dimensions given by Belcher and by Roberts for the supposed eggs of *Steganura* are 17.7–19.5 by 13.0–14 mm.

Just as in *Hypochera* and *Vidua,* the anterior part of the skull roof of *Steganura* remains thin, composed of only one layer of bone, throughout life. It is of no use in determining the age of the individual.

Steganura p. paradisaea barely reaches the borders of the Congo. It has been taken at Lado and Mongalla on the Bahr-el-Jebel and may perhaps live together with *interjecta* a little west of that river but is scarcely

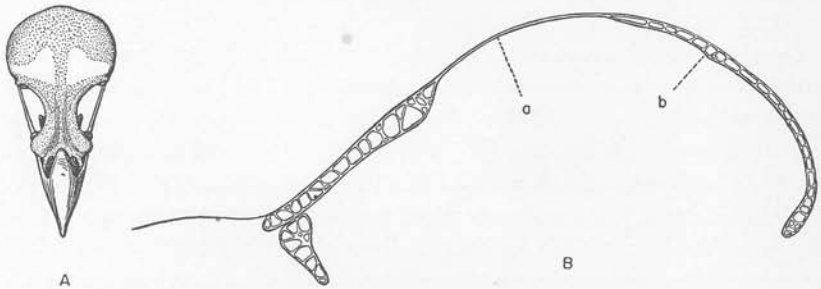

FIG. 42. A. Skull of adult male of *Steganura paradisaea,* to show thin area (not stippled) of skull roof. B. Sagittal section through skull roof of a warbler about 10 weeks old: a, thin anterior area of braincase; b, thickened posterior part.

expected to reach the adjacent Congo border. Somewhere near Lake Tanganyika Storms in 1883 took two male paradise whydahs, one of which was *obtusa,* the other *paradisaea.* But the only record of *paradisaea* surely from the Congo is that of Brédo, from Musosa, northeast of Lake Moero.

In all its behavior nominate *paradisaea* is similar to the other races, forming small flocks which may include several adult males until the prenuptial molt is complete. Later the males separate and display in sustained flights

[1] 1930, Beiträge zur Fortpflanzungsbiologie der Vögel, vol. 6, pp. 73–75, pl. 3; 1930, The birds of Nyasaland, pp. 330, 339.

[2] Austin Roberts, 1939, Ostrich, vol. 10, pp. 110–112.

[3] 1946, Ostrich, vol. 17, p. 209; 1949, Avicultural Mag., vol. 55, pp. 158–162.

over the tree tops. In Southern Rhodesia and the Transvaal males of *paradisaea* wear nuptial dress from late November to May or early June. In Nyasaland, Northern Rhodesia, and Tanganyika Territory the corresponding period is from January or February to July. In southern Kenya Colony males have been taken in prenuptial molt during October, others with fully developed tails from then until late March, and rarely even in June.

North of the Equator, in Turkana, Granvik collected males in breeding dress in July. From the Turkwell River we have one in prenuptial molt in January, and from Lake Baringo in early October another with elongate rectrices abraded. Two juveniles from Marsabit were taken in July. In Abyssinia fully plumaged males have been taken from May to December, some even in February and March. It would seem that the breeding season must vary somewhat according to the district and its particular seasons of rain. In British Somaliland the breeding season may end in September, and I am puzzled by males in full dress taken in Eritrea on January 9 and March 5.

Steganura paradisaea obtusa Chapin

Steganura aucupum obtusa CHAPIN, 1922, Amer. Mus. Novitates, no. 43, p. 6 (type locality: Luchenza, Nyasaland); 1923, Amer. Nat., vol. 57, map on p. 115. BANNERMAN, 1923, Ibis, p. 681. SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 44 (Uvira). SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 290 (Elisabethville); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 170.

Steganura paradisea DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 148 (L. Tanganyika). REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 223 (in part. Upper Kwango R.). NEAVE, 1910, Ibis, p. 246 (Lualaba R., 2500–3500 ft.; upper Lufira R., 3500 ft.). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 278 (Munie Mboka; Lubilu; Kibati; Dogodo R.; Niembo).

Steganura paradisaea paradisaea NEUNZIG, 1928, Zool. Anz., vol. 78, p. 187.

Steganura paradisaea obtusa SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 811. PRIEST, 1936, The birds of Southern Rhodesia, vol. 4, p. 372, pl. 10. A. W. VINCENT, 1949, Ibis, p. 664.

Steganura paradisea obtusa SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 274.

Vidua paradisoea obtusa DELACOUR AND EDMOND-BLANC, 1934, Ois. Rev. Française Ornith., new ser., vol. 4, p. 98, map on p. 94.

Vidua (Steganura) paradisoea obtusa WINTERBOTTOM, 1939, Ostrich, vol. 10, pp. 126, 127.

Steganura orientalis obtusa GRANT AND MACKWORTH-PRAED, 1945, Bull. Brit. Ornith. Club, vol. 65, p. 44. SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 163 (Kiambi; Kando; Kansenia; Moba; Nionga; Golo; Kinda; Funda Biabo; Lusaka; Kabalo; Tembwe; Kasaji).

DISTRIBUTION: From western Angola to the central Kasai, grasslands of the Manyema, Kibati near Lake Kivu, the Meru district in Kenya Colony, and eastern Tanganyika Territory; thence south to the vicinity of Beira in

Mozambique, northern Gazaland, Nyasaland, and Northern Rhodesia south at least to Mazabuka and Barotseland.

This form has males with the second pair of rectrices in breeding plumage very broad, 35–37 mm. wide and only 176–222 mm. long. Wings of males are the longest of any of the races, measuring 80–89 mm. In the northern parts of the range, save for East Africa, only *obtusa* males are to be found, but in Northern Rhodesia, Nyasaland, Mozambique, and parts of Tanganyika Territory and Kenya Colony, *paradisaea* males are to be seen in the same localities with *obtusa*. While there is no great difference between them in color, the wings of these males of *paradisaea* measure only 76–83 mm., the long, tapering rectrices 270–336 mm. If the difference is due to but one gene, how strange that, while the tail of *paradisaea* is so much longer, its wing should average shorter. In Northern Rhodesia and Nyasaland Winterbottom and Benson have seen males of both forms in exactly the same places. The fact that "*Prosteganura haagneri*" was supposedly a male hybrid between *Steganura* and *Hypochera* suggests that male paradise whydahs may be rather careless in their matings.

In the savannas of the southeastern Congo *S. p. obtusa* is expected to assume its male breeding plumage in early February and to retain it until late in July. Of the three races occurring in the Congo this is by far the most widespread. At Luluabourg Father Callewaert obtained one male in eclipse on August 12 and at Katabua two young on September 18 and October 25. Father Windmolders reports males near Mérode and near Kabinda. Count de Baillet-Latour collected several for the Congo Museum at Funda Biabo and Kinda. In Marungu between April 13 and 23 Rockefeller and Murphy obtained two males and two females, all in breeding condition, at Kinia, 3925 feet, and Selembe, 3600 feet. In the Manyema Pilette secured four males in nuptial dress, and one more on March 28 at Kibati in the Kivu highlands, where it must be very rare.

Even in the breeding season these whydahs often gather in small parties, but the adult males display singly by making a long flight from the top of a tree, high in the air, and then dropping abruptly to the very top of another tree. In the region of the Congo inhabited by *obtusa* the common *Pytilia* is *afra* rather than *melba*, and I think we must assume that both these species may serve as fosterers. In a nest of *Pytilia afra* near Elisabethville at the end of April Alfred Vincent found four eggs of the *Pytilia* and two larger ones, measuring 18.2 by 13.1 and 17.9 by 13 mm., which were almost certainly laid there by *S. p. obtusa*.

Steganura paradisaea interjecta Grote

Steganura paradisea interjecta GROTE, 1922, Jour. Ornith., p. 402 (type locality: between Nola and Mbaiki, French Congo). SCHOUTEDEN, 1936, Ann. Mus. Congo,

zool., ser. 4, vol. 1, fasc. 2, p. 148. BLANCOU, 1948, Ois. Rev. Française Ornith., new ser., vol. 18, p. 75 (Zémio).

Steganura paradisea OUSTALET, 1905, Bull. Mus. Hist. Nat., Paris, p. 15 (Krebedje). SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 322 (Uelle District).

Steganura paradisea verreauxii SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 459 (Yei).

Steganura aucupum aucupum CHAPIN, 1922, Amer. Mus. Novitates, no. 43, p. 4 (Fort Sibut).

Steganura aucupum longicauda CHAPIN, 1922, Amer. Mus. Novitates, no. 43, p. 5 (type locality: Faradje in Upper Uelle District; also from Niangara; Aba). BANNERMAN AND BATES, 1924, Ibis, p. 269.

Steganura paradisaea interjecta NEUNZIG, 1928, Zool. Anz., vol. 78, p. 188. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 811. BATES, 1933, Bull. Brit. Ornith. Club, vol. 53, p. 180.

Vidua paradisoea interjecta DELACOUR AND EDMOND-BLANC, 1934, Ois. Rev. Française Ornith., new ser., vol. 4, p. 96, map on p. 94.

Vidua (*Steganura*) *paradisoea longicauda* WINTERBOTTOM, 1939, Ostrich, vol. 10, p. 125.

Steganura orientalis interjecta BANNERMAN, 1949, The birds of tropical West Africa, vol. 7, p. 396.

SPECIMENS: Faradje, three males, November 9, December 12, 17; two immature males, November 17.

ADULT MALE: Iris dark brown; bill black; feet dark brown.

DISTRIBUTION: From Yei and Aba across the grasslands of the Uelle, and no doubt the southern Bahr-el-Ghazal, to the grasslands of Ubangi-Shari and the Cameroon. The longest rectrices of breeding males measures 260–298 mm. long and 28–34 mm. wide; their wings, 78–79 mm. Hind-neck and chest are both light golden brown.

In the northern Congo this race is not at all numerous, and we saw it there only during its breeding season, in November and December. It would seem that the nuptial plumage of males is assumed in September and retained until late January. Though specimens were collected only at Faradje, I noted one adult male at Niangara in November and another at Aba on December 13.

At that same season there were dull-plumaged males in their second year and presumably females, too, but they never gathered in large flocks. Half a dozen at most would be seen, even when feeding on the ground in freshly burned areas. The old males were seldom noted on the ground but were very conspicuous, behaving very differently from males of *Vidua* or *Coliuspasser*. Singly, they made long horizontal flights, progressing slowly as though retarded by the huge tail. This appendage is not shaken but carried straight out behind so as to show to greatest advantage. No vocal note was heard. Keeping at a height of 40 or 50 yards, a male *interjecta* would fly as far as a quarter of a mile, alighting again on the top of some isolated tree, where it

was difficult to approach. Bushy pastures and the borders of cultivated ground were favorite haunts. Four such males in a season were the most I ever saw near Faradje.

The only species of *Pytilia* in the Upper Uelle is *phoenicoptera,* and it appears to breed from early November, toward the end of the rains, into December and possibly January. It is the probable fosterer of the young of *interjecta,* and their breeding seasons appear to be synchronized. Throughout its range *Steganura* retains the nuptial plumage much longer than does *Vidua macroura,* and the late breeding of the species of *Pytilia* may have much to do with that peculiarity.

All five of our specimens had eaten small seeds, mainly of grasses.

FAMILY **FRINGILLIDAE.** FINCHES, SERINS, BUNTINGS

Key to the Genera of Fringillidae in the Congo[1]

1. Nostrils exposed, with a small bare operculum above; beak compressed, cutting edges of mandible bent strongly inward, palate with a knob at its center, and corners of mouth turned downward 2
   Nostrils hidden by small bristly feathers; beak less compressed, stout or pointed, and edges of mandible not so inflected, palate flat or concave 3
2. Outer tail quills with large patches of white; breast of adults yellow, sometimes with a light brown wash across chest . . . . . *Emberiza* (p. 610)
   Outer tail quills without white markings, whole breast rufous or cinnamon . . . . . *Fringillaria* (p. 617)
3. Bill stout, yellow to orange in color; males green and yellow with black head and throat; females largely greenish . . . . . *Linurgus* (p. 584)
   Bill of varying form, blackish, brown, gray, or pale flesh color; males never so black-headed, though they may have some black about the face . . . 4
4. Plumage mainly brownish or grayish, without yellow save sometimes on outer margins of remiges or rectrices, and without any distinct spot of yellow or white on rump . . . . . *Poliospiza* (p. 586)
   Plumage mainly green and yellow; or if brownish or grayish, then the rump bears a conspicuous yellow or white patch . . . . . *Serinus*[2] (p. 594)

SUBFAMILY **CARDUELINAE**

Linurgus olivaceus prigoginei Schouteden

Linurgus olivaceus prigoginei Schouteden, 1950, Rev. Zool. Bot. Africaines, vol. 44, p. 117 (type locality: Nzombe, 1810 meters, 40 km. east of Kamituga, Kivu District; also from Bitakongo, west of Lake Edward).

Linurgus olivaceus Schouteden, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 279.

Linurgus olivaceus ssp. Schouteden, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 170, footnote (Loashi, northwest of L. Kivu). Bannerman, 1948, The birds of tropical West Africa, vol. 6, pp. 295, 296.

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[1] Note that the true sparrows, *Passer* and *Petronia,* are members of the family Ploceidae.

[2] One species with sharply pointed beak, *S. citrinelloides,* has often been referred to the genus *Spinus.*

DISTRIBUTION OF THE SPECIES: Highlands of Fernando Po, the Cameroon, western Kivu District, and eastern Africa from the Imatong Mountains and Mt. Kenya to Uluguru and Nyasaland. Usually restricted to levels between 4500 and 10,000 feet, the oriole-finch is known to descend to around 3000 feet on the slopes of Mt. Cameroon.

Males of the nominate race, found in the Cameroon and on Fernando Po, are yellowish green on the back, with a narrow yellow collar just behind the black head. *Linurgus o. elgonensis* of Elgon, the North Kavirondo District, and Mt. Kenya is lighter and yellower above, while the recently described *L. o. prigoginei* is even less washed with olive above and more

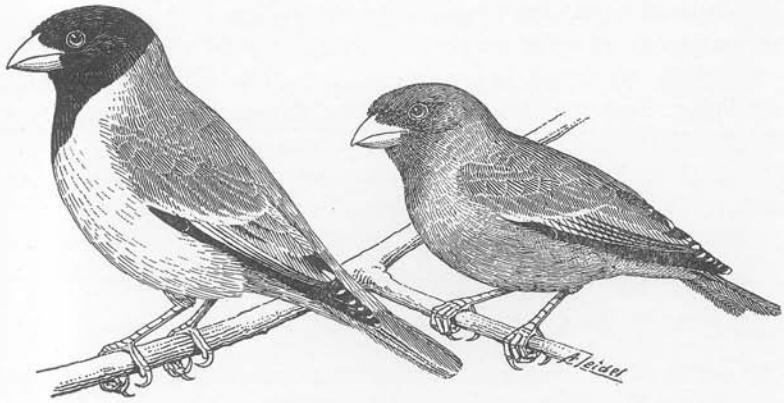

FIG. 43. The oriole-finch of the eastern Congo highlands, *Linurgus olivaceus prigoginei*. Male is black-headed; female shown at right.

tinged with orange brownish on the lower surface. *Linurgus o. kilimensis* (Reichenow and Neumann) of Kilimanjaro and Usambara is much darker green on the back than nominate *olivaceus*. The race *kilimensis* extends to other highlands south to Uluguru, and while Mt. Rungwe is said to have a race with paler lemon-yellow breast, *L. o. rungwensis* Bangs and Loveridge, specimens from Nyasaland have been identified by Benson with *kilimensis*. I cannot see that specimens from Mt. Kenya differ from *elgonensis*.

Until recently the oriole-finch seemed to be exceedingly rare in the eastern Congo. In 1913 André Pilette obtained one female or immature male for the Congo Museum at Loashi, but none has ever been taken on Ruwenzori or the Kivu Volcanoes. Thirty-six years passed before A. Prigogine again collected two specimens in the vicinity of Lutunguru, at Bitakongo, 1850 meters, and Manzia, 1800 meters. Soon he obtained more, somewhat farther south, at Nzombe and Miki on the highland west of the Ruzizi Valley

and Uvira, at levels between 1770 and 2000 meters. They were usually seen in couples or trios, keeping mostly to the trees, though once eating the seeds of tobacco growing in a native garden. I, too, have found this oriole-finch at Tshibati, 6400 feet, southwest of Lake Kivu.

In other regions these birds have been seen singly, in pairs, or in flocks of eight to 15. They are often near the ground, shy and restless, amid bushes or bamboos where their coloration does not make them conspicuous or even amid grasses at the edges of woods. Occasionally one will perch high on a tree. The call note is a wheezy "tzit, tzit," and the song of the male a churring noise ending with a more melodious whistle.

Nests of *Linurgus o. olivaceus* found by Robert Newton in the Bamenda highlands from November to January were shallow cups placed 3 to 4 feet up in bushes growing in tongues of grassland amid the mountain forest. The materials were moss, lichen, and rootlets, with some white plant down in the lining. Eggs are two to three white, thin-shelled, and very sparsely speckled with reddish brown, chiefly at the large end.

The food of *Linurgus* appears to consist of seeds, including those of grasses, with an occasional small caterpillar, but one bird has been seen pecking at a flower and letting the petals fall.

KEY TO THE SPECIES OF *Poliospiza* IN THE CONGO

1. Chin brownish black, throat more or less mottled with blackish and white, chest plain gray-brown; bill stout, at least 10 mm. deep at base . *P. burtoni*
   Chin not blackish, but white or buff like throat, chest whitish or buffy, sometimes with dark streaks; depth of bill at base 9 mm. or less 2
2. Wings shorter: 63–69 mm.; underparts buffy, heavily streaked with dark brown on chest and flanks . . . . . *P. striolata*
   Wings longer: 78–84 mm.; underparts grayish buff with no conspicuous streaks, or more whitish with diffuse gray-brown streaks 3
3. Eye region and ear-coverts rather dark brown, the streaking of crown scarcely extends to upper back, and streaking of chest is slight, scarcely extending to flanks . . . . . *P. gularis*
   Eye region and ear-coverts black or blackish brown, streaking of crown does extend to upper back, and streaks on chest thicker, reaching flanks . . . . . *P. mennelli*

Poliospiza gularis elgonensis Ogilvie-Grant

Poliospiza elgonensis OGILVIE-GRANT, 1912, Bull. Brit. Ornith. Club, vol. 31, p. 17 (type locality: Mangiki, Mt. Elgon).

Poliospiza gularis elgonensis SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 467 (Yei; Yambio).

Poliospiza gularis striatipectus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 820 (in part). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 148 (Faradje; Niarembe; Mauda).

SPECIMENS: Niangara, male, May 25. Faradje, male, July 10. Aba, male, December 22. Garamba, six males, May 14, June 9, July 7, 10; three immature males, May 7, July 5, 21; female, May 14.

ADULTS OF BOTH SEXES: Iris rather dark brown, bill pale buff, feet light brownish.

DISTRIBUTION OF THE SPECIES: Across the southern Sudan from the Gold Coast Colony (if not indeed from Senegal) to the Bahr-el-Ghazal and southern Abyssinia, south through eastern Africa to the Cape Province and westward again to the highlands of Angola. The species is divisible into nine or more races, the nominate form occupying Bechuanaland and adjacent dry parts of South Africa, while *P. g. humilis* (Bonaparte) replaces it in southern Cape Province and Natal. From Nyasaland to the Katanga and western Tanganyika Territory it is represented by *P. g. reichardi,* a dull grayish race with some streaking on the chest, and in Angola supposedly by *P. g. benguellensis* Reichenow, with plain chest and very dark sides to the head. From central Kenya Colony north to Mt. Lololokui and Elgeyu there is a form named *striatipectus* Sharpe, heavily streaked on the breast throughout life, which is usually included in this species. *P. g. erlangeri* Reichenow of southern Abyssinia is likewise streaked below. From North Kavirondo and the base of Mt. Elgon westward to the Uelle and Bahr-el-Ghazal the adults show little or no streaking on the breast. The name *elgonensis* seems to be applicable to this race, and it is not quite clear how *uamensis* of the Ubangi-Shari differs. The highlands of northern Cameroon have the dark *P. g. montanorum* Bannerman, and the lowlands farther west in Nigeria and the Gold Coast have another paler form, *P. g. canicapilla* Du Bus. The relationship between *P. gularis* and *P. mennelli* is still not clear; their ranges overlap widely.

Sclater believed that *elgonensis* was merely the adult plumage of *striatipectus,* but a fair-sized series of the latter from Kenya Colony contains none but streaked birds. In the Uelle District we found none with appreciable streaking of the breast, although three of our specimens were undoubtedly immature. The wings of nine adult males of *elgonensis* measure 81–84 mm., those of a female 79 mm.

In most of the Uelle savannas this gray-brown finch is found only in small numbers and may easily be overlooked. We saw but one near Niangara and another not far from Nzoro. Even at Faradje it is scarce, but toward the Sudan frontier it becomes more common. Near Aba it seemed numerous in July and at Garamba around that same season distinctly common, especially on native farms where it perched on the trees often left standing in cultivated spots. It was watched picking the seeds from the tops of guinea corn that had sprung up unaided in the early rains, and weed seeds are also eaten. The flight is undulating, the call note a chirrup like that of *Serinus mozambicus.* The song is very sweet, often even canary-like, and occasionally is given on the wing while the bird circles in the air.

Our dissections showed that the sexual organs began to enlarge in June, and it may be expected that breeding continues in the Uelle until October or

November. No nest was found. The crops or stomachs of four out of five specimens examined contained small seeds of various kinds. One bird had captured a dozen winged termites in flight; another had eaten four small caterpillars.

[*Poliospiza gularis uamensis* Grote]

Poliospiza gularis uamensis GROTE, 1921, Anz. Ornith. Gesellsch. Bayern, vol. 1, p. 39 (type locality: Bozum, Uam district, French Equatorial Africa).

According to its describer, this form is somewhat browner beneath than *elgonensis,* and the measurements given of the wing (78–81 mm.) are slightly smaller. *P. g. uamensis* is only known from near the type locality but may well be expected to reach Congo territory in the northern part of the Ubangi District.

Poliospiza gularis reichardi Reichenow

Poliospiza reichardi REICHENOW, 1882, Jour. Ornith., p. 209 (type locality: Kakoma, Tabora District, Tanganyika Territory).

Poliospiza gularis NEAVE, 1910, Ibis, p. 242 (Kambove, 4500 ft.).

Poliospiza gularis reichardi SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 468. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 819. SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 290 (Elisabethville); 1949, idem, vol. 42, p. 159. J. VINCENT, 1936, Ibis, p. 117.

Poliospiza melanochroa CHAPIN, 1932, Bull. Amer. Mus. Nat. Hist., vol. 65, pp. 262, 319 (Katanga).

DISTRIBUTION: From Nyasaland west to the Balovale and Mwinilunga districts of Rhodesia and north to the Upper Katanga and to Kakoma in Tanganyika Territory. The chest is slightly streaked even in adults, the cheeks are brownish, and the whole coloration is dull.

Over most of its range this race is an inhabitant of savanna woods composed of *Brachystegia* and other fair-sized trees, at elevations of 4000 to 5000 feet. According to Lynes, its breeding season does not begin before January, and males indulge in little "butterfly" courtship flights, accompanied by singing. Near Elisabethville I collected a male with gonads still enlarged on August 15. In the off season small parties may be formed, and some feeding is done on the ground.

The nest of this race seems not to have been found, but that of *P. g. gularis* in southern Rhodesia is described by Alfred Vincent as a neat little cup of soft dry leaf stems and grass, bound with cobweb and lined with vegetable down. It is placed on a low bough or in a tall shrub, 6 to 9 feet above the ground. Eggs are three, very pale greenish blue speckled with chocolate, mauve-brown, and pale violet, mainly in a zone around the large end.

Poliospiza mennelli Chubb

Poliospiza mennelli E. C. CHUBB, 1908, Bull. Brit. Ornith. Club, vol. 21, p. 62 (type locality: Tjoko's Kraal, Shangani R., Southern Rhodesia). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 109 (Elisabethville). WHITE AND WINTERBOTTOM, 1949, A check list of the birds of Northern Rhodesia, p. 134 (Mwinilunga). WHITE, 1950, Bull. Brit. Ornith. Club, vol. 70, p. 35 (Cavungu in Angola). VERHEYEN, 1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 657 (Upemba Park).

Poliospiza melanochroa NEAVE, 1907, Mem. Proc. Manchester Lit. Phil. Soc., vol. 51, no. 10, p. 86 (road to Chiwali's, Northern Rhodesia); 1910, Ibis, p. 242 (upper Lufira R., 3600 ft.).

DISTRIBUTION OF THE SPECIES: From Portuguese East Africa and Southern Rhodesia to Nyasaland, Barotseland, the Upper Katanga, and the Marungu. There is surprisingly little difference in color between *Poliospiza mennelli* and the representatives of *P. gularis* alongside which it lives. The sides of the head are more blackish in *mennelli,* the breast and flanks more heavily streaked with gray; wings measure 79–83 mm.

In Nyasaland Benson found *mennelli* living in *Brachystegia* woodland at 3500–5000 feet and noted that females have the cheeks dark brown, not black, so the difference from *P. gularis reichardi* is not very marked. The same conditions prevail in the Katanga, where *mennelli* has been collected near Elisabethville and the upper Lufira River. Rockefeller and Murphy secured one female of the species at Kasoko, 4100 feet, in Marungu. Verheyen obtained 11 specimens in the Upemba Park, at altitudes between 1300 and 1750 meters. In the dark color of the cheeks *P. gularis benguellensis* is very similar to females of *P. mennelli* but lacks the streaking of the upper back and breast.

Jack Vincent[1] studied the behavior in the region near southern Nyasaland between December and May and described breeding males as singing incessantly, giving a series of uneven, twittering whistles, "teeu-twee-teu-twiddy-twee-twee." The second note was much higher than the rest. Singing was done on the topmost twigs of high trees, and as the singers moved from tree to tree they often flew high up, then came swooping down again, steep dives alternating with slow wing flapping, the song being repeated all the while. Lynes thought this performance by *mennelli* quite different from the courting flight of *P. g. reichardi.*

The female from Marungu was ready to lay on March 16, and breeding may well go on from January to May. A nest found by Benson[2] in Nyasaland was placed near the top of a *Brachystegia* tree, 25 feet up. It was a cup made of beard lichen, 70 mm. in diameter externally, and contained a

[1] 1936, Ibis, p. 118.
[2] 1944, Ibis, p. 479.

full set of two eggs, pale green, spotted and freckled with black and pale grayish lilac. Dimensions were 17 by 13.5 mm. and 18 by 13.2 mm.

Poliospiza striolata graueri (Hartert)

Serinus striolatus graueri HARTERT, 1907, Bull. Brit. Ornith. Club, vol. 19, p. 84 (type locality: Ruwenzori, 7000 ft.).

Poliospiza striolata JACKSON, 1906, Ibis, p. 560 (Ruwenzori).

Serinus graueri OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 305 (Mubuku Valley, 6000–13,200 ft.; Butagu Valley, 7000 ft.).

Serinus (Poliospiza) striolatus graueri HARTERT, 1919, Novitates Zool., vol. 26, p. 159.

Poliospiza graueri VAN SOMEREN, 1922, Novitates Zool., vol. 29, p. 168.

Poliospiza striolata graueri SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 823. FRIEDMANN, 1937, Bull. U. S. Natl. Mus., no. 153, pt. 2, p. 472. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1547. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 83 (Kalonge). VRYDAGH, 1949, Gerfaut, vol. 39, p. 112 (Nioka).

ADULTS OF BOTH SEXES: Iris rather light brown, often somewhat rufous brown; bill light yellowish horn color, shading to dusky brown on culmen; feet dull light brown, claws gray.

DISTRIBUTION OF THE SPECIES: From Eritrea and Abyssinia south through the highlands of eastern Africa to central Tanganyika Territory, the Kivu District, and the western side of Lake Tanganyika. The nominate race, described from Abyssinia, extends to Kenya Colony and there intergrades with *P. s. affinis* (Richmond) of the region of Kilimanjaro. The latter is darker above, buffier below, and more apt to have a faint yellow wash about the face.

Ruwenzori has a very dark brownish race, *P. s. graueri,* and both *P. s. ugandae* Van Someren, described from Mt. Elgon, and *P. s. kivuensis* are somewhat intermediate in tone between *graueri* and *striolata. Poliospiza whytii* (Shelley) of the highlands near Lake Nyasa will doubtless come to be regarded as a race of *P. striolata,* for it differs mainly by a heavy wash of yellow over head and throat, faintly suggested in *affinis.*

The dark-colored *graueri* may be restricted to Ruwenzori, although a single male I collected near Masikini on the Lendu Plateau may be referable to *graueri,* and it also resembles Elgon birds. Schouteden thought that a specimen from Mt. Wago might be *kivuensis,* and that race certainly appears west of Lake Edward.

On all the slopes of Ruwenzori *P. s. graueri* is a very common bird amid the bracken, grass, and bushes in old cultivated spots from around 5500 feet up to the dense growth of mountain forest and bamboos. In the Butahu Valley it was not noticed above 7500 feet, at the north end of the range we saw it at 8300 feet, and on the east side Woosnam reported it also in swampy valleys of the tree-heath zone and even up to 14,000 feet. It is fond of cover,

and from thickets and bracken it is continually heard singing a not very melodious "chwee, chip-chip-chip-chip-chip."

I should be greatly surprised if there were any short definite season for nesting. Of 18 specimens dissected with some care on west Ruwenzori between November 14 and December 30, two or three were plainly juveniles, and of 15 supposed adults five were in breeding condition. More interesting is the fact that of these 15 not one had the skull roof completely ossified. This would appear to be a case like that of *Vidua* and some other passerine birds.

There seems to be no detailed description of the nest of *graueri,* which must be built in a low bush. From a note by the Bensons, it would appear that the eggs are pale blue, sparingly dotted with chocolate and purplish slate, and very similar to those of *Poliospiza whytii.*

Only three stomachs were examined; they contained only small seeds, usually mixed with some small bits of white quartz. I have watched this streaked brown finch clinging to old dry stalks of *Lobelia giberroa* and extracting the seeds.

Poliospiza striolata kivuensis Schouteden

Poliospiza striolata kivuensis SCHOUTEDEN, 1937, Rev. Zool. Bot. Africaines, vol. 30, p. 167 (type locality: Kivu District, Belgian Congo); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 170 (Ngoma; Burunga in Mokoto; Ngesho; Tshumba; Kibga; Nyabitsindi; Nyabirehe; L. Ngando; Mt. Visoke; Bweza); 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 342 (Intamba). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 54 (Tshumba); 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 9, p. 2 (Mt. Kabobo).

Serinus graueri OGILVIE-GRANT, 1908, Ibis, p. 280 (Mfumbiro Volcanoes, 7000 ft.).

Poliospiza striolata graueri REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 337 (L. Karago; base of Mt. Karisimbi). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 278 ("Beni"; Bonzo; Tsisirongo; Mukoto; Kibati); 1932, idem, vol. 21, p. 273 (Kisenyi; Lulenga); 1935, idem, vol. 27, p. 404.

Poliospiza striolata ugandae VAN SOMEREN, 1922, Novitates Zool., vol. 29, p. 168 (L. Kivu district). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 42 (Kisenyi–Rutshuru).

Poliospiza striolata graueri $\gtrless$ *ugandae* GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 70 (Mt. Muhavura, 2900 m.; Mt. Sabinyo, 2400 m.; Burunga; Mt. Mikeno, 3300 m.; Mt. Karisimbi, 3400–3900 m.).

Poliospiza striolata striolata JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1545 (in part. Kigezi; Kivu).

? *Poliospiza striolata kivuensis* SCHOUTEDEN, 1940, Rev. Zool. Bot. Africaines, vol. 33, p. 287 (Mt. Wago).

DISTRIBUTION: Highlands of the Kivu District and Kigezi, from west of Lake Edward south to the Rugege Forest and to Mt. Kabobo on the west-

ern side of Lake Tanganyika. This race is slightly but consistently lighter in color than *graueri,* yet four specimens collected by Grauer in the Rugege Forest are slightly browner than the average among *kivuensis.* A male which I collected near Lubango, west of Lake Edward, at 7500 feet, is plainly *kivuensis,* but I am not sure this race is also found to the west of Lake Albert.

In the whole region of the Kivu Volcanoes *P. s. kivuensis* is generally distributed from about 5500 feet up to the alpine meadows of Karisimbi at 12,500 feet. At the higher levels on the volcanoes it is much more numerous in the *Hagenia* forest and the *Senecio* zone than *graueri* is at any similar altitude on Ruwenzori. While Grauer did not collect this finch to the northwest of Lake Tanganyika, Rockefeller and Murphy noted it as common near the top of Mt. Kandashomwa, west of the Ruzizi Valley.

The general behavior is like that of *P. s. graueri;* the birds are seen singly or in pairs, in rather open and scrubby spots amid mountain forest, in open *Hagenia* woods with lush herbaceous undergrowth, and about thickets just above the forest line. They feed mainly on small seeds, are rather active and wary, and call but little. I doubt their adherence to any short breeding season, although at least four out of eight examples from the central Kivu Volcanoes were found to be in condition for breeding in June. Another breeding bird was taken west of Lake Edward in March. Nesting is apparently not interrupted in the dry part of the year; a male from Kandashomwa had gonads enlarged on June 18. Most adults seem to retain a thin area in the front of the skull roof, although I find that in two cases I did note the condition as fully ossified.

The nest of *kivuensis* has not been described, but it cannot differ from that of the East African *affinis,* a cup of rootlets, twigs, grass, and moss, lined with vegetable down, fibers, and hairs, placed in a low bush or amid creepers within a yard or two of the ground. The eggs of *affinis* are three to a set, pale blue or whitish, spotted and sometimes scrolled with dark brown. They measure, according to Jackson, 19–20 by 14–15 mm.

Poliospiza burtoni tanganjicae (Granvik)

Serinus albifrons tanganjicae GRANVIK, 1923, Jour. Ornith., Sonderheft, p. 191 (type locality: Highland northwest of L. Tanganyika).

Poliospiza albifrons JACKSON, 1906, Ibis, p. 559 (Ruwenzori).

Serinus kilimensis OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 306 (Mubuku Valley, 6000–8000 ft.).

Poliospiza kilimensis REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 337 (northwest of L. Tanganyika). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 278 (Mt. Niragongo; Bonzo).

Poliospiza burtoni tanganjicae GYLDENSTOLPE, 1923, Bull. Brit. Ornith. Club, vol. 43, p. 131 (Birunga Volcanoes); 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 70 (Burunga). SCLATER, 1930, Systema avium Aethiopicarum,

pt. 2, p. 824. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1549. VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 83 (Kalonge; Kamanegu); 1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 9, p. 4 (Mt. Kabobo). VRYDAGH, 1949, Gerfaut, vol. 39, p. 113 (Djugu; Loda Forest).

Poliospiza albifrons tanganjicae SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 43 (northwest of L. Tanganyika, 2000 m.; eastern border of Rutshuru Valley, 1600 m.).

Poliospiza burtoni tanganyikae SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 273 (Lulenga; Kibati).

Poliospiza burtoni tanganyicae BERLIOZ, 1935, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 7, p. 163 (Mbwahi); 1936, idem, ser. 2, vol. 8, p. 492. GRANT AND MACKWORTH-PRAED, 1947, Bull. Brit. Ornith. Club, vol. 68, p. 37.

Poliospiza burtoni tanganycae SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 171 (Mugunga, 1500 m.; Nyarusambo, 2000 m.; Kashwa, 2000 m.).

Poliospiza burtoni tanganykae SCHOUTEDEN, 1940, Rev. Zool. Bot. Africaines, vol. 33, p. 288 (Mt. Wago).

ADULTS OF BOTH SEXES: Iris rufous brown; bill dusky brown or dark grayish olive above, changing gradually to pale horn color or light yellowish gray beneath basal part of mandible; feet dull gray-brown, claws dusky brown.

DISTRIBUTION OF THE SPECIES: Mount Cameroon and Bamenda highland; in eastern Africa from the Lendu Plateau, Mt. Elgon, and Mt. Kenya south to central Tanganyika Territory, highlands near Lake Tanganyika, and Mt. Moco on the plateau of Angola. *Poliospiza melanochroa* (Reiche-

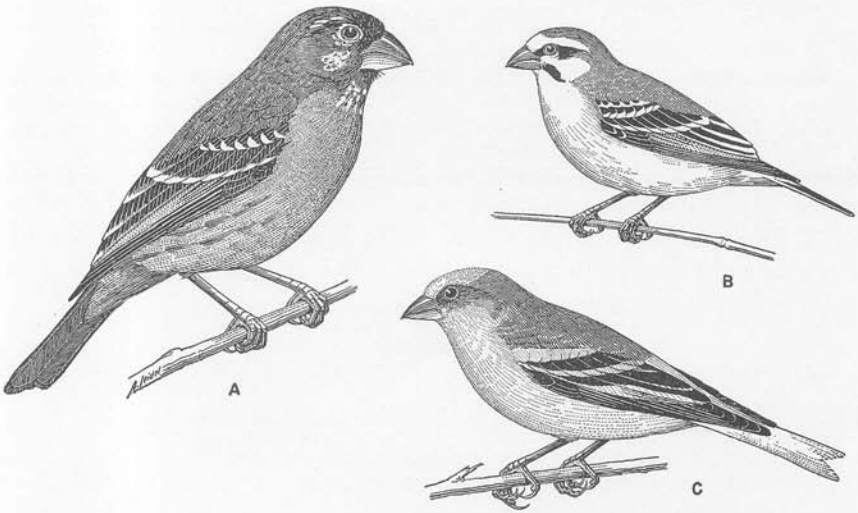

FIG. 44. Three serins. A. *Poliospiza burtoni tanganjicae*, male. B. *Serinus mozambicus barbatus*, male. C. *Serinus canicollis sassii*, male.

now) of the highlands north and northeast of Lake Nyasa may also prove to be conspecific.

Nominate *burtoni,* a large race with white forehead and rather pale underparts, is restricted to the Cameroon area. In the Kenya highlands east of the Great Rift *P. b. albifrons* Sharpe also has a little white on the forehead, but *P. b. gurneti* Gyldenstolpe of Mt. Elgon, North Kavirondo, and the Mau Plateau lacks it, and it is scarcely indicated in *P. b. kilimensis* Richmond of Tanganyika Territory.

The race occupying the eastern Congo, though separated as *tanganjicae,* is really rather similar to *kilimensis,* possibly not distinguishable. When describing it Granvik mistook Elgon birds for *kilimensis,* and I cannot agree with Gyldenstolpe that *tanganijicae* is lighter in color than *kilimensis* and has a smaller beak. It is not surprising that Moreau reported *kilimensis* from Kungwe-Mahare on the east side of Lake Tanganyika. Half a dozen specimens agreeing well with *tanganjicae* were collected by Rudyerd Boulton at 6500 feet on Mt. Moco in Angola.

Though known to dwell on all the highlands above 5000 feet from the Lendu Plateau south to Mt. Kabobo on the west side of Lake Tanganyika, this large finch seems nowhere very abundant. It ascends to about 8500 feet and is usually seen in two's or three's sitting well up in trees at the edge of mountain forest or in adjacent farmlands. Its song may be like that of *P. b. burtoni* as described by Robert Newton, a weak, tinkling little chain of notes, but I confess I have never heard it. My specimens were collected at Djugu, near Kalongi on west Ruwenzori, and at Mulu and Mohanga, west of Lake Edward. The food is of seeds, but I have never seen these birds close to the ground.

No one seems to have found the nest, and I should expect breeding to go on sporadically over most of the year. Rockefeller and Murphy obtained males in breeding condition on June 26 and August 3 on the highland west of the Ruzizi. Specimens in complete juvenal dress were taken by Grauer on the Kivu Volcanoes on October 1 and northwest of Baraka on November 3. These dates are no proof that nesting is restricted to the dry season. The skulls of three apparent adults I found to be not quite completely ossified, a point of likeness to *P. striolata.*

Key to the Species of *Serinus* in the Congo

1. No yellow on underparts of adults 2
   Underparts wholly or partly yellow 3
2. A patch of white on rump, general coloration light and grayish . *S. leucopygius*
   A patch of yellow on rump, general coloration more gray-brown, often blackish on throat . . . . . *S. atrogularis*
3. With a black facial patch from bill to eyes, on cheeks and chin 4
   No black facial patch, only streaks or spots of black at most on face . . . 5

4. Bill slenderer and more pointed, culmen to base about 12.5 mm.; yellow of forehead 3 or 4 mm. wide, and green of crown distinctly streaked . . . . . *S. citrinelloides*
   Bill stouter, less sharp, culmen to base about 11 mm.; yellow of forehead about 5 mm. wide, and green crown faintly streaked . . . . . *S. capistratus*
5. Wing usually less than 72 mm. long 6
   Wing usually exceeding 72 mm. 9
6. A patch of bright yellow on rump and upper tail-coverts, sharply divided from more greenish color of lower back; a black stripe at each side of throat . . . . . *S. mozambicus*
   Yellowish color of rump blends gradually with that of back 7
7. Bill slender and pointed, culmen to base about 12 mm.; fore-neck in the Congo form yellow without streaks . . . . . *S. citrinelloides*
   Bill a little shorter and stouter, culmen to base scarcely exceeding 11 mm.; fore-neck more or less streaked or spotted 8
8. A yellowish band across forehead, usually extending back above eye; chest only faintly streaked or spotted with dusky green . . . . . *S. capistratus*
   Forehead greenish with dusky markings, very like crown; chest more heavily streaked with blackish green . . . . . *S. koliensis*
9. Bill relatively large and of swollen outline, culmen to base at least 12.5 mm.; a dull greenish stripe at each side of the yellow throat; abdomen wholly yellow . . . . . *S. sulphuratus*
   Bill smaller, its outlines nearly straight, culmen to base scarcely 12 mm.; no dark stripe at sides of throat; abdomen whitish in middle . *S. canicollis*

Serinus sulphuratus shelleyi Neumann

Serinus shelleyi NEUMANN, 1903, Ornith. Monatsber., p. 184 (type locality: Kafuro, in Karagwe, Tanganyika Territory).

Serinus sharpei OGILVIE-GRANT, 1908, p. 280 (Mfumbiro Volcanoes, 5000 ft.); 1910, Trans. Zool. Soc. London, vol. 19, p. 307 (Mpanga Forest, 5000 ft.; Mubuku Valley, 6000 ft.; Mokia). REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 338 (L. Mohasi; Kisenyi). LÖNNBERG, 1917, Arkiv Zool., vol. 10, no. 24, p. 27 (Rutshuru). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 278 (Kibati; Lufungula; Bulaimu; Buwissa).

Serinus sharpii NEAVE, 1910, Ibis, p. 243 (Kambove; Lufupa R.).

Serinus frommi KOTHE, 1911, Ornith. Monatsber., p. 71 (type locality: Namanjera in Ufipa).

Serinus sulphuratus sharpei SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 43 (Usumbura; Ishangi; Irumu).

Serinus sulphuratus shelleyi GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 74 (Ngoma). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 816. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 274 (Lulenga); 1933, idem, vol. 22, p. 371; 1935, idem, vol. 27, p. 404 (Katana); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 172 (Mugunga; Kabondo in Mokoto; Ngesho); 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 342 (Astrida; Kibingo); 1943, idem, vol. 37, p. 274 (Gabiro); 1949, idem, vol. 42, p. 159 (Kansenia; Kando; Kasiki). STONE, 1936, Proc. Acad. Nat. Sci. Philadelphia, vol. 88, p. 575 (Bunia). PRIEST, 1936, The birds of Southern Rhodesia, vol. 4, p. 379, fig. 114. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1538. HENDRICKX, 1944, Ostrich, vol. 15, p. 199. VERHEYEN, 1947, Exploration du Parc

National Albert, Mission Frechkop, fasc. 2, pp. 53, 83 (Munigi; Semliki R.). A. W. VINCENT, 1949, Ibis, p. 676 (Elisabethville). VRYDAGH, 1949, Gerfaut, vol. 39, p. 113 (Butembo; Rethy).

Crythagra shelleyi HENDRICKX, 1944, Ostrich, vol. 15, p. 198 (southwest of L. Kivu).

Serinus sulphuratus sharpii GRANT AND MACKWORTH-PRAED, 1948, Bull. Brit. Ornith. Club, vol. 68, p. 62 (in part).

ADULTS OF BOTH SEXES: Iris dark brown; bill greenish brown, becoming light yellowish horn color beneath; feet rather dark brown.

DISTRIBUTION OF THE SPECIES: From the Cape Province north in eastern Africa to the highlands of Kenya Colony and the region of Lake Albert; also from the Katanga westward to Angola, but not in Southwest Africa or dry adjoining areas. Nominate *sulphuratus* of Cape Province is a large-billed race, with wings 78–84 mm. and rather greenish on upperparts, washed with green on the chest. Specimens from Natal may be a little more yellowish. *Serinus sulphuratus sharpii* Neumann of the highlands of Kilimanjaro and Kenya Colony has a large beak, wings also 78–84 mm., but is a somewhat more yellowish bird.

Serinus s. shelleyi in the region west of Lake Victoria has wings 72–79 mm. and is even brighter and yellower. Its beak is distinctly smaller than that of *sharpii*. This race extends northward to Masindi and the highland west of Lake Albert, westward to the edge of the Congo forest, and southward supposedly to the Zambesi Valley. In savannas south of the Equator, indeed, *shelleyi* appears to extend across the continent, from the coast of Mozambique to Angola, where it extends from Lubango north to Pungo Andongo. Beaks seem especially small in Angola, where the wing length is still 72–79 mm. Specimens from the Mozambique coast were found by Benson to have wings averaging shorter than those of the highland of Nyasaland, but it seems scarcely necessary to recognize *S. s. loveridgei* Van Someren.

The range of *shelleyi* in the Congo extends from the Lendu Plateau south through the Kivu and Ruanda to the Marungu and Upper Katanga, at levels of 2500 to 7000 feet, but it does not reach the lowlands of the Manyema or Kasai. I found it common about Bogoro and Irumu, at Luofu west of Lake Edward, and in most of the open Kivu highlands. In general it avoids mountains that are covered with forest or very dense scrub, frequents grasslands with many small trees, and is apt to be seen about cultivated land. Seldom are there more than four together. The birds are rather quiet, and their singing attracts little attention.

In the Katanga Alfred Vincent found a number of nests in September and early October, and one even on May 7, at the end of the rains. They were placed in forks of shrubs or saplings at 4 to 12 feet from the ground, were cup-shaped and built of twiglets, plant stems, rootlets, and a little

dry grass, mixed often with cobweb and lined with woolly plant down. Sets of three eggs are usual, four not uncommon. Their color is white, often faintly tinged with greenish or bluish, usually with a few small spots of brown or black at the large end, less often one or two dark twirls. Dimensions: 16.2–20.6 by 12.6–14 mm. The breeding season is evidently not a short one; in Nyasaland Belcher and Benson noted that it lasted from April until October; in Tanganyika Territory at Iringa Lynes found a nest in March. In Uganda Van Someren and Jackson noted two principal breeding periods, during the rains, and in the Kivu nesting may be expected at nearly any time of the year.

In addition to eating a variety of seeds, this serin feeds also on tender buds and soft parts of flowers.

Serinus canicollis sassii Neumann

Serinus flavivertex sassii NEUMANN, 1922, Ornith. Monatsber., p. 13 (type locality: Tshingogo Forest, east of L. Kivu). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 74 (Mt. Muhavura, 2800 m.; Mt. Sabinyo, 2600–2700 m.). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 818. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 273 (Mt. Mikeno); 1935, idem, vol. 27, p. 404 (Tshibinda); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 172 (Ngoma; Kibati; Burunga in Mokoto; Kibga; Bweza). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1540 (Kigezi). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 54 (Tshumba).

Serinus flavivertex REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 338 (Rugege Forest; Tshingogo). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 278 (pass between Mt. Muhavura and Mt. Sabinyo).

ADULT MALE: Iris dark brown; bill dusky brown above, changing gradually to horn color or buffy gray beneath; feet dusky brown.

DISTRIBUTION OF THE SPECIES: From the northern highlands of Abyssinia south to those of East Africa and the eastern Congo, of Nyasaland, and of Angola, then through the eastern highlands of Southern Rhodesia and to lower levels in Natal and Cape Province. I follow Benson in considering *flavivertex* as conspecific with *canicollis*.

Nominate *canicollis* of Cape Province has the nape and hind-neck gray, the chest olive yellow. This form has been introduced on Mauritius and Réunion. *Serinus c. thompsonae* Roberts, from Basutoland to the Melsetter District, is similar but with brighter yellow coloration. From Nyasaland to Ruanda and the eastern Congo highlands lives *S. c. sassii,* with hind-neck greenish like back, and tail yellowish with narrow black streaks on rectrices. On the plateau of Angola is *S. c. huillensis* Sousa, yellower on the nape and back but with rectrices blackish only narrowly margined with yellow. *Serinus c. flavivertex* (Blanford) has a dark tail and the back greenish with dusky streaks; it ranges from Tanganyika Territory to Abyssinia.

The yellow-tailed race, *sassii,* is found in Nyasaland at 5000 to 8000 feet and reappears at 9000 feet on Mt. Kandashomwa, west of the Ruzizi, so it should be looked for in Marungu. About the Kivu Volcanoes it occurs rather commonly from 6000 feet up to the alpine meadows of Karisimbi at 12,000 feet. The species is not known from Ruwenzori or the Lendu Plateau.

This serin does not enter the mountain forests but may be seen in grassy spots near their lower edge, in clearings higher up, or above their upper edge. It often associates in parties of five to 25, feeding on seeds of grasses and alighting on small trees or, on the higher peaks, on the giant heaths and senecios. Crops have been found to contain small elongate green seeds, others round and brown, and even some as large as rice kernels.

The behavior reminds one of a goldfinch, and Benson noted that the tinkling goldfinch-like song and call notes are much the same from Abyssinia to the Drakensberg. In Nyasaland *sassii* breeds in October and November, then goes about in flocks from late December to August. The nests are placed in heath or *Protea* bushes, 4 to 8 feet up, built of rootlets and lined with dry flower petals. Eggs are four to a set, white to pale green and sparingly spotted with dark brown and gray, according to Belcher and Benson. Dimensions: 17.7–18.2 by 13–13.3 mm.

In the Kigezi District near Lake Bunyoni I collected three males, all with gonads enlarged, on April 5; they were in parties of four to six. On Karisimbi on June 12 one male was still in breeding condition, but another with worn plumage had probably nested, and some of the parties were then considerably larger. On the highland southwest of Lake Kivu, where this serin is very common above 6000 feet, it has a breeding season lasting at least from August to March. Introduced *Grevillea* trees are favorite nesting sites, and broods of only two are frequent.

Serinus leucopygius leucopygius (Sundevall)

Crithagra leucopygia SUNDEVALL, 1850, Öfvers. K. Svenska Vetensk. Akad. Förhandl., vol. 7, p. 127 (type locality: Sennar Province, Sudan).

Crithagra leucopygos HARTLAUB, 1881, Abhandl. Naturwiss. Ver. Bremen, vol. 7, p. 105 (Magungo). SCHWEINFURTH AND RATZEL, 1888, Emin-Pascha, eine Sammlung von Reisebriefen, p. 172 (Kibiro on L. Albert).

Crithagra musica (*leucopygia*) SCHWEINFURTH AND RATZEL, 1888, Emin-Pascha, eine Sammlung von Reisebriefen, pp. 145, 302 (Magungo).

Poliospiza leucopygia REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 255.

Serinus leucopygius SALVADORI, 1911, Ann. Mus. Civ. Genova, ser. 3, vol. 5, p. 455 ("Uelle").

Poliospiza leucopygia leucopygia SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 148 (Mahagi Port). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1541 (L. Albert).

Serinus leucopygius riggenbachi VRYDAGH, 1949, Gerfaut, vol. 39, p. 113.

DISTRIBUTION OF THE SPECIES: Senegal and Gambia, eastward across the drier parts of the Sudan and Northern Nigeria to Darfur, Sennar, and Eritrea. In the valley of the White Nile it ranges south to the shores of Lake Albert. The nominate race is confined mainly to the basin of the Nile and is apt to be a little darker above and grayer on throat and chest than *S. l. riggenbachi* Neumann of Senegal and the dry region that extends from there to Lake Chad, Darfur, and western Kordofan. Although often referred to *Poliospiza,* this species seems rather to be a *Serinus* that has lost all yellow pigmentation, yet retained the light rump patch characteristic of some species of the latter genus.

Within our limits only the nominate form is found, and that only near the north end of Lake Albert, where it has been collected by Schouteden and by Vrydagh. Salvadori's record was certainly based on a specimen from the vicinity of Lado. Along the Bahr-el-Jebel Emin found it generally common, especially in the more open spots, perching on tall grass stalks, often in company with waxbills, and coming to the ground in sandy places. He considered it an outstanding singer, its performance approaching that of a good canary. Breeding is to be expected during the rains, from July to September.

The nest of *S. l. riggenbachi,* as described by Lynes, Shuel, and Serle, is a small cup made of plant stems, fibers, rootlets, and fragments of leaf, all held together with gossamer, and with a lining of vegetable down. It is placed in small forks, often near the ends of boughs and at a height of 6 to 15 feet. Eggs are three, or often four, white with a tinge of gray or bluish, with small spots of brown and black mainly on the large end. Dimensions are 14.7–16 by 11.5–12 mm.

Serinus atrogularis lwenarum White

Serinus atrogularis lwenarum WHITE, 1944, Bull. Brit. Ornith. Club, vol. 64, p. 40 (type locality: Balovale, Northern Rhodesia).

Poliospiza angolensis HARTLAUB, 1857, System der Ornithologie Westafrica's, opposite p. lix (Congo). REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 253 (in part. Chinchoxo). NEAVE, 1910, Ibis, p. 243 (upper Lualaba R., 3500 ft.). LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 109 (Banda; Idiofa; Biano Plateau).

Serinus angolensis SHELLEY, 1902, The birds of Africa, vol. 3, p. 217.

Poliospiza angolensis somereni LYNES AND SCLATER, 1934, Ibis, p. 51 (Lualaba R.).

Serinus atrogularis WHITE, 1944, Bull. Brit. Ornith. Club, vol. 64, p. 41 (Luluabourg). SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 159 (Kansenia).

Serinus atrogularis kasaicus WHITE, 1948, Bull. Brit. Ornith. Club, vol. 68, p. 129 (type locality: Luluabourg, Kasai District).

Poliospiza atrogularis lwenarum VERHEYEN, 1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 658 (Kibara Plateau).

DISTRIBUTION OF THE SPECIES: From the Orange River north to Angola, the Loango Coast, Kasai District, and Lake Edward; also through eastern Africa to Abyssinia and Eritrea. Even *S. rothschildi* Ogilvie-Grant of south-

western Arabia has been considered a race of the present species, despite its heavier beak, more streaked under parts, and dull yellowish rump patch.

Since *Fringilla angolensis* Vieillot was preoccupied, and *F. tobaca* Vieillot is not considered applicable to the present species, the oldest name for it is *Linaria atrogularis* Smith, with type locality Kurrichane, western Transvaal. South of the Zambesi and Cunene rivers there are about four other races, differing in depth of coloration, black markings on throat, and extent of white on the tail. The pale *Serinus a. ovambensis* Roberts extends north into the Mossamedes District of Angola and along the coast almost to Lobito Bay.

On the plateau of Benguella and Bihé the coloration is again deeper, the lower breast more washed with buff. The birds agree with *S. a. lwenarum* of the upper Zambesi River, the race extending eastward to the Upper Katanga. Specimens from the central Kasai District may be slightly browner than those of Northern Rhodesia, but I prefer not to recognize *kasaicus*.

The species is lacking on the highlands near Lake Kivu but reappears in the Rutshuru Valley. From there to Entebbe and Jinja in Uganda we find *S. a. somereni,* a little darker above than *lwenarum*, grayer below, and still with considerable blackish on the throat. At Kisumu on the east side of Lake Victoria *S. a. reichenowi* Salvadori appears, ranging thence into East Africa and north to Abyssinia. With its browner coloration, light supercilium, and whitish throat, it seems scarcely conspecific with *somereni*. Two other races allied to *reichenowi* occupy southern Somaliland and northern Abyssinia.

In general behavior *lwenarum* is like *Serinus leucopygius* and *S. mozambicus,* frequenting open savannas and the edges of cultivation. In the Upemba Park it lives at varying altitudes between 1250 and 1815 meters. In the Balovale District of Northern Rhodesia White found nests with eggs in February and March and noted that the birds gathered in large flocks in June and July. The nests are cups of dry grass and a few twigs, with lining of vegetable down, placed in some small tree. They contain sets of two eggs, white faintly tinged with blue and with a few reddish spots or dark brown scribbles about the large end. Dimensions are 16 by 10–12 mm.

Serinus atrogularis somereni Hartert

Serinus angolensis somereni HARTERT, 1912, Bull. Brit. Ornith. Club, vol. 29, p. 63 (type locality: Toro, Uganda; also from Mt. Nkabwe). SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 173 (Lugashali; Kabasha). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1543.

Poliospiza angolensis REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 253 (Butumbi).

DISTRIBUTION: Lowlands from Jinja on the north shore of Lake Victoria westward to Toro and the vicinity of Lake Edward. In 1908 Grauer secured

a single specimen in grassland west of Lake Edward, presumably near Luofu. I myself have collected males at Lower Kabasha village, at Lugashali, 4800 feet, and 4 miles north of Rutshuru.

These dark-colored serins, with conspicuous yellow rump, were noticed here and there in the Rutshuru and Rwindi valleys, two or three at a time, on or near the ground in millet fields and grassy places. In late April they seemed about ready to breed, and I watched one feeding on seeds of a tall grass.

In Uganda during May Belcher obtained a nest with two eggs, the latter very pale bluish white, freckled and spotted with dull mauve and rusty brown. The nest was constructed of small dry leaf stems and fine roots, bound with spider web and cotton, and lined with cotton and other plant down.

Serinus mozambicus tando Sclater and Mackworth-Praed

Serinus mozambicus tando SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 465 (type locality: Ndala Tando, northern Angola). BANNERMAN, 1922, Rev. Zool. Bot. Africaines, vol. 9, p. 321. SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 352, 404 (Luebo; Ngombe in Kasai; Macaco; Tshisika; Kwamouth). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 814.

Chrithagra chysopyga SHARPE AND BOUVIER, 1878, Bull. Soc. Zool. France, vol. 3, p. 76 (Condé).

Crithagra chrysopyga JOHNSTON, 1884, The River Congo, p. 365. REICHENOW, 1887, Jour. Ornith., p. 301 (Manyanga).

Serinus icterus OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 128 (in part). REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 269 (Condé; Manyanga). DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (in part. Lower Congo). LÖNNBERG, 1907, Arkiv Zool., vol. 3, no. 21, p. 16 (Mukimbungu). SALVADORI, 1915, Ann. Mus. Civ. Genova, ser. 3, vol. 6, p. 280 (Kasai District).

Serinus hartlaubi SHELLEY, 1902, The birds of Africa, vol. 3, p. 197 (in part).

Serinus mozambicus punctigula BOUET, 1942, Ois. Rev. Française Ornith., new ser., vol. 12, p. 177 (in part. Brazzaville); 1945, idem, new ser., vol. 14, p. 80 (in part).

SPECIMENS: Boma, male, female, January 14. Matadi, male, December 25.

ADULTS OF BOTH SEXES: Iris brown; bill dusky brownish, paler below; feet brownish.

DISTRIBUTION OF THE SPECIES: Eastern Cape Province, Natal, and southern Damaraland, north to the lower Juba River, Abyssinia, Sennar, Darfur, and west to Senegal; also on São Tomé and Mafia islands; introduced on Mauritius, Réunion, and Amirante islands. But absent from the central parts of the Lower Guinea forest and most areas of eastern Africa above 5000 feet.

There may be a dozen valid races, all of which cannot be mentioned here. Nominate *mozambicus,* with rather dark green crown and back, well streaked, ranges from the coast of Portuguese East Africa to Nyasaland

and Lusaka in Northern Rhodesia but is not believed to reach the Katanga. The light-colored *S. m. vansoni* Roberts comes from Ngamiland to Balovale on the upper Zambesi. In northern Angola and the Lower Congo *S. m. tando* is rather like *mozambicus* above, a little more greenish yellow below, with wings 62–68 mm. Specimens from the central Kasai look more yellowish green above and may perhaps approach *S. m. samaliyae* of the Upper Katanga, which is bright green above, with wings 69–73 mm. long.

Examples from the Katanga were sometimes thought to be *S. m. pseudobarbatus* Van Someren, a yellowish race with wings 68–73 mm., ranging from southwestern Tanganyika Territory to the eastern side of Lake Victoria, Sotik, and Kavirondo. The bright yellow *S. m. barbatus,* with wings only 60–68 mm., occupies most of Uganda and adjacent lowlands in the northeastern Congo and ranges north to Mongalla and westward to the Ubangi-Shari.

Farther west, on the northern side of the equatorial forest, lives *S. m. punctigula,* with upper parts again somewhat greener, and wings 64–72 mm. It is mainly a bird of the Cameroon and is replaced in the whole region of Upper Guinea by *S. m. caniceps* (d'Orbigny), which is grayer on crown and nape.

The exact range of *tando* is not easily outlined. It includes a large area in northwestern Angola, the Lower and Middle Congo, and adjacent grasslands south of the forest belt in the French Congo. How far it extends into the Kasai is not clear; two specimens from the vicinity of Luluabourg are lighter and yellower green above.

From Boma up to Leopoldville and Kwamouth *S. m. tando* is a common bird in grassy situations, resembling *barbatus* in behavior and giving the same slightly musical "cheeping" call notes. Its song I scarcely heard, and my specimens, taken in the first half of the rains, showed no signs of breeding. Nesting is postponed till late in the rainy season, as indicated by young birds from Angola.

Serinus mozambicus samaliyae White

Serinus mozambicus samaliyae WHITE, 1947, Bull. Brit. Ornith. Club, vol. 68, p. 11 (type locality: Pempele Pool, near source of Mualaba R., southern border of Katanga). WHITE AND WINTERBOTTOM, 1949, A check list of the birds of Northern Rhodesia, p. 134 (Mwinilunga; Luapula R.).

Crithagra butyracea ? SCHALOW, 1886, Jour. Ornith., p. 418 (Lufuku R.).

Serinus icterus SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 6 (Lukonzolwa). NEAVE, 1910, Ibis, p. 243 (Dikulwe R., 4000 ft.; Bunkeya R., 3000 ft.).

Serinus mozambicus pseudobarbatus LYNES, 1934, Jour. Ornith., Sonderheft, p. 129 (Dikulwe R.).

Serinus mozambicus tando LYNES, 1938, Rev. Zool. Bot. Africaines, vol. 31, p. 109 (upper Lufira R.). VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17,

no. 16, p. 11 (Kiambi). WHITE, 1944, Ibis, p. 150 (Luapula R.; Mwinilunga); 1946, idem, p. 223. SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 159 (Kabalo; Kasenga; Sakania; Kinda; Kimbundji; Kapiri; Baudouinville).

Serinus mozambicus mozambicus VERHEYEN, 1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 23, p. 16 (Kikoma R.).

DISTRIBUTION: From the Mwinilunga District of Northern Rhodesia across the Upper Katanga to the Luapula River at least and presumably northward to the Lomami District and Luvua River. This race is distinguished by its bright green back and crown, with dark feather centers not conspicuous, and its rather long wings.

Neave reported this serin as common and widely distributed in the Katanga. Lynes noted a male from the upper Lufira River in breeding condition during February. Nests and eggs are no doubt similar to those of *S. m. mozambicus,* as described by Alfred Vincent. A neat, compact little cup nest is placed in forks of a small tree or shrub, about 6 feet up. The eggs of *mozambicus* are bluish white or pale cream, speckled usually with brown, and measure 14.9–18 by 12.1–13 mm.

Serinus mozambicus barbatus (Heuglin)

Crithagra barbata HEUGLIN, 1864, Jour. Ornith., p. 248 (type locality: Djur, Bahr-el-Ghazal Province). EMIN, 1919, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 2, p. 429 (southwest of Kuterma); 1922, idem, vol. 3, p. 377. 1927, idem, vol. 4, p. 102 (Nsabé). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, pp. 239, 256 (Mbiambana).

Crithagra chrysopyga REICHENOW, 1887, Jour. Ornith., p. 308 (Kasongo).

Serinus icterus DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (in part. Ituri). OGILVIE-GRANT, 1908, Ibis, p. 280 (northwest of L. Tanganyika, 2800 ft.); 1910, Trans. Zool. Soc. London, vol. 19, p. 305 (Mokia). SALVADORI, 1909, Ann. Mus. Civ. Genova, ser. 3, vol. 4, p. 325 (Buta–Dungu); 1911, idem, ser. 3, vol. 5, p. 454. REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 338. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 279 (Ituri). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 2, p. 181 (Mundu; Mswa; Tunguru). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 43 (Urundi; Baraka).

Serinus icterus barbatus SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 279 (Mai-na-Ivi). REICHENOW, 1923, Mitt. Zool. Staatsinst. Zool. Mus. Hamburg, vol. 40, p. 65 (Lupungu).

Serinus mozambicus barbatus SCLATER AND MACKWORTH-PRAED, 1918, Ibis, pp. 465, 466. GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 72 (Tabaro; Irumu). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 814. GRANVIK, 1934, Rev. Zool. Bot. Africaines, vol. 25, p. 179. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 148 (Poko; Mahagi Port; Niarembe; Faradje; Djalasinda; Medje; Rungu; Dramba; Aru; Mauda); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 173 (Mabenga); 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 342 (Astrida; Kibingo); 1943, idem, vol. 37, p. 274 (Gabiro). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1533. BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 280

(Kaga Djirri; Kibali R.). VRYDAGH, 1949, Gerfaut, vol. 39, p. 113 (Mt. Mé; Rethy; Nioka; Ishwa Plain).

Serinus mozambicus tando SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 274 (Usumbura).

SPECIMENS: Bafwabaka, female, January 3; immature female, January 11. Medje, four males, January 19, March 10, 29, May 10; female, May 13; two immature males, January 19, March 10; juvenile male, two juvenile females, September 28. Faradje, three males, February 26, April 2, October 22; three females, September 27, October 22, 29; three immature males, March 19, April 1, 2. Aba, immature female, December 10.

ADULTS OF BOTH SEXES: Iris dark brown; bill dark gray; feet brownish gray to grayish black.

DISTRIBUTION: From the base of Mt. Elgon across Uganda to the northeastern Congo, the Bahr-el-Ghazal, and the Shari River in French Equatorial Africa. In the eastern Congo it extends southward to the lowlands near Lake Edward, then reappears in Ruanda, and it is perhaps the race occurring in the lower Ruzizi Valley and around the north end of Lake Tanganyika.

Bright yellowish coloration and rather short wings characterize *barbatus,* and I have no doubt that it does reach Lake Edward. A few specimens collected by Grauer in the Kagera Valley are rather long-winged and somewhat greenish above, while others from Luvungi and Usumbura are more like *barbatus* in size and color. Two specimens from the northwest shore of Lake Tanganyika and Kasongo are a trifle greenish, but they may as well be included here, pending further investigation.

This serin is a lowland bird, ascending above 5000 feet only where the highlands are very open and grassy. Thus it may go even above 6000 feet on the Lendu Plateau and in Ruanda, but I never saw it on the western slopes of Ruwenzori, only at the southeast base. It is not numerous in the Rutshuru Valley and is absent from the Volcanoes. Clearings near the edge of the lowland forest, on the other hand, have been colonized. About Medje and Bafwabaka, in the Nepoko area, *barbatus* was fairly common in native villages, feeding on small seeds amid the low weeds and flying up into trees when disturbed. Parties of eight or 10 would come to roost at evening in some particular tree. The song is pleasing, but short; call notes more "cheeping." Males with gonads enlarged were taken at Medje in March and May, but nests were found there only in August and September.

In the grasslands of the Uelle these serins were to be seen almost everywhere, even about marshes, where they clung to the stout grasses or hopped occasionally in muddy pathways. Breeding does not begin there before May; birds with enlarged gonads were examined in September and October; a nest with eggs was found on October 17.

The three nests were all rather shallow cups, 50 mm. in diameter inside, made principally from bark or other fibers stripped from herbaceous plants, the rim being bound together with some gray silky material. Two held sets of three eggs, whitish with small spots of brown and clouded purplish, most numerous at the large end. Dimensions: about 16 by 12 mm. These nests were built at a height of 6 or 7 feet, one in a bunch of green bananas, another on a sloping leaf stem in a young oil palm. The third nest was occupied by three young nearly ready to fly. The juvenal plumage is rather brownish above, yellow beneath, and remnants of the natal down were pale brownish gray.

[*Serinus mozambicus punctigula* Reichenow]

Serinus punctigula REICHENOW, 1898, Ornith. Monatsber., p. 23 (type locality: Sanaga R., Cameroon).

? *Serinus mozambicus punctigula* BOUET, 1942, Ois. Rev. Française Ornith., new ser., vol. 12, p. 177 (upper Kemo R.; Bangui); 1945, idem, new ser., vol. 14, p. 80 (in part).

This rather large race is characteristic of open highlands in the Cameroon, yet it ranges southward in forest clearings to the Ja River and Ebolowa. I am convinced it does not reach Stanley Pool, and the only part of the Belgian Congo where it might be expected is near Bangui. I have seen one specimen in Frankfort from Duma, collected by Schubotz and identified as *punctigula* by Reichenow.

It is true that females of *punctigula* usually have a conspicuous white patch on chin and upper throat, with dusky spotting below it, but a very similar coloration is not unusual for females of *barbatus* in the northeastern Congo. The longer wing of *punctigula* is therefore a more reliable distinction. It must also be remembered that Boyd Alexander's specimens from Kaga Djirri and Fort Archambault have been identified as *barbatus*.

Serinus capistratus (Finsch and Hartlaub)

Crithagra capistrata FINSCH AND HARTLAUB, 1870, Die Vögel Ost-Afrikas, p. 458 (type locality: Golungo Alto, Angola). SHARPE, 1873, Proc. Zool. Soc. London, p. 717 (Congo R.).

Serinus capistratus SHARPE, 1888, Catalogue of the birds in the British Museum, vol. 12, p. 359. REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 273 (Manyanga). NEUMANN, 1905, Jour. Ornith., p. 357. NEAVE, 1910, Ibis, p. 244 (Kambove, 4500 ft.; upper Lufira R., 3500 ft.; Bunkeya R., 3000 ft.). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, p. 352 (Macaco); 1926, idem, vol. 13, p. 206 (Makaia-Ntete; Temvo); 1949, idem, vol. 42, p. 160 (Kansenia; Mulungwishi). BERLIOZ, 1925, Bull. Mus. Hist. Nat., Paris, vol. 31, p. 346 (Luluabourg); 1941, idem, ser. 2, vol. 13, p. 403 (Brazzaville). A. W. VINCENT, 1949, Ibis, p. 677 (Elisabethville). WHITE AND WINTERBOTTOM, 1949, A check list of the birds of Northern Rhodesia, p. 134 (Mwinilunga). VERHEYEN, 1953, Exploration du Parc National Upemba. Mission de Witte, fasc. 19, p. 660 (Upemba Park, 1250–1750 m.).

SPECIMENS: Boma, two males, January 19, December 31; female, January 19.

ADULTS OF BOTH SEXES: Iris rather light brown; bill brownish above, whitish below; feet pinkish brown.

DISTRIBUTION: From the coast of the Gaboon and northern Angola eastward across the Kasai to Mwinilunga, the Upper Katanga, and the north shore of Lake Tanganyika. Supposed records from the Kigezi District, Ankole, and the Kivu were based on *Serinus koliensis*. Any record of *capistratus* from above 5000 feet in the Kivu region seems to me more than questionable. From Angola, however, there are records from altitudes around 5000 feet, and some as far south as the Quillengues district. In the Upemba Park it is reported up to 5740 feet.

The resemblance in color between this serin and *S. citrinelloides frontalis* is so remarkable that we should certainly regard them as conspecific, were it not for the shorter, blunter bill of *capistratus*. I have never been able to find an adult specimen with bill exactly intermediate in form. On the northwest side of Lake Tanganyika Grauer collected a female of *frontalis* on the mountains at 6500 feet, and at a lower level 80 kilometers west of Baraka and at Usumbura he obtained specimens of *capistratus* that are now in the Rothschild Collection.

In the Lower Congo *Serinus capistratus* is a rather common bird about Boma, and even in the clearings in the Mayombe, north to Ganda Sundi. It feeds on the seeds of tall grasses, often near marshes, and frequently in company with weaver-finches. I never noted more than half a dozen of the serins together. They were frequently seen in cages in native villages and were evidently prized as singers. Along with *Lonchura* and *Lagonosticta* they were trapped in cages which had a live decoy in one compartment and open doors elsewhere that snapped shut when another bird entered.

At Luluabourg the black-faced serin is numerous, as proved by a considerable series received from Father Callewaert. These include a brood of three young with tails only two-thirds grown on December 6, two other juveniles in late December, and one with tail only half grown on May 23. At Boma the breeding season was only beginning in mid-January.

In the Upper Katanga Alfred Vincent noted this serin as rather uncommon, but in mid-January he watched a female carrying bents to a new nest in a cluster of leafy twigs, 8 feet up, in a small tree close to a stream, the male accompanying her on each trip. This nest was later found to have been destroyed, and the eggs remain unknown.

Serinus citrinelloides frontalis (Reichenow)

Spinus citrinelloides frontalis REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 275 (type locality: L. Kivu; also from Karevia); 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 338 (Bugoie Forest; base of Mt. Karisimbi; Kisenyi).

NEUMANN, 1905, Jour. Ornith., p. 356 (Msukali in Ukondju). SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 279 (Buwissa; Mai-na-Kwenda); 1932, idem, vol. 21, p. 273 (Burunga; Lulenga); 1933, idem, vol. 22, p. 371 (Kisenyi–Ruhengeri); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 173 (Burunga in Mokoto; Kibumba; south Karisimbi; Runyoni). GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 67 (Sidabo). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 42 (northwest of L. Tanganyika, 2000 m.; Ukaika; Irumu). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 826. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1550. PETERS AND LOVERIDGE, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 275 (Idjwi I.). HENDRICKX, 1944, Ostrich, vol. 15, p. 202 (southwest of L. Kivu). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 83 (Kalonge).

Chrysomitris frontalis OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 308 (Mubuku Valley, 5000–7000 ft.; Beni).

? *Spinus citrinelloides hypostictus* REICHENOW, 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 338 (L. Mohasi).

Cirthagra EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 310 (Uvamba).

Serinus capistratus BERLIOZ, 1936, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 8, p. 492 (Kishushu).

Serinus citrinelloides frontalis SCHOUTEDEN, 1942, Rev. Zool. Bot. Africaines, vol. 36, p. 342 (Kibingo); 1949, idem, vol. 42, p. 160 (Kasiki; Marungu). VRYDAGH, 1949, Gerfaut, vol. 39, p. 114 (Nioka; Rethy; Bogoro; Mt. Aboro).

ADULTS: Iris dark brown; bill dusky brown above, changing gradually to light gray on basal two-thirds of mandible below; feet rather light brown, with a tinge of pinkish or of gray.

DISTRIBUTION OF THE SPECIES: From Abyssinia to southern Nyasaland, mainly on highlands, but in Uganda and adjacent areas of the Congo down to about 3000 feet. In Abyssinia *Serinus c. citrinelloides* Rüppell has males rather yellowish above, either black or dusky green on cheeks and upper throat, but with no very distinct yellow band on forehead. The highlands of Kenya Colony and southeastern Sudan are occupied by *S. c. kikuyuensis* (Neumann), of which the males are usually black-faced, but more greenish with dusky streaking on crown or back and often with a narrow yellow band on forehead.

From Kilimanjaro to Uluguru and southern Nyasaland, the males of *S. c. hypostictus* are likewise green and heavily streaked above, but always dark gray on face and chin, usually streaked on fore-neck, and without yellow on forehead. A similar race, *S. c. chyulu* (Van Someren), richer yellow below, has been described from the Chyulu Hills in Kenya Colony.

The race *frontalis,* ranging from the Sezibwa River and Masindi in Uganda to the eastern Congo, Ruanda, and Marungu, has males with yellow-green upperparts narrowly streaked, face always black, yellow forehead well developed. Females of *frontalis* differ from those of the other races in lacking dark streaks on throat and chest. This is the form that most resembles *Serinus capistratus,* though its yellow forehead is less broad and its beak

distinctly thinner and more pointed. Where their ranges meet, near the north end of Lake Tanganyika, *capistratus* occupies the lowlands and *frontalis* is restricted to the mountains. In Uganda, on the other hand, *frontalis* comes down to the lake level around Entebbe, and even to Masindi. In the Semliki Valley it occurs regularly about the old post of Beni and at Bundibugyo in Bwamba.

While it does descend to about 3000 feet, *frontalis* is found only near and on the highlands in the Congo. It is common on the Lendu Plateau, up to 6800 feet on Mt. Aboro, around the lower slopes of Ruwenzori up to at least 7000 feet, west of Lake Edward near Butembo and Luofu, and around the bases of the Kivu Volcanoes. I once saw a single male at Kabara, 11,000 feet. The range extends widely over highlands west and east of Lake Kivu and southward to the Marungu.

Despite the different shape of the beak, this bird is not unlike *Serinus capistratus* in behavior and frequents open grassy and weedy situations, often near farmland. It goes in parties of four to six and eats small seeds amid tall grasses or patches of *Bidens* and *Galinsoga*. At Kalongi on Ruwenzori I watched it pulling seeds from the tall thistles that were common there. Occasionally the males give their short song, but "cheeping" call notes are more frequent.

At Mukuli, Kitendwe, and Sambwe in Marungu, at altitudes between 5200 and 6100 feet, Rockefeller and Murphy collected four specimens and noted that the birds were common about native farms. That was in the second half of February, and two examples were males in breeding condition, so nesting evidently goes on in the rains. At Lulenga in the Kivu I collected a male with gonads enlarged on June 2 and a fledgling with tail half grown on June 21—at the end of the rains.

In Uganda nests have been found between March and July and again in November. About Ruwenzori conditions may well be the same. On November 19 at Kalongi I was brought a nest with two young in it and as late as December 6 secured a male with gonads still enlarged.

The nest is a small cup, placed from 6 to 15 feet up in forks of a bush or tree or even a growing bunch of bananas. Grass and fibers are commonly used; the nest at Kalongi was made largely of white plant down, with dried leaves on the outside and a lining of fine brownish plant fibers inside. Jackson found one with fragments of lichen woven on with spider web. According to Van Someren and Jackson the eggs are two or three, occasionally four, white, creamy, or very pale blue, finely spotted toward the larger end with dark brown and purplish. The dimensions of two eggs, according to Jackson, were 17.5 by 11.5 and 17 by 12.5 mm.

Serinus koliensis Grant and Mackworth-Praed

Serinus capistratus koliensis GRANT AND MACKWORTH-PRAED, 1952, Bull. Brit. Ornith. Club, vol. 72, p. 1 (type locality: Onyulu's, Koli River, Lango, Uganda).

Chrysomitris frontalis OGILVIE-GRANT, 1908, Ibis, p. 279 (Mfumbiro Volcanoes, 5000 ft.).

Serinus capistratus subsp. VAN SOMEREN, 1922, Novitates Zool., vol. 29, p. 172 (South Ankole; Kisumu); 1932, idem, vol. 37, p. 329. SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 173 (Burunga in Mokoto, 2000 m.).

Serinus capistratus SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 817 (in part. Kivu District). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1537 (Kigezi).

DISTRIBUTION: From Kisumu in Kavirondo and the Lango District of Uganda to the Kigezi District and the country just north of Lake Kivu.

That *koliensis* is a race of *Serinus capistratus* seems to me most unlikely. To be sure, it has a blunt serin bill rather than one like a siskin's, and the adult male seems never to acquire a distinct black or greenish area about the face. The sexes are much alike in color, well streaked on crown and back, and much more heavily streaked on the chest than females of *S. capistratus*. Males of *S. koliensis* have wings 61–67 mm.; females, 63–65 mm.

The form of the beak in this group of finches is too variable to permit of their being divided clearly into serins and siskins. In so far as coloration is concerned, *Serinus capistratus* is very similar to *frontalis,* although the latter has so commonly been referred to the genus *Spinus* because of its acutely slenderer bill.

The well-streaked chest of *koliensis* suggests relationship with the *citrinelloides* group of northeast Africa. Both sexes bear a close resemblance to females of *citrinelloides* from the region east of Harar in Abyssinia, not only in color but even in the stout form of the beak. The males of these eastern Abyssinian birds, however, are black-faced and have clear yellow breasts.

In other parts of Abyssinia, especially the northern and western regions, the males of *citrinelloides* are sometimes black on the face, sometimes only dusky greenish. Within this same group of birds the difference between the sexes becomes still less marked in the North Kavirondo District. Among nine specimens in the Rothschild Collection from Lerundo, Lucosi Road, and Kakamega not one has any black around the base of the bill, although seven were sexed as males, and all have streaked chests.

These were the birds referred by Van Someren (1922) to "*Spinus citrinelloides hypostictus?*" and later (1932) mentioned as "intergrades between *kikuyuensis* and *frontalis.*" One might better consider them as intermediate between *S. c. citrinelloides* and *koliensis,* despite the fact that

black-faced males of *S. c. kikuyuensis* are found no farther away than Molo and Kericho. Until we have learned more about its true relationships, I think we shall do well to list *Serinus koliensis* binomially.

No difference in behavior between *koliensis* and *frontalis* has yet been pointed out. In the Kivu they sometimes live in the same localities, but *koliensis* must be much less numerous than *frontalis*.

SUBFAMILY **EMBERIZINAE**

KEY TO THE SPECIES OF *Emberiza* IN THE CONGO

1. Upper back mainly dusky gray or blackish brown, a little rufous brown at most on margins of feathers; cheeks wholly black or dark gray . . *E. cabanisi*
   Upper back mainly rufous, though feathers may be dusky in centers or margined with buff or gray; a whitish stripe crosses the cheek, with a black or gray stripe above and below it 2
2. Middle wing-coverts largely white, and greater coverts tipped with white; wing 75 mm. or longer. . . . . *E. flaviventris*
   Wing-coverts without white tips; wing usually less than 75 mm. long . *E. affinis*

Emberiza cabanisi cabanisi (Reichenow)

Polymitra (*Fringillaria*) *cabanisi* REICHENOW, 1875, Jour. Ornith., p. 233, pl. 2, figs. 2, 3 (type locality: Cameroon).

Fringillaria orientalis SHELLEY, 1888, Proc. Zool. Soc. London, p. 37 (Tingasi).

Emberiza cabanisi SHARPE, 1888, Catalogue of the birds in the British Museum, vol. 12, p. 503 (Ichgasi = Tingasi). SHELLEY, 1902, The birds of Africa, vol. 3, p. 150. REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 283; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 339. BANNERMAN, 1948, The birds of tropical West Africa, vol. 6, p. 300 (Gudima on Ira R.; Gada R.; Ndussuma; Djanda).

Fringillaria cabanisi HARTLAUB, 1891, Abhandl. Naturwiss. Ver. Bremen, vol. 12, p. 25 (Nyangabo).

Emberiza flaviventris OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 128 (in part).

Emberiza cabanisi cabanisi NEUMANN, 1905, Jour. Ornith., p. 359 (Mangbetu country; "L. Edward"). SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 463 (Meridi; Tembura). SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 828. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 149 (Mauda; Abimva; Faradje; Poko). JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1554. BOUET, 1942, Ois. Rev. Française Ornith., new ser., vol. 12, p. 178 (Bangui); 1945, idem, new ser., vol. 14, p. 81 (upper Kemo R.).

Emberiza cabanisi orientalis VAN SOMEREN, 1922, Novitates Zool., vol. 29, p. 173.

? *Fringillaria forbesii* EMIN, 1927, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 4, p. 265 (Madjamboni).

SPECIMENS: Niangara, two males, January 22, June 9. Nzoro, male, April 19; female, April 16. Faradje, male, February 14; immature male, May 14; immature female, May 6. Aba, male, July 18; immature female, July 19. Garamba, female, June 29; immature female, July 2.

ADULTS OF BOTH SEXES: Iris dark brown; maxilla dusky, mandible light gray with dusky tip; feet brownish.

DISTRIBUTION OF THE SPECIES: Savanna countries from northeast Sierra Leone to the Bahr-el-Ghazal, Uelle, and northwestern Uganda; also to the south of the Equator from the Cataracts of the Congo and Kinkala in French Congo eastward to the Manyema District and to Usambara near the East Coast. Southward it ranges to Caconda in Angola, Mashonaland, and Portuguese East Africa.

Nominate *cabanisi,* restricted to countries north of the equatorial forest and to Uganda, lacks any distinct light stripe on the middle of the crown, its chin and throat are largely white, and the middle wing-coverts are merely tipped with white. Wings measure 73–85 mm. The race *cognominata* of the southern Congo and Angola usually has a narrow gray stripe on the middle of the crown, the white of the chin scarcely extends to the throat, and middle wing-coverts are largely white. Wings measure 80–92 mm. *Emberiza c. orientalis* in East Africa, Nyasaland, and Rhodesia is similar in color to *cognominata,* its bill perhaps longer but wings only 78–85 mm. long.

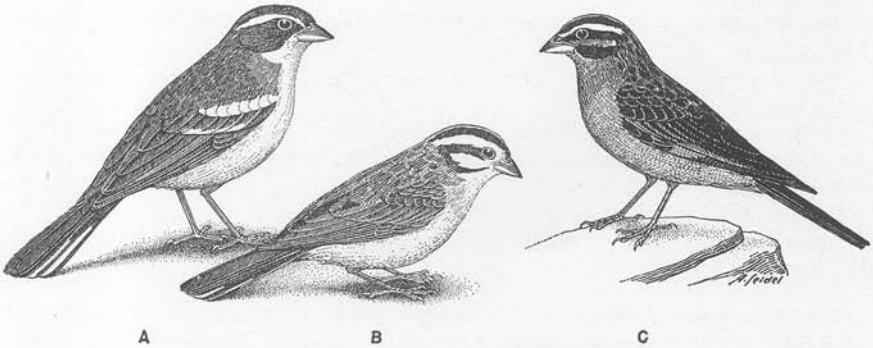

FIG. 45. Three buntings. A. *Emberiza c. cabanisi,* male. B. *Emberiza a. affinis,* male. C. *Fringillaria tahapisi goslingi,* male.

The nominate race is found in all the northern savannas of the Congo, from Duma, where Schubotz collected it, to the Upper Uelle and the Lendu Plateau. It has not been found in clearings in the Congo forest, although in the Cameroon it extends south to the Ja River. In the Uelle District this bunting is rather common throughout the grasslands, where it may be seen perching in bushes and small trees, and often feeds on the ground. The male has a pleasant and varied song, sometimes weak, but often ringing and musical.

From our dissections it appeared that breeding takes place from early February through the latter part of the dry season to May. In Nigeria Marchant reported a nest being built on July 28. Those described by Bates at Bitye in southern Cameroon were shallow cups of dried leaves and small

plant stems, with a few finer fibers inside. One was built in a bunch of growing plantains, another on a branch amid thick foliage. A set of two eggs measured 21–22 by 15.5 mm.; they were dull white with long, irregular scrawls and blotches of pale umber-brown and pale gray.

Although it had been stated that this bunting ate grass seeds, Bates ascertained that the food consisted rather of small grasshoppers. Our investigations confirmed Bates's findings; in six stomachs (all between February and July, it is true) not one seed was noted, only pieces of insects. Remains of grasshoppers were present in three stomachs, of beetles in two, and there was a fair amount of insect debris which I could not identify.

Emberiza cabanisi cognominata Grote

Emberiza cabanisi cognominata GROTE, 1931, Ornith. Monatsber., p. 91 (type locality: Angola). MALBRANT AND MACLATCHY, 1949, Faune de l'Equateur Africain Français, vol. 1, p. 424. (Kinkala in French Congo.)

Polymitra (*Fringillaria*) *major* CABANIS, 1880, Jour. Ornith., p. 349, pl. 2, fig. 2 (type locality: Angola).

Fringillaria major REICHENOW, 1887, Jour. Ornith., pp. 301, 305 (Manyanga; Leopoldville).

Emberiza orientalis SHARPE, 1888, Catalogue of the birds in the British Museum, vol. 12, p. 502.

Emberiza major SHELLEY, 1902, The birds of Africa, vol. 3, p. 151. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 269 (Munie Mboka; Lubilu; Kabemba); 1923, idem, vol. 11, p. 352 (Tshisika).

Emberiza maior REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 284 (upper Congo R.; Ngombe).

DISTRIBUTION: From Kinkala in the French Congo south in Angola to Caconda, at least, and eastward across the southern Kasai District to the Manyema. It is not known to reach Lake Tanganyika and is supposed to be replaced by *orientalis* in the Upper Katanga.

About Boma in the Lower Congo I failed to find this bunting, but it has been reported from Manyanga and is not uncommon in bushy savannas about Leopoldville. I have seen no specimen from the northern part of the Kasai, but Pilette and Grauer both collected it in the Manyema District. The behavior and haunts are like those of the northern race, and several juveniles with tails full grown, taken in October, December, and March, indicate an early breeding season, beginning in the dry months.

Emberiza cabanisi orientalis (Shelley)

Fringillaria orientalis SHELLEY, 1882, Proc. Zool. Soc. London, p. 308 (type locality: Mamboio, Morogoro district, Tanganyika Territory).

Emberiza major SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 6 (Lukonzolwa). NEAVE, 1910, Ibis, p. 244 (Kambove, 4500 ft.; Dikulwe

R.; upper Lualaba R.). SCHOUTEDEN, 1930, Rev. Zool. Bot. Africaines, vol. 18, p. 290 (Elisabethville). VERHEYEN, 1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 661 (Upemba Park, 860–1700 m.).

Emberiza flaviventris DE RIEMAECKER, 1927, Rev. Zool. Bot. Africaines, vol. 14, p. 276 (Elisabethville).

Emberiza cabanisi orientalis SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 828. PRIEST, 1936, The birds of Southern Rhodesia, vol. 4, p. 391, fig. 119. FRIEDMANN AND LOVERIDGE, 1937, Bull. Mus. Comp. Zool., vol. 81, p. 395. SCHOUTEDEN, 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 160 (Dilolo; Kansenia; Kinda; Kapiri; Kabalo).

Emberiza cabanisi major VERHEYEN, 1940, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 16, no. 2, p. 7 (Kanzenze).

Emberiza cabanisi subsp. A. W. VINCENT, 1949, Ibis, p. 681 (Upper Katanga).

DISTRIBUTION: Tanganyika Territory from Usambara and perhaps the southern shore of Lake Victoria south to Portuguese East Africa and Mashonaland, and on the east to the Marungu, Upper Katanga, and Kasempa and Mwinilunga in Northern Rhodesia. In the main it is a highland bird, living between 2500 and 6000 feet. The differences between *orientalis* and *cognominata* are not very great, so specimens from the Katanga deserve further study.

This bunting frequents the borders of savanna woods and other bushy areas, spending most of its time near the ground, in pairs or family groups. Moreau described the song as a piercing and sweet modulated whistle, varied, but often resembling "wee, chidder-chidder-chidder, wee," or "her; ip, ip, ip . . . her, hee." Near Elisabethville Alfred Vincent noted the species as rather thinly scattered and less numerous than *Emberiza flaviventris*. The breeding seasons comes early in the rains. From Lubenga, 5650 feet, and Lake Suzi, 3850 feet, in Marungu we have well-grown juveniles taken on March 8 and 26.

In the Upper Katanga Alfred Vincent found several nests in November and early December, placed in forks of shrubs or small trees, 4 to 14 feet up, and well hidden by foliage. These were rather bulky cups of grass, twiglets, and dry weed stems, with old weathered leaves in the base. Soft fine grass or small rootlets served as a lining. Three eggs were the usual set, white or very pale cream, strikingly marked with twirls, pencilings, and hairlines of dark brown, mostly in a ring around the larger half, as well as spots of gray. Another type of marking consisted of fine freckling with brown and gray more evenly distributed. Dimensions were 18–21.9 by 14.1–15.1 mm.

Like nominate *cabanisi,* this race is largely insectivorous, according to Moreau, who found that it ate but few seeds. He noted that it would even wait in a clear space before an advancing army of driver-ants to pick up other fleeing insects.

Emberiza affinis affinis Heuglin

Emberiza affinis HEUGLIN, 1867, Jour. Ornith., p. 297 (type locality: Sennar, eastern Sudan). SHELLEY, 1902, The birds of Africa, vol. 3, p. 148. SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 265 (Mangbetu country).

Fringillaria forbesi HARTLAUB, 1882, Ornith. Centralbl., p. 92 (type locality: Lado district); 1882, Jour. Ornith., p. 324 (Langomeri). SHELLEY, 1888, Proc. Zool. Soc. London, p. 37 (Kuterma). SCHUBOTZ, 1921, Die Tagebücher von Dr. Emin Pascha, vol. 6, pt. 3, p. 237 (Tobbo).

Fringillaria forbesii EMIN, 1919, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 2, pp. 427, 428.

Emberiza forbesii EMIN, 1919, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 2, p. 490 (south of Tomaya).

Emberiza forbesi forbesi NEUMANN, 1927, Ibis, p. 505.

Emberiza affinis affinis HARTERT, 1928, Novitates Zool., vol. 34, p. 197. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 829. SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 149 (Mauda; Aru).

SPECIMENS: Faradje, immature male, September 8. Garamba, three males, June 3, 24, July 5; three females, June 5, 15, July 2; four immature males, June 16, 25, July 9, 20.

ADULTS OF BOTH SEXES: Iris dark brown; maxilla dark gray, mandible blue-gray; feet light pinkish gray or brownish pink.

DISTRIBUTION OF THE SPECIES: From the Gambia Colony eastward across Northern Nigeria and northern Cameroon to northern Uganda, the eastern base of Mt. Elgon, southwestern Abyssinia, and probably Sennar. It has been objected that the species does not occur in Sennar and that the name *forbesi* must replace *affinis*. Further proof is needed.

Four races appear to be recognizable. In West Africa, from the Gambia to Nigeria and Lake Chad, lives *E. a. nigeriae* Bannerman and Bates, rather light in color and with a white border below the lower black stripe on the cheek. In the grasslands of the Cameroon and adjacent parts of French Equatorial Africa the back is more uniform and deeper reddish; this characterizes *E. a. vulpecula* Grote. In the Bahr-el-Ghazal, Upper Uelle, and northern Uganda the back of nominate *affinis* is lighter rufous, and *E. a. omoensis* Neumann of southwestern Abyssinia has the back darker and duller, the wing apparently a little longer.

This red-backed bunting is really a Sudanese bird and extends but a little way into the grasslands of the northeastern Congo. The Kibali-Uelle River seemed to be its southern limit. At Faradje, in addition to the one collected, we saw but a single example, on February 2. At Garamba, farther north, it proved to be rather common, feeding on the ground about the edges of the village in farmed areas and old fields. When flushed it often took to the small trees. From a perch on a stump or tree, with feathers of crown upraised, the males give a pleasant song of characteristic bunting style, but not very loud.

One of our males in June still showed enlargement of the gonads, but the worn plumage of adults at that time and the number of young abroad showed that the breeding season was at its close. Eggs must be laid early in the calendar year, perhaps before the rains are under way. The nine stomachs I examined held nothing save insect remains, among which small termites were noted once.

[*Emberiza affinis vulpecula* Grote]

Emberiza affinis vulpecula GROTE, 1921, Anz. Ornith. Gesellsch. Bayern, vol. 1, p. 39 (type locality: Bozum, Ubangi-Shari Province, French Equatorial Africa).

This race evidently extends from the Uam River district to the grasslands of Cameroon at 2500 to 3500 feet. Two examples secured by Bates in the Tibati region agree very closely with a male taken by Tessmann at Bozum. Somewhat similar birds, not quite so reddish on the back, have been reported from Fort Crampel, but it is doubtful whether *E. a. vulpecula* extends to the great bend of the Ubangi.

Emberiza flaviventris flaviventris Stephens

Emberiza flaviventris STEPHENS, 1815, General zoology, vol. 9, pt. 2, p. 374 (type locality: Cape of Good Hope). SHARPE, 1888, Catalogue of the birds in the British Museum, vol. 12, p. 499 (Leopoldville). OUSTALET, 1893, Naturaliste, ser. 2, vol. 7, p. 128 (in part). SHELLEY, 1902, The birds of Africa, vol. 3, p. 143. REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 284. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Mpala; Kisantu). SALVADORI, 1907, Boll. Mus. Zool. Anat. Comp. Torino, vol. 22, no. 570, p. 6 (Lukonzolwa); 1915, Ann. Mus. Civ. Genova, ser. 3, vol. 6, p. 280 (Kasai District). NEAVE, 1910, Ibis, p. 245 (Lualaba R., 3500 ft.). OGILVIE-GRANT, 1910, Trans. Zool. Soc. London, vol. 19, p. 309, pl. 19, figs. 1, 5. SCHOUTEDEN, 1918, Rev. Zool. Bot. Africaines, vol. 5, p. 279 (Lubilu; Dogodo R.; Kiboto; Risaci; old Mission St. Gustave; Munie Mboka); 1923, idem, vol. 11, pp. 352, 405 (Dumbi; Kabambaie; Ngombe in Kasai; Kwamouth). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 44 (Urundi; Baraka; Ruzizi Valley). BOUET, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 81 (Brazzaville; "upper Kemo R.").

? *Fringillaria flaviventris* JOHNSTON, 1884, The River Congo, p. 365 (Cataract district).

Fringillaria flaviventris DUBOIS, 1886, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 4, p. 149 (L. Tanganyika).

Polymitra flaviventris REICHENOW, 1887, Jour. Ornith., p. 309 (Kibondo).

Emberiza flaviventris flaviventris NEUMANN, 1905, Jour. Ornith., p. 359. SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 828. BOWEN, 1932, Ibis, p. 605 (Rangu in southern Bahr-el-Ghazal). PRIEST, 1936, The birds of Southern Rhodesia, vol. 4, p. 394, fig. 120. SCHOUTEDEN, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 174 (Mai-ya-Moto); 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 160 (Dilolo; Moba; Kansenia; Kiambi; Golo; Kinda; L. Musolo; Tembwe). A. W. VINCENT, 1949, Ibis, p. 682 (Elisabethville).

DISTRIBUTION OF THE SPECIES: From the Upper Niger River near Mopti eastward to Eritrea, south through eastern Africa to eastern Cape

Province, westward also in the southern Congo to Stanley Pool, to Angola, and northern and eastern Damaraland. The nominate race covers a vast range without perceptible change, from Cape Province and Damaraland to the southern Congo, and then on the east to the southern Bahr-el-Ghazal, Hoima in Uganda, the base of Elgon, Kamassia, and Fort Hall in Kenya Colony. Even if valid, *E. f. kalaharica* Roberts of Ngamiland is only a slightly paler local race.

Across the greater width of the Sudan, from the upper Niger to Eritrea and northern Abyssinia, there is a decidedly paler race, *E. f. flavigaster* Cretzschmar, with hind-neck more buffy or rufous.

Within our limits this golden-breasted bunting is a common bird in the Katanga, Kasai, and Manyema, reaching Stanley Pool but not the Lower Congo, the Ruzizi Valley but not the highlands about Lake Kivu. It circles those highlands on the east and is found again on the south and north sides of Lake Edward yet not on the shores of Lake Albert, although there is one record from the southern edge of the Bahr-el-Ghazal Province. The alleged occurrence on the upper Keno River cannot be exact; it may possibly be based on *Emberiza affinis*.

In the Upper Katanga Neave considered *E. flaviventris* to be ubiquitous, mostly in savanna woods, where it fed on the ground. Its haunts are much the same as those of *E. cabanisi orientalis,* but it is by far the more numerous. Alfred Vincent found eggs in the Katanga from early October to mid-November. In the vicinity of Luluabourg in the Kasai Father Callewaert secured a considerable series of specimens, including one fully developed juvenile as early as September 19. At the north end of Lake Tanganyika the species appears to be less common, and from there we have juveniles dated August 9 and September 27. There are nesting records from Kamassia and Trans-Nzoia in Kenya Colony from February to May, as well as August, and the dates about Lake Edward may be similarly dispersed.

During the period of reproduction the male sings a short, pleasant "chwee, chi-it-twee," as Belcher writes it, and both sexes utter a trilling call. Alfred Vincent described nests in the Katanga as placed usually in small saplings, shrubs, or small trees, 4 to 15 feet up. They are rather shallow, ragged cups, made of grass and dry plant stems, lined with fine grass. Eggs are usually two, sometimes three, whitish, with perhaps a faint bluish or greenish tinge, and with dark markings generally concentrated in a ring around the larger half of the egg. There may be a tangle of hairlines, black or dark brown, with a few spots or wavy pencilings, or there may be fewer lines or twirls and more spotting. Dimensions are 18–23.3 by 13.3–16.6 mm.

Observations by Stark, Vincent, and others show that this bunting during the breeding season feeds mainly on grasshoppers and small beetles, though it may take seeds at other times.

KEY TO THE SPECIES OF *Fringillaria* KNOWN FROM THE CONGO

Individual feathers of crown cinnamon buff with dark shaft streaks, a pale superciliary stripe, but no distinct stripes of black or dark brown anywhere on head; chin and throat buffy rather than gray . . . . . *F. impetuani*

Head, at least at sides, with distinct stripes of black or dark brown alternating with others of white, gray, or buff; chin and throat gray or black . . . . . *F. tahapisi*

Fringillaria impetuani (Smith)

Emberiza impetuani A. SMITH, 1836, Report of the expedition for exploring central Africa, p. 48 (type locality: between Nu-Gariep and the Tropic; i.e., Bechuanaland).

Fringillaria impetuani HARTLAUB, 1857, System der Ornithologie Westafrica's, opposite p. lix ("Congo"). CHAPIN, 1932, Bull. Amer. Mus. Nat. Hist., vol. 65, pp. 238, 344, 346 (Luluabourg). FRIEDMANN, 1933, Proc. U. S. Natl. Mus., vol. 82, art. 10, p. 12 (Kasai District).

DISTRIBUTION: From western Cape Province northward to the Mossamedes District of Angola and eastward to the Karroo, Basutoland, and the Kalahari. It would seem to be no more than accidental in the southern Congo. Hartlaub's old record from "Congo" clearly refers to a specimen said to have been taken by Henderson in Angola.

I was greatly surprised when five specimens were received from Father Callewaert, all taken near Luluabourg in the Kasai District between September 23 and 30, 1922. There has not been any subsequent report of the species from the Congo, it appears to be unknown in Northern Rhodesia, and has rarely been taken in southern Angola. The Kasai specimens differ in no way from South African examples.

Fringillaria tahapisi tahapisi (Smith)

Emberiza tahapisi A. SMITH, 1836, Report of the expedition for exploring central Africa, p. 48 (type locality: sources of Vaal R., South Africa).

Fringillaria tahapisi SHARPE AND BOUVIER, 1878, Bull. Soc. Zool. France, vol. 3, p. 77 (San Antonio). SHELLEY, 1902, The birds of Africa, vol. 3, p. 164. REICHENOW, 1904, Die Vögel Afrikas, vol. 3, p. 289; 1911, Wiss. Ergeb. Deutschen Zentral-Afrika Exped., vol. 3, p. 339. DUBOIS, 1905, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 1, p. 28 (Kisantu; Lower Congo). OGILVIE-GRANT, 1908, Ibis, p. 281 (northwest of L. Tanganyika, 4000 ft.). NEAVE, 1910, Ibis, p. 245 (Lualaba R., 3500-4000 ft.). VAN SOMEREN, 1916, Ibis, p. 431 (Katwe; Toro). MENEGAUX, 1918, Rev. Française Ornith., vol. 5, p. 259 (Zambi). SCHOUTEDEN, 1923, Rev. Zool. Bot. Africaines, vol. 11, pp. 352, 405 (Basongo; Luebo; Kwamouth); 1924, idem, vol. 12, p. 277 (Matadi; Kidada; Kitobola). SASSI, 1924, Ann. Naturhist. Mus. Wien, vol. 38, p. 44 (Urundi).

Fringillaria septemstriata JOHNSTON, 1884, The River Congo, p. 365 (Cataract district).

Fringillaria capistrata REICHENOW, 1887, Jour. Ornith., p. 301 (Manyanga).

Fringillaria septemstriata goslingi GYLDENSTOLPE, 1924, K. Svenska Vetensk. Akad. Handl., ser. 3, vol. 1, no. 3, p. 75 (Bogoro).

Fringillaria tahapisi tahapisi SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 831. SCHOUTEDEN, 1932, Rev. Zool. Bot. Africaines, vol. 21, p. 273 (Ngoma); 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 149 (Mahagi Port); 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 147 (Rwindi); 1949, Rev. Zool. Bot. Africaines, vol. 42, p. 160 (Moba; Kansenia; Kayoyo; Baudouinville). PRIEST, 1936, The birds of Southern Rhodesia, vol. 4, p. 399, fig. 121. JACKSON, 1938, The birds of Kenya Colony and . . . Uganda, vol. 3, p. 1558 (L. Albert). VERHEYEN, 1947, Exploration du Parc National Albert, Mission Frechkop, fasc. 2, p. 54. VRYDAGH, 1949, Gerfaut, vol. 39, p. 114 (Niarembe Escarpment; escarpments near Mahagi Port and Kasenyi). A. W. VINCENT, 1949, Ibis, p. 685 (Elisabethville). MALBRANT AND MACLATCHY, 1949, Faune de l'Equateur Africain Français, vol. 1, p. 424. (Brazzaville; Ngabé.)

SPECIMENS: Matadi, two males, female, December 26. Thysville, immature female, December 23.

ADULT MALE: Iris dark brown; bill blackish above, buff below, and yellow at base of mandible and gape; feet buffy brown.

DISTRIBUTION OF THE SPECIES: From eastern Cape Province and Damaraland north to the Gaboon, southern and eastern Congo, East and Northeast Africa, and southwestern Arabia. It has a race on Socotra Island and extends westward again in the Sudan to the upper Niger River near Bamako, possibly to Senegal. Five subspecies are usually recognized.

Males of nominate *tahapisi* have throat black and relatively little rufous on the inner webs of the remiges. That race extends from South Africa to the grasslands of the Gaboon and southern Congo, then in eastern Africa north to Lake Albert, southern Abyssinia, and perhaps British Somaliland. Males of *F. t. septemstriata* (Rüppell) in northern Abyssinia and Eritrea are less black on the throat and have more rufous on the remiges, yet in *F. t. arabica* of the Yemen the black of the throat extends to the fore-neck and the remiges are almost without rufous. The Socotra race, *insularis,* is rather similar to *arabica.*

From Kordofan and the Bahr-el-Jebel westward the throat of males is relatively light gray, the rufous of remiges always extending to outer webs, as it often does in *septemstriata.* All these birds are commonly referred to *F. t. goslingi,* but specimens from the Nuba Mountains and the Uelle District are distinctly deeper in color than those from the western Sudan. Perhaps they might be separated as *F. t. reichenowi* Wettstein.[1]

The wide-ranging nominate race occurs commonly in the Lower Congo and up the river to Stanley Pool and Kwamouth but is less numerous in the Kasai. In the Upper Katanga and Marungu it has frequently been noted; in the latter area up to Mukuli, 5450 feet, and Kakonde, 6000 feet, where Rockefeller and Murphy collected specimens. Just east of the Congo forest and in Ruanda-Urundi it is somewhat local, showing a preference for rocky outcrops and hills, yet scarcely ascending to 6000 feet, and avoiding forests.

[1] 1916, Anz. K. Akad. Wiss., Vienna, vol. 53, p. 133 (Kadugli, southern Kordofan).

On the escarpment west of Lake Albert it is very common, and it occurs on the Lendu Plateau up to at least 5000 feet.

This bunting spends much of its time on or near the ground amid rocks and along roads; its flight is very undulating and pipit-like. In the off season parties are formed, and at Matadi in December they hopped about like sparrows in streets and yards. As many as a dozen might be seen together on a roof. In the nesting season the male usually selects a top of some small tree from which to deliver his thin and not very melodious song.

At Landana, a little north of the Congo mouth, L. Petit reported this cinnamon-breasted bunting as migratory and present there only from November to May, the rainy part of the year. My own experience in the Lower Congo led me to believe that the same thing might be true there, since I noted numbers about Matadi and Boma in December and April but none in June or July. At Kwamouth Schouteden likewise found them abundant in January, rare in May and June. The specimens I collected in December were in non-breeding condition. At Pungo Andongo in northwestern Angola Ansorge collected a series of specimens in June and July, including two full-grow juveniles on July 13 and 22. They would indicate breeding around May.

In the more eastern regions of the Congo, even as far north as Lake Albert, I find no evidence of seasonal movements. Near Bogoro my specimens were not yet ready to breed in September, and I should expect nesting toward November or December; near Niarembe Vrydagh took a young bird on March 13. South of the Equator the dates are of course reversed; in the region of Elisabethville Alfred Vincent found several nests in May and June, and Rockefeller and Murphy noted two males with gonads enlarged in Marungu on April 26 and May 12. In Nyasaland Belcher and Benson gave May and June as the months for eggs, while in Upper Natal nests have been reported in November, January, and February.

Nests are always built on the ground, usually in rocky or hilly country on the sides of banks or on rock ledges. Near Elisabethville Alfred Vincent found them in the cuts left by abandoned copper workings. Loose, shallow cups, they are made of fine rootlets, grass, and twigs, and receive sets of three eggs, or occasionally only two. The eggs are white, thickly freckled with dark brown and gray. Sometimes the markings form a wreath at the large end. Dimensions, according to Vincent: 16.4–18.6 by 11.9–13.8 mm.

The contents of four stomachs were mainly small seeds, sometimes clearly of grasses, but I noted also a single tiny grasshopper. This *Fringillaria* seems less insectivorous than the Congo representatives of *Emberiza*.

Fringillaria tahapisi goslingi Alexander

Fringillaria goslingi Boyd Alexander, 1906, Bull. Brit. Ornith. Club, vol. 16, p. 124 (type locality: Mbima, Northern Nigeria; not on Uelle R. as stated).

Fringillaria septemstriata goslingi SCLATER AND MACKWORTH-PRAED, 1918, Ibis, p. 463 (Meridi).

Emberiza septemstriata EMIN, 1919, *in* Stuhlmann, Die Tagebücher von Dr. Emin Pascha, vol. 2, p. 490 (south of Tomaya).

Fringillaria tahapisi goslingi SCLATER, 1930, Systema avium Aethiopicarum, pt. 2, p. 831 (Uelle District). SCHOUTEDEN, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 149.

SPECIMENS: Aba, four males, December 12, 13, 20; two females, December 12, 14; immature male, December 20.

ADULT MALE: Iris dark brown; maxilla dusky brown, mandible yellow; feet buff.

ADULT FEMALE: Iris dark brown; maxilla dusky brown, mandible buff; feet buff.

DISTRIBUTION: Possibly from Senegal, and at least the upper Niger River at Kulikoro and Bintumane Peak in northeast Sierra Leone eastward across the Sudan to Darfur, Kordofan, the Upper Uelle District, and Kajo-Kaji near the Bahr-el-Jebel. The type locality of *goslingi* is certainly in Nigeria, as the date of collecting by Boyd Alexander (August 8, 1904) alone would prove, and the species is not known to occur at Bima in the Uelle. Eastern specimens are more deeply colored than those of Northern Nigeria and Damergu.

This northern race of the cinnamon-breasted bunting scarcely enters Congo territory save about the rocky hills of the northeastern frontier. We found it only about the granitic eminences near Aba. There it was abundant during the month of December, hopping on the bare rocks or perching in small trees and bushes. The song is a simple repetition of a few short notes that could hardly be called musical.

All the adults at that season were in breeding condition, and a bird in juvenal dress was taken on December 20. That same day Lang found a nest on the flat rocks of a barren stony hill. It had absolutely no shelter from above, though a few prostrate grasses lay around it, and it was built of pieces of dry moss and other plant refuse, lined with fine dry grass tips. The two eggs were pale greenish, thickly marked with small reddish brown spots, most numerous about the blunt end, and they measured 18 by 12.8 and 18.7 by 12.9 mm. The incubating bird sat very tight at first; later the pair showed more caution.

In Darfur Lynes found these buntings resident throughout the year and likewise breeding in November and December. But along the southern border of the range, as Bates also noted in Sierra Leone and the north Cameroon, there would seem to be a slight southward movement—not in the off season but actually in preparation for nesting. Certainly I saw no *Fringillaria* on the hills near Aba in July, nor any near Garamba in June and July of the year following.

In Northern Nigeria nests of *goslingi* were found by Shuel and by Serle on November 9, December 1 and 19, January 4, and February 10. The measurements of eggs given by them are 16–23.2 by 12.5–13.4 mm.

In the crops of three of my specimens I found nothing except grass seeds.

ADDITIONAL SPECIES OF KNOWN OR PROBABLE OCCURRENCE

These are birds that have been reported in or near the Congo since the publication of parts 1, 2, and 3. Names in bold-faced type indicate species recently added to the Congo fauna, those in italics between brackets are now to be looked for along the borders, and those in italics without brackets are of birds which deserve some special comment. Mere changes of name or of subspecific status are not discussed here. For all the latest information as to distribution it will be best to consult the series of reports now being published by H. Schouteden in the Annals of the Belgian Congo Museum: "De Vogels van Belgisch Congo en van Ruanda-Urundi."

[*Podiceps nigricollis gurneyi* (Roberts)]

At Lake Chila close to Abercorn, Northern Rhodesia, Pitman (1934, A report on a faunal survey of Northern Rhodesia, p. 175) noted several black-necked grebes in April and early May. The locality is just 70 miles from Congo territory at Moliro.

[*Phaëthon aethereus aethereus* Linnaeus]

Schouteden (1949, Ann. Mus. Congo, zool., ser. 4, vol. 2, fasc. 2, p. 415; 1950, idem, ser. 4, vol. 2, fasc. 3, p. 533) attributes an old record of the red-billed tropic bird from Banana to L. Petit. I am not aware that any specimen was preserved, and the remarks by Petit (1926, Dix années de chasses, pp. 110, 111) suggest that the birds he found particularly abundant on the bars near Banana from November to February were really large terns like *Sterna maxima*. The occurrence of tropic birds along the Congo coast is of course very probable.

Fregata aquila (Linnaeus)

The only confirmation I have of the presence of a frigate-bird along the Congo coast comes from I. Mesmaekers. During more than a year's residence at Banana he had not seen one; then on April 23, 1952, he was able to watch two undoubted frigate-birds with a field glass as they flew southward rather low over the ocean.

[*Botaurus stellaris capensis* (Schlegel)]

According to Kinnear (1938, Bull. Brit. Ornith. Club, vol. 58, p. 77), a bittern of this southern race was collected by David Ross on Matongo Island in the Bangweolo swamps, November 28, 1937. Others were seen at

Chinsali in northeastern Rhodesia by Brelsford (1942, Ibis, p. 85), so there can be little doubt that this bittern will be found in the Katanga.

Ciconia nigra (Linnaeus)

The black stork should now be added to the Congo list, since Brelsford (1947, Ibis, p. 62) reported seeing one on Ncheta Island in the Bangweolo swamps in December. That island is close to the upper Luapula River and only 50 kilometers from the Katanga border. It is now known that there is a considerable breeding population of these storks in southern Africa, and they have been noted a number of times in Nyasaland and Northern Rhodesia. The migrants from Europe reach the Cameroon and Uganda, according to Schüz (1940, Vogelzug, pp. 23–31), so it is to be expected that they may occasionally turn up in the northeastern Congo. The remark by Frechkop (1941, Animaux protégés au Congo Belge, p. 188, footnote) that this species had been seen in some numbers near Lake Edward must of course be due to confusion with *Sphenorhynchus abdimii.* Verheyen (1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 215) reports seeing a flock of about 50 black storks near the source of the Kafwe River, Katanga, on March 23, 1948.

Platalea leucorodia leucorodia Linnaeus

The European spoonbill was collected at Vitshumbi on Lake Edward, April 22, 1936, by L. Lippens (1938, Gerfaut, vol. 28, fasc. spécial, p. 27) and at Titule, Lower Uelle District, toward January, 1949, by J. M. Vrydagh (1949, Bull. Cercle Zool. Congolais, vol. 19, p. 11).

[*Phoenicopterus ruber roseus* Pallas]

The greater flamingo, while likely to occur at almost any spot frequented by *P. minor,* is still not known with certainty from any locality in the Congo. Stresemann has denied that there was any specimen from Lake Kivu in the Berlin Museum, and *P. r. roseus* can only be regarded as a probability.

Phoeniconaias minor (Geoffroy)

Since 1932 we have learned a little more about the occurrence of flamingos near some of the borders of the Belgian Congo. There are certainly none in the Kasai or along the middle Congo River. Along the west coast, of course, flamingos have long been reported at various places. I used to think that *Phoenicopterus ruber roseus* was to be expected there, but recent observations show that *Phoeniconaias minor* occurs in some numbers along the coast of Southern Nigeria, as explained by Bannerman (1951, The birds of tropical West Africa, vol. 8, pp. 54–56).

Near Banana, at the Congo mouth, I. Mesmaekers on February 23, 1952, watched a flock of at least 50 flamingos flying southward as though on migration, and other smaller groups seen around that same time were

either flying south or in one case standing at the edge of the river. A single specimen secured right at Banana was sent to the Congo Museum, correctly identified by Mesmaekers as *P. minor*.

The presence of numbers of lesser flamingos in the vicinity of Lake George, Uganda, at irregular periods has now been explained by C. R. S. Pitman (1939, Uganda Protectorate, Ann. Rep. Game Dept., for 1938, p. 28; 1942, A game warden takes stock, p. 256). In 1906, 1936, and possibly some intervening years, thousands of *P. minor* appeared in the vicinity of Lake Kikorongo. After 1936 they remained for about three years and even attempted to nest. At such times they probably do stray around the shores of Lake Edward, and this would explain how R. Hoier (1950, A travers plaines et volcans au Parc National Albert, p. 112) happened to observe flocks of more than a hundred flamingos in flooded areas near the lower Rutshuru River. These were almost certainly *P. minor*.

A third area near the southeastern corner of the Congo, that of Lake Bangweolo, appears also to be visited by flamingos. Once at Nsombo, on the northeast shore of the lake, Brelsford (1947, Ibis, p. 64) observed a party, which he believed to represent *P. minor*.

Aythya fuligula (Linnaeus)

The tufted duck migrates sparingly to the northern Congo, where it has been collected at Buta in January by Brother Joseph Hutsebaut (Chapin, 1937, Bull. Cercle Zool. Congolais, vol. 13, p. 69).

Anas (Nettion) crecca crecca Linnaeus

The green-winged teal is a regular migrant in East Africa, south to Tanganyika Territory, and has been recorded from Toro in Uganda. A female was secured at Buta, Uelle District, on February 4, 1935, by Brother Joseph Hutsebaut (Schouteden, 1936, Ann. Mus. Congo, zool., ser. 4, vol. 1, fasc. 2, p. 55), and another specimen of the same sex along the upper Semliki River, December 11, 1935, by L. Lippens (1938, Gerfaut, vol. 28, fasc. spécial, p. 34).

Anas (Dafila) acuta Linnaeus

The pintail was collected at Lake Gando in northern Ruanda, March 23, 1936, by L. Lippens (1938, Gerfaut, vol. 28, fasc. spécial, p. 36). More recently, Schouteden tells me, the Congo Museum has received a male specimen from Boende in the Tshuapa District, and C. M. N. White (1944, Ostrich, vol. 50, p. 50) reports a male pintail shot by a sportsman near Ndola in Northern Rhodesia.

Anas (Mareca) penelope Linnaeus

The winter range of the widgeon is now known to extend southward in East Africa to Taveta and the district just south of Mt. Meru. Since January, 1938, Brother Joseph Hutsebaut has collected two specimens at Buta

in the Uelle (Schouteden, 1938, Bull. Cercle Zool. Congolais, vol. 15, p. 38; 1948, Ann. Mus. Congo, zool., ser. 4, vol. 2, fasc. 1, p. 94).

Spatula clypeata (Linnaeus)

A female shoveler was secured at Vitshumbi on Lake Edward, January 13, 1936, by L. Lippens (1938, Gerfaut, vol. 28, fasc. spécial, p. 36). Others of the same sex were taken at Zobia toward January, 1941, and at Buta, November 26, 1942, by Brother Joseph Hutsebaut (1950, Zooleo, new ser., no. 6, p. 31). This same species has been reported in western Uganda from Lake Saka near Fort Portal and Lake Mulehe in Kigezi by Pitman (1939, Uganda Protectorate, Ann. Rept. Game Dept., for 1938, p. 28). The shoveler does migrate south to Nyasaland, and rarely to the Cape. But a supposed record of *Spatula capensis* from Kapolowe, Katanga, was based, Verheyen assures me, on a misidentification of *Netta erythrophthalma* (Wied).

[*Gypaëtus barbatus meridionalis* Keyserling and Blasius]

There are now reliable sight records of the lammergeyer from the Humia River, at 7000 feet on the northwestern slope of Ruwenzori, and from Hakitengya, somewhat lower down in the Bwamba District, according to V. G. L. and G. R. C. van Someren (1949, The birds of Bwamba, Uganda Jour., vol. 13, special suppl., p. 19).

Gyps coprotheres (Forster)

Kolbe's vulture may be included in the Congo fauna on the basis of one sight record by Verheyen (1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 235) at the source of the Kafwe River, July 20, 1948. The northern limit of the species, however, was supposedly in Matabeleland, and there is as yet no reliable record from Northern Rhodesia.

Circaëtus beaudouini Verreaux and Des Murs

One example of this serpent-eagle, often regarded as a race of *C. gallicus* (Gmelin), was secured at Faradje, Upper Uelle, by Brother Joseph Hutsebaut on November 23, 1941 (Becquet, 1942, Bull. Soc. Bot. Zool. Congolaises, year 5, p. 25). The identification is confirmed by Schouteden (1948, Ann. Mus. Congo, zool., ser. 4, vol. 2, fasc. 1, p. 147).

Aquila verreauxi Lesson

Breeding places of Verreaux' eagle are now known to be much more numerous in eastern Africa than was formerly supposed. Captain C. R. S. Pitman wrote me in 1934 that he had noted a pair of these eagles near the top of Mt. Nyamlagira in the Kivu. Weekes (1949, Uganda Jour., vol. 13, p. 130) stated that *Aquila verreauxi* frequents the higher altitudes of Ruwenzori, but of this there seems to be no confirmation. From hills near Solwezi, Northern Rhodesia, Button is said to have reported this very distinctive eagle (White, 1945, Ibis, p. 197).

Hieraaëtus pennatus (Gmelin)

The booted eagle does migrate south to the Belgian Congo, and I have examined the specimen collected by Derche in 1913 to the north of Lake Kivu (Schouteden, 1938, Exploration du Parc National Albert, Mission de Witte, fasc. 9, p. 30). At Buta in the Uelle Brother Joseph Hutsebaut also secured an example on December 20, 1942 (Schouteden, 1948, Ann. Mus. Congo, zool., ser. 4, vol. 2, fasc. 1, p. 142). A third specimen was obtained by Verheyen (1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 245) at Mabwe on Lake Upemba, January 26, 1949.

[*Buteo rufinus rufinus* (Cretzschmar)]

This large buzzard migrates regularly from western Asia and southeast Europe to the Sudan. One male was secured by E. L. Button at Kasama, Northern Rhodesia, November 21, 1938 (Benson, 1948, Bull. Brit. Ornith. Club, vol. 68, p. 147), so there is a likelihood of its occurrence in the northeastern Congo.

Guttera edouardi kathleenae White

The nominate form of this guinea fowl does not approach the southeastern border of the Congo. White (1943, Bull. Brit. Ornith. Club, vol. 64, p. 19) described *kathleenae* from 15 miles southwest of Mwinilunga, Northern Rhodesia. This race extends into the adjacent region of the southeastern Congo and has recently been collected for the Congo Museum by Fisher at Kasaji in the Lulua District.

The two species of blue-spotted guinea fowl, *G. edouardi* and *G. plumifera,* have rarely been reported from exactly the same places, and it now appears that the upper Congo River marks one of the main lines of division between them. Near Stanleyville, Charles Cordier assures me, only *G. plumifera schubotzi* is found on the right bank and only *G. edouardi schoutedeni* on the left bank. Thus the latter would appear to extend northward to the left bank in the Lulonga District. Only *G. edouardi schoutedeni* is found at Lukolela and Kwamouth, and in that region it must cross the Congo River, since Malbrant has collected *schoutedeni* at Ngabé in the French Congo.

Francolinus albogularis dewittei Chapin

This species of francolin was wholly unexpected in the Congo and previously appeared restricted to the region between Senegal and the Cameroon. The race *dewittei,* described in 1937 (Rev. Zool. Bot. Africaines, vol. 29, p. 395) from Kasiki at 2200 meters in Marungu has now been reported as common on the Kibara Plateau at 1600 to 1840 meters by Verheyen (1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 256). Still another form, *F. a. meinertzhageni,* has been described by C. M. N. White, (1944, Bull. Brit. Ornith. Club, vol. 65, p. 7) from the Kumanu

Plain, western Balovale District, Northern Rhodesia. The species is therefore widely distributed on the south as well as on the north of the Equator.

Francolinus sephaena grantii Hartlaub

As expected, Grant's crested francolin has been found by J. M. Vrydagh (1949, Gerfaut, vol. 39, p. 33) close to Mahagi Port.

Francolinus africanus Stephens

A chick of this gray-winged francolin has been reported from Musosa in the southeastern Tanganyika District by Verheyen (1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 23, p. 4). The species is represented in East Africa by the race *uluensis* Ogilvie-Grant, but of that there is no record from the adjacent region of Northern Rhodesia.

Francolinus finschi Bocage

Dr. R. Malbrant (1940, Bull. Soc. Bot. Zool. Congolaises, vol. 3, no. 4, p. 6) first pointed out that this francolin is not uncommon in the vicinity of Stanley Pool. His specimens were identified by me (1946, Auk, p. 434), and others have since been taken near Leopoldville by Henrion. It is not unlikely that *finschi* will come to be regarded as a race of *F. shelleyi* Ogilvie-Grant.

Francolinus nobilis chapini Grant and Mackworth-Praed

This more rufous race, described from the Bugongo Ridge, 8800 feet, west Ruwenzori (1934, Bull. Brit. Ornith. Club, vol. 55, p. 62), may well be restricted to the Ruwenzori Range. Schouteden (1949, Ann. Mus. Congo, zool., ser. 4, vol. 2, fasc. 2, p. 239) finds specimens from the vicinity of Kilo and Mongbwalu to be similar in color to the nominate form of the Kivu highlands.

Francolinus hildebrandti johnstoni Shelley

There is now a record by Verheyen (1941, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 17, no. 23, p. 4) of an adult male collected by H. Brédo at Musosa, close to the border of northeastern Rhodesia.

Afropavo congensis Chapin

That the Congo peacock could escape notice for so many years is still a cause for wonder. To be sure, a few specimens were captured and preserved before 1936, when I had the good fortune to be able to name this outstanding game bird (Chapin, 1936, Rev. Zool. Bot. Africaines, vol. 29, p. 2). The type came probably from the region of the upper Lukenye River or of Lusambo. It was one of a couple collected and mounted for the Kasai Company, placed in the Brussels office of that company, and donated to the Congo Museum in 1914. Since 1913 I had carefully preserved a single barred secondary quill of a female, a feather taken from the hat of a native at Avakubi in the Ituri.

In 1937 I went to the Congo and hunted the birds in the forest near Ayena

and Angumu, east of Stanleyville (Chapin, 1937, Nat. Hist., vol. 40, pp. 725–732, 777–778, 19 illus., map). In that same year Schouteden (1937, Bull. Séances, Inst. Roy. Colonial Belge, vol. 8, pp. 578–583, pl.) told of the specimens secured by Geldof and by Wilson. A great deal of information was quickly received from residents of the Congo, and it soon became clear that *Afropavo* is restricted to primary forests from the vicinity of Boende and the lower Tshuapa River eastward to the base of the mountain range west of Lakes Edward and Kivu. To the north the limit appears to be along the lower Aruwimi River, and on the south the range is known to reach the country near Lusambo. On the southeast it extends approximately to Kamituga. This leaves a large band on the northern and western sides of the Upper Congo forest where apparently this bird is lacking. It may well be that in those areas it has been extirpated by native hunters.

Late in 1946 I was informed that the Brussels Museum had received a Congo peacock from Lukolela, collected by R. Massart. But my friends at Lukolela denied that any such bird had ever been found there, and eventually Massart himself wrote me from Elisabethville to say it really was shot near Lofima, a village 18 miles northeast of Bokungo on the Tshuapa River, early in 1939.

Meanwhile, at Ikela, M. and Mme. T. Herrling had successfully kept two pairs of *Afropavo* in captivity, and one hen had even built a nest on the floor of the cage and laid three reddish brown eggs. One egg hatched, after 25 days of incubation, but the chick soon died. Two of the eggs were carefully described by A. Becquet (1942, Bull. Soc. Bot. Zool. Congolaises, year 5, pp. 9–10), and other information from the Herrlings was published by Chapin (1942, Avicultural Mag., ser. 5, vol. 7, pp. 123–124.)

As a result of the wide publicity, and of my having trained several bird skinners for friends of Schouteden, the Congo Museum soon was provided with a generous series of specimens of *Afropavo*. The anatomy was studied by P. R. Lowe (1939, Compte Rendu, IXe Congr. Ornith. Internatl. Rouen, pp. 219–230), and another report, with map of distribution, was published by me (1939, Compte Rendu, IXe Congr. Ornith. Internatl. Rouen, pp. 101–109, 3 pls., map).

A couple of the Herrlings' captive birds were reported still living at Ikela in 1942, but our efforts to have them brought down to the Zoo at Leopoldville failed. It was not until late in 1947 that Charles and Emy Cordier went on a collecting trip to the Upper Congo for the New York Zoological Society, and in June, 1949, they returned with seven live specimens of *Afropavo* for Bronx Park. Only one was a female, and it died the following winter without having laid any eggs. The Cordiers also brought us several complete skeletons of *Afropavo* and the skins of two chicks showing the natal down. The story of the expedition has been told by Charles Cordier

(1949, Animal Kingdom, vol. 52, pp. 2–9, 28–29, 99–114, 134–136, 28 illus., map), and further details were later added by L. S. Crandall (1950, Aviculture, vol. 20, pp. 10–12, fig.). The downy chicks have been carefully described by J. Delacour (1951, The pheasants of the world, pp. 329–331).

The literature of *Afropavo* is far too extensive to be given here in full. Many additional titles can readily be found in my bibliography under the names of Bannerman, de Braconier, Chapin, Delacour, Dupond, Ghigi, Hachisuka, Lönnberg, Schouteden, Steinbacher, and Vrydagh. While this very distinct genus has commonly been called a "peacock," it differs considerably in size and in plumage from the Asiatic *Pavo*. Yet Delacour and I are agreed that it is more closely allied to the true peacocks than to any other genus of Phasianidae, and we fail to see that it shows any tendency to approach the guinea fowls, as has sometimes been suggested by others.

Porzana pusilla obscura Neumann

The African race of Baillon's crake, long expected in the southeastern Congo, has been secured by Father G. Windmolders at Bakwanga, in the eastern Kasai (Schouteden, 1949, Ann. Mus. Congo, zool., ser. 4, vol. 2, fasc. 2, p. 261). I have also examined a male collected by E. de Semeries at Butembo, west of Lake Edward, on April 28, 1953.

Porzana porzana (Linnaeus)

According to Schouteden (1949, Ann. Mus. Congo, zool., ser. 4, vol. 2, fasc. 2, p. 261), the spotted crake has now been collected at Gangala-na-Bodio in the Upper Uelle and at Bokalakala in the Lake Leopold District. Verheyen writes me that the Brussels Museum also has a specimen from Elisabethville, and E. de Semeries has shown me an example taken in the region of Butembo.

Sarothrura lynesi Grant and Mackworth-Praed

The male of this pygmy crake remained unknown until collected in 1949 by Fisher at Kasaji, Lulua District (Schouteden, 1950, Rev. Zool. Bot. Africaines, vol. 43, p. 99). At the British Museum I compared this male with the female type and was convinced of their identity. In color pattern the male of *lynesi* bears considerable resemblance to that sex of *S. lugens,* but it has noticeably shorter feet, with metatarsus only 23 mm., middle toe with claw 26 mm. I have also reëxamined the rather imperfect male specimen in spirit from Chitau, Angola, collected by Boulton, which I formerly regarded as *S. lugens*. Its metatarsus measures 21 mm., middle toe with claw 26 mm., so it seems really to be *lynesi*. Nevertheless, the range of *S. lugens* extends westward to the Middle Congo, for the Congo Museum has an undoubted male example from Kunungu near Bolobo, with metatarsus 27 mm., middle toe with claw 30 mm.

Eupodotis senegalensis mackenziei White

This is the small bustard which I mentioned under the name *barrowii*

as a possibility in the southern Lulua District. Schouteden (1942, Bull. Cercle Zool. Congolais, vol. 17, p. 27) reported a specimen from Katentania in the Upper Katanga, and Verheyen (1947, Bull. Mus. Roy. Hist. Nat. Belgique, vol. 23, no. 10, p. 3) another from Musosa, still farther to the northeast. In the meantime *mackenziei* was described by C. M. N. White (1945, Bull. Brit. Ornith. Club, vol. 65, p. 47) from the western Balovale District in Northern Rhodesia. The species proves to occur much more widely in the southern Congo than I could have suspected. Malbrant (1940, Bull. Soc. Bot. Zool. Congolaises, year 3, no. 4, p. 10) called attention to it in the vicinity of Stanley Pool, and it has since been reported by J. Lepersonne from Popokabaka. All these birds from Northern Rhodesia, Angola, and the southern Congo differ from *E. s. barrowii* of South Africa in being longer-legged, usually with shorter wings, and I shall include them tentatively under *E. s. mackenziei.*

[*Charadrius venustus venustus* Fischer and Reichenow]

In East Africa the chestnut-banded plover haunts the shores of salt lakes, and it was not expected to occur anywhere near the Congo. But toward the end of October, 1948, one was observed for the first time in Uganda at the Katwe Salt Lake near Lake Edward by C. R. S. Pitman (1950, Uganda Protectorate, Ann. Rept. Game Dept., for 1949, p. 29). This is very close to the Congo border.

Erolia alpina alpina (Linnaeus)

In view of Van Someren's statement that the dunlin has occurred in Toro, and of other more recent records from Lake Magadi in East Africa and the Cape Flats in South Africa, we must accept the identification of a flock of about 20 by Léon Lippens (1938, Gerfaut, vol. 28, fasc. spécial, p. 55) at Vitshumbi, Lake Edward, on April 14, 1936.

Totanus totanus totanus (Linnaeus)

While I now feel that the supposed record from the Fua River should be disregarded, it has been proved that the redshank occurs in the Congo. On March 18, 1944, J. M. Vrydagh found two at the edge of a pond near the mouth of the Ruzizi River. One of them was collected for the Congo Museum, according to Schouteden (1949, Ann. Mus. Congo, zool., ser. 4, vol. 2, fasc. 2, p. 358). It is certain, too, that the redshank must migrate along the West Coast and pass at the Congo River mouth.

[*Limosa lapponica lapponica* (Linnaeus)]

The bar-tailed godwit is now known to migrate south to Nyasaland, Durban, and the Cape Province. It may therefore be expected occasionally within the limits of the Belgian Congo.

Sterna albifrons guineae Bannerman

A female of the little tern was collected on October 20, 1891, at Bangui

on the Ubangi River by Dybowski (Bouet, 1945, Ois. Rev. Française Ornith., new ser., vol. 14, p. 87). There is still no record from the lower Congo River.

[*Sterna dougallii dougallii* Montagu]

The roseate tern is rare on the tropical West Coast of Africa but has been noted at Lagos, Nigeria, between April and July by Bourdillon (1944, Ibis, p. 407). It nests on islands near Cape Agulhas and Algoa Bay in South Africa, and thus it may occur rarely at the Congo River mouth.

Aplopelia larvata samaliyae White

This race was recently described from the Kansoku Forest, Mwinilunga District, Northern Rhodesia, by C. M. N. White (1948, Bull. Brit. Ornith. Club, vol. 62, p. 20), and it was said to occur also along the Luakela River, virtually on the Congo border. It thus became certain that *A. l. samaliyae* would inhabit some of the evergreen woodlands of the southeastern Belgian Congo. Verheyen (1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 300) reports the collecting of five of these doves in the Upemba Park at levels between 1250 and 1480 meters, and Schouteden tells me the Congo Museum has received five specimens from Kasaji.

Females are very similar to those of *A. l. larvata* (Temminck and Knip), and the fact that males become gray scarcely justifies the specific separation of *A. simplex*. It is clear now that *simplex* and all the races allied to it must be included under *A. larvata*.

[*Aplopelia larvata plumbescens* Sharpe]

This lowland ground-dove of the Cameroon and Gaboon was briefly mentioned as a possibility near the forested Ubangi, and now it has been reported from near Brazzaville by Malbrant and Maclatchy (1949, Faune de l'Equateur Africain Français, vol. 1, Oiseaux, p. 194). I am informed that their specimen from Brazzaville cannot be found in the Paris Museum, so we must await further evidence for the occurrence at Stanley Pool.

Cuculus poliocephalus poliocephalus Latham

Asiatic cuckoos of this nominate race are now known to migrate to the Mpika district of Northern Rhodesia and to the Upemba National Park, where an adult male with wing of 163 mm. was collected on November 26, 1947 (Verheyen, 1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 309).

Centropus senegalensis flecki Reichenow

Two coucals of this race are now reported from the Upemba National Park by Verheyen (1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 323). We may conclude that *flecki* does occupy the Upper Katanga, as suspected.

Gallirex porphyreolophus chlorochlamys Shelley

Four specimens have now been collected by A. Lestrade in eastern

Ruanda for the Congo Museum (Schouteden, 1950, Ann. Mus. Congo, zool., ser. 4, vol. 2, fasc. 3, p. 511).

Bubo shelleyi (Sharpe and Ussher)

The occurrence of this large eagle-owl in the Belgian Congo has received further confirmation by the collecting of an immature example by Brother Joseph Hutsebaut. This young bird, not long out of the nest, was captured on April 1, 1951, by Bastyn about halfway between Likati and Angu, Lower Uelle District, along the automobile road. The skin, Schouteden kindly informs me, is now in the Congo Museum.

Glaucidium castaneum Reichenow

A second specimen has been collected by A. Prigogine at Lundjulu, 1000 meters, in the forest northwest of Lutunguru. Schouteden (1950, Rev. Zool. Bot. Africaines, vol. 44, pp. 135–137) is positive that this owl is not a race of *G. capense* (Smith). Its back is more uniform chestnut, and the crown has only fine white spotting. Whereas *capense* inhabits savanna regions, *castaneum* seems restricted to lowland rain forests.

Glaucidium sjöstedti Reichenow

Previously regarded as of possible occurrence in the Ubangi District, this owl has now been collected for the Congo Museum by Dupuis at Ikela in the Tshuapa District, as announced by Schouteden (1950, Rev. Zool. Bot. Africaines, vol. 44, p. 136). In the vicinity of Yokolo, too, P. Herroelen has recently collected three specimens, and Father G. Windmolders writes me that he has secured this forest-dwelling owl near Lusambo.

Phodilus prigoginei Schouteden

A most surprising discovery is that of an owl belonging to a genus thus far unknown in Africa, *Phodilus prigoginei* Schouteden (1952, Rev. Zool. Bot. Africaines, vol. 46, p. 424). It was described from a single female example, collected for A. Prigogine at Muusi, 2430 meters, on the highland northwest of Lake Tanganyika, in March, 1951. This owl is allied to *Phodilus badius* of India, Indochina, and a large part of Indonesia, but is generally darker in color, with forehead chestnut brown like the crown, beak more compressed, and feet and claws relatively small. Its wing measures 193 mm., its tail 93 mm.

The genus *Phodilus* is intermediate in many ways between the barn owls of the genus *Tyto* and the other owls commonly assigned to the family Strigidae. Its metatarsus is well feathered, the toes are rather bare, and the claw of the middle toe has a sharp ridge on its inner side which becomes somewhat pectinate distally.

Presumably *P. prigoginei* is a highland bird, and it is remarkable that it has never been found elsewhere in the Congo or in East Africa.

Veles binotatus (Bonaparte)

This rare nightjar of the forest regions of West Africa, according to

Schouteden (1951, Ann. Mus. Congo, zool., ser. 4, vol. 3, fasc. 4, p. 136), has recently been collected for the Congo Museum at Yangambi by Becquet and at Bokungo in the Tshuapa District by Dupuis. Thus it is likely to have a wide distribution in the forested Upper Congo.

Colius castanotus Verreaux

Although the type was said to have come from the Gaboon, this chestnut-rumped coly has not been found there in recent years or even along the Loango Coast. In 1950 Schouteden wrote me that the Congo Museum had received a young coly from Banana, preserved in alcohol, which plainly belonged to this species. It must therefore extend northward along the coast from Angola.

Urocolius indicus angolensis (Reichenow)

The narrow-tailed coly of southern Africa reaches the Belgian Congo in two widely separated areas. J. M. Vrydagh (1949, Bull. Cercle Zool. Congolais, vol. 19, p. 11) reported that he had collected the race *angolensis* in the Lower Congo, and he has told me that the exact locality was Moanda on the coast.

Near Elisabethville in the Katanga Alfred W. Vincent (1946, Ibis, p. 321) found this species of coly to occur rather locally, in second growth about farms and in bushy growth on termite mounds. He referred his birds to the race *angolensis,* but I am not convinced they may not belong with *U. i. ngamiensis* Roberts, which has a little more dull blue-green on ear-coverts and sides of neck.

From Mulumbu Kazadi in the Katanga Verheyen (1951, Bull. Inst. Roy. Sci. Nat. Belgique, vol. 27, no. 50, p. 2) has named a new race *lualabae*. I cannot tell how it differs from *ngamiensis,* which White believes to range northward to Ndola in Northern Rhodesia. This latter race was not mentioned when *lualabae* was being named.

Stactolaema whytii buttoni (White)

It is now certain that *S. whytii* (Shelley) is specifically distinct from *S. anchietae* (Bocage) and that both are represented at Ndola in Northern Rhodesia, the type locality of *buttoni* (White, 1945, Bull. Brit. Ornith. Club, vol. 65, p. 18). This is so close to the Congo border that we may be sure of the occurrence of *S. w. buttoni* in the southeastern corner of the Upper Katanga. The species *whytii* ranges from Mashonaland and Nyasaland to eastern Northern Rhodesia, Ufipa, and Urungu in western Tanganyika Territory. It includes the races *whytii* (Shelley), *sowerbyi* Sharpe, *buttoni* (White), and *stresemanni* (Grote). The range of *S. anchietae,* with three races, is thus limited to Angola, the southern Congo, and Northern Rhodesia eastward to Serenje.

[*Indicator (Melignothes) exilis pachyrhynchus* Heuglin]

This subspecific name is probably more correct than *pygmaeus* Reiche-

now. As suspected, this large race certainly ranges westward from Lake Victoria to the Kivu District. F. L. Hendrickx has now collected a male at Dundazi on the southwest side of Lake Kivu, with wing 84 mm., tail 59 mm., and a female at Tshibinda on the adjacent highland, with wing 79 mm., tail 49 mm. These have been lent me for examination. This larger race of *I. exilis* is to be expected also in the Upper Katanga, since C. M. N. White has secured a female of *pachyrhynchus* with wing 75 mm. long in the Kansoku Forest, Mwinilunga District.

Indicator (Melignothes) meliphilus Oberholser

This pale representative of the *exilis* group, described by Oberholser (1905, Proc. U.S. Natl. Mus., vol. 28, p. 869) from Taveta, Kenya Colony, occupies relatively dry areas from the base of Mt. Elgon to the vicinity of the East Coast, Nyasaland, and Angola. *Indicator narokensis, appelator,* and *angolensis* are all so similar to *meliphilus* as to appear synonymous.

The evident overlapping of the ranges of *I. e. pachyrhynchus* and *I. meliphilus* in the Mwinilunga District proves that the latter is a valid species. In the Upemba Park Verheyen (1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 406) collected three examples of *I. exilis angolensis* Monard, a form which I find indistinguishable from *I. meliphilus*. This pale species is therefore to be added to the list of Congo birds.

Melichneutes robustus (Bates)

All that I said about the lyre-tailed honey guide and its nasal "tooting" noises has now been confirmed. From 1915 to 1941, so far as I know, not one specimen was collected. Then on April 20, 1942, at Barisi in the Uelle District, a native hunter shot a female for Brother Joseph Hutsebaut. That sixth known specimen is in the Congo Museum. Annoyance at the lack of information concerning this extraordinary honey guide prompted me to circulate letters of inquiry among naturalists and other friends from Nigeria to Angola and Uganda, describing the bird briefly and calling attention to the strange noise it produces high over the forest. Eventually these efforts were rewarded.

On April 2, 1948, Father Bernard Longo wrote me from the Mission at Avakubi, Ituri, that he knew the lyre-tail and had watched it in action in 1939 to the northeast of Wamba, making the noise I described, high over the forest. He has also provided me with a number of names for it in the native languages of the Ituri. Among the Mambuti pygmies it is called "amazeke." The Mabudu know it as "pemé-pemé"; the Babali have two names, "kumu-kumu" and "pupu-puru"; the Bandaka, likewise, "pemu-pemu" or "ngebu-ngebu."

Several of my other correspondents were quite familiar with the noise but had never been able to see the bird that produced it. Among the Bulu

of the southern Cameroon, according to A. I. Good, the noise and the bird are both known as "vébek." On learning that P. C. Rougeot was stationed at Oyem in the northern Gaboon, I wrote him on October 2, 1948, to call attention to these questions. The results have been most gratifying.

At about the time I first wrote him, Rougeot was beginning to notice the extraordinary siren-like notes which I had attributed to this bird since 1914. By July of 1949 he believed he had seen it in flight, but he became better acquainted with it a month later when he received from natives a female *Melichneutes,* caught in a trap baited with honeycomb. The Fang people, though speaking a language very much like that of the Bulu, call the bird "selem-ngomo," the second part meaning woodpecker, while the "selem" imitated one double note in the series produced by the bird. Several men told Rougeot that they had seen this bird come diving noisily out of the sky, with tail spread, and then alight on a bough of a tree.

On September 4, 1949, Rougeot and a friend, J. Pouderoux, were listening once more to the noises made by a lyre-tail, trying to locate the spot where the bird usually alighted, when Pouderoux noticed a bird that came quietly down into the shrubbery near him. He shot it and was amazed to find that it was a female *Melichneutes.* Soon afterward the tooting noises began overhead, so there had been a second individual, presumably a male. Rougeot is inclined to believe that the female can make much the same noise with her rectrices as the male, even though two birds are seldom heard performing at the same time. If this is so, then the performance is less likely to be merely sexual in purpose. A report on these observations was published by Rougeot (1950, Ois. Rev. Française Ornith., new ser., vol. 20, pp. 51–63, fig.).

It was in July, 1950, that Rougeot finally watched the noisy diving flights of *Melichneutes* to his complete satisfaction. On the ninth, near Oyem, with his friend Pouderoux he was able to see the bird distinctly three times between 10 and 11 A.M. as it came swooping down at high speed, producing the familiar tooting notes. Twice they were able to follow the bird as it spiraled up laboriously to a height of around 200 meters, without a sound, in preparation for the noisy dive. On the twenty-third the same observers were able to see the performance eight different times and to note certain slight variations. The swift descent is made at an angle of 30 degrees to 45 degrees from the horizontal, and before alighting the bird sometimes climbs aloft again to indulge in a second noisy dive. Rougeot and I both believe that the loud vibrations of the outer rectrices can also be produced without necessarily mounting so high in the air. There is a second report by Rougeot (1951, Ois. Rev. Française Ornith., new ser., vol. 21, pp. 127–134, 1 fig.).

None of the birds thus watched by Rougeot could be collected, but there

are now 14 specimens of *Melichneutes robustus* in museums. An adult male was trapped for S. Rouleff in the vicinity of Kitenge, Ituri, in July, 1949, and its skin was sent to the Congo Museum. On August 21, 1950, near Ibembo, Lower Uelle, a hunter shot a female example for Brother Joseph Hutsebaut. It was said to have been close to a large dead tree occupied by nests of *Gymnobucco,* and the skin was also destined for the Congo Museum. Still another example, reported to be a female, was shot near Yangambi on March 8, 1952, by Pierre Obutobé, a man trained by me at

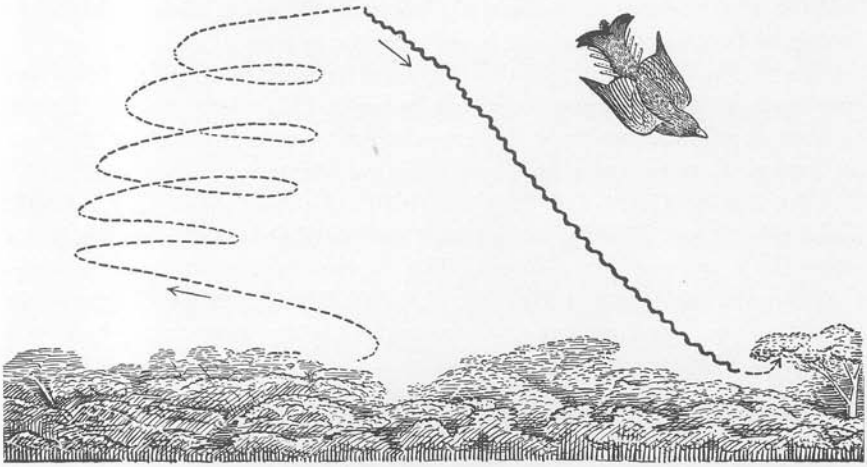

FIG. 46. Diagram of the aerial display of *Melichneutes robustus*, based on notes and sketches by Rougeot. The bird is drawn as it may be supposed to look during its noisy dive, indicated by the wavy black line.

Lukolela in 1930, for Becquet. It was sitting in a large *Piptadenia* tree known to contain a bee colony, and a second bird went on tooting intermittently high overhead.

Some years ago F. M. Grissett assured me that he had heard the noise of the lyre-tail near Port Harcourt in Southern Nigeria. I called this fact to the attention of S. Marchant, and at the end of October, 1949, he heard the characteristic tooting sounds near Owerri about five times in one morning. Twice during the intervals of silence he saw a bird with a lyrate tail like that of *Melichneutes* come to perch in the crown of a large tree (Marchant, 1953, Ibis, p. 51). So we may be sure the range of this mysterious bird extends westward to the Niger Delta, eastward to the Semliki Forest, and possibly south to northwestern Angola. R. H. Braun believes he heard it in 1933 near latitude 7° S. in the vicinity of the Cugo River, an affluent of the Kwango, and his description of the noise is very convincing.

The native collectors of A. Prigogine, while working in the forest northeast of Beni in August, 1952, found and robbed a bees' nest in a forest tree. Then they watched the tree to see what birds might come to visit it, and in this way secured a specimen of *Melichneutes*. This was preserved entire in alcohol and has kindly been sent to me for examination.

In the vicinity of Lusambo, still more recently, Father Windmolders has secured two examples of the lyre-tailed honey guide, and thus has extended its known range to the southern edge of the Upper Congo forest.

Campethera cailliautii (Malherbe)

With this species *C. permista* (Reichenow) is certainly conspecific. Intergradation in color pattern is now known to take place at Katombe in the Kasai Province and probably eastward at least to the Lualaba River just south of Kasongo, as pointed out by me in 1952 (Ibis, p. 535). Father P. Van Assche has now sent three intermediates to the American Museum of Natural History and others to the Congo Museum at Tervueren.

According to Grant and Mackworth-Praed (1939, Bull. Brit. Ornith. Club, vol. 59, pp. 71–72), *Campethera cailliautii nyansae* Neumann is not separable from nominate *cailliautii*. The material of *nyansae* at my disposition is quite inadequate. I find that *C. c. fülleborni* does not differ greatly from the nominate race, unless its wing be slightly longer and the breast spots somewhat larger.

Anthus lineiventris Sundevall

The occurrence of this pipit within our limits has been verified by Verheyen (1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 430), who found it sedentary in the Upemba Park at altitudes between 1300 and 1600 meters. He believes it nests there in the first half of the rains, between October and December.

Acrocephalus palustris (Bechstein)

Verheyen (1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 489) reports shooting a male of the marsh warbler at Mabwe on Lake Upemba in February, 1949.

Alethe poliocephala ufipae Moreau

This large race is recorded by Verheyen (1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 496) from gallery forests in the Upemba Park at altitudes of 890 to 1320 meters. The wings of his seven specimens measure 91–100 mm.

Cossypha insulana schoutedeni Prigogine

Under this name, A. Prigogine (1952, Rev. Zool. Bot. Africaines, vol. 46, p. 409) now distinguishes the race inhabiting the highlands of the eastern Congo. He has secured three more specimens, all from the region of Lutunguru.

Geokichla gurneyi otomitra Reichenow

An adult female of this thrush has been secured by Verheyen (1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 548) in a gallery forest of the Upemba Park at 1250 meters.

Parisoma lugens prigoginei Schouteden

This is the name proposed by Schouteden (1952, Rev. Zool. Bot. Africaines, vol. 46, p. 171) for the dark race inhabiting the highland of Itombwe, west of the Ruzizi.

Hirundo nigrorufa Bocage

An adult female was taken in the Upemba Park at an altitude of 1700 meters on January 19, 1948, by Verheyen (1953, Exploration du Parc National Upemba, Mission de Witte, fasc. 19, p. 542). I too have seen several on the top of the Kundelungu Plateau at 1700 meters and collected an adult male there on October 4, 1953.

GAZETTEER OF AFRICAN LOCALITIES MENTIONED IN PARTS 1 TO 4

For the figures of latitude and longitude in this list we make no claim to mathematical perfection. They have been taken from the best maps available to us, and within the limits of the Belgian Congo mostly from the International Map at 1:1000000, 1942. Some place names not shown on maps have been located in other ways. Our aim is to facilitate the finding of any locality on such maps as may be available to the reader, or in any case to indicate its position within a few miles, so that its significance in the distribution of any given bird will be perfectly clear.

Explanations are necessarily brief and usually include no more than the colony or the district in which the place is located. For Congo districts I have preferred to use the names appearing on my map in Part 1 (Chapin, 1932, p. 8), although now many of them have been enlarged or united with others. The following abbreviations are used:

A.-E. Sudan, Anglo-Egyptian Sudan
B. C., Belgian Congo
Col., Colony
Dist., District
Prov., Province
Terr., Territory

Many place names are duplicated in various parts of the Congo or of Africa, and I have attempted in each case to give the position of the ones from which birds are reported in these volumes. Different spellings, or equivalents, are often added in parentheses, whether or not they may have been used by me. Quotation marks indicate spellings that are plainly erroneous, often as a result of copying from labels or errors in typesetting.

I have tried to give some idea of the area contained in a region or district by listing the positions of its boundaries, taking into consideration the shape of the district as represented on the map. The extremes of latitude may be given first, followed by those of longitude; or for districts of narrow configuration two definite positions may be listed for the two points in the region most remote from each other. For rivers the figures given represent first the source and then the point where the river joins some other or empties into a lake or ocean.

With every passing year it becomes more difficult to locate some of the villages of which the names have appeared in ornithological literature. I could not have carried out the present project without generous help from a large number of friends, to all of whom I give thanks.

Aapies River (Apies, or Aprevier), Transvaal	25° 46′ S., 28° 10′ E. to 25° 10′ S., 28° 05′ E.
Aba, northeast corner of B. C.	3° 53′ N., 30° 16′ E.
Ababua country, Uelle Dist., B. C.	1° 41′ N. to 3° 41′ N., 24° 13′ E. to 26° 23′ E.
Abanga River, Gaboon	1° 00′ N., 11° 10′ E. to 0° 20′ S., 10° 30′ E.
Abassi, Lake (Awasa, Abase, Awusa), Abyssinia	7° 04′ N., 38° 27′ E.
Abaya, Lake (Margherita, North or Black Abaya), Abyssinia	5° 59′ N., 37° 51′ E. to 6° 37′ N., 38° 05′ E.
Abaya Lake, South (White) = Chamo, Lake	
Abaya Lakes	5° 41′ N., 37° 28′ E. to 6° 37′ N., 38° 05′ E.
Abbai (river), Big, headwaters of Blue Nile	11° 40′ N., 37° 30′ E. to 11° 15′ N., 34° 58′ E.
Abela, southern Abyssinia	6° 55′ N., 38° 31′ E.
Abeli, Ituri Dist., B. C.	1° 01′ N., 29° 53′ E.
Abera, southern Abyssinia	6° 40′ N., 38° 30′ E.
Abercorn (Mbala), Northern Rhodesia	8° 50′ S., 31° 24′ E.
Aberdare Mountains, Kenya Colony	0° 07′ S., 36° 33′ E. to 0° 58′ S., 36° 39′ E.
"Abiambana" = Mbiambana	
Abimva, Upper Uelle Dist., B. C.	3° 09′ N., 29° 45′ E.
Abok, eastern Ituri, B. C.	2° 01′ N., 31° 02′ E.
Abokobi, Gold Coast	5° 43′ N., 0° 11′ W.
Aboro, Mt., eastern Ituri, B. C.	2° 00′ N., 30° 52′ E.
Aburi, Gold Coast	5° 50′ N., 0° 10′ W.
Abyssinia (Ethiopia)	3° 30′ N. to 14° 50′ N., 32° 50′ E. to 48° 00′ E.
Abyssinian Plateau	4° 00′ N. to 17° 30′ N., 35° 30′ E. to 43° 00′ E.
Accra, Gold Coast	5° 31′ N., 0° 12′ W.
Acholi country, northern Uganda	3° 04′ N., 31° 49′ E. to 3° 04′ N., 33° 19′ E.
Adamawa (Adamaua, Adamaoua), northern Cameroon	7° 07′ N. to 9° 20′ N., 11° 30′ E. to 15° 35′ E.
Addis Ababa (Addis Abeba), Abyssinia	9° 00′ N., 38° 45′ E.
Adi River = Athi River	
Adia, Upper Uelle, B. C.	2° 49′ N., 30° 42′ E.
Adiabo Plain, northern Abyssinia	14° 32′ N., 38° 00′ E.
Adra, Upper Uelle, B. C.	3° 24′ N., 30° 41′ E.
Aethiopia = Ethiopia	
Afouru country, French Congo	1° 10′ S. to 0° 25′ N., 15° 50′ E. to 17° 50′ E.
Afu Hills, Benue Prov., Nigeria	8° 30′ N., 7° 30′ E.
Agaru (Agoro), northern Uganda	3° 47′ N., 33° 02′ E.

Agome Tongwe (Agbome), eastern Gold Coast	6° 56′ N. 0° 26′ E.
Agoulerie (Agoleri), Southern Nigeria	6° 21′ N., 6° 53′ E.
Aguapim (Akwapim), Gold Coast	5° 36′ N. to 6° 07′ N., 0° 22′ W. to 0° 15′ E.
Agulhas, Cape, Cape Prov.	34° 50′ S., 20° 00′ E.
Ahanta, Gold Coast	4° 55′ N. to 5° 10′ N., 1° 50′ W. to 2° 12′ W.
Ailet, Eritrea	15° 30′ N., 39° 12′ E.
Aïr = Asben	
Akenge (Akengai), Upper Uelle, B. C.	2° 54′ N., 26° 49′ E.
Akona, A.-E. Sudan	12° 20′ N., 32° 48′ E.
Akonangi, southern Cameroon	2° 25′ N., 11° 20′ E.
Akonolinga, Cameroon	3° 45′ N., 12° 14′ E.
Alala Plateau, Northern Rhodesia	13° 15′ S. to 14° 00′ S., 28° 55′ E. to 30° 15′ E.
Albany Division, Cape Prov.	32° 55′ S. to 33° 42′ S., 25° 57′ E. to 26° 57′ E.
Albert Edward, Lake = Edward, Lake	
Albert, Lake	1° 01′ N. to 2° 20′ N., 30° 21′ E. to 31° 24′ E.
Albert National Park, Kivu Dist., B. C.	0° 56′ N., 30° 00′ E. to 1° 51′ S., 29° 06′ E.
Alberta, Bangala Dist., B. C.	2° 12′ N., 22° 26′ E.
Albertine (Western) Rift, East Central Africa	2° 20′ N., 31° 20′ E. to 8° 50′ S., 31° 10′ E.
Albertville, southeastern B. C.	5° 56′ S., 29° 12′ E.
Aldabra Island, Indian Ocean	9° 19′ S. to 9° 30′ S., 46° 12′ E. to 46° 32′ E.
Alén, Spanish Guinea	2° 05′ N., 11° 00′ E.
A-Lendu = Lendu Plateau	
Alexandra Peak, Ruwenzori, Uganda-B. C. border	0° 22′ N., 29° 52′ E.
Alghe (Algheremariam), southern Abyssinia	5° 32′ N., 38° 21′ E.
Algiers (Alger), North Africa	36° 45′ N., 3° 08′ E.
Algoa Bay, Cape Prov.	33° 48′ S., 25° 36′ E. to 26° 17′ E.
Alima River, French Congo	1° 33′ S., 14° 55′ E. to 1° 32′ S., 16° 34′ E.
Alimasi, Ituri, B. C.	0° 34′ N., 29° 23′ E.
Alimbongo, Kivu Dist., B. C.	0° 22′ S., 29° 10′ E.
Alipago, Uelle Dist., B. C.	3° 33′ N., 25° 43′ E.
Aloma Plateau, southern A.-E. Sudan	3° 40′ N., 30° 38′ E.
Amadi, Uelle, B. C.	3° 38′ N., 26° 46′ E.
Amadi, A.-E. Sudan	5° 33′ N., 30° 21′ E.
Amadi country, Uelle, B. C.	3° 35′ N. to 3° 46′ N., 26° 46′ E. to 26° 58′ E.
Amala River (Mara, Ngare Dobash), East Africa	0° 28′ S., 35° 46′ E. to 1° 31′ S., 33° 56′ E.
Amani, Usambara, Tanganyika Terr.	5° 06′ S., 38° 38′ E.

Ambaca, Angola	9° 17′ S., 15° 17′ E.
Ambelokudi = Pawa	
Amboim (Gabela), Angola	10° 50′ S., 14° 19′ E.
Amboim District (Amboim Prov.), Angola	10° 13′ S. to 11° 17′ S., 13° 28′ E. to 14° 58′ E.
Amboland = Ovamboland	
Ambriz, Angola	7° 53′ S., 13° 08′ E.
Ambrizette, Angola	7° 15′ S., 12° 58′ E.
Amirante Islands, Indian Ocean	5° 05′ S. to 6° 15′ S., 53° 00′ E. to 53° 50′ E.
Amiri district, Arabia	13° 40′ N., 44° 20′ E. to 45° 05′ E.
Anambra Creek, Nigeria	7° 30′ N., 7° 04′ E. to 6° 12′ N., 6° 46′ E.
Anda, on Lake Azingo, Gaboon	0° 35′ S., 10° 02′ E.
Andoga ("Angoda"), Upper Uelle, B. C.	2° 32′ N., 29° 59′ E.
Andundi (Andundi-wa-Kinabo), Semliki Valley, B. C.	0° 50′ N., 29° 54′ E.
Angba, Uelle, B. C.	3° 36′ N., 26° 58′ E.
Angers, Rivière d' = Muni River	
Angi (Hangi), Kivu, B. C.	0° 19′ S., 29° 26′ E.
Ango (Ueré), Uelle, B. C.	4° 02′ N., 25° 51′ E.
Ango Ango, on lower Congo River, B. C.	5° 50′ S., 13° 27′ E.
Angodia, Lower Uelle, B. C.	3° 32′ N., 25° 47′ E.
Angola	5° 55′ S. to 18° 00′ S., 11° 40′ E. to 24° 00′ E.
Angoniland, southwest of Lake Nyasa	13° 45′ S. to 15° 50′ S., 33° 15′ E. to 34° 45′ E.
Angu, Lower Uelle, B. C.	3° 30′ N., 24° 27′ E.
Angulo, Lango district, Uganda	2° 14′ N., 32° 35′ E.
Angumu, Stanleyville Dist., B. C.	0° 07′ S., 27° 41′ E.
Anjuan Island (Anjouan), Indian Ocean	12° 05′ S. to 12° 24′ S., 44° 12′ E. to 44° 28′ E.
Ankole, southwestern Uganda	0° 15′ N. to 1° 08′ S., 29° 50′ E. to 31° 15′ E.
"Ankonolinga" = Akonolinga	
Ankoro, Tanganyika Dist., B. C.	6° 46′ S., 26° 57′ E.
Annobon Island, Atlantic Ocean	1° 26′ S., 5° 37′ E.
Anteniquoi = Outeniqua	
Anvers, Banc d', lower Congo River, B. C.	5° 52′ S., 13° 04′ E.
Api, Uelle, B. C.	3° 42′ N., 25° 28′ E.
Apoyo (Gilly), northern Ituri, B. C.	2° 39′ N., 27° 40′ E.
Arabsiyo, western Somaliland	9° 38′ N., 43° 43′ E.
Archambault, Fort, French Equatorial Africa	9° 10′ N., 18° 25′ E.
Ardai plains, Tanganyika Terr.	3° 25′ S., 36° 20′ E.
Arebi, Upper Uelle, B. C.	2° 46′ N., 29° 34′ E.
Arebi River, northeastern B. C.	2° 34′ N., 29° 42′ E. to 3° 05′ N., 29° 31′ E.
Argungu, Northern Nigeria	12° 45′ N., 4° 30′ E.
Aru, Upper Uelle, B. C.	2° 53′ N., 30° 51′ E.
Aru River, Upper Uelle, B. C.	3° 27′ N., 29° 42′ E. to 3° 40′ N., 29° 23′ E.

Arua, West Nile Prov., Uganda	3° 02′ N., 30′ 55′ E.
Arusha (Great Arusha, Gross Aruscha), Tanganyika Terr.	3° 23′ S., 36° 43′ E.
Aruscha, Klein (Arusha-Chini, Unter-Aruscha), Tanganyika Terr.	3° 35′ S., 37° 20′ E.
Aruwimi River (Lohale, Loale, Lohali, and Lifali), B. C.	1° 44′ N., 27° 08′ E. to 1° 13′ N., 23° 36′ E.
Asar, in Asir, Arabia	17° 05′ N., 43° 00′ E.
Asben (Aïr, Azbina, Azibine), French West Africa	16° 50′ N. to 19° 30′ N., 7° 40′ E. to 9° 40′ E.
Ascension Island, Atlantic Ocean	7° 56′ S., 14° 22′ W.
Ashanti (Ashantee), Gold Coast	6° 00′ N. to 7° 30′ N., 3° 00′ W. to 0° 15′ E.
Ashira = Eschira	
Asir, Arabia	16° 30′ N. to 20° 00′ N., 41° 00′ E. to 44° 40′ E.
Assobam, southeastern Cameroon	3° 17′ N., 14° 04′ E.
Assouan (Aswan, Assuan), Upper Egypt	24° 06′ N., 32° 52′ E.
Assumba, Ituri, B. C.	0° 50′ N., 29° 55′ E.
Astrida (Butare), Ruanda-Urundi	2° 36′ S., 29° 44′ E.
Ataramba, Mt., Upper Uelle, B. C.	3° 38′ N., 28° 28′ E.
Atbara, A.-E. Sudan	17° 42′ N., 34° 00′ E.
Atbara River, A.-E. Sudan	12° 20′ N., 36° 50′ E. to 17° 42′ N., 34° 00′ E.
Atene, western Kasai, B. C.	5° 25′ S., 19° 18′ E.
Athi Plain, Kenya Colony	1° 15′ S. to 1° 35′ S., 36° 43′ E. to 37° 10′ E.
Athi River, Kenya Colony	1° 19′ S., 36° 39′ E. to 2° 59′ S., 38° 30′ E.
Attogondama, Gaboon	0° 49′ N., 10° 16′ E.
Atua River, Upper Uelle, B. C.	4° 00′ N., 30° 06′ E. to 3° 47′ N. 29° 39′ E.
Atyanga (Atjanga, Atyángara), eastern Ituri, B. C.	0° 48′ N., 29° 56′ E.
Avakubi, Ituri, B. C.	1° 24′ N., 27° 40′ E.
Avu, Mt., Ituri, B. C.	2° 13′ N., 30° 43′ E.
Avu, Mt., near Mahagi Port, B. C.	2° 05′ N., 31° 07′ E.
Awamba (Buamba, Bahamba, Uvamba, Bwamba), Semliki Valley, Uganda	0° 40′ N. to 0° 54′ N., 29° 47′ E. to 30° 10′ E.
Awemba country (Wabemba), Northern Rhodesia	10° 10′ S. to 11° 30′ S., 30° 20′ E. to 32° 50′ E.
Axim, Gold Coast	4° 51′ N., 2° 16′ W.
Ayena (Ajena), Stanleyville, B. C.	0° 30′ N., 26° 18′ E.
Ayu, Khor (Kuyu River), flowing from Uganda to the Sudan	3° 46′ N., 31° 38′ E. to 3° 51′ N., 31° 48′ E.

Azande country (Niam-Niam), southern Bahr-el-Ghazal Prov. and northern Uelle, B. C.	4° 15′ N. to 5° 20′ N., 26° 00′ E. to 29° 10′ E.
Azingo, Lake, Gaboon	0° 35′ S., 10° 02′ E.
Baaba, Kwango Dist., B. C.	5° 38′ S., 18° 29′ E.
Babembe country, French Congo	3° 57′ S. to 4° 10′ S., 13° 00′ E. to 13° 32′ E.
Babeyru (Babeyro), Ituri, B. C.	1° 53′ N., 27° 32′ E.
Babira, Uganda	2° 32′ N., 31° 27′ E.
Babonde, Ituri, B. C.	2° 13′ N., 27° 35′ E.
Babungo, Cameroon	5° 55′ N., 10° 36′ E.
Badinde, Upper Uelle, B. C.	4° 16′ N., 27° 11′ E.
Badinde district, Upper Uelle, B. C.	3° 57′ N. to 4° 09′ N., 26° 27′ E. to 26° 57′ E.
Badingou (Badingoua), Ubangi-Shari	7° 34′ N., 19° 33′ E.
Badjua (Badsua), Ituri, B. C.	2° 00′ N., 30° 10′ E.
"Badonde" = Babonde	
Bafia, Cameroon	4° 40′ N., 11° 05′ E.
Bafia district, Cameroon	4° 15′ N. to 4° 48′ N., 10° 55′ E. to 11° 28′ E.
Bafuka, Upper Uelle, B. C.	4° 20′ N., 27° 58′ E.
Bafwabaka, Ituri, B. C.	2° 08′ N., 27° 38′ E.
Bafwaboli, Stanleyville, B. C.	0° 45′ N., 26° 04′ E.
Bafwasende, Stanleyville, B. C.	1° 06′ N., 27° 13′ E.
Bafwazabangi = Bosobangi	
Bagamoyo, Tanganyika Terr.	6° 30′ S., 38° 54′ E.
Bagilo, Uluguru Mountains, Tanganyika Terr.	7° 00′ S., 37° 42′ E.
Baginze (Baginzi, Bangenze), Mt., on boundary between Upper Uelle and Bahr-el-Ghazal Prov.	4° 29′ N., 29° 00′ E.
Bahr-el-Abiad, White Nile, A.-E. Sudan	9° 35′ N., 30° 30′ E. to 15° 35′ N., 32° 30′ E.
Bahr-el-Arab (upper course called also Bahr-el-Fertit), A.-E. Sudan	10° 55′ N., 27° 13′ E. to 9° 02′ N., 29° 22′ E.
Bahr-el-Ghazal, A.-E. Sudan	8° 35′ N., 29° 21′ E. to 9° 30′ N., 30° 28′ E.
Bahr-el-Ghazal Province, A.-E. Sudan	4° 18′ N. to 10° 25′ N., 23° 40′ E. to 30° 20′ E.
Bahr-el-Jebel, A.-E. Sudan and northern Uganda	2° 20′ N., 31° 24′ E. to 9° 35′ N., 30° 30′ E.
Bahr-el-Zeraf (Bahr-el-Seraf, Bahr-es-Seraf, Bahr-ez-Zeraf), A.-E. Sudan	7° 45′ N., 30° 35′ E. to 9° 23′ N., 31° 10′ E.
Bailundo (Bailundu, Vila Teixeira da Silva), Angola	12° 10′ S., 15° 47′ E.

Bailundo district (Bailundu), Angola	11° 37′ S. to 12° 13′ S., 15° 20′ E. to 16° 25′ E.
Bajinga, Lower Uelle, B. C.	3° 30′ N., 25° 20′ E.
Bakari, northern Cameroon	6° 36′ N., 12° 04′ E.
Baker (Kiyanja), Mt., Ruwenzori	0° 22′ N., 29° 54′ E.
Bakossi district, on boundary between British and French Cameroons	4° 35′ N. to 5° 00′ N., 9° 37′ E. to 9° 44′ E.
Bakouli country, French Congo	4° 12′ S., 12° 37′ E.
Bakwanga, eastern Kasai, B. C.	6° 10′ S., 23° 37′ E.
Balovale, Northern Rhodesia	13° 30′ S., 23° 07′ E.
Balovale District, Northern Rhodesia	13° 00′ S. to 14° 35′ S., 22° 00′ E. to 24° 00′ E.
Bamako, French Sudan	12° 37′ N., 7° 57′ W.
Bamania, Equator, B. C.	0° 00′, 18° 20′ E.
Bambesa, Lower Uelle, B. C.	3° 28′ N., 25° 44′ E.
Bambia, Kivu, B. C.	0° 28′ S., 28° 49′ E.
Bambili, Lower Uelle, B. C.	3° 38′ N., 26° 07′ E.
Bambu, headquarters of Kilo Mines, Ituri, B. C.	1° 49′ N., 30° 12′ E.
Bambulue Lake, British Cameroons	5° 50′ N., 10° 10′ E.
Bambumé (Mutwanga), Ituri, B. C.	0° 20′ N., 29° 45′ E.
Bamenda, British Cameroons	5° 57′ N., 10° 09′ E.
Bamenda highland, British Cameroons	5° 43′ N. to 5° 58′ N., 10° 09′ E. to 10° 20′ E.
Bamingui River (Bamingi, Bahr-el-Abiod), Ubangi-Shari	7° 56′ N., 21° 12′ E. to 8° 31′ N., 19° 02′ E.
Bamu (Mbamu) Island, in Stanley Pool, French Congo	4° 14′ S., 15° 25′ E.
Banalia, Stanleyville, B. C.	1° 35′ N., 25° 23′ E.
Banana, at mouth of Congo River, B. C.	6° 00′ S., 12° 25′ E.
Banana Bay, Congo River mouth	6° 00′ S., 12° 26′ E.
Banc d'Anvers = Anvers, Banc d'	
Banda (Banda Busongo), northwestern Kasai, B. C.	5° 24′ S., 19° 38′ E.
Banda's village, Ituri, B. C.	2° 20′ N., 27° 16′ E.
Bandama, Ivory Coast	7° 35′ N., 5° 41′ W.
Bandundu = Banningville	
Bandupoi Mountains, northern border of Uelle, B. C.	4° 25′ N., 29° 03′ E.
Banga (Bangah), Liberia	7° 15′ N., 9° 15′ W.
Bangala (Iboko, Nouvelle-Anvers), B. C.	1° 36′ N., 19° 09′ E.
Bangala country, B. C.	1° 24′ N. to 1° 45′ N., 18° 43′ E. to 19° 20′ E.
Bangala District, B. C.	0° 38′ N., 17° 50′ E. to 3° 35′ N., 23° 00′ E.
Bangu Forest, Lower Congo Dist., B. C.	5° 20′ S., 14° 30′ E.
Bangu Plateau, Lower Congo Dist., B. C.	5° 00′ S. to 5° 30′ S., 14° 22′ E. to 14° 37′ E.
Bangui, on Ubangi River, French Equatorial Africa	4° 22′ N., 18° 36′ E.

Bangwa, British Cameroons	5° 40′ N., 9° 50′ E.
Bangweolo (Bangweulu), Lake, Northern Rhodesia	10° 33′ S. to 11° 28′ S., 29° 32′ E. to 30° 08′ E.
Banjo = Banyo	
Banket, Southern Rhodesia	17° 25′ S., 30° 25′ E.
Banningville (Bandundu), Kwango, B. C.	3° 19′ S., 17° 22′ E.
Banso District (Banso Mountains), British Cameroons	6° 00′ N. to 6° 20′ N., 10° 28′ E. to 10° 59′ E.
Banya (M'Banio) Lagoon, Gaboon	3° 32′ S., 10° 52′ E. to 3° 48′ S., 11° 11′ E.
Banyo (Banjo), northern Cameroon	6° 45′ N., 11° 49′ E.
Baraka, Kivu, B. C.	4° 06′ S., 29° 06′ E.
Barakit (Barachit), southern Eritrea	14° 38′ N., 39° 28′ E.
Bardera, Southern Somaliland	2° 15′ N., 42° 25′ E.
Baringo, Kenya Colony	0° 37′ N., 36° 14′ E.
Baringo, Lake, Kenya Colony	0° 32′ N., 36° 05′ E. to 0° 44′ N., 36° 03′ E.
Barisi, Uelle, B. C.	3° 09′ N., 25° 11′ E.
Baro River, Abyssinia	7° 48′ N., 36° 05′ E. to 8° 25′ N., 33° 20′ E.
Barotseland, Northern Rhodesia	15° 00′ S. to 17° 00′ S., 22° 00′ E. to 25° 50′ E.
Barsaloi, Kenya Colony	1° 20′ N., 36° 54′ E.
Barumbu, Aruwimi, B. C.	1° 15′ N., 23° 29′ E.
Bashishombe, northern Kasai, B. C.	4° 40′ S., 20° 58′ E.
Basoala (Basuala), Fernando Po	3° 36′ N., 8° 53′ E.
Basoko, Aruwimi, B. C.	1° 13′ N., 23° 35′ E.
Basongo, Kasai, B. C.	4° 19′ S., 20° 22′ E.
Bassoundi country (Bassouni), French Equatorial Africa	4° 10′ S. to 5° 00′ S., 13° 00′ E. to 14° 10′ E.
Basutoland, South Africa	28° 34′ S. to 30° 40′ S., 27° 00′ E. to 29° 25′ E.
Bataíbo (Battaibo), Ituri, B. C.	1° 34′ N., 29° 53′ E.
Batama, Stanleyville, B. C.	0° 56′ N., 26° 36′ E.
Batanga (Grand Batanga), Cameroon	2° 45′ N., 9° 55′ E.
Batangafo, Ubangi-Shari	7° 25′ N., 18° 09′ E.
Bateke Plateau (Batéké country), French Congo	2° 15′ S. to 3° 50′ S., 14° 20′ E. to 16° 00′ E.
Batengatta (Batanjata, Batangatta), Ruanda	1° 50′ S., 30° 42′ E.
Battaïba-Buehssa = between Bataíbo and Buesa	
Battaibo = Bataíbo	
Baudouinville, Tanganyika Dist., B. C.	7° 03′ S., 29° 43′ E.
Baviaan's River, Cape Prov.	33° 30′ S., 23° 40′ E. to 33° 43 S., 24° 24′ E.
Beatrice district, Southern Rhodesia	18° 15′ S., 30° 50′ E.
Bebengo (Bobenge), Stanleyville, B. C.	1° 40′ N., 25° 39′ E.

Bechuanaland, southern Africa	17° 50′ S. to 26° 50′ S., 20° 00′ E. to 29° 20′ E.
Bechuanaland, British	24° 43′ S. to 28° 50′ S., 20° 00′ E. to 25° 45′ E.
Beddén, A.-E. Sudan	4° 34′ N., 31° 31′ E.
Begu (Mbegu), northern Useguha, Tanganyika Terr.	5° 25′ S., 37° 53′ E.
Behungi, Kigezi Dist., Uganda	1° 17′ S., 29° 48′ E.
Beira, Portuguese East Africa	19° 50′ S., 34° 52′ E.
Beira, Idjwi Island, Lake Kivu = Béra	
Bekaba (Bokaba), Ubangi-Shari	7° 43′ N., 16° 42′ E.
Beledugu, French Sudan	12° 45′ N. to 13° 30′ N., 7° 15′ W. to 8° 25′ W.
Belenge, Kasai, B. C.	5° 35′ S., 20° 54′ E.
Belenia = Méré Belenia	
Bellima, Upper Uelle, B. C.	3° 11′ N., 28° 46′ E.
Bembe, northern Angola	7° 02′ S., 14° 30′ E.
Bembé, Ubangi-Shari	5° 08′ N., 19° 50′ E.
Bendere (Benderi), southern Bahr-el-Ghazal	4° 49′ N., 27° 44′ E.
Bengamisa, Stanleyville, B. C.	0° 56′ N., 25° 11′ E.
Bengengai, northern Uelle, B. C.	4° 48′ N., 27° 42′ E.
Benguella (Benguela Angola),	12° 34′ S., 13° 24′ E.
Benguella Plateau, Angola	11° 15′ S. to 14° 30′ S., 14° 25′ E. to 19° 30′ E.
Benguella Province (Benguela), Angola	9° 45′ S. to 14° 00′ S., 12° 30′ E. to 16° 45′ E.
Beni (Bungulu), Ituri, B. C.	0° 28′ N., 29° 28′ E.
Beni, old (Fort Beni), Ituri, B. C.	0° 26′ N., 29° 34′ E.
Benin, Southern Nigeria	6° 18′ N., 5° 44′ E.
Benin Division, Southern Nigeria	5° 50′ N. to 6° 50′ N., 5° 20′ E. to 6° 40′ E.
Benito, Spanish Guinea	1° 30′ N., 9° 40′ E.
Benito, Rio (Ejo, Uelle, Lolo, or Voleu River), northern Gaboon to Spanish Guinea	1° 35′ N., 11° 55′ E. to 1° 33′ N., 9° 37′ E.
Benue Province, Nigeria	6° 28′ N. to 9° 22′ N., 6° 56′ E. to 10° 36′ E.
Benue River, Nigeria	7° 25′ N., 13° 34′ E. to 7° 48′ N., 6° 46′ E.
Béoumi, Ivory Coast	7° 45′ N., 5° 30′ W.
Béra (Beira), Idjwi Island, Lake Kivu	1° 57′ S., 29° 05′ E.
Berber, northern A.-E. Sudan	18° 03′ N., 34° 00′ E.
Berber Province, A.-E. Sudan	15° 50′ N. to 22° 00′ N., 31° 55′ E. to 34° 45′ E.
Berbera, British Somaliland	10° 28′ N., 45° 03′ E.
Berberati, French Equatorial Africa	4° 15′ N., 15° 48′ E.
Berg River, Cape Prov.	33° 53′ S., 19° 12′ E. to 32° 45′ S., 18° 10′ E.
Beritio (Beretio), Lower Uelle, B. C.	3° 25′ N., 24° 32′ E.
Beso (Bessou, Mission de la Sainte-Famille), Ubangi-Shari	5° 07′ N., 19° 29′ E.

Betou (M'Bétou), French Congo	3° 03′ N., 18° 32′ E.
Bia, Uelle Dist., B. C.	4° 16′ N., 26° 35′ E.
Bia Mountains, Upper Katanga, B. C.	9° 15′ S., 26° 11′ E. to 9° 34′ S., 25° 52′ E.
Biakobe River, Kivu, B. C.	0° 19′ N., 29° 21′ E.
Biangoro River (Biangolo), Semliki Valley, B. C.	0° 25′ N., 29° 46′ E.
Biano (Manika) Plateau, Upper Katanga, B. C.	9° 13′ S., 26° 33′ E. to 10° 43′ S., 25° 52′ E.
Biballa (Bibala), northeastern Mossamedes Dist., Angola	14° 34′ S. to 14° 45′ S., 13° 13′ E. to 13° 30′ E.
Bibundi, British Cameroons	4° 12′ N., 8° 59′ E.
Bienga (Ganda Bienga), Lower Congo Dist., B. C.	4° 32′ S., 14° 05′ E.
Bigogo (Bigogwe), northwestern Ruanda	1° 38′ S., 29° 21′ E. to 29° 28′ E.
Bigoisagua (Bigoitagua), lower Ruzizi Plain, B. C.	3° 14′ S., 29° 12′ E.
Bihé = Silva Porto	
Bihé (Bié) District, Angola	10° 33′ S. to 14° 30′ S., 16° 25′ E. to 17° 47′ E.
Bihé Plateau, Angola = eastern part of Benguella Plateau	
Bihendula (Bihen, Bihenloula), British Somaliland	10° 09′ N., 45° 08′ E.
Bikoro, Equator Dist., B. C.	0° 45′ S., 18° 08′ E.
Bilati, Kivu, B. C.	0° 34′ S., 28° 49′ E.
Bilelipi (Bilelepa, Bilelepi), Fernando Po	3° 31′ N., 8° 50′ E.
Bili, Uelle, B. C.	4° 09′ N., 25° 05′ E.
Bili River, Uelle, B. C.	4° 26′ N., 25° 40′ E. to 4° 10′ N., 22° 25′ E.
Bilumma (Biloma) eastern Rwindi Plain, Kivu, B. C.	0° 49′ S., 29° 22′ E.
Bima (Mbima), Northern Nigeria	10° 27′ N., 11° 28′ E.
Bima, Uelle, B. C.	3° 25′ N., 25° 12′ E.
Bima River, Uelle, B. C.	2° 40′ N., 26° 51′ E. to 3° 23′ N., 25° 11′ E.
Bimba, Ruanda	2° 44′ S., 29° 46′ E.
Binesho (Binescho), southwestern Abyssinia	7° 17′ N., 35° 47′ E.
Bintumane (Bintimane) Peak, Sierra Leone	9° 12′ N., 11° 08′ W.
Biogo (misprint "Bioga"), Ituri, B. C.	0° 08′ N., 29° 23′ E.
Bipindi (Bipindihof), Cameroon	3° 05′ N., 10° 21′ E.
Birunga = Kivu Volcanoes	
Bishoke, Mt. = Visoke, Mt.	
Biskra, Algeria	34° 51′ N., 5° 44′ E.
Bisoke, Mt. = Visoke, Mt.	
Bisoko, Mt., Kivu, B. C.	1° 27′ S., 29° 22′ E.
Bissao, Portuguese Guinea	11° 50′ N., 15° 40′ W.
Bitakongo (Bitacongo), Kivu, B. C.	0° 33′ S., 28° 54′ E.
Bitale, Ruanda	1° 24′ S., 29° 46′ E.
Bitashimwa, Kivu, B. C.	1° 21′ S., 29° 24′ E.

Biti, A.-E. Sudan	5° 37′ N., 30° 24′ E.
Bitoro, Idjwi Island, Lake Kivu	2° 10′ S., 29° 01′ E.
Bitshumbi = Vitshumbi	
Bitukura River, Kivu, B. C.	1° 06′ S., 29° 32′ E.
Bitye (Bitché), Cameroon	3° 10′ N., 12° 20′ E.
Blaauwkrantz Bridge, Albany Div., Cape Prov.	33° 20′ S., 26° 45′ E.
Blanco, Cape, Mauritania	20° 45′ N., 17° 10′ W.
Blantyre, southern Nyasaland	15° 48′ S., 35° 00′ E.
Blue Krantz (Blue Cliff, Blaauwkrantz), Uitenhage Div., Cape Prov.	33° 30′ S., 25° 28′ E.
Blukwa, Ituri, B. C.	1° 44′ N., 30° 37′ E.
Bo, Sierra Leone	7° 57′ N., 11° 48′ W.
Bobandana, Kivu, B. C.	1° 42′ S., 29° 00′ E.
Bobomga Bay, Congo River, Cataracts Dist., B. C.	5° 18′ S., 13° 43′ E.
Bodanga, Ubangi-Shari	5° 34′ N., 16° 45′ E.
Bodo, Fort (Camp de Stanley), Ituri, B. C.	1° 22′ N., 29° 16′ E.
Boduna, Ubangi, B. C.	5° 04′ N., 19° 35′ E.
Boende, Equator Dist., B. C.	0° 14′ S., 20° 50′ E.
Boga, Ituri, B. C.	1° 02′ N., 29° 57′ E.
Boga, on Lufira R., B. C.	9° 40′ S., 27° 07′ E.
Boga Katani (Katavi), Tanganyika Terr.	6° 45′ S., 30° 58′ E.
Bogoro (Buguéra, Bugwéra, Kavalli's), eastern Ituri, B. C.	1° 24′ N., 30° 15′ E.
Bogosland, Eritrea	15° 45′ N., 38° 00′ E.
Bokalakala, Middle Congo, B. C.	2° 05′ S., 16° 24′ E.
Boke, Ituri, B. C.	2° 21′ N., 31° 02′ E.
Boki = Fanjimoro	
Bokuma, Equator Dist., B. C.	1° 08′ S., 18° 49′ E.
Bokungu, Tshuapa Dist., B. C.	0° 45′ S., 22° 25′ E.
Bolengi, Equator Dist., B. C.	0° 00′, 18° 13′ E.
Bolengo (Bulengo), Kivu, B. C.	1° 37′ S., 29° 07′ E.
Bolero, Lake (Bulero, Boleru, Mwuleru), Ruanda	1° 27′ S., 29° 46′ E.
Bolobo, middle Congo River, B. C.	2° 09′ S., 16° 14′ E.
Bolokwa River, Stanleyville, B. C.	1° 23′ N., 25° 30′ E. to 1° 35′ N., 25° 22′ E.
Bolombo, on Congo River, Bangala, B. C.	1° 26′ N., 19° 01′ E.
Bolombo, "north of Lake Kivu," probably = Bolengo	
Bolovet (Bolowet), Ituri, B. C.	0° 55′ N., 29° 56′ E.
Boma, lower Congo River, B. C.	5° 51′ S., 13° 03′ E.
Boma Plateau, southeastern A.-E. Sudan	6° 10′ N., 34° 30′ E.
Boma-Hai (Boma-Hay, Boma-Haek), Aruwimi River, B. C.	1° 30′ N., 25° 06′ E.
Bomakandi River = Bomokandi River	
Bombe (Bombo), Uelle, B. C.	3° 00′ N., 26° 50′ E.
Bombe River, Semliki Valley, B. C.	0° 22′ N., 29° 48′ E. to 0° 29′ N., 29° 39′ E.
Bomboi, on Black Volta River, between Gold Coast and Ivory Coast	8° 09′ N., 2° 02′ W.

Bombwa, Stanleyville, B. C.	1° 51′ N., 25° 40′ E.
Bomili, Stanleyville, B. C.	1° 44′ N., 27° 08′ E.
Bomokandi (Nomayo) River, Uelle, B. C.	2° 25′ N., 29° 36′ E. to 3° 39′ N., 26° 07′ E.
Bompona = Mompono	
Bomu River (Mbomu), Uelle, B. C.	5° 00′ N., 27° 24′ E. to 4° 08′ N., 22° 23′ E.
Bondo (Djabir, Jabbir), Lower Uelle, B. C.	3° 46′ N., 23° 49′ E.
Bondo Mabe, Ituri, B. C.	2° 36′ N., 29° 34′ E.
Bonge, British Cameroons	4° 30′ N., 9° 10′ E.
Bongena, Stanleyville, B. C.	0° 35′ N., 25° 44′ E.
Bongeré (Bongereh, Seriba Ali), Upper Uelle, B. C.	3° 47′ N., 28° 46′ E.
Bongo, Bahr-el-Ghazal	7° 00′ N., 27° 00′ E.
Bongo country, Bahr-el-Ghazal	6° 25′ N. to 7° 30′ N., 26° 50′ E. to 28° 40′ E.
Bongo River = Bussere River	
Bonjo (Bondjoi, Bondzoi), Bangala, B. C.	2° 24′ N., 22° 22′ E.
Bonzo, Ituri, B. C.	0° 17′ N., 29° 21′ E.
Bopu, Ituri, B. C.	0° 53′ N., 29° 51′ E.
Boror, Portuguese East Africa	17° 05′ S., 36° 30′ E. to 17° 30′ S., 36° 43′ E.
Bosobangi (Bafwazabangi, Bosabangi), Ituri, B. C.	1° 27′ N., 27° 37′ E.
Bosodula, Ubangi, B. C.	4° 32′ N., 20° 16′ E.
Bossu (Bossou), French Guinea	7° 38′ N., 8° 30′ W.
Bosum = Bozum	
Bouaké (Buake), Ivory Coast	7° 35′ N., 4° 58′ W.
Bouenza, French Congo	4° 09′ S., 13° 45′ E.
Boutry, Rio (Butre, Butri River), Gold Coast	4° 50′ N., 1° 54′ W.
Bowissa = Buwissa	
Boyulu, Stanleyville, B. C.	1° 01′ N., 27° 06′ E.
Bozum (Bozoum, Bosum), Ubangi-Shari	6° 18′ N., 16° 22′ E.
Bragança, Duque de = Duque de Bragança	
Brazzaville, French Congo	4° 15′ S., 15° 16′ E.
Broken Hill, Northern Rhodesia	14° 27′ S., 28° 26′ E.
Buamba = Bwamba District	
Buamba Pass, Uganda	0° 40′ N., 30° 07′ E.
Buar (Bouar), Ubangi-Shari	5° 55′ N., 15° 30′ E.
"Bube" = Bulu	
Buddu, Uganda	0° 20′ S. to 1° 00′ S., 31° 30′ E. to 31° 52′ E.
Buddu Forest, Tanganyika Terr.	1° 09′ S., 31° 29′ E.
Budja-Lie (Budja-Lia) = Lié	
Budjalibala, Bangala, B. C.	2° 00′ N., 20° 50′ E.
Budjungwe (Bundjugwe), Ituri, B. C.	1° 15′ N., 29° 58′ E.
Budongo, Uganda	1° 40′ N., 31° 35′ E.
Budongo Forest, Uganda	1° 40′ N. to 1° 53′ N., 31° 25′ E. to 31° 41′ E.
"Budunga" = Burunga, Mokoto	
Buea, British Cameroons	4° 10′ N., 9° 12′ E.

Buesa (Buehssa), Ituri, B. C.	1° 29′ N., 29° 54′ E.
Bufi, southern A.-E. Sudan	6° 00′ N., 30° 15′ E.
Bufumbira (Bufumbiro, Kifumbiro), Kigezi Dist., Uganda	1° 18′ S., 29° 36′ E. to 29° 43′ E.
Bufundi, Kigezi Dist., Uganda	1° 17′ S., 29° 55′ E.
Buganda Province, central Uganda	1° 00′ S. to 1° 40′ N., 30° 34′ E. to 33° 25′ E.
Bugarama, Urundi	3° 42′ S., 29° 21′ E.
Bugarama Valley, Bwamba, Uganda	0° 44′ N., 30° 03′ E.
Bugaya (Bugaia) Island, Lake Victoria, Uganda	0° 03′ N., 33° 16′ E.
Bugemaia (Burganesi), western Kenya Col.	0° 10′ S., 35° 05′ E.
Bugeroro (Bugorora), Tanganyika Terr.	1° 13′ S., 31° 34′ E.
Bugoie Forest (Bugoye), Ruanda	1° 42′ S., 29° 25′ E.
Bugoie (Bugoyi, Buoyi), Ruanda	1° 39′ S. to 1° 42′ S., 29° 16′ E. to 29° 21′ E.
Bugoma Forest, western Uganda	1° 14′ N. to 1° 24′ N., 30° 53′ E. to 31° 07′ E.
Bugongo Ridge, west Ruwenzori	0° 21′ N., 29° 50′ E.
Buguéra = Bogoro	
Buhumba (Buhamba), Kivu, B. C.	1° 31′ S., 29° 21′ E.
Bujongolo, eastern Ruwenzori, Uganda	0′ 21′ N., 29° 55′ E.
Bujuku River, Ruwenzori, Uganda	0° 23′ N., 29° 53′ E. to 0° 22′ N., 29° 58′ E.
Bukama, Katanga, B. C.	9° 12′ S., 25° 50′ E.
Bukavu (Costermansville), Kivu, B. C.	2° 30′ S., 28° 50′ E.
"Buki" = Luki in Mayombe	
Bukoba, Lake Victoria, Tanganyika Territory	1° 39′ S., 30° 38′ E.
Bukulumissa, Mt., Kivu, B. C.	2° 21′ S., 28° 43′ E.
Bukurungu, western Uganda	0° 02′ S., 30° 17′ E.
Bulaimu, near Ruwenzori, B. C.	0° 37′ N., 29° 50′ E.
Bulakatoni (Bulukatoni), Uganda	3° 01′ N., 31° 14′ E.
Bulawayo, Southern Rhodesia	20° 07′ S., 28° 36′ E.
Bulero, Lake = Bolero Lake	
Buliha River (Buliba), west Ruwenzori	0° 18′ N., 29° 46′ E.
Bulongwa, Tanganyika Terr.	9° 21′ S., 34° 01′ E.
Bulu, lower Congo River, B. C.	5° 51′ S., 12° 52′ E.
Bulu-Bulu (Bulo Bulo), Bihé Dist., Angola	12° 15′ S. to 12° 30′ S., 16° 30′ E. to 16° 48′ E.
Bumanja, Ituri, B. C.	1° 29′ N., 29° 49′ E.
Bumba, upper Congo River, B. C.	2° 10′ N., 22° 28′ E.
Bumba River (Boumba), Cameroon	3° 18′ N., 14° 00′ E. to 2° 05′ N., 15° 15′ E.
Bumi (Mbumi), Tanganyika Terr.	6° 58′ S., 37° 04′ E.
Bunagana = Munagana	
Bunda, Ubangi-Shari	8° 40′ N., 17° 45′ E.
Bundeko (Bundoko), Semliki Valley, B. C.	0° 52′ N., 29° 55′ E.
Bundibugyo, in Bwamba, western Uganda	0° 43′ N., 30° 04′ E.

Bungulu = Beni, new post of	
Bungulu brook (Tungula River), west Ruwenzori, B. C.	0° 31′ N., 29° 48′ E.
Bunia, eastern Ituri, B. C.	1° 33′ N., 30° 14′ E.
Bunkeya (Bunqueia, Bounkeia), Upper Katanga, B. C.	10° 24′ S., 26° 58′ E.
Bunkeya River, Upper Katanga, B. C.	10° 30′ S., 26° 42′ E. to 10° 05′ S., 27° 17′ E.
Bunyakiri, Kivu, B. C.	2° 10′ S., 28° 34′ E.
Bunyoni (Ngezi), Lake, Kigezi Dist., Uganda	1° 12′ S., 29° 50′ E. to 1° 24′ S., 29° 55′ E.
"Bunyoni," misprint for Runyoni	
Bunyoro (Unyoro), Uganda	1° 04′ N. to 2° 18′ N., 30° 40′ E. to 32° 22′ E.
Bura, Kenya Col.	3° 30′ S., 38° 18′ E.
Burambi, Ruanda	1° 22′ S., 29° 42′ E.
Burigi (Urigi), Lake, Tanganyika Terr.	1° 59′ S., 31° 21′ E. to 2° 11′ S., 31° 24′ E.
Burnt Forest, Kenya Col.	0° 15′ N., 35° 35′ E.
Burumba (Burumbi, Mt. Burumba), southern Uganda	0° 58′ S., 30° 48′ E.
Burunga (Rwaigega), Kivu, B. C.	1° 29′ S., 29° 21′ E.
Burunga, in Mokoto, Kivu, B. C.	1° 20′ S., 29° 01′ E.
Bururi, Urundi	3° 55′ S., 29° 37′ E.
Busanga, Upper Katanga, B. C.	10° 12′ S., 25° 23′ E.
Bushenda = Busuenda	
Bushimaie (Bujimai) River, southern B. C.	8° 45′ S., 23° 05′ E. to 6° 00′ S., 23° 45′ E.
Busindi (Businde), Uganda	1° 43′ N., 32° 05′ E.
Busingizi (Busingisi, Kabaya), Kivu, B. C.	1° 19′ S., 29° 24′ E.
Busongora = Usongora	
Busoro, Ruanda	1° 46′ S., 29° 17′ E.
Bussere River (Busseri, Bongo), Bahr-el-Ghazal	6° 40′ N., 26° 25′ E. to 7° 05′ N., 27° 13′ E.
Bussisi, Tanganyika Terr.	2° 43′ S., 32° 52′ E.
Busso (Bousso, Fort Bretonnet), French Equatorial Africa	10° 34′ N., 16° 44′ E.
Busuenda, Kivu, B. C.	1° 20′ S., 29° 23′ E.
Buta, Lower Uelle, B. C.	2° 48′ N., 24° 47′ E.
Butahu (Butagu) River, Ruwenzori to Semliki Valley, B. C.	0° 22′ N., 29° 53′ E. to 0° 31′ N., 29° 38′ E.
Butalia, Kivu, B. C.	0° 32′ S., 29° 20′ E.
Butanuka, near Ruwenzori, Uganda	0° 32′ N., 30° 12′ E.
Butembo, Kivu, B. C.	0° 08′ N., 29° 17′ E.
Butiaba, on Lake Albert, Uganda	1° 48′ N., 31° 19′ E.
Butiti, Uganda	0° 39′ N., 30° 32′ E.
Butu Polo (Mbutu Polo), Upper Mayombe, B. C.	4° 47′ S., 12° 58′ E.

Butumbi, Kivu, B. C.	0° 40′ S., 29° 35′ E.
Buval (Buvâl), Bahr-el-Ghazal	7° 50′ N., 27° 52′ E.
Buvovo (Buhogo), Ituri, B. C.	1° 09′ N., 29° 59′ E.
Buvuma Island, Lake Victoria, Uganda	0° 05′ N. to 0° 19′ N., 33° 13′ E. to 33° 24′ E.
Buwissa (Bowissa), near Ruwenzori, B. C.	0° 34′ N., 29° 50′ E.
Buyonde, Ruanda	2° 03′ S., 29° 21′ E.
Bwale, Upper Uelle, B. C.	3° 02′ N., 29° 34′ E.
Bwamba District (Buamba, Awamba), Congo-Uganda border	0° 40′ N. to 0° 54′ N., 29° 47′ E. to 30° 10′ E.
Bwanandeke (Bukokoma), Ituri, B. C.	0° 22′ N., 29° 41′ E.
Bwande (Bwandi, Bwando, Bwanda), Ubangi, B. C.	4° 15′ N., 21° 48′ E.
Bwania, Kasai, B. C.	6° 10′ S., 22° 51′ E.
Bweza, Kivu, B. C.	1° 16′ S., 29° 28′ E.
Byihayi (Bihaye, Byahi, Buyhayi, Buyihayi), Ruanda	1° 40′ S., 29° 16′ E.
Cabaco River, Northern Rhodesia	12° 00′ S., 26° 28′ E.
Cabeça do Ladrão (Cabeça de Ladrão, Cabeça de Ladrões), Angola	13° 16′ S., 14° 15′ E.
Cabinda, Portuguese West Africa	5° 33′ S., 12° 11′ E.
Cabinda, Enclave of (Cabinda Dist.)	4° 21′ S. to 5° 46′ S., 12° 01′ E. to 13° 02′ E.
Cacoaco, Angola	8° 46′ S., 13° 21′ E.
Caconda, Angola	13° 44′ S., 15° 04′ E.
Cacongo, north of Congo River mouth	4° 20′ S. to 6° 00′ S., 12° 00′ E. to 13° 30′ E.
Caffraria (Kaffirland, Cafferland, Cafrérie) = southeastern Africa from Natal to Transvaal	
Caffraria inferior (Lower Caffraria) = Natal and eastern Cape Colony	
Caffraria superior = Transvaal and Orange Free State	
Cahata, western Angola	12° 22′ S., 14° 46′ E.
Cahungula (Caungula), Angola	8° 25′ S., 18° 38′ E.
Caiala, Bihé Prov., Angola	12° 19′ S., 17° 08′ E.
Calabar, Southern Nigeria	4° 58′ N., 8° 19′ E.
Calabar Province, Southern Nigeria	4° 26′ N. to 6° 00′ N., 7° 11′ E. to 8° 52′ E.
Camabatela, Angola	8° 19′ S., 15° 27′ E.
Cambambe, Angola	9° 46′ S., 14° 35′ E.
Cambier, Pic (Mongo), Lower Congo	5° 51′ S., 13° 28′ E.
Cambo Caquenje, Bihé Prov., Angola	11° 54′ S., 17° 36′ E.
Cambo River, Angola	9° 25′ S., 16° 56′ E. to 7° 40′ S., 17° 19′ E.
Camdeboo (Camdebo), Cape Prov.	32° 24′ S., 23° 50′ E.
Cameroon (Cameroun, Kamerun, French Cameroon)	1° 35′ N. to 13° 40′ N., 9° 25′ E. to 16° 15′ E.

"Cameroon Delta" = Cameroon River mouth	
Cameroon, Mt. (Mango-ma-Loba)	4° 12′ N., 9° 08′ E.
Cameroon (Cameroun, Camarones) River	4° 05′ N., 9° 45′ E. to 3° 54′ N., 9° 30′ E.
Cameroons = Cameroon; old form, now used for British Cameroons	
Cameroons, British	3° 52′ N., 9° 25′ E. to 12° 30′ N., 14° 12′ E.
Camma River (Setté Cama), Gaboon	2° 31′ S., 9° 46′ E.
Camp Putnam (Epulu), Ituri, B. C.	1° 26′ N., 28° 36′ E.
Campi-ya-Wambutti = Kampi-na-Mambuti	
Canary Islands	27° 35′ N. to 29° 30′ N., 13° 30′ W. to 18° 20′ W.
Canhoca, Angola	9° 15′ S., 14° 35′ E.
Capala (Kapala, Capalla), Angola	13° 35′ S., 14° 44′ E.
Cape Coast Castle, Gold Coast	5° 05′ N., 1° 17′ W.
Cape Colony = Cape Province	
Cape of Good Hope	34° 27′ S., 18° 28′ E.
Cape Province (Cape Colony)	28° 10′ S. to 34° 50′ S., 16° 28′ E. to 30° 11′ E.
Cape Town, Cape Prov.	33° 56′ S., 18° 26′ E.
Cape Verde Islands	14° 50′ N. to 17° 15′ N., 22° 40′ W. to 25° 20′ W.
Capelongo, Angola	14° 54′ S., 15° 06′ E.
Caponda = Kaponda	
Carnot, French Congo	4° 57′ N., 15° 53′ E.
Casamance, southern Senegal	12° 15′ N. to 13° 20′ N., 13° 30′ W. to 16° 50′ W.
Casamance River, southern Senegal	13° 12′ N., 13° 55′ W. to 12° 35′ N., 16° 50′ W.
Caslivami (Kaslivani), Urundi	2° 57′ S., 29° 33′ E.
Cassange (Kassandje, Kasanje), Angola	9° 35′ S., 17° 54′ E.
Cassinga, Angola	15° 07′ S., 16° 04′ E.
Cassongue, Angola	11° 53′ S., 15° 02′ E.
Cassualalla (Cassoalala), Angola	9° 30′ S., 14° 20′ E.
Cataract region, Congo River	4° 19′ S., 15° 14′ E. to 5° 48′ S., 13° 29′ E.
Cataracts District, B. C.	4° 15′ S. to 5° 52′ S., 13° 32′ E. to 15° 17′ E.
Catenque, western Angola	13° 01′ S., 13° 43′ E.
Catumbela (Catumbella), Angola	12° 24′ S., 13° 34′ E.
Cavally River, between Liberia and Ivory Coast	7° 50′ N., 8° 15′ W. to 4° 23′ N., 7° 32′ W.
Cavungu district (Cavungo, Kavungu, Nana Candundo, Nanakandundu), Angola	11° 31′ S., 23° 03′ E.
Cayo, French Congo	4° 52′ S., 12° 02′ E.

Celembi = Selembe	
Chababa = Tshababa	
Chad (Tchad), Lake	12° 30′ N. to 14° 25′ N., 13° 00′ E. to 15° 00′ E.
Chagwe = Kyagwe	
Chagwe Forest = Mabira and neighboring forests of Uganda	
Chahafi (Tshahafi, Tsahafi), Lake, Kigezi Dist., Uganda	1° 21′ S., 29° 46′ E.
Chak-Chak, Bahr-el-Ghazal	8° 41′ N., 26° 52′ E.
Chambezi (Chambeshi, Tshambezi) River, Northern Rhodesia	9° 12′ S., 31° 20′ E. to 11° 42′ S., 29° 51′ E.
Chamo (Gandjule, South or White Abaya), Lake, Abyssinia	5° 50′ N., 37° 41′ E.
Charlesville (Djoko-Punda), Kasai, B. C.	5° 27′ S., 20° 58′ E.
Chavuma, Northern Rhodesia	13° 07′ S., 22° 45′ E.
Chelicut (Schelikot, Tchelikot Salassié), Abyssinia	13° 22′ N., 39° 32′ E.
Cherangani district, Kenya Col.	0° 57′ N. to 1° 33′ N., 35° 13′ E. to 35° 35′ E.
Cherangani Hills, Kenya Col.	0° 55′ N. to 1° 26′ N., 35° 15′ E. to 35° 34′ E.
Cheringoma district, Portuguese East Africa	18° 30′ S. to 19° 05′ S., 34° 50′ E. to 35° 10′ E.
Chesalla Island = Chisalla Island	
Chiansi (Chiancy), Marungu, B. C.	7° 52′ S., 30° 00′ E.
Chibasa, southern Nyasaland	16° 10′ S., 34° 56′ E.
Chibwa (Chibwe), Northern Rhodesia	9° 33′ S., 31° 02′ E.
Chifa = Kifa	
Chikambo = Tshikambo	
Chikonkwelo River, Northern Rhodesia	13° 05′ S., 23° 55′ E. to 13° 47′ S., 24° 09′ E.
Chila, Lake, Northern Rhodesia	8° 50′ S., 31° 23′ E.
Chiloango = Shiloango	
Chilwa, Lake = Shirwa, Lake	
Chimpili Plateau, Northern Rhodesia	10° 06′ S., 30° 25′ E.
Chinchiji = Kinkizi	
Chinchonxo = Chinchoxo	
Chinchoua, Gaboon	0° 00′, 9° 50′ E.
Chinchoxo (Chinchonxo, Tschintschotscho), Enclave of Cabinda	5° 10′ S., 12° 07′ E.
Chingi, Northern Rhodesia	13° 01′ S., 22° 43′ E.
Chingogo = Tshingogo	
Chingoroi, Benguella Prov., Angola	13° 35′ S., 13° 58′ E.
Chinsali, Northern Rhodesia	10° 35′ S., 32° 07′ E.
Chinsambo = Tshisambo	
Chioga, Lake = Kyoga, Lake	
Chipepe, Angola	12° 02′ S., 14° 55′ E.
Chirinda Forest = Selinda, Mt.	
Chiromo, Nyasaland	16° 34′ S., 35° 09′ E.

Chirui Island (Chiluwi), Lake Bangweolo, Northern Rhodesia	11° 06′ S., 29° 53′ E.
Chisalla Island (Chesalla), lower Congo River, B. C.	5° 53′ S., 13° 08′ E.
Chishi Island (Chisi), Lake Bangweolo, Northern Rhodesia	10° 58′ S., 29° 47′ E.
Chisila River (Tchisela, Shisera), Northern Rhodesia	8° 27′ S., 30° 08′ E. to 8° 37′ S., 29° 49′ E.
Chisinga Plateau (Machinga, "Mchinga") northeastern Rhodesia	9° 50′ S., 29° 15′ E.
Chissambo = Tshisambo	
Chitanda, Mt., Uganda	1° 00′ S., 30° 57′ E.
Chitanda River = Cului River, Angola	
Chitau, Angola	11° 13′ S., 17° 07′ E.
Chitlane's, Northern Rhodesia	15° 05′ S., 23° 08′ E.
Chiwakawaka, Lake (Chibakabaka, Kibakabaka), Upper Katanga, B. C.	13° 09′ S., 29° 19′ E.
Chiwali's (Chiwale, Chewalla), Northern Rhodesia	13° 44′ S., 30° 14′ E.
Chobe River (Linyanti), northern Bechuanaland	18° 10′ S., 23° 22′ E. to 17° 48′ S., 25° 15′ E.
Chogoria (Chagoria), east slope of Mt. Kenya	0° 14′ S., 37° 37′ E.
Cholo, Mt., southern Nyasaland	16° 07′ S., 35° 04′ E.
Chor = Khor	
Chutes François Joseph = Franz Joseph Falls	
Chutes Guillaume = Wilhelm Falls	
Chuya, Kigezi Dist., Uganda	1° 17′ S., 29° 49′ E.
Chyulu Hills, Kenya Col.	2° 26′ S., 37° 42′ E. to 2° 49′ S., 37° 58′ E.
Clarence (Port Clarence, Santa Isabel), Fernando Po	3° 45′ N., 8° 49′ E.
Clarence Peak (Owassa, Pico de Santa Isabel), Fernando Po	3° 34′ N., 8° 46′ E.
Colenso, Natal	28° 44′ S., 29° 46′ E.
Comoro Islands, Indian Ocean	11° 15′ S., 43° 15′ E. to 13° 00′ S., 45° 10′ E.
Condé, Enclave of Cabinda	4° 58′ S., 12° 23′ E.
Congo, Belgian	5° 21′ N. to 13° 27′ S., 12° 11′ E. to 31° 19′ E.
Congo District, Angola	5° 50′ S. to 7° 58′ S., 13° 35′ E. to 17° 06′ E.
Congo, French (Moyen Congo), French Equatorial Africa	5° 50′ N. to 5° 00′ S., 11° 10′ E. to 18° 40′ E.
Congo, Kingdom of, northern Angola and western B. C.	5° 35′ S. to 7° 40′ S., 12° 55′ E. to 15° 30′ E.

Congo da Lemba, Lower Congo Dist., B. C.	5° 42′ S., 13° 40′ E.
Congo, Lower = the part of the Belgian Congo lying west of the Inkisi River	
Congo, Middle = the region traversed by the middle Congo River between Stanley Pool and Irebu	
Congo, Portuguese, Angola	5° 50′ S. to 7° 58′ S., and 12° 15′ E. to 17° 06′ E.
Congo River (Zaïre, Ebale)	0° 28′ N., 25° 14′ E. to 6° 05′ S., 12° 20′ E.
Congo River, upper = from Stanley Falls to Irebu	
Congo, Upper = the central basin of the Congo, especially from the Kasai and the Ubangi to the Ituri and Kasongo	
Coquilhatville, on Congo River, B. C.	0° 04′ N., 18° 16′ E.
Costermansville (Bukavu), Kivu, B. C.	2° 30′ S., 28° 50′ E.
Crabs, Island of (Ile des Crabes), Congo River mouth, B. C.	6° 01′ S., 12° 27′ E.
Cradock, eastern Cape Prov.	32° 10′ S., 25° 35′ E.
Cradock Division, eastern Cape Prov.	31° 20′ S. to 32° 34′ S., 24° 50′ E. to 26° 10′ E.
Crampel, Fort, Ubangi-Shari	7° 00′ N., 19° 10′ E.
Crampel, Pic (Kaga Djé), Ubangi-Shari	7° 26′ N., 20° 10′ E.
Crater Highlands, Tanganyika Terr.	2° 43′ S. to 3° 22′ S., 35° 26′ E. to 35° 56′ E.
Cristal, Monts de (Sierra del Crystal), Gaboon and Spanish Guinea	0° 00′, 10° 55′ E. to 1° 50′ N., 10° 25′ E.
Croboe (Krobo) district, Gold Coast	5° 55′ N., 0° 08′ E. to 6° 20′ N., 0° 10′ W.
Crystal Mountains (Monts de Cristal), from French Congo to Angola	4° 20′ S., 13° 45′ E. to 5° 50′ S., 15° 02′ E.
Cuango River = Kwango River	
Cuanza district (Kwanza), Angola	7° 44′ S. to 12° 12′ S., 13° 28′ E. to 16° 45′ E.
Cuanza (Quanza, Kwanza) River, Angola	13° 49′ S., 17° 26′ E. to 9° 20′ S., 13° 11′ E.
Cubango River (Kubango), Angola	12° 43′ S., 16° 03′ E. to 18° 55′ S., 22° 24′ E.
Cugo River (Cugho, Kugo), Angola	6° 34′ S., 16° 23′ E. to 7° 22′ S., 17° 05′ E.
Cuilo River (Cuillo) = Kwilu River, affluent of Kwango River	
Cul-de-Boma, lower Congo River, B. C.	5° 52′ S., 12° 59′ E.
Cului River (Kului, Chitanda, Kasinga), Angola	14° 11′ S., 16° 04′ E. to 16° 02′ S., 15° 12′ E.
Cunene River, Angola	12° 41′ S., 15° 56′ E. to 17° 20′ S., 11° 40′ E.

Cunga, Angola	9° 15′ S., 13° 48′ E.
Cuval River (Rio Cubal da Hanha, Kuvali) Angola	13° 40′ S., 14° 33′ E. to 12° 44′ S., 13° 56′ E.
Cuvo River (Queve), Angola	12° 21′ S., 15° 36′ E. to 10° 49′ S., 13° 46′ E.
Dabaga (Dabaga highland), Tanganyika Terr.	8° 07′ S., 35° 48′ E.
Dabocrom, forested Gold Coast	Probably near 5° 20′ N., 1° 30′ W.
Dagana ("Degama"), Senegal	16° 30′ N., 15° 33′ W.
Dahlak Island (Dahalak, Dahalach Chebir), Red Sea	15° 40′ N., 40° 10′ E.
Dahomey (Dehomi), West Africa	6° 15′ N. to 12° 21′ N., 0° 45′ E. to 3° 50′ E.
Dailami, Arabia	20° 06′ N., 43° 25′ E.
"Daker," misprint = Dakar	
Dakwa, Lower Uelle, B. C.	4° 01′ N., 26° 27′ E.
Damara Pan, Kalahari, Bechuanaland	22° 03′ S., 22° 30′ E.
Damara Plateau, Southwest Africa	19° 30′ S. to 23° 30′ S., 15° 30′ E. to 18° 00′ E.
Damaraland (Damara country), Southwest Africa	18° 30′ S. to 23° 40′ S., 13° 50′ E. to 21° 00′ E.
Dambo, near confluence of Loangwa and Zambesi rivers	15° 40′ S., 29° 38′ E.
Damergu (Damerghu, Damergou), French West Africa	14° 30′ N. to 15° 40′ N., 8° 00′ E. to 9° 40′ E.
Danakil Coast, Eritrea	12° 30′ N., 43° 15′ E. to 15° 00′ N., 40° 30′ E.
Dande River, northern Angola	8° 26′ S., 14° 57′ E. to 8° 27′ S.. 13° 22′ E.
Danger Hill, Muchinga Mountains, Northern Rhodesia	11° 30′ S., 31° 35′ E.
Danger River = Muni River	
Dangila (Danghila), Abyssinia	11° 16′ N., 36° 55′ E.
Danvo, Mt. (Damvo, Damvolo), Congo-Sudan border	4° 30′ N., 28° 59′ E.
Dar-ès-Salaam, coast of Tanganyika Terr.	6° 50′ S., 39° 17′ E.
Darfur, Sudan	9° 20′ N. to 16° 24′ N., 20° 40′ E. to 27° 50′ E.
Daroli = Ginir	
Daroli River, Abyssinia	7° 22′ N., 40° 20′ E. to 7° 23′ N., 42° 19′ E.
Debundja, British Cameroons	4° 05′ N., 8° 58′ E.
Dedza, Nyasaland	14° 22′ S., 34° 22′ E.
Dedza District, Nyasaland	13° 46′ S. to 14° 37′ S., 33° 40′ E. to 34° 48′ E.
Dedza, Mt., Nyasaland	14° 18′ S., 34° 22′ E.

Degama, Southern Nigeria = Degema	
"Degama," Senegal = Dagana	
Degema (Degama), Southern Nigeria	4° 48′ N., 6° 45′ E.
Dele (Ndele), Ituri, B. C.	1° 32′ N., 30° 13′ E.
Demandja, Manyema, B. C.	Supposedly near 4° 10′ S., 26° 30′ E.
Dembea, Abyssinia	12° 12′ N. to 12° 35′ N., 36° 48′ E. to 37° 40′ E.
Dembi (Daimbi), Abyssinia	8° 47′ N., 38° 52′ E.
Dembo, Lower Congo Dist., B. C.	4° 48′ S., 15° 10′ E.
Dembo, Bahr-el-Ghazal	8° 25′ N., 27° 35′ E.
Dembo des Hindous, Upper Katanga, B. C.	11° 38′ S., 27° 32′ E.
Dembo des Pères (Dembo Schmidt), Upper Katanga, B. C.	11° 38′ S., 27° 28′ E.
Denge, Upper Uelle, B. C.	3° 33′ N., 28° 13′ E.
Denkera, Gold Coast	5° 50′ N. to 6° 00′ N., 1° 41′ W. to 2° 01′ W.
Desertas Islands, Madeira group	32° 25′ N., 16° 30′ W.
Diapanda, Ituri, B. C.	0° 48′ N., 29° 05′ E.
Dibaya, Kasai, B. C.	6° 30′ S., 22° 56′ E.
Didinga Mountains (Dodinga, Didinga Hills), southeastern A.-E. Sudan	4° 20′ N., 33° 30′ E.
Diélé (Diele), French Congo	1° 39′ S., 14° 43′ E.
Dika, Upper Uelle, B. C.	4° 16° N., 27° 42′ E.
Dikulwe (Dikuluwe, Likulwe) River, Katanga, B. C.	10° 56′ S., 26° 24′ E. to 9° 39′ S., 27° 09′ E.
Dilolo (Dilolo Gare) Lulua Dist., B. C.	10° 42′ S., 22° 20′ E.
Dilolo, Lake, Angola	11° 32′ S., 22° 03′ E.
Dilolo Mission, Lulua Dist., B. C.	10° 28′ S., 22° 27′ E.
Dima, Kwango Dist., B. C.	3° 16′ S., 17° 29′ E.
Dimarina (Demarina), Ituri, B. C.	1° 41′ N., 30° 24′ E.
Dingila, Lower Uelle, B. C.	3° 34′ N., 26° 04′ E.
Djabir = Bondo	
Djalasiga, Upper Uelle, B. C.	2° 34′ N., 30° 32′ E.
Djalasinda, Ituri, B. C.	2° 10′ N., 30° 53′ E.
Djamba, Lower Uelle, B. C.	2° 51′ N., 24° 05′ E.
Djambala (Jamballa), French Congo	2° 30′ S., 14° 45′ E.
Djam Djam (JamJam), southwestern Abyssinia	6° 00′ N. to 7° 15′ N., 38° 30′ E. to 39° 45′ E.
Djanda (Njanda), A.-E. Sudan	3° 35′ N., 30° 55′ E.
Djang (Dschang, Jang), Cameroon	5° 28′ N., 10° 03′ E.
Djapanda, Ituri, B. C.	1° 04′ N., 28° 40′ E.
Djaposten (Dja Post, Bal, Ebal), Cameroon	3° 25′ N., 13° 28′ E.
Djelube River (Nzeruve), west Ruwenzori, B. C.	0° 30′ N., 29° 43′ E.
Djiapanda = Diapanda or Djapanda (a road fork, Nzia-panda, in Kingwana)	
Djimma = Jimma	
Djobulo River (Nzobulu, Inzobulu), west Ruwenzori, B. C.	0° 35′ N., 29° 44′ E.

Djoko-Punda = Charlesville	
Djomba, Kivu, B. C.	1° 16′ S. to 1° 20′ S., 29° 31′ E. to 29° 36′ E.
Djongo-Sanga, Lake Leopold II, B. C.	3° 54′ S., 21° 09′ E.
Djugu, Ituri, B. C.	1° 55′ N., 30° 30′ E.
Djuma, Kwango Dist., B. C.	4° 13′ S., 18° 20′ E.
Djur District, Bahr-el-Ghazal	6° 45′ N. to 7° 45′ N., 28° 00′ E. to 29° 30′ E.
Djur (Jur) River, Bahr-el-Ghazal	6° 50′ N., 27° 58′ E. to 9° 05′ N., 29° 30′ E.
Dobo, Bangala, B. C.	2° 13′ N., 22° 10′ E.
Dodinga = Didinga Mountains	
Dodoma, Tanganyika Terr.	6° 08′ S., 35° 45′ E.
Dogge, Italian Somaliland	1° 37′ N., 42° 28′ E.
Dogodo, southern Kivu, B. C.	4° 43′ S., 28° 40′ E.
Dogodo River, southern Kivu, B. C.	4° 56′ S., 28° 58′ E. to 4° 43′ S., 28° 40′ E.
Doinyo Erok = Donje Erok	
Dolisie (Loubomo), French Congo	4° 13′ S., 12° 40′ E.
Dombe, Angola	12° 50′ S. to 13° 10′ S., 12° 55′ E. to 13° 35′ E.
Don Carlos I, Fort = Tembo Aluma	
Donenkeng, Cameroon	4° 35′ N., 11° 05′ E.
Dongo, Ubangi Dist., B. C.	2° 44′ N., 18° 26′ E.
Dongola, A.-E. Sudan	16° 30′ N. to 19° 45′ N., 24° 00′ E. to 32° 45′ E.
Dongotona Mountains, southeastern A.-E. Sudan	4° 15′ N., 33° 05′ E.
Dongu, Upper Uelle, B. C.	3° 49′ N., 29° 01′ E.
Donje Erok (Donye Erok, Ol Doinyo Narok, Dönje Erok), Kenya Col.	2° 30′ S., 36° 45′ E.
Doruma, Upper Uelle, B. C.	4° 43′ N., 27° 39′ E.
Douala = Duala	
Doughe River = Okavango River	
Doumé, Ogowé R., Gaboon	1° 00′ S., 13° 04′ E.
Doumé, Cameroon = Dume	
Drakensberg, eastern Transvaal	27° 50′ S., 29° 45′ E. to 30° 15′ S., 28° 20′ E.
Dramba, Upper Uelle, B. C.	3° 41′ N., 30° 22′ E.
Dschang (Djang, Jang), Cameroon	5° 28′ N., 10° 03′ E.
Du River, Liberia	6° 29′ N., 10° 23′ W. to 6° 12′ N., 10° 28′ W.
Duala (Douala), Cameroon	4° 02′ N., 9° 43′ E.
Dubona (Dubwona), western Uganda	0° 33′ N., 30° 11′ E.
Du Chaillu Mountains, Gaboon	1° 10′ S., 11° 40′ E. to 2° 10′ S., 12° 45′ E.
Dufile, northern Uganda	3° 34′ N., 31° 59′ E.
Duki River = Shari River, eastern Ituri, B. C.	
Dukwia (Duquea) River, Liberia	7° 05′ N., 9° 30′ W. to 6° 12′ N., 10° 30′ W.

Duma, Ubangi, B. C.	3° 53′ N., 18° 42′ E.
Dumba, Kasai, B. C.	5° 28′ S., 19° 38′ E.
Dumbi, Kasai, B. C.	5° 31′ S., 21° 02′ E.
Dume (Doumé), Cameroon	4° 18′ N., 13° 28′ E.
Dundazi, on Lake Kivu, B. C.	2° 24′ S., 28° 50′ E.
Dundu (Dundo), northeastern Angola	7° 21′ S., 20° 49′ E.
Dungu, Upper Uelle, B. C.	3° 37′ N., 28° 33′ E.
Dungu River, Upper Uelle, B. C.	3° 35′ N., 30° 28′ E. to 3° 37′ N., 28° 33′ E.
Duque de Bragança (Braganza), northern Angola	8° 58′ S., 16° 06′ E.
Durban (Port Natal), Natal	29° 50′ S., 31° 00′ E.
Duru River, Upper Uelle, B. C.	4° 05′ N., 29° 06′ E. to 3° 45′ N., 28° 01′ E.
Dwars Mountains, western Transvaal	24° 45′ S., 26° 20′ E.
Dweru, Lake = George, Lake	
Eala, Equator Dist., B. C.	0° 04′ N., 18° 18′ E.
Ebolowa (Ebolovoa, Ebolewo'o), Cameroon	3° 00′ N., 11° 10′ E.
Edea, Cameroon	3° 45′ N., 10° 08′ E.
Edward (Albert Edward), Lake	0° 05′ N. to 0° 41′ S., 29° 18′ E. to 29° 53′ E.
Efandu, Aruwimi Dist., B. C.	1° 45′ N., 23° 10′ E.
Efayong, Cameroon	2° 50′ N., 13° 13′ E.
Efulen (Efulan, Efoulen), Cameroon	2° 42′ N., 10° 30′ E.
Egypt	21° 40′ N. to 31° 30′ N., 24° 50′ E. to 35° 50′ E.
Ekaturaka = Ukaturaka	
Ekibondo, Upper Uelle, B. C.	3° 32′ N., 28° 24′ E.
Ekundu, British Cameroons	4° 43′ N., 8° 49′ E.
El Dueim, on White Nile, A.-E. Sudan	13° 58′ N., 32° 20′ E.
El Fasher, Darfur	13° 38′ N., 25° 20′ E.
Elat, Cameroon	2° 59′ N., 11° 11′ E.
Eldama Ravine (Ravine Station), Kenya Col.	0° 02′ N., 35° 44′ E.
Eldoret, Kenya Col.	0° 32′ N., 35° 16′ E.
Elephant's Vley (Olifantskloof), Southwest Africa	22° 20′ S., 20° 00′ E.
Elephant's Vley (Verneuk Pan), Cape Prov.	30° 00′ S., 21° 05′ E.
Elgeyu Escarpment (Elgeyo), Kenya Col.	0° 12′ N., 35° 40′ E. to 0° 55′ N., 35° 36′ E.
Elgon, Mt. (Masaba, Masawa), border of Uganda and Kenya Col.	1° 06′ N., 34° 34′ E.
Elgonyi, Kenya Col.	0° 58′ N., 34° 40′ E.
Elila River, Kivu, B. C.	3° 40′ S., 28° 58′ E. to 2° 46′ S., 25° 56′ E.
Elipa, Aruwimi, B. C.	1° 01′ S., 24° 20′ E.
Elisabetha, Aruwimi, B. C.	1° 09′ N., 23° 37′ E.
Elisabethville, Upper Katanga, B. C.	11° 40′ S., 27° 28′ E.
Elmenteita, Lake, Kenya Col.	0° 27′ S., 36° 15′ E.
Elmina (St. George-de-la-Mina), Gold Coast	5° 04′ N., 1° 22′ W.

Embomma = Boma, Lower Congo, B. C.	
Embu, Kenya Col.	0° 31′ S., 37° 26′ E.
Emin, Mt., Ruwenzori	0° 26′ N., 29° 54′ E.
Emogadung, A.-E. Sudan	4° 12′ N., 33° 08′ E.
Endoto (Ndoto) Mountains, Kenya Col.	1° 35′ N. to 1° 52′ N., 36° 57′ E. to 37° 23′ E.
Enguatuara, Stanleyville, B. C.	1° 42′ N., 26° 47′ E.
Entebbe (Ntebi), Uganda	0° 04′ N., 32° 28′ E.
Entschetqab (Entschetkab), Abyssinia	13° 08′ N., 38° 10′ E.
Epiwi River, Ituri, B. C.	1° 27′ N., 28° 16′ E.
Epulu (Camp Putnam), Ituri, B. C.	1° 26′ N., 28° 36′ E.
Epulu River (Ihuru), Ituri, B. C.	2° 27′ N., 29° 41′ E. to 1° 14′ N., 28° 20′ E.
Equateurville, Equator Dist., B. C.	0° 02′ N., 18° 14′ E.
Equator (Equateur) District, B. C.	0° 50′ N. to 2° 34′ S., 17° 22′ E. to 24° 24′ E.
Equatorial Province, A.-E. Sudan	1° 50′ N. to 7° 45′ N., 27° 00′ E. to 33° 40′ E.
Eritrea (Erythrée)	12° 20′ N., 43° 15′ E. to 18° 00′ N., 37° 00′ E.
Erok = Donje Erok	
Esamesa, southern Cameroon	2° 47′ N., 13° 23′ E.
Escarpment, Kenya Col.	1° 01′ S., 36° 36′ E.
Eschira (Ashira) Country, Gaboon	1° 30′ S. to 1° 55′ S., 10° 05′ E. to 11° 10′ E.
Essebi, Upper Uelle, B. C.	2° 57′ N., 30° 39′ E.
Ethiopia = in ancient times a region near the Nile, extending from 10° N. to 24° N.; in recent years the official name for Abyssinia (*q. v.*)	
Etoile Mine (Etoile du Congo), Upper Katanga, B. C.	11° 38′ S., 27° 34′ E.
Etoumbi, French Congo	0° 00′, 14° 50′ E.
Eturi = Ituri River	
Evare (Evary, Eury, Evale, Evaré), southern Angola	16° 05′ S. to 16° 35′ S., 15° 44′ E. to 16° 10′ E.
Ewo (Evo, Eouo), French Congo	0° 50′ S., 14° 48′ E.
Fadibek (Falibek), Uganda	3° 29′ N., 32° 37′ E.
Fadjulli (Pajule), northern Uganda	2° 58′ N., 32° 55′ E.
Fajao, Uganda	2° 16′ N., 31° 41′ E.
False Bay, Cape Prov.	34° 04′ S., 18° 40′ E.
Fanigoro (Panyigoro), northwestern Uganda	2° 20′ N., 31° 24′ E.
Fanjimoro (Boki), northwestern Uganda	2° 11′ N., 31° 17′ E.
Fanti (Fantee), Gold Coast	5° 10′ N. to 5° 30′ N., 1° 12′ W. to 1° 20′ E.
Faradjak = Faradjok	
Faradje (Faraje, Faraggi), Upper Uelle, B. C.	3° 45′ N., 29° 42′ E.
Faradjok, northern Uganda	3° 40′ N., 32° 28′ E.
Fashoda (Kodok), A.-E. Sudan	9° 52′ N., 32° 07′ E.

Fataki, Ituri, B. C.	0° 58′ N., 29° 38′ E.
Fatiko, Uganda	3° 02′ N., 32° 20′ E.
Fayoum (Fajum, El Faiyûm), Egypt	29° 05′ N. to 29° 35′ N., 30° 28′ E. to 31° 13′ E.
Fazogli (Fasogli), A.-E. Sudan	11° 15′ N., 34° 45′ E.
Fernan Vaz (Fernand Vaz, Omboué), Gaboon	1° 35′ S., 9° 15′ E.
Fernando Po Island, Gulf of Guinea	3° 13′ N. to 3° 48′ N., 8° 24′ E. to 8° 58′ E.
Fetish Rock (Cap Fétiche), lower Congo River, Angola	5° 55′ S., 12° 58′ E.
Fife (Mwenzo), northeastern Rhodesia	9° 18′ S., 32° 40′ E.
Fiko, French West Africa	14° 24′ N., 3° 50′ W.
Fish River, Great = Great Fish River	
Foda, Uganda	2° 14° N., 32° 00′ E.
Fola Rapids, A.-E. Sudan	3° 38′ N., 31° 56′ E.
Fongu (Fongu's), Cameroon	5° 50′ N., 10° 10′ E.
Forest northwest of Lake Tanganyika = Urwald westlich vom Tanganjika-See	
Fort Archambault = Archambault, Fort	
Fort Beni = Beni, old	
Fort Bodo = Bodo, Fort	
Fort Bretonnet = Busso	
Fort Crampel = Crampel, Fort	
Fort Don Carlos I = Tembo Aluma	
Fort George = Katwe	
Fort Gerry = Portal, Fort	
Fort Hall = Hall, Fort	
Fort Hill = Hill, Fort	
Fort Jameson = Jameson, Fort	
Fort Johnston = Johnston, Fort	
Fort Portal = Portal, Fort	
Fort Rousset = Rousset, Fort	
Fort Sibut = Sibut, Fort	
Fort Ternan = Ternan, Fort	
Fouta Djalon (Fouta Djallon, Futa Djallon, Futa Jalon, Futa Jallon) French Guinea	10° 30′ N. to 11° 40′ N., 11° 00′ W. to 13° 40′ W.
Foweira (Fovira), Uganda	2° 10′ N., 32° 18′ E.
Franceville, French Congo	1° 40′ S., 13° 35′ E.
Franz Joseph Falls, Kwango River, Angola-Congo border	7° 35′ S., 17° 13′ E.
Fraserburg Division, Cape Prov.	30° 00′ S. to 32° 30′ S., 20° 24′ E. to 22° 18′ E.
Freetown, Sierra Leone	8° 30′ N., 13° 12′ W.
French Equatorial Africa	22° 35′ N. to 4° 55′ S., 8° 45′ E. to 27° 27′ E.
Fua (Fwa, Foa) River, Kasai, B. C.	5° 42′ S., 23° 17′ E. to 5° 40′ S., 23° 26′ E.
Fuku River, Kivu, B. C.	1° 11′ S., 29° 31′ E. to 1° 12′ S., 29° 26′ E.

Fumban, Cameroon	5° 40′ N., 10° 50′ E.
Fumu Djale, middle Congo River, B. C.	3° 24′ S., 16° 11′ E.
Funda Biabo, Katanga, B. C.	9° 50′ S., 25° 32′ E.
Fundo, Mayombe, B. C.	5° 08′ S., 12° 32′ E.
Fung Province, A.-E. Sudan	9° 30′ N. to 13° 40′ N., 32° 45′ E. to 35° 50′ E.
Fungurume, Upper Katanga, B. C.	10° 39′ S., 26° 18′ E.
Furancungo, Portuguese East Africa	14° 50′ S., 33° 40′ E.
Futa Jallon = Fouta Djalon	
Futwe, Upper Katanga, B. C.	12° 16′ S., 29° 34′ E.
Gaba Shambe, Bahr-el-Jebel	7° 10′ N., 30° 45′ E.
Gabiro, Ruanda	1° 32′ S., 30° 25′ E.
Gaboon (Gabon, Gabun)	2° 18′ N. to 4° 00′ S., 8° 33′ E. to 14° 25′ E.
Gaboon River	0° 10′ N., 9° 59′ E. to 0° 21′ N., 9° 21′ E.
Gada River (Gadda), Upper Uelle, B. C.	3° 12′ N., 28° 50′ E. to 3° 42′ N., 27° 51′ E.
Gada River, northern Ituri, B. C.	2° 25′ N., 27° 49′ E. to 2° 07′ N., 27° 35′ E.
Gahinga (Mgahinga), Mt., Kivu	1° 22′ S., 29° 39′ E.
Gaima, Mt., Upper Uelle, B. C.	3° 15′ N., 29° 17′ E.
Galago, Lake = Karago, Lake	
Galam, Senegal	14° 00′ N., 11° 40′ W.
Galanga, Benguella Prov., Angola	12° 08′ S., 15° 19′ E.
Gallabat, eastern A.-E. Sudan	12° 58′ N., 36° 05′ E.
Gallaland, Abyssinia and Kenya Col.	3° 30′ N. to 5° 00′ N., 38° 30′ E. to 41° 30′ E.
Gamangui (Gamangwe), Ituri, B. C.	2° 10′ N., 27° 15′ E.
Gambaga, Gold Coast	10° 31′ N., 0° 28′ W.
Gambia River	11° 45′ N., 11° 20′ W. to 13° 29′ N., 16° 34′ W.
Gambia River Colony	13° 10′ N. to 13° 45′ N., 13° 50′ W. to 16° 48′ W.
Gamboma, French Congo	1° 51′ S., 15° 59′ E.
Gambos (Chibemba), southern Angola	15° 45′ S., 14° 05′ E.
Ganale River = Juba River	
Ganda, Manyema, B. C.	3° 28′ S., 25° 25′ E.
Ganda Sundi, Mayombe, B. C.	4° 52′ S., 12° 52′ E.
Gandajika, Lomami, B. C.	6° 44′ S., 23° 57′ E.
Gandjo, Kivu, B. C.	1° 23′ S., 29° 02′ E.
Gandjule (Chamo, Ruspoli, South, or White Abaya), Lake, southern Abyssinia	5° 50′ N., 37° 40′ E.
Gando (Ngando), Lake, Ruanda	1° 36′ S., 29° 24′ E.
Ganga-Ginga, northwestern Angola	6° 05′ S., 12° 57′ E.
Gangara-na-Bodjo (Gangala-na-Bodio), Upper Uelle, B. C.	3° 41′ N., 29° 08′ E.
Gangere-tambu, Upper Uelle, B. C.	3° 47′ N., 28° 45′ E.
Gango = Gandjo	
Gangu River, Upper Uelle, B. C.	3° 28′ N., 29° 24′ E. to 3° 40′ N., 29° 19′ E.

Gangura, Upper Uelle, B. C.	3° 28′ N., 29° 28′ E.
Ganza, Upemba National Park, B. C.	9° 13′ S., 26° 37′ E.
Garamba, on Congo-Sudan border	4° 11′ N., 30° 00′ E.
Garamba National Park, B. C.	3° 40′ N. to 4° 40′ N., 28° 44′ E. to 30° 05′ E.
Garamba River, Upper Uelle, B. C.	4° 11′ N., 30° 00′ E. to 3° 55′ N., 29° 09′ E.
Gardulla, southern Abyssinia	5° 37′ N., 37° 25′ E.
Gargues (Uraguess, Baragues), Mt., Kenya Col.	0° 56′ N., 37° 24′ E.
Gariep River = Orange River	
Garua (Garoua), northern Cameroon	9° 20′ N., 13° 20′ E.
Gasa Hills (Gaza Mountains), Tanganyika Terr.	5° 05′ S., 35° 46′ E.
Gato River, Abyssinia	5° 30′ N., 37° 30′ E.
Gatsibu, northeastern Ruanda	1° 35′ S., 30° 14′ E.
Gaza, French Congo	4° 46′ N., 15° 11′ E.
Gazaland, in southern Portuguese East Africa and Southern Rhodesia	19° 40′ S. to 23° 30′ S., 31° 40′ E. to 34° 20′ E.
Gazi (Gasi), Kenya Col.	4° 26′ S., 39° 30′ E.
Genderu Mountains, Cameroon	7° 22′ N., 12° 05′ E.
George, Fort = Katwe	
George, Lake (Ruisamba, Dweru), Uganda	0° 10′ N. to 0° 10′ S., 30° 03′ E. to 30° 36′ E.
German East Africa = Tanganyika Terr. and Ruanda-Urundi	
Gerry, Fort = Fort Portal	
Gessi, Mt., Ruwenzori	0° 25′ N., 29° 55′ E.
Geti, eastern Ituri, B. C.	1° 11′ N., 30° 10′ E.
Ghati Sati (Ghadi Saati, Ghati Saati), on Mareb River, border of Abyssinia and Eritrea	14° 48′ N., 39° 04′ E.
Gikongoro (Gikorongo), Ruanda	2° 29′ S., 29° 34′ E.
Gilgil, Kenya Col.	0° 29′ S., 36° 18′ E.
Gilly = Apoyo	
Ginir (Daroli), Abyssinia	7° 12′ N., 40° 34′ E.
Giri River = Ngiri River	
Gitega = Kitega	
Gitti, Khor, Bahr-el-Ghazal	7° 50′ N., 27° 40′ E.
Gobabis, Southwest Africa	22° 30′ S., 18° 58′ E.
Gofa, southern Abyssinia	6° 15′ N., 36° 40′ E.
Gold Coast, West Africa	4° 40′ N. to 11° 05′ N., 3° 15′ W. to 1° 05′ E.
Golo = Gulu	
Golungo Alto, northern Angola	9° 07′ S., 14° 40′ E.
Goma (Ngoma), Kivu, B. C.	1° 41′ S., 29° 13′ E.
Gombari, Upper Uelle, B. C.	2° 43′ N., 29° 04′ E.
Gombe = Ngombe	
Gombe Lutete = Ngombe Lutete	
Gombiri Mountains (Mt. Gumbiri), southern A.-E. Sudan	4° 20′ N., 30° 55′ E.

Gomit River, Abyssinia	11° 08′ N., 38° 05′ E.
Gonda = Igonda	
Gondar, Abyssinia	12° 36′ N., 37° 30′ E.
Gondokoro, southern A.-E. Sudan	4° 55′ N., 31° 40′ E.
Gongo River = Gangu River	
Gongola (Gende, Gongila) River, Northern Nigeria	9° 46′ N., 9° 36′ E. to 9° 31′ N., 12° 05′ E.
Gonja Plain (Gonya, Gonga Plains), Tanganyika Terr.	4° 16′ S., 38° 04′ E.
Good Hope, Cape of, Cape Prov.	34° 20′ S., 18° 30′ E.
Goré, western Abyssinia	8° 05′ N., 35° 30′ E.
Goré, Ubangi-Shari	7° 55′ N., 16° 42′ E.
Gote = Ngote	
Gounguru, French Equatorial Africa	3° 45′ N., 16° 02′ E.
Goz Abu Guma, A.-E. Sudan	13° 10′ N., 32° 40′ E.
Graaff Reinet, Cape Prov.	32° 15′ S., 24° 30′ E.
Grahamstown, Cape Prov.	33° 22′ S., 26° 30′ E.
"Grande," "Grando" = Ivindo	
Great Fish River, eastern Cape Prov.	32° 13′ S., 25° 58′ E. to 33° 30′ S., 27° 10′ E.
Great Rift Valley (Eastern Rift Valley)	32° 30′ N., 35° 36′ E. to 3° 30′ S., 36° 00′ E.
Gribingui River, Ubangi-Shari	6° 40′ N., 19° 35′ E. to 8° 40′ N., 19° 10′ E.
Grimari, Ubangi-Shari	5° 35′ N., 20° 06′ E.
Griqualand East, eastern Cape Prov.	29° 50′ S. to 31° 30′ S., 28° 50′ E. to 30° 10′ E.
Griqualand West, South Africa	27° 45′ S. to 29° 45′ S., 22° 00′ E. to 25° 00′ E.
Grumeti River, northern Tanganyika Terr.	1° 52′ S., 35° 10′ E.
Guas Ngishu = Uasin Gishu	
Guaso Masa (Guaso Masai), Kenya Col.	0° 40′ N., 34° 55′ E.
Guaso Nyiro, Northern (Northern Uaso Nyiro, Waso, Engare Uaso Nyiro), Kenya Col.	0° 20′ S., 36° 33′ E. to 1° 11′ N., 39° 34′ E.
Guaso Nyiro, Southern (Southern Uaso Nyiro, Ewasa), Kenya Col.	0° 29′ S., 35° 49′ E. to 2° 08′ S., 36° 02′ E.
Gudima, Upper Uelle, B. C.	3° 10′ N., 29° 30′ E.
Guillaume, Chutes = Wilhelm Falls	
Guinea Forest, Lower = rain-forest area extending from Lower Guinea coast eastward to Ituri and Kivu districts of the Congo and southward to the Kasai	
Guinea Forest, Upper = rain-forest area between Portuguese Guinea and Southern Nigeria	
Guinea, French	7° 40′ N. to 12° 40′ N., 7° 40′ W. to 15° 05′ W.

Guinea, Lower = humid western Africa from the Cameroon to mouth of Congo River	
Guinea, Portuguese	10° 55′ N. to 12° 45′ N., 13° 40′ W. to 16° 50′ W.
Guinea, Spanish (Rio Muni)	1° 00′ N. to 2° 15′ N., 9° 20′ E. to 11° 15′ E.
Guinea, Upper = coastlands of western Africa from Senegal to Calabar	
Gulu (Ngolo, Golo), Lulua, B. C.	9° 03′ S., 24° 47′ E.
Gulu, Uganda	2° 47′ N., 32° 26′ E.
Gundulei (Gunguleï), Ituri, B. C.	1° 28′ N., 29° 56′ E.
Gunnal, Portuguese Guinea	12° 15′ N., 15° 45′ W.
Gurba-Dungu, Zone of, Upper Uelle, B. C.	2° 44′ N. to 5° 02′ N., 26° 42′ E. to 30° 57′ E.
Gurba (Guruba) River, Upper Uelle, B. C.	4° 46′ N., 27° 47′ E. to 3° 55′ N., 27° 14′ E.
Gurui (Hanang), Mt., Tanganyika Terr.	4° 25′ S., 35° 24′ E.
Gwane, northern Uelle, B. C.	4° 42′ N., 25° 53′ E.
Gwangi, Lower Uelle, B. C.	3° 28′ N., 24° 47′ E.
Gwani (Gwoni), Northern Nigeria	10° 30′ N., 11° 28′ E.
Gwaos (Gwao's village), Tanganyika Terr.	5° 07′ S., 34° 47′ E.
Hadramaut (Hadhramaut), Arabia	14° 00′ N., 48° 00′ E. to 16° 30′ N., 52° 15′ E.
Hago, Northern Nigeria	12° 20′ N., 9° 52′ E.
Hakansson Mountains, Katanga, B. C.	8° 15′ S., 26° 08′ E. to 8° 48′ S., 25° 40′ E.
Hakitengya, Bwamba, Uganda	0° 45′ N., 30° 03′ E.
Hall, Fort, Kenya Col.	0° 43′ S., 37° 09′ E.
Hamanskraal (Saltpannan), Transvaal	25° 28′ S., 28° 15′ E.
Handeni, Tanganyika Terr.	5° 28′ S., 38° 04′ E.
Hannington, Lake, Kenya Col.	0° 15′ N., 36° 06′ E.
Harar, Abyssinia	9° 18′ N., 42° 10′ E.
Haussa Land, Northern Nigeria	10° 40′ N. to 13° 00′ N., 4° 10′ E. to 11° 15′ E.
Haut Luapula District (Upper Katanga, Upper Luapula), B. C.	9° 05′ S. to 13° 28′ S., 24° 50′ E. to 29° 50′ E.
Haute-Kémo = Kémo River	
Hawa, Mt., eastern Uelle, B. C.	2° 48′ N., 30° 41′ E.
Hawash River (Awash), Abyssinia	9° 00′ N., 38° 00′ E. to 11° 45′ N., 41° 30′ E.
Hay District, Cape Prov.	28° 10′ S. to 29° 16′ S., 22° 00′ E. to 23° 42′ E.
Helgoland, New (Lihahe), Tanganyika Terr.	11° 04′ S., 34° 38′ E.
Hemptinne-St. Benoît, Kasai, B. C.	6° 17′ S., 22° 30′ E.
Hill, Fort, northern Nyasaland	9° 43′ S., 33° 17′ E.
Hima River, Toro, Uganda	0° 22′ N., 30° 04′ E. to 0° 13′ N., 30° 12′ E.
Hinna (Kina), Northern Nigeria	10° 23′ N., 11° 27′ E.
Hoima, Uganda	1° 26′ N., 31° 21′ E.

Holulu (Hululu, Ululu) River, southwest Ruwenzori, B. C.	0° 12′ N., 29° 46′ E. to 0° 11′ N., 29° 39′ E.
Holy Family Mission = Mission de la Sainte Famille	
"Hparo" = Mparo	
Huambo (Nova Lisboa), Angola	12° 47′ S., 15° 48′ E.
Huilla, Angola	15° 08′ S., 13° 34′ E.
Hululu River = Holulu River	
Humia River, Ruwenzori, Uganda	0° 40′ N., 30° 07′ E. to 0° 46′ N., 30° 02′ E.
Humpata, Angola	15° 01′ S., 13° 23′ E.
Huxe = Uchi	
Ibambi, northern Ituri, B. C.	2° 23′ N., 27° 36′ E.
Ibanda, Kivu, B. C.	2° 40′ S., 28° 45′ E.
Ibba, southern Bahr-el-Ghazal	4° 47′ N., 29° 07′ E.
Ibembo, Lower Uelle, B. C.	2° 35′ N., 23° 37′ E.
Ibi, Northern Nigeria	8° 10′ N., 9° 45′ E.
Ibina River, Ituri, B. C.	0° 14′ N., 29° 26′ E. to 1° 02′ N., 28° 40′ E.
Ibu, Upper Uelle, B. C.	3° 43′ N., 30° 15′ E.
Ibulangulu, Northern Rhodesia	13° 06′ S., 30° 29′ E.
"Ichgasi" = Tingasi	
Idda (Idah), Nigeria	7° 07′ N., 6° 42′ E.
Idiofa, Kasai, B. C.	4° 58′ S., 19° 33′ E.
Idjwi (Kwidjwi) Island, Lake Kivu, B. C.	1° 55′ S., 29° 06′ E. to 2° 17′ S., 29° 01′ E.
Ifafa River, Natal	30° 17′ S., 30° 17′ E. to 30° 25′ S., 30° 40′ E.
Igabi (Igaba), Northern Nigeria	10° 46′ N., 7° 45′ E.
Igale (Igali), Tanganyika Terr.	9° 06′ S., 33° 26′ E.
Igonda (Gonda), Tanganyika Terr.	5° 33′ S., 32° 40′ E.
Ihangiro, Tanganyika Terr.	1° 37′ S., 31° 18′ E. to 2° 16′ S., 31° 33′ E.
Ihuru River = Epulu River	
Iju, Southern Nigeria	6° 30′ N., 3° 15′ E.
Ikanga, Semliki Valley, B. C.	0° 30′ N., 29° 34′ E.
Ikau, Lulonga Dist., B. C.	1° 15′ N., 19° 44′ E.
Ikela, Tshuapa Dist., B. C.	1° 08′ S., 23° 05′ E.
Ikengo, Equator Dist., B. C.	0° 08′ S., 18° 08′ E.
Ikoko (Ikoko Bonginda), Equator, B. C.	0° 38′ S., 18° 04′ E.
Ikoma, Tanganyika Terr.	2° 05′ S., 34° 38′ E.
Ikoma District, Tanganyika Terr.	1° 55′ S. to 2° 15′ S., 34° 25′ E. to 34° 58′ E.
Ikoto, A.-E. Sudan	4° 04′ N., 33° 06′ E.
Ikuru Island, Lake Victoria	2° 16′ S., 32° 33′ E.
Ilando, Aruwimi Dist., B. C.	1° 01′ N., 23° 58′ E.
Ilorin (Illorin), Nigeria	8° 30′ N., 4° 32′ E.
Ilorin Province, Nigeria	8° 00′ N. to 9° 15′ N., 4° 10′ E. to 5° 45′ E.
Ilula (Ilola), Tanganyika Terr.	3° 16′ S., 33° 18′ E.

Imatong Mountains, southeastern A.-E. Sudan	3° 58′ N., 33° 00′ E. to 4° 12′ N., 32° 42′ E.
Imburru, Lower Uelle, B. C.	3° 28′ N., 24° 28′ E.
Impfondo (Desbordesville), French Congo	1° 35′ N., 18° 03′ E.
Indekaru, Ituri, B. C.	1° 21′ N., 29° 03′ E.
Indunumara Mountains (Morrokorri), Kenya Col.	2° 12′ N., 36° 56′ E.
Inhambane, southern Portuguese East Africa	24° 00′ S., 35° 28′ E.
Inkisi River, Lower Congo Dist., B. C.	5° 50′ S., 15° 12′ E. to 4° 46′ S., 14° 52′ E.
Inkongo (Inkongu), Sankuru Dist., B. C.	4° 53′ S., 23° 16′ E.
Inkosakapenda = Ngosa-Kapenda	
Insonné (Insono), Enclave of Cabinda	5° 16′ S., 12° 14′ E.
Intamba, Urundi	3° 55′ S., 29° 36′ E.
Inzia River, Kwango District, B. C.	7° 17′ S., 18° 22′ E. to 4° 19′ S., 17° 55′ E.
Ipiana, Tanganyika Terr.	9° 37′ S., 33° 54′ E.
Ipoto (Kilongo-Longa's place, Manyuema village), Ituri, B. C.	1° 11′ N., 28° 42′ E.
Ippy, southern Ubangi-Shari	6° 05′ N., 21° 08′ E.
Ira River = Iri River	
Irambo, Kivu, B. C.	2° 09′ S., 28° 51′ E.
"Iranga" = Iringa	
Irangi (Kondoa Irangi) District, Tanganyika Terr.	4° 30′ S. to 5° 30′ S., 35° 08′ E. to 36° 25′ E.
Irebu, Equator Dist., B. C.	0° 37′ S., 17° 45′ E.
Irebu River, Equator, B. C.	0° 40′ S., 17° 49′ E. to 0° 37′ S., 17° 45′ E.
Iri River (Iret, Ira, Kibali River above Nzoro), Upper Uelle, B. C.	3° 10′ N., 29° 30′ E.
Iringa, Tanganyika Terr.	7° 47′ S., 35° 42′ E.
Irumi (Irume) Mountains, southeastern Katanga, B. C.	13° 25′ S., 29° 37′ E.
Irumu, Ituri, B. C.	1° 31′ N., 29° 49′ E.
Irumu, old, Ituri, B. C.	1° 25′ N., 29° 40′ E.
Irunga (Ihunga) River, Semliki Valley, B. C.	0° 05′ N., 29° 39′ E.
Isangi, Aruwimi Dist., B. C.	0° 47′ N., 24° 11′ E.
Isangila, Cataracts Dist., Congo River, B. C.	5° 18′ S., 13° 37′ E.
Isavi, southern Ruanda	2° 32′ S., 29° 47′ E.
Ishangi, western Ruanda	2° 22′ S., 29° 00′ E.
Ishango, north shore of Lake Edward, B. C.	0° 08′ S., 29° 36′ E.
Ishasha (Isasha, Isasa) River	1° 07′ S., 29° 55′ E. to 0° 27′ S., 29° 40′ E.
Ishwa Plain (Ischwa), eastern Ituri, B. C.	2° 12′ N., 31° 10′ E.
Isiro (Ziro), southern Uelle, B. C.	2° 48′ N., 27° 40′ E.
Isoka, northeastern Rhodesia	10° 05′ S., 32° 42′ E.
Isoko, Tanganyika Terr.	9° 29′ S., 33° 30′ E.

Issawi = Isavi	
Issenje, northwest Tanganyika Terr.	1° 01′ S., 30° 21′ E.
Itambe, Lake, Tanganyika Dist., B. C.	8° 39′ S., 28° 27′ E.
Itawa Swamp, near Ndola, Northern Rhodesia	12° 59′ S., 28° 39′ E.
Itereré, west Ruwenzori	0° 22′ N., 29° 50′ E.
Itigi, Tanganyika Terr.	5° 42′ S., 34° 32′ E.
Itimbiri River, Lower Uelle, B. C.	2° 48′ N., 23° 58′ E. to 2° 02′ N., 22° 41′ E.
Itombwe = highland west of Ruzizi Valley	
Itula, Kivu, B. C.	3° 29′ S., 27° 50′ E.
Itura = Tura, Tanganyika Terr.	
Ituri District, B. C.	0° 30′ N. to 2° 40′ N., 26° 50′ E. to 31° 15′ E.
Ituri Forest, B. C.	0° 30′ N. to 2° 40′ N., 26° 50′ E. to 30° 12′ E.
Ituri River (Eturi), B. C.	2° 30′ N., 30° 16′ E. to 1° 45′ N., 27° 08′ E.
"Ivando" = Ivindo	
Ivi camp (Ivui camp), Kivu, B. C.	0° 54′ S., 29° 27′ E.
Ivi River = Ivui River	
Ivindo (Vindo, Iwindo, "Grande"), Enclave of Cabinda	5° 02′ S., 12° 26′ E.
Ivory Coast, West Africa	4° 15′ N. to 10° 20′ N., 2° 30′ W. to 8° 30′ W.
Ivui River (Ewi, Mai-na-Ivi, May-ya-Evi, Ivwi, Rwamagara), Kivu-Uganda border	1° 08′ S., 29° 41′ E. to 0° 49′ S., 29° 24′ E.
Iwindo = Ivindo	
Iwungu, Tanganyika Terr.	8° 26′ S., 32° 54′ E.
Ja River (Dja), Cameroon	3° 42′ N., 13° 33′ E. to 2° 00′ N., 15° 12′ E.
Jabbir, Jabir = Bondo	
Jameson, Fort, Northern Rhodesia	13° 39′ S., 32° 40′ E.
Jang = Djang	
Jebel Marra, Darfur	13° 00′ N., 24° 22′ E.
Jebelein, A.-E. Sudan	12° 40′ N., 32° 40′ E.
Jele, Cameroon	4° 10′ N., 11° 00′ E.
Jimma (Djimma), Abyssinia	7° 53′ N., 37° 15′ E.
Jinja, Uganda	0° 26′ N., 33° 12′ E.
Jipe, Lake, border of Kenya Col. and Tanganyika Terr.	3° 35′ S., 37° 46′ E.
Jiundu River, Northern Rhodesia	11° 52′ S., 25° 27′ E. to 12° 21′ S., 25° 40′ E.
Johnston Falls, Luapula River	10° 30′ S., 28° 45′ E.
Johnston, Fort, Nyasaland	14° 27′ S., 35° 13′ E.
Jonte, Italian Somaliland	0° 07′ S., 42° 35′ E.
Jos, Northern Nigeria	9° 55′ N., 8° 52′ E.
Juba, A.-E. Sudan	4° 54′ N., 31° 37′ E.

Juba (Ganale) River, Abyssinia and Italian Somaliland	7° 00′ N., 38° 48′ E. to 0° 14′ S., 42° 40′ E.
Jubaland, East Africa	0° 20′ S. to 3° 00′ N., 40° 10′ E. to 43° 00′ E.
Juida = St. Louis, Senegal	
Jur River = Djur River	
Kabagari, Ruanda	2° 13′ S., 29° 36′ E.
Kabakaba (Kalakaba), Ituri, B. C.	2° 11′ N., 30° 45′ E.
Kabakuli River (Kavakule), Ruwenzori	0° 29′ N., 29° 46′ E.
Kabale, southwest Uganda	1° 15′ S., 29° 59′ E.
Kabaleka, Lake (Kabeleka), western Uganda	0° 15′ N., 30° 15′ E.
Kabalo, Tanganyika Dist., B. C.	6° 03′ S., 26° 54′ E.
Kabalongwe, Katanga, B. C.	9° 08′ S., 25° 57′ E.
Kabamba, Lake, Tanganyika Dist., B. C.	7° 53′ S., 27° 01′ E.
Kabambaie (Kabembai), Kasai, B. C.	5° 45′ S., 20° 49′ E.
Kabambare (Kamambare), Manyema, B. C.	4° 41′ S., 27° 42′ E.
Kabara, on Kivu Volcanoes, B. C.	1° 29′ S., 29° 26′ E.
Kabare, on Lake Edward, Kivu, B. C.	0° 38′ S., 29° 29′ E.
Kabare, near southwest end of Lake Kivu, B. C.	2° 29′ S., 28° 48′ E.
Kabasha (Lower Kabasha), Kivu, B. C.	0° 45′ S., 29° 13′ E.
Kabasha Escarpment, Kivu, B. C.	0° 43′ S., 29° 12′ E. to 0° 48′ S., 29° 12′ E.
Kabasha, Upper, Kivu, B. C.	0° 47′ S., 29° 12′ E.
Kabayendi, southern A.-E. Sudan	4° 32′ N., 30° 05′ E.
"Kabeleka," Lake = Kabaleka, Lake	
Kabemba (Kalemba), Manyema, B. C.	4° 41′ S., 27° 16′ E.
Kabenga, Upemba National Park, B. C.	9° 12′ S., 26° 57′ E.
Kabengere, Katanga, B. C.	9° 08′ S., 26° 16′ E.
Kabesa (Kabeça), Katanga, B. C.	9° 26′ S., 28° 26′ E.
Kabgaye (Kabgayi), Ruanda	2° 07′ S., 29° 45′ E.
Kabiabo, Kivu, B. C.	0° 15′ N., 29° 20′ E.
Kabinda (Lupungu), Lomami, B. C.	6° 08′ S., 24° 27′ E.
Kabinda, Enclave of Cabinda = Cabinda	
Kabiseba, Kasai, B. C.	6° 30′ S., 22° 27′ E.
Kabisombo River, Angola	13° 45′ S., 13° 50′ E.
Kabobo, Mt., Tanganyika Dist., B. C.	5° 06′ S., 29° 01′ E.
Kabogo Forest, Tanganyika Terr.	5° 26′ S., 29° 44′ E.
Kabompo River, Northern Rhodesia	11° 33′ S., 25° 18′ E. to 14° 07′ S., 23° 08′ E.
"Kabondo" = Kalondo	
Kabulabula, Ngamiland	17° 50′ S., 24° 58′ E.
Kabundji, Katanga, B. C.	9° 04′ S., 25° 10′ E.
Kabushwa, Mt. Kivu, B. C.	2° 12′ S., 28° 42′ E.
Kabuta, Northern Rhodesia frontier, B. C.	8° 18′ S., 29° 58′ E.
Kabwe, Upemba National Park, B. C.	8° 48′ S., 26° 50′ E.
Kabwe (Lake Kabwe), Tanganyika Dist., B. C.	9° 10′ S., 26° 00′ E.

Kabwe, Mt. = Nkabwe, Mt.	
Kadei district, Upper, east Cameroon	4° 30′ N. to 5° 55′ N., 14° 10′ E. to 14° 50′ E.
Kadei (Kadai) River, east Cameroon	5° 55′ N., 14° 32′ E. to 3° 29′ N., 16° 02′ E.
Kadia, Tanganyika Dist., B. C.	8° 16′ S., 26° 35′ E.
Kadiadia (Vieux Radiadia), Ituri, B. C.	0° 00′, 29° 32′ E.
Kadjudju (Kajuchu, Katshushu), Kivu, B. C.	2° 09′ S., 28° 54′ E.
Kadugli, southern Kordofan	11° 00′ N., 29° 45′ E.
Kafakumba, Lulua Dist., B. C.	9° 40′ S., 23° 46′ E.
Kaffa country, Abyssinia	6° 20′ N. to 7° 15′ N., 35° 45′ E. to 36° 45′ E.
Kaffirland = Caffraria	
Kafubu River, Upper Katanga, B. C.	11° 37′ S., 27° 14′ E. to 11° 27′ S., 28° 30′ E.
Kafue Flats, North Rhodesia	15° 40′ S., 27° 50′ E.
Kafue (Kafuwu) River, North Rhodesia	11° 36′ S., 27° 07′ E. to 15° 56′ S.. 28° 56′ E.
Kafulafuta River, Northern Rhodesia	13° 20′ S., 28° 56′ E. to 13° 15′ S., 28° 09′ E.
Kafuro, Tanganyika Terr.	1° 45′ S., 31° 20′ E.
Kafuru = Kazinga Channel	
Kafwe River, Katanga, B. C.	9° 06′ S., 26° 58′ E., to 9° 20′ S., 27° 18′ E.
Kaga Djirri (Kaga Djerri, Kaga Do, Kaga Dodo), Ubangi-Shari	5° 45′ N., 18° 46′ E.
Kagehi (Kageji), Tanganyika Terr.	2° 23′ S., 33° 03′ E.
"Kager," misprint = Kagera Valley	
Kagera National Park, Ruanda	1° 06′ S. to 2° 02′ S., 30° 22′ E. to 30° 49′ E.
Kagera River, Ruanda and Tanganyika Terr.	2° 03′ S., 30° 18′ E. to 0° 57′ S., 31° 47′ E.
Kagiado (Kajiado) River, Kenya Col.	1° 50′ S., 36° 49′ E.
Kagio, Kenya Col.	0° 40′ S., 37° 13′ E.
Kahama, Ruanda	1° 37′ S., 29° 30′ E.
Kahindo brook, Kivu, B. C.	1° 08′ S., 29° 33′ E.
Kahusi (Kause, Kahuzi), Mt., Kivu, B. C.	2° 13′ S., 28° 42′ E.
Kahutu, Northern Rhodesia	13° 00′ S., 24° 35′ E.
Kai Bumba, Mayombe, B. C.	4° 49′ S., 12° 57′ E.
Kaia (Kaya), Bahr-el-Ghazal	4° 16′ N., 30° 07′ E.
Kaimosi, western Kenya Col.	0° 08′ N., 34° 47′ E.
Kajándsa = Kayandsa	
Kajo-Kaji, southern A.-E. Sudan	3° 52′ N., 31° 40′ E.
Kakamega (Kakamegoes), western Kenya Col.	0° 17′ N., 34° 45′ E.
Kakamega Forest, western Kenya Col.	0° 17′ N., 34° 53′ E.
Kako River bridge, Kivu, B. C.	1° 14′ S., 29° 30′ E.
Kakoma, Tanganyika Terr.	5° 50′ S., 32° 29′ E.
Kakonda = Caconda	
Kakonde, Marungu, B. C.	7° 52′ S., 29° 43′ E.

Kakunda, Semliki Valley, B. C.	0° 26′ N., 29° 44′ E.
Kakyelo, Upper Katanga, B. C.	12° 21′ S., 29° 36′ E.
Kalabo, Northern Rhodesia	14° 58′ S., 22° 25′ E.
Kalahari Desert	21° 00′ S. to 25° 00′ S., 21° 00′ E. to 26° 00′ E.
"Kalambélembé" = Kalembélembé	
Kalamu, Lower Congo Dist., B. C.	5° 50′ S., 13° 04′ E.
Kalamu River (Rivière des Crocodiles), Lower Congo Dist., B. C.	5° 42′ S., 13° 12′ E. to 5° 51′ S., 13° 03′ E.
Kalapumina (Moposhi), Mt., southeastern Katanga, B. C.	12° 48′ S., 29° 46′ E.
Kalegela (Kaléghéla), Kivu, B. C.	0° 48′ S., 29° 28′ E.
Kalehe, near Lutunguru, Kivu, B. C.	0° 37′ S., 28° 51′ E.
Kalehe, on Lake Kivu, B. C.	2° 06′ S., 28° 55′ E.
Kalembélembé (Kalembé), Kivu, B. C.	4° 35′ S., 28° 45′ E.
"Kalendo" = Kalondo	
Kalimbo, Kivi, B. C.	0° 47′ S., 29° 28′ E.
Kalisia, Kivu, B. C.	0° 30′ S., 28° 48′ E.
Kalombwa, Tanganyika Dist., B. C.	7° 46′ S., 26° 55′ E.
Kalondo, Kivu, B. C.	1° 17′ S., 29° 00′ E.
Kalonga, Upper Katanga, B. C.	12° 22′ S., 29° 02′ E.
Kalonge (Nakalongi), Kivu, B. C.	2° 19′ S., 28° 45′ E.
Kalongi (Kalonge), west Ruwenzori	0° 20′ N., 29° 49′ E.
Kalule Nord, River, Upper Katanga, B. C.	10° 13′ S., 26° 15′ E. to 9° 36′ S., 25° 37′ E.
Kalule (Kaluli) River, Upper Katanga, B. C.	9° 36′ S., 25° 37′ E. to 9° 29′ S., 25° 30′ E.
Kalule Sud, River, Upper Katanga, B. C.	10° 19′ S., 26° 02′ E. to 9° 36′ S., 25° 37′ E.
Kalumendo (Kalimende, Kalumenda), Semliki Valley, B. C.	0° 29′ N., 29° 35′ E.
Kalungwisi (Karungwesi, Kalungwishi) River, Northern Rhodesia	10° 01′ S., 30° 18′ E. to 9° 03′ S., 28° 59′ E.
Kama, Manyema, B. C.	3° 31′ S., 27° 08′ E.
Kama River, Manyema, B. C.	4° 08′ S., 27° 45′ E. to 3° 38′ S., 27° 14′ E.
Kamabo, Semliki Valley, B. C.	0° 06′ N., 29° 22′ E.
"Kamadekke" = Komadeke	
Kamaiembi, Kasai, B. C.	5° 25′ S., 21° 17′ E.
Kamande (Kanyazi, Campi na Siku moya), Kivu, B. C.	0° 35′ S., 29° 18′ E.
"Kamanegu" = Kamuneyu	
Kamaniola (Kamanyola), Kivu, B. C.	2° 46′ S., 29° 00′ E.
Kamano River, Angola	11° 35′ S., 23° 00′ E.
Kamari, southern A.-E. Sudan	4° 54′ N., 30° 28′ E.
Kamassia Hills, Kenya Col.	0° 12′ N., 35° 46′ E. to 1° 00′ N., 35° 50′ E.
Kamatembe, Kivu, B. C.	1° 20′ S. to 1° 22′ S., 29° 03′ E. to 29° 08′ E.

"Kamba-Kamba" = Komba-Komba	
Kambala, northeastern Kasai, B. C.	4° 52′ S., 22° 29′ E.
Kambatule, Semliki Valley, B. C.	0° 22′ N., 29° 38′ E.
Kambove ("Kambwe"), Upper Katanga, B. C.	10° 52′ S., 26° 37′ E.
Kamerun = Cameroon	
Kamina, southeastern Lomami, B. C.	8° 45′ S., 25° 00′ E.
Kamituga, Kivu, B. C.	3° 04′ S., 28° 11′ E.
Kamolondo (Kamulondo), Katanga, B. C.	9° 42′ S., 26° 27′ E.
Kamolondo = a name often used by natives for Lualaba R. near Lake Upemba and Lake Kisale	
Kamolondo Plain = the whole lowland surrounding Lake Upemba and Lake Kisale	
Kamonyi (Kamonyé), Ruanda	2° 00′ S., 29° 54′ E.
Kampala, Uganda	0° 19′ N., 32° 34′ E.
Kampemba River, Marungu, B. C.	8° 10′ S., 30° 20′ E. to 8° 00′ S., 30° 16′ E.
Kampi-na-Mambuti (Campi-ya-Wambutti), Ituri, B. C.	1° 30′ N., 29° 32′ E.
Kampi-ya-Tshupa (Itereré), Ruwenzori, B. C.	0° 22′ N., 29° 50′ E.
Kampia (Campia), Marungu, B. C.	7° 54′ S., 30° 04′ E.
Kampongo (Kampondo), Mt., southeastern Katanga, B. C.	12° 54′ S., 29° 44′ E.
Kamsogori, Angola	9° 27′ S., 15° 45′ E.
Kamulondo River, Katanga, B. C.	9° 42′ S., 26° 27′ E. to 9° 52′ S., 26° 36′ E.
Kamuneyu (Kamanegu), Semliki Valley, B. C.	0° 07′ N., 29° 43′ E.
Kamunionge, Stanleyville Dist., B. C.	0° 56′ N., 27° 01′ E.
Kánamo, eastern Ituri, B. C.	1° 33′ N., 30° 33′ E.
Kanda-Kanda, Lomami, B. C.	6° 56′ S., 23° 34′ E.
Kandashomwa, Mt., Kivu, B. C.	3° 04′ S., 28° 52′ E.
Kando, Upper Katanga, B. C.	10° 49′ S., 26° 07′ E.
Kando River, Upper Katanga, B. C.	11° 11′ S., 26° 19′ E. to 10° 49′ S., 25° 43′ E.
Kanga, on lower Congo River, B. C.	5° 50′ S., 12° 54′ E.
Kangao's (Kangow's), Uganda	0° 04′ S., 29° 58′ E.
Kango, Gaboon	0° 10′ N., 10° 09′ E.
Kangué (Kange), Lulua, B. C.	9° 31′ S., 24° 43′ E.
Kaniinda Boni (Kanyinda Boni), Kasai, B. C.	5° 50′ S., 22° 54′ E.
Kaniki, northern Kivu, B. C.	0° 08′ S., 29° 33′ E.
Kano, Northern Nigeria	12° 00′ N., 8° 31′ E.
Kanonga, Upemba National Park, B. C.	9° 16′ S., 26° 08′ E.
Kansanshi, Northern Rhodesia	12° 05′ S., 26° 25′ E.
Kansenga, Northern Rhodesia	11° 45′ S., 29° 48′ E.
Kansenia, Upper Katanga, B. C.	10° 18′ S., 26° 02′ E.
Kansenze, northeast of Mt. Nyamlagira, Kivu, B. C.	1° 22′ S., 29° 15′ E.

Kansenze, south of Mt. Karisimbi, Kivu, B. C.	1° 31′ S., 29° 23′ E.
Kansepa (Kasepa) River, Upper Katanga, B. C.	11° 26′ S., 27° 55′ E. to 11° 31′ S., 27° 58′ E.
Kansoku Forest, Northern Rhodesia	12° 22′ S., 24° 05′ E.
Kanyabayongo, Kivu, B. C.	0° 40′ S., 29° 08′ E.
Kanyabisika, Kivu, B. C.	0° 31′ S., 28° 50′ E.
Kanyamakwe = Kianiamakue	
Kanyango, western Uganda	0° 20′ N., 30° 08′ E.
Kanyonza, northwestern Tanganyika Terr.	1° 05′ S., 30° 27′ E.
Kanzenze, Upper Katanga, B. C.	10° 32′ S., 25° 13′ E.
Kapampa, Marungu, B. C.	7° 32′ S., 30° 19′ E.
Kapamba, Semliki Forest, B. C.	0° 27′ N., 29° 40′ E.
Kapanda River, Upper Katanga, B. C.	10° 20′ S., 25° 47′ E. to 10° 32′ S., 25° 36′ E.
Kapanga, Lulua, B. C.	8° 22′ S., 22° 34′ E.
Kapenguria, Kenya Col.	1° 15′ N., 35° 08′ E.
Kapiri, Upper Katanga, B. C.	10° 17′ S., 26° 12′ E.
Kapiri Plateau = part of Biano Plateau near Kapiri, Katanga	
Kapiriuta, Nyasaland	14° 27′ S., 33° 56′ E.
Kapiti Plains, Kenya Col.	1° 42′ S., 37° 06′ E.
Kapolowe, Upper Katanga, B. C.	11° 02′ S., 26° 57′ E.
Kaponda (Caponda), Upper Katanga, B. C.	11° 46′ S., 27° 20′ E.
Kaponda River, Upper Katanga, B. C.	11° 48′ S., 27° 23′ E. to 11° 45′ S., 27° 25′ E.
Kaponda Road = road from Elisabethville to Kaponda, Katanga, B. C.	
Kapopo, Northern Rhodesia	13° 25′ S., 27° 50′ E.
Kapopo–Kansanshi = between Kapopo and Kansanshi, Northern Rhodesia	
Kapoya, Lower Katanga, B. C.	8° 14′ S., 27° 57′ E.
Kapulo, Tanganyika Dist., B. C.	8° 17′ S., 29° 15′ E.
Kapunda = Kaponda	
Kapwaren Forest, Kenya Col.	0° 05′ N. to 0° 12′ N., 34° 52′ E. to 35° 07′ E.
Karago, Lake (Galago), Ruanda	1° 37′ S., 29° 31′ E.
Karagwe, Tanganyika Terr.	1° 00′ S. to 2° 35′ S., 30° 27′ E. to 31° 25′ E.
Karama, Kivu, B. C.	3° 00′ S., 28° 37′ E.
Karambi, Ruanda	2° 14′ S., 29° 40′ E.
Karamoja (Karamojo), northeastern Uganda	1° 20′ N. to 3° 24′ N., 33° 40′ E. to 35° 00′ E.
Karangora, Mt., north Ruwenzori	0° 38′ N., 30° 07′ E.
Karasawangwa (Kalasabango), west Ruwenzori	0° 26′ N., 29° 45′ E.
Karavia River, Upper Katanga, B. C.	11° 38′ S., 27° 19′ E. to 11° 40′ S., 27° 28′ E.
Karawa, northwestern Bangala Dist., B. C.	3° 17′ N., 20° 16′ E.

Karebumba, Kivu, B. C.	0° 22′ N., 29° 23′ E.
Karema, east shore of Lake Tanganyika, Tanganyika Terr.	6° 49′ S., 30° 25′ E.
Karemi = Karimi	
Karenge, Lake, southwestern Uganda	0° 55′ S., 30° 08′ E.
Karevia, west Ruwenzori, B. C.	0° 21′ N., 29° 45′ E.
"Karigi" = Kaniki	
Karimi (Karemi, Karimia), Semliki Valley, B. C.	0° 06′ N., 29° 39′ E.
Karimia (Karemia), Mt., on Uganda-B. C. border	0° 05′ N., 29° 43′ E.
Karisimbi, Mt., on Ruanda-B. C. border	1° 30′ S., 29° 27′ E.
Karonga, northwest shore of Lake Nyasa, Nyasaland	9° 55′ S., 33° 57′ E.
Karroo, Great, Cape Prov.	32° 30′ S. to 33° 15′ S., 21° 40′ E. to 23° 30′ E.
Karroo, Little, Cape Prov.	33° 48′ S., 20° 30′ E. to 33° 50′ S., 22° 40′ E.
Kartushi (Kartoushi), Semliki Valley, B. C.	0° 36′ N., 29° 37′ E.
Karungwesi River = Kalungwisi River	
Kasai District, B. C.	3° 48′ S. to 8° 00′ S., 18° 51′ E. to 23° 38′ E.
Kasai River, Angola and B. C.	12° 03′ S., 18° 58′ E. to 3° 02′ S., 16° 56′ E.
Kasaji, southern Lulua, B. C.	10° 23′ S., 23° 28′ E.
Kasala Forest, Uganda	0° 18′ N., 32° 46′ E.
Kasali Mountains, Kivu, B. C.	0° 49′ S., 29° 21′ E. to 1° 14′ S., 29° 12′ E.
Kasama, Northern Rhodesia	10° 13′ S., 31° 13′ E.
Kasane, on Chobe River near the Zambesi	17° 51′ S., 25° 08′ E.
Kasanga, west of Lake Edward, Kivu, B. C.	0° 29′ S., 29° 12′ E.
Kasanga, Kwango, B. C.	6° 30′ S., 16° 55′ E.
Kasanga (Bismarckburg), Tanganyika Terr.	8° 26′ S., 31° 09′ E.
Kasangala (Kasengala), Marungu, B. C.	7° 41′ S., 29° 52′ E.
Kasansa, Lomami, B. C.	6° 33′ S., 23° 46′ E.
Kaseh = Tabora	
Kasempa, Northern Rhodesia	13° 24′ S., 25° 43′ E.
Kasenga, Upper Katanga, B. C.	10° 18′ S., 28° 43′ E.
Kasengala = Kasangala	
Kasengo (Cazengo, Caculo), northwestern Angola	9° 23′ S., 14° 46′ E.
Kasenye (Kasenyi), Uganda	0° 34′ N., 31° 22′ E.
Kasenyi (Kasenye), Uganda	0° 23′ N., 30° 12′ E.
Kasenyi (Kasenye), Ituri, B. C.	1° 23′ N., 30° 26′ E.
Kasenyi Hill, Uganda	0° 35′ N., 31° 51′ E.
Kasenyi (Kasenye), Lake, Uganda	0° 03′ S., 30° 08′ E.
Kasepa River = Kansepa River	
Kashiobwe (Kashobwe), Upper Katanga, B. C.	9° 38′ S., 28° 41′ E.
Kashusha, Kivu, B. C.	2° 17′ S., 28° 48′ E.

Kashwa, Kivu, B. C.	1° 18′ S., 29° 06′ E.
Kasiki (Kasika), Marungu, B. C.	7° 37′ S., 29° 55′ E.
Kasindi (new), Kivu, B. C.	0° 03′ N., 29° 42′ E.
Kasindi (old), Kivu, B. C.	0° 02′ S., 29° 43′ E.
"Kasindi," Uganda = Masindi	
Kasindi Landing, north end of Lake Edward, B. C.	0° 04′ S., 29° 42′ E.
Kasinga River = Cului River	
Kasipa River, Upper Katanga, B. C.	11° 48′ S., 27° 23′ E.
Kasoko, southeastern Marungu, B. C.	7° 51′ S., 30° 04′ E.
Kasongo (Kassongo), Manyema, B. C.	4° 31′ S., 26° 34′ E.
Kasongo-Lunda, Kwango, B. C.	6° 28′ S., 16° 49′ E.
Kassa, French Congo	1° 04′ S., 17° 11′ E.
Kassabo (Kasalo), Katanga, B. C.	9° 18′ S., 25° 15′ E.
Kassala, A.-E. Sudan	15° 25′ N., 36° 25′ E.
Kassala Province, A.-E. Sudan	12° 35′ N. to 18° 20′ N., 34° 00′ E. to 37° 30′ E.
Kassinje (Kasenya) Island, southwest corner of Lake Albert	1° 20′ N., 30° 25′ E.
Kasulu (Kasulo), Tanganyika Terr.	4° 35′ S., 30° 06′ E.
"Kasumbaki" = Mutsora	
Katabwa (Katabua, Ndekesha), Kasai, B. C.	6° 27′ S., 22° 02′ E.
Katala (Katalla), Lower Congo River, B. C.	5° 58′ S., 12° 44′ E.
Katalanga (Kigalama), Uganda	0° 29′ N., 30° 11′ E.
Katana, west shore of Lake Kivu, B. C.	2° 13′ S., 28° 51′ E.
Katana, south shore of Lake Edward	0° 37′ S., 29° 26′ E.
Katanda, Kivu, B. C.	0° 51′ S., 29° 22′ E.
Katanda, Lomami, B. C.	6° 21′ S., 23° 55′ E.
Katanga, Lower, B. C.	6° 00′ S. to 9° 05′ S., 24° 00′ E. to 28° 50′ E.
Katanga Province (Province of Elisabethville) = Lulua, Haut Luapula, and Tanganyika Dists., B. C.	
Katanga, Upper (Haut Luapula Dist.), B. C.	9° 05′ S. to 13° 28′ S., 24° 50′ E. to 29° 50′ E.
Katapena (Katapăna), Katanga, B. C.	9° 08′ S., 26° 16′ E.
Katavi, Tanganyika Terr.	6° 50′ S., 30° 58′ E.
Katentania, Upper Katanga, B. C.	10° 19′ S., 25° 54′ E.
Kateruzi (Katerushi) = Rumoka, Mt.	
Kati, French Sudan	12° 45′ N., 8° 00′ W.
Katire, Imatong Mountains, A.-E. Sudan	4° 03′ N., 32° 48′ E.
Katobwe, Katanga, B. C.	8° 54′ S., 26° 04′ E.
Katodjo (Katosho, Katojo), Ruanda	1° 45′ S., 30° 45′ E.
Katofio, Upper Katanga, B. C.	11° 04′ S., 28° 02′ E.
Katola (Kapanga, Muene Kapanga, misprinted "Katolo"), Lulua, B. C.	8° 22′ S., 22° 35′ E.
Katola, old, Lulua, B. C.	9° 11′ S., 22° 38′ E.
Katombe, Lomami, B. C.	6° 29′ S., 23° 58′ E.
Katuka, west Ruwenzori, B. C.	0° 33′ N., 29° 49′ E.

Katumbaka = Mutsora	
Katuna River, Tanganyika Terr.	6° 12′ S., 30° 42′ E. to 7° 18′ S., 31° 31′ E.
Katwe (Fort George, Kihio salt lake, Kio), Uganda	0° 09′ S., 29° 52′ E.
Kaué River (Kauè, Kaué brook), Marungu, B. C.	7° 02′ S., 29° 19′ E.
Kaulu, Kasai, B. C.	6° 37′ S., 22° 52′ E.
Kauwire, Marungu, B. C.	7° 34′ S., 29° 20′ E.
Kavalli = Bogoro	
Kavirondo Country, Kenya Col.	1° 08′ N. to 1° 23′ S., 33° 56′ E. to 35° 07′ E.
Kavirondo District, Central, Kenya Col.	0° 21′ N. to 0° 23′ S., 33° 56′ E. to 35° 07′ E.
Kavirondo District, North, Kenya Col.	1° 08′ N. to 0° 04′ S., 34° 06′ E. to 34° 58′ E.
Kavirondo District, South, Kenya Col.	0° 20′ S. to 1° 23′ S., 33° 56′ E. to 35° 02′ E.
Kavirondo Gulf, northeast side of Lake Victoria, Kenya Col.	0° 05′ S. to 0° 32′ S., 34° 12′ E. to 34° 52′ E.
Kawa, A.-E. Sudan	13° 45′ N., 32° 30′ E.
Kawa Forest, eastern Ituri, B. C.	1° 33′ N., 30° 32′ E.
Kawambwa, Northern Rhodesia	9° 47′ S., 29° 05′ E.
Kawanga, Kavirondo, Kenya Col.	0° 20′ N., 34° 28′ E.
Kaya = Kaia	
Kayandsa (Kajándsa), Ituri, B. C.	1° 39′ N., 30° 39′ E.
Kayangira, Kivu, B. C.	0° 12′ N., 29° 24′ E.
Kayanza, Urundi	2° 55′ S., 29° 37′ E.
Kayera, Semliki Valley, B. C.	0° 58′ N., 30° 08′ E.
Kayes, French Congo	4° 12′ S., 13° 16′ E.
Kayes, French Sudan	14° 25′ N., 11° 25′ W.
Kayishila Forest, Northern Rhodesia	11° 30′ S., 24° 25′ E.
Kayombo, Ruanda	2° 06′ S., 29° 44′ E.
Kayonsa (Kayonza) Forest, southwestern Uganda	1° 05′ S., 29° 40′ E.
Kayoyo, southern Lulua, B. C.	10° 36′ S., 24° 19′ E.
Kayumba, Kivu, B. C.	0° 58′ S., 29° 20′ E.
Kayumba, Manyema, B. C.	4° 29′ S., 28° 29′ E.
Kayumbo, Ruanda	2° 00′ S., 29° 53′ E.
Kazé = Tabora	
Kazi, Uganda	0° 13′ N., 32° 36′ E.
Kaziba, Upemba National Park, B. C.	9° 08′ S., 26° 52′ E.
Kazibaziba (Kaybayba), Lake, Katanga	9° 12′ S., 25° 53′ E.
Kazinga Channel (Kafuru Straits), Uganda	0° 05′ S., 30° 10′ E. to 0° 13′ S., 29° 53′ E.
Kazumbulo (Kazumbulale), Ruanda	1° 33′ S., 30° 47′ E.
Keetmannshoop, Southwest Africa	26° 31′ S., 18° 08′ E.
"Kegezi" = Kigezi	
Kei River, Cape Prov.	31° 36′ S., 26° 20′ E. to 32° 40′ S., 28° 23′ E.

Kembe (Kembi, Kombe), Ubangi, B. C.	4° 32′ N., 20° 28′ E.
Kemmo = Fort de Possel	
Kémo, Poste de la Haute-, Ubangi-Shari	6° 17′ N., 19° 27′ E.
Kemo (Kemmo, Kémo, Haute-Kémo) River, Ubangi-Shari	6° 20′ N., 19° 49′ E. to 5° 00′ N., 19° 12′ E.
"Kenahambi" = Kenshambi	
Kengele (Bulema), west Ruwenzori, B. C.	0° 24′ N., 29° 45′ E.
Kenia, Mt. = Kenya, Mt.	
Kenia, Marungu = Kinia	
Kenshambi (Kiemsambi), Tanganyika Terr.	1° 06′ S., 30° 58′ E.
Kenya Colony, East Africa	4° 35′ N. to 4° 37′ S., 33° 56′ E. to 41° 53′ E.
Kenya (Kenia, Kilinyaga), Mt.	0° 09′ S., 37° 18′ E.
Kérén, Eritrea	15° 47′ N., 38° 35′ E.
Kericho, southwestern Kenya Col.	0° 24′ S., 35° 16′ E.
Kericho District, Kenya Col.	0° 08′ S. to 1° 03′ S., 34° 56′ E. to 35° 34′ E.
Kerio River, Kenya Col.	0° 53′ N., 35° 43′ E. to 2° 56′ N., 36° 11′ E.
Kesimbili (Kisimbili), Uganda	1° 00′ S., 30° 42′ E.
Keta District, Gold Coast	5° 42′ N. to 6° 20′ N., 0° 13′ E. to 1° 13′ E.
Ketendwe (Kitendwe), Marungu, B. C.	7° 32′ S., 29° 47′ E.
Keurboom (Queur-Boom, Keurbooms) River, Cape Prov.	33° 45′ S., 23° 10′ E. to 34° 02′ S., 23° 22′ E.
Khartum (Khartoum), A.-E. Sudan	15° 35′ N., 32° 33′ E.
Khor Ayu = Ayu, Khor	
Khor Gitti = Gitti, Khor	
Khor Mabrué = Mabrué, Khor	
Kiabo, Katanga, B. C.	8° 44′ S., 26° 02′ E.
Kiaga, Lake, southeastern Ruanda	2° 20′ S., 30° 33′ E.
Kiagwe = Kyagwe	
Kiambi, Tanganyika Dist., B. C.	7° 15′ S., 28° 01′ E.
Kianiamakue (Kanyamakwe), Kivu, B. C.	0° 33′ S., 28° 48′ E.
Kibale (Kibali) Forest = Mpanga Forest	
Kibali River, Upper Uelle, B. C.	2° 37′ N., 30° 26′ E. to 3° 37′ N., 28° 33′ E.
Kibara Mountains, or Plateau, Tanganyika Dist., B. C.	7° 55′ S., 28° 23′ E. to 9° 15′ S., 26° 51′ E.
Kibati (Nyakabanda), Kivu, B. C.	1° 37′ S., 29° 15′ E.
Kibaya (Kibaja Massai), Tanganyika Terr.	5° 10′ S. to 5° 30′ S., 36° 45′ E. to 37° 15′ E.
Kibera, western Uganda	0° 41′ N., 30° 10′ E.
Kibera River = some small stream in upper Mpanga Forest, Uganda	
Kibero = Kibiro	
Kibga, Ruanda	1° 28′ S., 29° 29′ E.
Kibigori, Kavirondo, Kenya Col.	0° 04′ S., 35° 04′ E.

Kibingo, Ruanda	2° 43′ S., 29° 43′ E.
Kibirau (Kibiran) = in or very near the Mpanga Forest, Uganda; "kibira" means forest	
Kibiro (Kibero), Uganda	1° 40′ N., 31° 15′ E.
Kibole, exact position unknown; either in Semliki Valley or near Kilo, northeastern Congo	
Kibombo, Manyema, B. C.	3° 57′ S., 25° 54′ E.
Kibombo, Kivu, B. C.	3° 00′ S., 28° 36′ E.
Kibondo (Kibonde), Manyema, B. C.	4° 46′ S., 27° 28′ E.
Kibondo, Tanganyika Terr.	3° 35′ S., 30° 42′ E.
Kibonge (Kibongi), Lowa, B. C.	0° 50′ S., 25° 38′ E.
"Kibongo" = either Kibonge or Kibondo	
Kibosho (Kiboscho), Tanganyika Terr.	3° 15′ S., 37° 16′ E.
Kiboto, southern Kivu, B. C.	4° 12′ S., 28° 56′ E.
Kibumba, Kivu, B. C.	1° 28′ S., 29° 20′ E.
Kibungu, eastern Ruanda	2° 10′ S., 30° 32′ E.
Kibwezi (Kibwesi), Kenya Col.	2° 24′ S., 37° 57′ E.
Kichwamba, Toro, Uganda	0° 43′ N., 30° 12′ E.
Kichwamba, Ankole, Uganda	0° 15′ S., 30° 05′ E.
Kidada, Cataracts Dist., B. C.	5° 22′ S., 14° 32′ E.
Kidj = Kitsch	
Kidong (Kedong) Valley, Kenya Col.	1° 04′ S., 36° 23′ E.
Kifa (Chifa, Keefa), Upper Uelle, B. C.	3° 47′ N., 27° 49′ E.
Kifuku, near Congo River mouth, B. C.	5° 58′ S., 12° 25′ E.
Kifuku, Ituri, B. C.	1° 26′ N., 29° 40′ E.
Kifumanshi (Kifumanzi) River, Upper Katanga, B. C.	11° 23′ S., 27° 28′ E. to 11° 27′ S., 27° 51′ E.
Kifumbiro (Kivumberu), on Kagera River, Tanganyika Terr.	1° 16′ S., 31° 25′ E.
Kifumbiro, southwest Uganda = Bufumbira	
Kigali, Ruanda	1° 56′ S., 30° 02′ E.
Kigezi, southwestern Uganda	1° 16′ S., 29° 45′ E.
Kigezi District, southwestern Uganda	0° 25′ S. to 1° 28′ S., 29° 34′ E. to 30° 10′ E.
Kigoma, east shore of Lake Tanganyika	4° 53′ S., 29° 37′ E.
Kihinga, Ruanda	1° 24′ S., 30° 38′ E.
Kihio salt lake = Katwe	
Kijabe, Kenya Col.	0° 56′ S., 36° 34′ E.
Kikanga, northwest of Ruwenzori, B. C.	0° 38′ N., 29° 53′ E.
Kikanja, Uganda	0° 37′ N., 30° 55′ E.
Kikere (Kikeri), Kivu, B. C.	1° 29′ S., 29° 23′ E.
Kikoma (Kakoma), southeast corner Tanganyika Dist., B. C.	8° 19′ S., 30° 19′ E.
Kikoma River, Northern Rhodesia-Congo border	8° 16′ S., 30° 23′ E. to 8° 27′ S., 30° 26′ E.
Kikomba, Manyema, B. C.	4° 37′ S., 28° 04′ E.

Kikondja (Kikonja), Tanganyika Dist., B. C.	8° 12′ S., 26° 26′ E.
Kikorongo, Lake, western Uganda	0° 01′ N., 30° 01′ E.
Kikuyu, Kenya Col.	1° 14′ S., 36° 40′ E.
Kikuyu District, Kenya Col.	0° 20′ S. to 1° 20′ S., and 36° 20′ E. to 37° 30′ E.
Kikuyu Escarpment, Kenya Col.	0° 56′ S., 36° 35′ E. to 1° 06′ S., 36° 35′ E.
Kikwit, Kwango, B. C.	5° 02′ S., 18° 49′ E.
Kilembe, western Kasai, B. C.	5° 46′ S., 19° 52′ E.
Kilembe River, Kasai, B. C.	5° 44′ S., 19° 53′ E.
Kilewa, Tanganyika Dist., B. C.	7° 01′ S., 29° 44′ E.
Kilimanjaro (Mt.), Tanganyika Terr.	3° 05′ S., 37° 21′ E.
Kilimatinde, Tanganyika Territory	5° 50′ S., 34° 59′ E.
Kilinkuli (Nkuli hill), Ruanda	1° 35′ S., 29° 30′ E.
Kilo, Ituri, B. C.	1° 50′ N., 30° 07′ E.
Kilolé, Lake, Abyssinia	8° 48′ N., 38° 53′ E.
Kilongolonga's = Ipoto	
Kilosa, Tanganyika Terr.	6° 49′ S., 37° 02′ E.
Kilwa, Upper Katanga	9° 16′ S., 28° 22′ E.
Kilwezi, Upemba National Park, B. C.	9° 07′ S., 26° 42′ E.
Kimangitchi = Mangiki	
Kimboho ("Kimboko," Kimboo), Kivu, B. C.	0° 32′ S., 29° 19′ E.
Kimbundji, Katanga, B. C.	10° 54′ S., 25° 08′ E.
Kimbundji River, Katanga, B. C.	10° 52′ S., 25° 20′ E. to 10° 52′ S., 25° 00′ E.
Kimilolo River, Upper Katanga, B. C.	11° 42′ S., 27° 25′ E.
Kimo, Abyssinia	9° 22′ N., 38° 15′ E.
Kimoani, Tanganyika Terr.	2° 10′ S. to 2° 33′ S., 31° 33′ E. to 31° 39′ E.
Kimpanga (Kimpango), Lomami, B. C.	7° 54′ S., 24° 22′ E.
Kimpangu, Cataracts Dist., B. C.	5° 39′ S., 15° 22′ E.
Kimpoko (Kimpoko Nsele), on Stanley Pool, B. C.	4° 14′ S., 15° 33′ E.
Kimuenza, Lower Congo Dist., B. C.	4° 27′ S., 15° 18′ E.
Kina = Hinna	
Kinabe (Kinnabe), Ituri, B. C.	0° 42′ N., 29° 52′ E.
Kinangop (Kinakop) Plateau, Kenya Col.	0° 29′ S., 36° 37′ E. to 0° 51′ S., 36° 34′ E.
Kinanira, Kigezi Dist., Uganda	1° 11′ S., 29° 36′ E.
Kinawa, Ituri, B. C.	0° 41′ N., 29° 51′ E.
Kinda, Lulua, B. C.	9° 17′ S., 25° 04′ E.
Kindu, on Lualaba River, Manyema, B. C.	2° 57′ S., 25° 56′ E.
Kinena = Muvoméma	

Kiniati, Mayombe, B. C.	5° 19′ S., 12° 56′ E.
Kinjawanga = Kinyawanga	
Kinkala, French Congo	4° 19′ S., 14° 45′ E.
Kinkizi (Chinchiji), Kigezi Dist., Uganda	0° 45′ S. to 1° 00′ S., 29° 38′ E. to 29° 52′ E.
Kinnene = Muyoméma	
Kinsembo = Kisembo	
Kinshasa, on Stanley Pool, B. C.	4° 18′ S., 15° 19′ E.
Kintambo (Kintamo) = Leopoldville	
Kintampo, Gold Coast	8° 04′ N., 1° 44′ W.
Kinunu, Ruanda	1° 56′ S., 29° 18′ E.
Kinyawanga (Kinjawanga), Semliki Valley, B. C.	0° 29′ N., 29° 32′ E.
Kinzi (Nkinzi), Semliki Valley, B. C.	0° 46′ N., 29° 43′ E.
Kinzia, Kasai R., B. C.	3° 35′ S., 18° 25′ E.
Kioga, Lake = Lake Kyoga	
Kipaïla, Luvua River, B. C.	7° 47′ S., 28° 16′ E.
Kipale River, Marungu, B. C.	7° 33′ S., 29° 30′ E. to 7° 29′ S., 29° 20′ E.
Kipushi, Upper Katanga, B. C.	11° 46′ S., 27° 14′ E.
Kir = Bahr-el-Jebel	Near 8° 30′ N.
Kirandu (Kirando), east shore of Lake Tanganyika, Tanganyika Terr.	7° 26′ S., 30° 36′ E.
Kirandu Bay, Lake Tanganyika	7° 26′ S., 30° 34′ E.
Kiraragua, Tanganyika Terr.	3° 12′ S., 37° 05′ E.
Kiri, A.-E. Sudan	4° 18′ N., 31° 30′ E.
Kiri, Northern Nigeria	9° 42′ N., 12° 03′ E.
Kiriamo (Kilyama), Semliki Valley, B. C.	0° 59′ N., 30° 03′ E.
Kirikiri (Kirikri), Togo, West Africa	9° 12′ N., 1° 27′ E.
Kirinda, Ruanda	2° 11′ S., 29° 34′ E.
Kirk Falls, eastern Ituri, B. C.	1° 05′ N., 30° 08′ E.
Kirk Mountains, Portuguese East Africa and southwestern Nyasaland	15° 05′ S., 34° 37′ E. to 15° 55′ S., 34° 16′ E.
Kironda, Kivu, B. C.	2° 12′ S., 28° 46′ E.
Kirundu, Lowa, B. C.	0° 46′ S., 25° 37′ E.
Kirunga = a volcano, in Kivu Dist., B. C.	
Kirungu (Kirunga), Ruwenzori, B. C.	0° 32′ N., 29° 51′ E.
Kisaka (Kissaka), Ruanda	1° 55′ S. to 2° 25′ S., 30° 15′ E. to 30° 55′ E.
Kisala, Mayombe, B. C.	4° 46′ S., 13° 00′ E.
Kisale, Kivu, B. C.	3° 27′ S., 28° 33′ E.
Kisale, Lake, Tanganyika Dist., B. C.	8° 10′ S. to 8° 18′ S., 26° 21′ E. to 26° 38′ E.
Kisanga (Kissanga, Kissange, Quissanga), lower Congo River, Angola	6° 02′ S., 12° 39′ E.
Kisangani = Stanleyville	
Kisantu, Lower Congo Dist., B. C.	5° 07′ S., 15° 06′ E.
Kisaro (Kisaro's), Kivu, B. C.	0° 58′ S., 29° 33′ E.
Kisembo (Kissembo, Quicembo), Angola	7° 44′ S., 13° 03′ E.
Kisenyi (Kisenji, Kissenji, Kissegnies), Ruanda	1° 42′ S., 29° 14′ E.

Kishasha, Mt. = Visoke, Mt.	
Kishushu (Shushu, Kishusha, Gishusha Island), Lake Kivu, B. C.	2° 01′ S., 29° 00′ E.
Kishwati (Gishwati), Ruanda	1° 51′ S., 29° 21′ E.
Kismayu, Italian Somaliland	0° 18′ S., 42° 30′ E.
Kisolo (Gisoro), Kigezi Dist., Uganda	1° 18′ S., 29° 42′ E.
Kissaka, Sultanate = Kisaka	
Kissale, Tanganyika Terr.	9° 28′ S., 33° 53′ E.
Kissange = Kisanga	
Kissenji = Kisenyi	
Kisubi, Stanleyville, B. C.	0° 28′ N., 25° 08′ E.
Kisubi, Uganda	0° 08′ N., 32° 32′ E.
Kisumu, Kenya Col.	0° 06′ S., 34° 45′ E.
Kiswati = Kishwati	
Kiswishi River, southeastern Katanga, B. C.	12° 51′ S., 29° 12′ E. to 12° 44′ S., 29° 13′ E.
Kita-Kita, Manyema, B. C.	3° 52′ S., 27° 12′ E.
Kitale, Kenya Col.	0° 58′ N., 35° 02′ E.
"Kitamba" = Kitimba	
Kitega (Gitega), Urundi	3° 26′ S., 29° 57′ E.
Kitehe, Kivu, B. C.	0° 51′ S., 29° 32′ E.
Kitendwe (Ketendwe), Marungu, B. C.	7° 32′ S., 29° 47′ E.
Kitenge, Ituri, B. C.	1° 47′ N., 27° 58′ E.
Kitengule (Kitenguru), on Kagera River, Tanganyika Terr.	1° 16′ S., 31° 20′ E.
Kitgum, northern Uganda	3° 20′ N., 32° 52′ E.
Kitima, Ituri, B. C.	1° 18′ N., 27° 55′ E.
Kitimba (Itímba), Semliki Valley, B. C.	0° 43′ N., 29° 53′ E.
Kitobe (Kitobo), Ituri, B. C.	0° 30′ N., 29° 30′ E.
Kitobola, Cataracts Dist., B. C.	5° 23′ S., 14° 31′ E.
Kitsch (Kitch, Kidj) Negroes, Steppes of (Kitsch country), A.-E. Sudan	6° 15′ N. to 7° 00′ N., 30° 25′ E. to 31° 10′ E.
Kitsumuro, Ituri, B. C.	1° 26′ N., 29° 51′ E.
Kitui, Kenya Col.	1° 22′ S., 38° 01′ E.
Kitungulu, Tanganyika Terr.	8° 30′ S., 31° 19′ E.
Kituni, Kenya Col.	0° 12′ N., 34° 55′ E.
Kitutu, Manyema, B. C.	3° 16′ S., 28° 05′ E.
Kitwabaluzi, Kivu, B. C.	2° 54′ S., 28° 35′ E.
Kitwala, Kwango, B. C.	4° 53′ S., 17° 44′ E.
Kivu District, B. C.	0° 50′ N., 30° 00′ E. to 5° 00′ S., 28° 30′ E.
Kivu (Kiwu), Lake	1° 35′ S. to 2° 30′ S., 28° 50′ E. to 29° 22′ E.
Kivu Range, Western ("Mitumba")	0° 14′ N., 29° 22′ E. to 4° 26′ S., 28° 43′ E.
Kivu Volcanoes (Birunga, Virunga, Mufumbiro, or Mfumbiro), Kivu, B. C., and Ruanda	1° 20′ S. to 1° 35′ S., 29° 10′ E. to 29° 43′ E.
Kivuruga, Ruanda	1° 37′ S., 29° 45′ E.

Kiwu = Kivu	
Kiyuyu, Tanganyika, B. C.	8° 26′ S., 26° 16′ E.
Kizimba (Kisimba), Lulua, B. C.	9° 03′ S., 24° 54′ E.
Klaarwater (Griquatown), Cape Prov.	28° 50′ S., 23° 15′ E.
"Knidyri" = Idjwi Island	
Knysna, Cape Prov.	34° 03′ S., 23° 01′ E.
Knysna District, Cape Prov.	33° 40′ S. to 34° 05′ S., 22° 43′ E. to 23° 44′ E.
Kodja Hill, Upper Uelle, B. C.	3° 14′ N., 29° 17′ E.
Kodok (Fashoda), A.-E. Sudan	9° 52′ N., 32° 07′ E.
Kojali, Bahr-el-Ghazal	6° 10′ N., 27° 47′ E.
Kokai, Eritrea	16° 00′ N., 38° 37′ E.
Kokola (Kokoba), Ituri, B. C.	0° 49′ N., 29° 38′ E.
Kole, eastern Katanga, B. C.	9° 30′ S., 28° 35′ E.
Koli River, Uganda	2° 15′ N., 32° 55′ E. to 2° 04′ N., 32° 23′ E.
Koloka, Lower Uelle, B. C.	3° 12′ N., 24° 28′ E.
Kolwezi, Katanga, B. C.	10° 45′ S., 25° 28′ E.
Komadeke ("Kamadekke"), Gaboon	0° 50′ S., 10° 34′ E.
Komba-Komba (Kombo), Manyema, B. C.	4° 34′ S., 28° 05′ E.
Komi, Sankuru, B. C.	3° 20′ S., 23° 48′ E.
Kondé, French Congo	4° 10′ S., 11° 25′ E.
Kondeland, north of Lake Nyasa	9° 09′ S. to 9° 43′ S., 33° 31′ E. to 34° 03′ E.
Kondoa Irangi, Tanganyika Terr.	4° 55′ S., 35° 57′ E.
Kondoa Irangi District (Irangi), Tanganyika Terr.	4° 30′ S. to 5° 30′ S., 35° 08′ E. to 36° 25′ E.
Kondolole, Stanleyville, B. C.	1° 19′ N., 26° 01′ E.
Kong, Ivory Coast	8° 20′ N. to 9° 20′ N., 3° 00′ W. to 5° 20′ W.
Kongele = Kengele	
Kongoli (Kongoli's village), Upper Uelle, B. C.	3° 20′ N., 28° 01′ E.
Kongolo, Tanganyika Dist., B. C.	5° 23′ S., 27° 01′ E.
Koni, Marungu, B. C.	7° 45′ S., 29° 40′ E.
Konkano Plain, Northern Rhodesia	13° 15′ S., 24° 00′ E.
Konta, southern Abyssinia	6° 50′ N., 36° 34′ E.
Kordofan, A.-E. Sudan	9° 20′ N. to 16° 30′ N., 27° 00′ E. to 32° 30′ E.
Koritscha (Goradja), southern Abyssinia	6° 34′ N., 38° 24′ E.
Korogwe, northeastern Tanganyika Terr.	5° 09′ S., 38° 28′ E.
Koroli (Korole, Koronli), northern Kenya Col.	2° 34′ N., 37° 40′ E.
Korongo, Kivu Volcanoes, B. C.	1° 23′ S., 29° 37′ E.
Kosanga (Kabsanga), Bahr-el-Ghazal	7° 38′ N., 27° 15′ E.
Kosanga River = Pongo River	
Kosha, southern Abyssinia	6° 40′ N., 36° 30′ E.
Kota Kota District, Nyasaland	12° 32′ S. to 13° 31′ S., 33° 38′ E. to 34° 20′ E.
Kotili (Koteli), Lower Uelle, B. C.	2° 51′ N., 24° 34′ E.

Kouango River, Ubangi-Shari	5° 40′ N., 20° 37′ E. to 4° 56′ N., 19° 58′ E.
Kouroussa, French Guinea	10° 40′ N., 9° 52′ W.
Kousri (Kousseri, Fort Foureau), Chad Prov., French Equatorial Africa	12° 03′ N., 15° 03′ E.
Kraterushi = Nzulu	
Krebedje = Fort Sibut	
Kroonstad, Orange Free State	27° 42′ S., 27° 15′ E.
Kubango District (Districto de Cubango), southern Angola	14° 19′ S. to 18° 00′ S., 16° 53′ E. to 23° 17′ E.
Kubbi, Upper Uelle Dist., B. C.	3° 15′ N., 28° 38′ E.
Kudurma, southern Bahr-el-Ghazal	4° 45′ N., 29° 35′ E.
Kufum, British Cameroons	6° 25′ N., 10° 50′ E.
Kukuru River, Ubangi-Shari	7° 12′ N., 20° 50′ E. to 7° 29′ N., 19° 41′ E.
Kulikoro, French Sudan	12° 55′ N., 7° 30′ W.
Kulme, Darfur	12° 37′ N., 23° 37′ E.
Kului River = Cului River	
Kumanu Plain, Northern Rhodesia	13° 30′ S., 22° 35′ E.
Kumba (Johann Albrechts = höhe), British Cameroons	4° 38′ N., 9° 25′ E.
Kumbo, British Cameroons	6° 11′ N., 10° 41′ E.
Kunabo, Ituri, B. C.	1° 24′ N., 29° 44′ E.
Kundelungu Plateau, Katanga, B. C.	8° 57′ S. to 10° 41′ S., 27° 23′ E. to 28° 12′ E.
Kundhuru-ya-Tshuve, Ruanda	1° 24′ S., 29° 38′ E.
Kungwe-Mahare Mountains = Kungwe, Mt., and Mahare Highland	
Kungwe, Mt., Tanganyika Terr.	6° 08′ S., 29° 48′ E.
Kungwe Peninsula, on Lake Tanganyika, Tanganyika Terr.	5° 52′ S. to 6° 28′ S., 29° 42′ E. to 30° 07′ E.
Kunungu, Middle Congo, B. C.	2° 06′ S., 16° 26′ E.
Kunzulu, middle Congo River, B. C.	3° 28′ S., 16° 09′ E.
Kupé, Mt., British Cameroons	4° 48′ N., 9° 43′ E.
Kurrichane (Kurichane), western Transvaal	25° 46′ S., 26° 11′ E.
Kuruman, British Bechuanaland	27° 26′ S., 23° 28′ E.
Kutchugali (Kutchagali), Bahr-el-Ghazal	7° 30′ N., 28° 08′ E.
Kuterma, on Congo-A.-E. Sudan border	4° 15′ N., 29° 57′ E.
Kutu, Lake Leopold Dist., B. C.	2° 44′ S., 18° 08′ E.
Kutunda, Lower Uelle, B. C.	4° 23′ N., 26° 04′ E.
Kuvali River = Cuval River	
Kuyu River (Khor Ayu), Uganda-A.-E. Sudan	3° 46′ N., 31° 38′ E. to 3° 51′ N., 31° 48′ E.
Kwa Mpala = Mpala	
Kwa Mtessa = Mtessa, kwa	
Kwa River, flows into middle Congo River, B. C.	3° 02′ S., 16° 56′ E. to 3° 10′ S., 16° 11′ E.

Kwa Seroma = Seroma	
Kwale Island, eastern Lake Tanganyika, Tanganyika Terr.	7° 25′ S., 39° 26′ E.
Kwamouth, middle Congo River, B. C.	3° 10′ S., 16° 11′ E.
Kwango (Kouango), Ubangi-Shari, French Equatorial Africa	4° 56′ N., 19° 58′ E.
Kwango District, B. C.	3° 14′ S. to 8° 06′ S., 15° 15′ E. to 19° 32′ E.
Kwango (Cuango) River, Angola and B. C.	11° 25′ S., 19° 01′ E. to 3° 14′ S., 17° 22′ E.
Kwanza district = Cuanza district	
Kwanza River = Cuanza River	
Kwenda, Mai-na- = Mai-na-Kwenda	
Kwenge, Kwango Dist., B. C.	4° 57′ S., 18° 39′ E.
Kwidjwi Island = Idjwi Island	
Kwilu, Lower Congo Dist., B. C.	5° 36′ S., 14° 18′ E.
Kwilu River (Cuilo, Cuillo), affluent of Kwango River, Angola and B. C.	10° 52′ S., 19° 25′ E. to 3° 23′ S., 17° 22′ E.
Kwilu River, affluent of Congo River, Angola and B. C.	6° 10′ S., 14° 44′ E. to 5° 12′ S., 13° 58′ E.
Kwilu River (Kwilu-Niari, Kouilou, Quillu), French Congo	3° 24′ S., 12° 37′ E. to 4° 27′ S., 11° 41′ E.
Kyagwe (Kiagwe, Chagwe), Uganda	0° 17′ N. to 0° 33′ N., 32° 40′ E. to 33° 11′ E.
Kyambu (Kiambu), Kenya Col.	1° 08′ S., 36° 50′ E.
Kyetema, Uganda	0° 13′ N., 32° 43′ E.
Kyetume (Kyetuma), Uganda	0° 21′ N., 32° 44′ E.
Kyiowa (Kyiwona), northwestern Tanganyika Terr.	1° 27′ S., 30° 51′ E.
Kyoga (Kioga, Chioga), Lake, Uganda	1° 15′ N. to 1° 47′ N., 32° 37′ E. to 33° 27′ E.
Laboni Forest, southern A.-E. Sudan	3° 51′ N., 32° 40′ E.
Lacrima Station, Upper Uelle, B. C.	4° 48′ N., 27° 37′ E.
Lado, A.-E. Sudan	5° 01′ N., 31° 41′ E.
Lado Enclave, A.-E. Sudan and Uganda	2° 10′ N. to 5° 30′ N., 30° 00′ E. to 32° 07′ E.
Lagos, Southern Nigeria	6° 28′ N., 3° 25′ E.
Laikipia, Kenya Col.	0° 00′ to 0° 35′ N., 36° 08′ E. to 36° 55′ E.
Laikipia Plateau, Kenya Col.	0° 10′ N. to 0° 30′ N., 36° 10′ E. to 36° 50′ E.
Lakama, Kwango, B. C.	5° 30′ S., 19° 14′ E.
Lambaréné, Gaboon	0° 41′ S., 10° 12′ E.
Lamia, Semliki Valley, B. C.	0° 35′ N., 29° 48′ E.
Lamia River, Ruwenzori, Uganda and B. C.	0° 25′ N., 29° 57′ E. to 0° 50′ N., 29° 30′ E.
Lamu, Kenya Col.	2° 16′ S., 40° 55′ E.
Lamu Island, coast of Kenya Col.	2° 16′ S., 40° 57′ E.

Lamy, Fort, French Equatorial Africa	12° 05′ N., 15° 05′ E.
Lamya River = Luami River	
Landana, Enclave of Cabinda	5° 12′ S., 12° 08′ E.
Langa-Langa, middle Congo River, B. C.	3° 51′ S., 15° 57′ E.
Langenburg (Alt-Langenburg), southwestern Tanganyika Terr.	9° 33′ S., 34° 10′ E.
Langenburg, Neu-, southwestern Tanganyika Terr.	9° 15′ S., 33° 38′ E.
Lango District, northern Uganda	1° 50′ N. to 2° 10′ N., 32° 20′ E. to 33° 20′ E.
Langomeri, A.-E. Sudan	3° 47′ N., 30° 45′ E.
Lanuri River, Ruwenzori, B. C.	0° 26′ N., 29° 55′ E. to 0° 35′ N., 29° 59′ E.
Lastoursville, Gaboon	0° 49′ S., 12° 43′ E.
Latuka (Latuko), southern A.-E. Sudan	4° 03′ N., 32° 54′ E. to 4° 48′ N., 32° 28′ E.
Lavusi (Lavunsi), Northern Rhodesia	12° 24′ S., 30° 52′ E.
Laws, Mt. = Nyakhowa	
"Lebule" = Sandula	
Leketi, French Congo	1° 35′ S., 14° 55′ E.
Lemera (Lumera, Nya Mogira), Kivu, B. C.	3° 02′ S., 28° 59′ E.
Lemera, southwest shore of Lake Edward	0° 33′ S., 29° 19′ E.
Lemfu, Lower Congo Dist., B. C.	5° 17′ S., 15° 13′ E.
Lenda River, Ituri, B. C.	0° 14′ N., 28° 45′ E. to 1° 24′ N., 28° 02′ E.
Lendu Plateau (A-Lendu), Ituri, B. C.	1° 10′ N. to 2° 14′ N., 30° 05′ E. to 31° 02′ E.
Leopold II, Lake, west-central B. C.	1° 28′ S., 18° 40′ E. to 2° 40′ S., 18° 17′ E.
Leopoldville (Kintambo, Kintamo), Stanley Pool, B. C.	4° 18′ S., 15° 17′ E.
Lepe (Lepi, Elepi), Benguella Prov., Angola	12° 50′ S., 15° 26′ E.
Lepia (Lepi), Kivu, B. C.	0° 28′ S., 28° 53′ E.
Lerundo, Kenya Col.	0° 09′ N., 34° 51′ E.
Leshumo Valley (Leshuma, Lushuna), northern Bechuanaland	18° 00′ S., 25° 10′ E.
Lesse, Semliki Valley, B. C.	0° 43′ N., 29° 46′ E.
Let-Marefià, Abyssinia	9° 38′ N., 39° 50′ E.
Leverville, Kwango, B. C.	5° 03′ S., 18° 45′ E.
Lévrier, Baie du, Mauritania	21° 00′ N., 16° 55′ W.
Leydsdorp district, northeastern Transvaal	24° 00′ S., 30° 28′ E.
Li Rangu = Rangu	
Libenge, Ubangi, B. C.	3° 38′ N., 18° 39′ E.
Liberia, West Africa	4° 22′ N. to 8° 32′ N., 7° 46′ W. to 11° 30′ W.
Libogo, Congo-A.-E. Sudan border	3° 56′ N., 30° 21′ E.
Libokwa, Lower Uelle, B. C.	3° 20′ N., 25° 16′ E.
Libugu = Libogo	
Libyan Desert	17° 00′ N. to 30° 40′ N., 18° 00′ E. to 28° 30′ E.
Lichenya (Mlanje) Plateau, Nyasaland	16° 00′ S., 35° 34′ E.

Licouba, French Congo	1° 20′ S., 16° 46′ E.
Lié (Budja-Lie), Bangala, B. C.	1° 58′ N., 21° 14′ E.
Lifaki, Lower Uelle	3° 58′ N., 23° 32′ E.
Likandi (Lekandi) River, Uelle, B. C.	3° 11′ N., 26° 11′ E. to 3° 33′ N., 26° 10′ E.
Likati, Lower Uelle, B. C.	3° 20′ N., 23° 57′ E.
Likati River, Lower Uelle	3° 26′ N., 22° 47′ E. to 2° 41′ N., 24° 07′ E.
Likulwe River = Dikulwe River	
Likwala-Esobé River (Likouala aux Herbes), affluent of Sanga River, French Congo	2° 12′ N., 17° 17′ E. to 0° 50′ S., 17° 11′ E.
Likwala-Mossaka River (Likouala), empties into Congo River, French Congo	0° 01′ N., 14° 48′ E. to 1° 10′ S., 16° 49′ E.
Lilongwe, Nyasaland	14° 00′ S., 33° 46′ E.
Limpopo River, southeastern Africa	24° 10′ S., 26° 50′ E. to 25° 12′ S., 31° 30′ E.
Lindi River, northeastern B. C.	0° 33′ S., 28° 40′ E. to 0° 32′ N., 25° 07′ E.
Lipumba, southwestern Tanganyika Terr.	10° 48′ S., 35° 04′ E.
Liranga, French Congo	0° 39′ S., 17° 35′ E.
Lisala, Bangala, B. C.	2° 07′ N., 21° 34′ E.
Lisasa (Lissassa), southeastern Ituri, B. C.	0° 05′ N., 29° 31′ E.
Lisha, middle Congo River, B. C.	3° 51′ S., 15° 56′ E.
Livingstone, Northern Rhodesia	17° 50′ S., 25° 53′ E.
Livingstone Mountains, northeast of Lake Nyasa, Tanganyika Terr.	9° 27′ S., 34° 06′ E. to 10° 45′ S., 34° 45′ E.
Livingstonia (Kondowe), northern Nyasaland	10° 36′ S., 34° 07′ E.
Liwale, southern Tanganyika Terr.	9° 46′ S., 37° 58′ E.
Liwonde, Nyasaland	15° 05′ S., 35° 13′ E.
Loadi Hill, Lower Congo Dist., B. C.	5° 51′ S., 13° 28′ E.
Loagna (of W. Lucas, *ca.* 1900), probably in or near Mayombe Dist.	
Loanda (Luanda) District, Angola	7° 24′ S. to 10° 22′ S., 13° 00′ E. to 14° 58′ E.
Loanda, St. Paul de (Luanda), Angola	8° 50′ S., 13° 13′ E.
Loandji (Loana, Luama) River, Kasai, B. C.	5° 58′ S., 19° 44′ E. to 4° 24′ S., 19° 53′ E.
Loange (Luangue) River, Angola to Kasai Dist., B. C.	10° 12′ S., 19° 46′ E. to 4° 17′ S., 20° 02′ E.
Loango, French Congo	4° 38′ S., 11° 49′ E.
Loango Coast	3° 25′ S., 10° 40′ E. to 5° 20′ S., 12° 08′ E.
Loangwa River (Luangwa), Northern Rhodesia	9° 45′ S., 33° 14′ E. to 15° 32′ S., 30° 23′ E.

Loashi, Kivu, B. C.	1° 22′ S., 28° 48′ E.
Loashi (Loasi) River, Kivu, B. C.	1° 31′ S., 28° 48′ E. to 1° 14′ S., 28° 43′ E.
Lobango = Lubango	
Lobito Bay, Angola	12° 18′ S., 13° 32′ E.
Lobo, northeastern Rhodesia	12° 11′ S., 29° 31′ E.
Lobozi (Mulobozi) River, Tanganyika Dist., B. C.	7° 34′ S., 29° 59′ E. to 7° 02′ S., 29° 44′ E.
Loda Forest, eastern Ituri, B. C.	2° 02′ N., 30° 57′ E.
Loda Plain, Ituri, B. C.	2° 07′ N., 31° 10′ E.
Loemma (Loémé) River, French Congo	4° 20′ S., 12° 40′ E. to 5° 00′ S., 12° 01′ E.
Lofima, Tshuapa Dist., B. C.	0° 34′ S., 22° 35′ E.
Lofoi, Katanga, B. C.	10° 12′ S., 27° 25′ E.
Lofoi River, Katanga, B. C.	10° 33′ S., 27° 50′ E. to 10° 13′ S., 27° 24′ E.
Lofu (Lovu, Lufubu) River, Northern Rhodesia	9° 37′ S., 30° 45′ E. to 8° 34′ S., 30° 44′ E.
Lofunzo (Lofunso, Luvunzu, Lufonzo) River, Tanganyika Dist., B. C.	7° 48′ S., 29° 48′ E., to 8° 11′ S., 28° 49′ E.
Loge (Loje) River, northwestern Angola	7° 57′ S., 15° 39′ E. to 7° 54′ S., 13° 07′ E.
Logone district, French Equatorial Africa	7° 00′ N. to 11° 00′ N., 15° 00′ E. to 17° 00′ E.
Logone River, French Equatorial Africa	9° 02′ N., 16° 29′ E. to 12° 03′ N., 15° 03′ E.
Logone River, East (Pendé, Penndú), French Equatorial Africa	6° 36′ N., 15° 25′ E. to 9° 02′ N., 16° 29′ E.
Logone River, West (Mbéré), French Equatorial Africa	6° 40′ N., 14° 08′ E. to 9° 02′ N., 16° 29′ E.
Loguma, Massif of, northeastern Ituri, B. C.	1° 39′ N., 30° 26′ E. to 2° 13′ N., 30° 52′ E.
Loiki, Kivu, B. C.	0° 14′ S., 28° 44′ E.
Loita district (Loita Plains), Kenya Col.	1° 10′ S., to 1° 25′ S., 35° 05′ E. to 35° 40′ E.
Loka, A.-E. Sudan	4° 17′ N., 31° 01′ E.
Lokandu (Riva-Riva, Riba-Riba), Lowa Dist., B. C.	2° 34′ S., 25° 46′ E.
Lokaya Mountains, probably = Lokoya Mountains	
Loko, Northern Nigeria	8° 00′ N., 7° 50′ E.
Lokodja, Northern Nigeria	7° 47′ N., 6° 44′ E.
Lokoya (Lokoja) Mountains, southern A.-E. Sudan	4° 28′ N., 32° 06′ E.
Lolanga (Lulanga, Lulonga), on upper Congo River, B. C.	0° 35′ N., 18° 23′ E.

Lolgorien, western Kenya Col.	1° 15′ S., 34° 55′ E.
Loliondo (Loliondo Forest), Tanganyika Terr.	2° 04′ S., 35° 33′ E.
Lolodorf (Bibia, MacLean), Cameroon	3° 10′ N., 10° 42′ E.
Lololokui (Lololokwi), Mt., Kenya Col.	0° 51′ N., 37° 32′ E.
Lomami District, B. C.	5° 00′ S. to 8° 56′ S., 23° 07′ E. to 26° 24′ E.
Lomami ("Lomani," misprint) River, B. C.	8° 39′ S., 24° 48′ E. to 0° 47′ N., 24° 15′ E.
Lomié, Cameroon	3° 12′ N., 13° 37′ E.
Lomvo (Rombo) River, Upper Uelle, B. C.	3° 48′ N., 30° 07′ E. to 3° 42′ N., 29° 47′ E.
Londiani, Kenya Col.	0° 10′ S., 35° 37′ E.
Londo Plain, southwest of Lake Upemba, B. C.	8° 58′ S., 26° 08′ E.
Longa River, Angola	14° 22′ S., 18° 24′ E. to 16° 21′ S., 19° 05′ E.
Longwe, Lake = Lungwe Lake	
Lonkala, Sankuru, B. C.	4° 37′ S., 23° 14′ E.
Loolmalasin (Loolmalassin), Tanganyika Terr.	3° 04′ S., 35° 48′ E.
Loömbwa River = Luombwa River	
Lopé, Gaboon	0° 04′ S., 11° 36′ E.
Lopez, Cape, Gaboon	0° 38′ S., 8° 44′ E.
Loso River = Oso River	
Loto, northern Sankuru, B. C.	2° 48′ S., 22° 30′ E.
Lotti Forest, Mongalla Prov., A.-E. Sudan	4° 00′ N., 32° 35′ E.
Loudima, French Congo	4° 08′ S., 13° 07′ E.
Louemba River = Loemma River	
Louembe = Loemma River	
Louis of Savoy, Mt. (Mt. Luigi di Savoia), Ruwenzori, Uganda	0° 20′ N., 29° 53′ E.
Lourenço Marques, Portuguese East Africa	25° 59′ S., 32° 36′ E.
Lovili, Mt. (Loviti Berg), Angola	12° 00′ S., 15° 20′ E.
Lovoi River, Katanga, B. C.	8° 50′ S., 24° 37′ E. to 8° 15′ S., 26° 39′ E.
Lowa District, B. C.	0° 00′ to 3° 15′ S., 24° 17′ E. to 28° 36′ E.
Loya River, Ituri, B. C.	1° 20′ N., 30° 05′ E. to 1° 19′ N., 29° 39′ E.
Luakera (Luakela) River, Northern Rhodesia	11° 20′ S., 24° 05′ E. to 11° 37′ S., 24° 32′ E.
Lualaba River, B. C.	11° 44′ S., 26° 29′ E. to 0° 30′ N., 25° 11′ E.
"Lualaba" River (of R. Böhm) = Luvua River	
Luami River (Lami, Ruamya, Roláni, Rami-Lulu), Ruwenzori	0° 26′ N., 29° 54′ E. to 0° 42′ N. 29° 45′ E.

Luanda = Loanda	
Luangwa River = Loangwa River	
Luansenshi (Luansenshe) River, Northern Rhodesia	10° 04′ S., 30° 11′ E. to 11° 14′ S., 30° 35′ E.
Luanshya, Northern Rhodesia	13° 08′ S., 28° 25′ E.
Luapula District, Upper = Haut Luapula District	
Luapula River, Upper Katanga	11° 27′ S., 29° 49′ E. to 9° 25′ S., 28° 38′ E.
Luashi, Lulua, B. C.	10° 56′ S., 23° 36′ E.
Luassinga River = Lwasinga River	
Lubango (Lobango, Sá da Bandeira), Angola	14° 55′ S., 13° 30′ E.
Lubango, Kivu Dist., B. C.	0° 19′ S., 29° 12′ E.
Lubena, southeastern Ituri, B. C.	0° 27′ N., 29° 06′ E.
Lubenga, Marungu, B. C.	7° 45′ S., 30° 02′ E.
Lubengera, Ruanda	2° 04′ S., 29° 25′ E.
Lubereri, Kivu, B. C.	0° 16′ S., 29° 04′ E.
Lubero, Kivu, B. C.	0° 10′ S., 29° 13′ E.
Lubila River = Lubilo River	
Lubilash (Lubilanji) River, southern B. C.	10° 00′ S., 24° 05′ E. to 6° 01′ S., 23° 45′ E.
Lubilia River, southern Ruwenzori	0° 11′ N., 29° 49′ E. to 0° 04′ S., 29° 44′ E.
Lubilo River, Stanleyville, B. C.	0° 43′ N., 26° 54′ E. to 0° 50′ N., 25° 58′ E.
Lubilu, Manyema, B. C.	4° 40′ S., 27° 48′ E.
Lubirizi River, Ruzizi Valley, Kivu, B. C.	3° 05′ S., 28° 53′ E. to 2° 56′ S., 29° 07′ E.
Lubishi River, Lomami, B. C.	8° 27′ S., 24° 12′ E. to 6° 52′ S., 24° 10′ E.
Lubombo, Upper Katanga, B. C.	11° 11′ S., 27° 55′ E.
Lubondaie, Kasai, B. C.	6° 33′ S., 22° 39′ E.
Lubudi River, Lulua, B. C.	11° 15′ S., 24° 58′ E. to 9° 13′ S., 25° 38′ E.
Lubue (Lubuye) River, Kasai, B. C.	6° 07′ S., 19° 35′ E. to 4° 10′ S., 19° 53′ E.
Lubuku, Kivu, B. C.	3° 16′ S., 28° 53′ E.
Lubumbashi, Upper Katanga, B. C.	11° 41′ S., 27° 28′ E.
Lubumbashi River, Upper Katanga, B. C.	11° 26′ S., 27° 15′ E. to 11° 43′ S., 27° 29′ E.
Lubutu, Lowa, B. C.	0° 44′ S., 26° 34′ E.
Lubuzi River, Mayombe, B. C.	5° 02′ S., 13° 10′ E. to 5° 09′ S., 12° 30′ E.
Luchenza, Nyasaland	16° 03′ S., 35° 17′ E.
Luchinde, Nyasaland	10° 40′ S., 33° 52′ E.
Luchinde River, Northern Rhodesia	9° 09′ S., 32° 15′ E. to 9° 42′ S., 32° 15′ E.
Lucosi, Kavirondo, Kenya Colony	0° 12′ N., 34° 53′ E.
Lucosi Road, Kavirondo	0° 10′ N., 34° 55′ E.

Lueba, on Lake Tanganyika, Kivu, B. C.	3° 57′ S., 29° 06′ E.
Luebo, Kasai, B. C.	5° 20′ S., 21° 23′ E.
Luebo River, Kasai, B. C.	6° 56′ S., 21° 57′ E. to 5° 20′ S., 21° 22′ E.
Luemba = Loemma River	
Luembe River, East (Lubembe orientale), Upper Katanga, B. C.	12° 56′ S., 28° 46′ E. to 11° 47′ S., 28° 33′ E.
Luembo = Loemma River	
Luena, Upper Katanga, B. C.	9° 27′ S., 25° 47′ E.
Luena (Luena Mission) Northern Rhodesia	10° 40′ S., 30° 20′ E.
Luena River, Northern Rhodesia	10° 10′ S., 30° 08′ E. to 11° 03′ S., 30° 02′ E.
Luenge (Lohenga) Lake, Kivu, B. C.	1° 14′ S., 29° 01′ E.
Luezi (Lueji), Lulua, B. C.	8° 52′ S., 25° 05′ E.
Lufidizi River (Lufitizi), Upper Katanga, B. C.	10° 36′ S., 27° 55′ E. to 10° 47′ S., 28° 35′ E.
Lufira (Djuo, Kiubo) Falls, Upper Katanga, B. C.	9° 27′ S., 27° 00′ E.
Lufira River, Upper Katanga, B. C.	11° 57′ S., 26° 52′ E. to 8° 28′ S., 26° 34′ E.
Lufonzo River = Lofunzo River	
Lufu Karibu, Semliki Valley, B. C.	0° 16′ N., 29° 44′ E.
Lufu River, Angola and Lower Congo Dist., B. C.	6° 12′ S., 14° 41′ E. to 5° 32′ S., 13° 40′ E.
Lufua (Lufwa) River, Upper Katanga, B. C.	8° 51′ S., 27° 26′ E. to 9° 38′ S., 27° 13′ E.
Lufubu River, affluent of Lualaba River, B. C.	5° 31′ S., 26° 03′ E. to 4° 12′ S., 26° 05′ E.
"Lufufa River" = Lufupa River	
Lufuku (Lufuko) River, Tanganyika Dist., B. C.	7° 37′ S., 29° 54′ E. to 6° 45′ S., 29° 31′ E.
Lufungula, Semliki Valley, B. C.	0° 22′ N., 29° 29′ E.
Lufupa River, Upper Katanga, B. C.	11° 12′ S., 25° 17′ E. to 10° 12′ S., 25° 24′ E.
Lugalambo, Uganda	0° 24′ N., 33° 03′ E.
Lugashali, Rutshuru Valley, Kivu, B. C.	1° 07′ S., 29° 34′ E.
Lugégé = Rugege	
Lugoma River (Lugoma Brook), Upper Katanga, B. C.	9° 03′ S., 27° 36′ E.
Lugware (Lugbara) country, B. C. and Uganda	2° 40′ N. to 3° 10′ N., 30° 30′ E. to 31° 00′ E.
Luhondo (Ruonda), Lake, Ruanda	1° 31′ S., 29° 44′ E.
Luhule-Bombe, Semliki Valley, B. C.	0° 23′ N., 29° 46′ E.

Luhule River, Ituri, B. C.	0° 12′ N., 29° 22′ E. to 0° 39′ N., 29° 14′ E.
Luhule-Rugetsi, Semliki Valley, B. C.	0° 13′ N., 29° 42′ E.
Lui River, Angola	10° 17′ S., 17° 51′ E. to 8° 31′ S., 17° 44′ E.
Luilu River, Lomami, B. C.	8° 30′ S., 23° 28′ E. to 6° 24′ S., 23° 52′ E.
Luimbale, Angola	12° 14′ S., 15° 25′ E.
Luimi River, east Ruwenzori, Uganda	0° 26′ N., 30° 01′ E. to 0° 24′ N., 30° 11′ E.
Luiro (Lwiro)	
Luisa, southern Kasai, B. C.	7° 11′ S., 22° 25′ E.
Luiswishi (Luishwishi) River, Upper Katanga, B. C.	11° 34′ S., 27° 29′ E. to 11° 24′ S., 28° 19′ E.
Luitshe (Luiche) River, Tanganyika Terr.	4° 34′ S., 29° 59′ E. to 4° 58′ S., 29° 43′ E.
Lukafu, Upper Katanga, B. C.	10° 31′ S., 27° 33′ E.
Lukanga River, Lower Congo Dist., B. C.	5° 47′ S., 12° 55′ E. to 5° 51′ S., 12° 52′ E.
Lukanga Swamps, Northern Rhodesia	14° 15′ S., to 14° 37′ S., 27° 20′ E. to 28° 00′ E.
Lukenye (Lukenie) River, B. C.	3° 21′ S., 24° 24′ E. to 2° 44′ S., 18° 09′ E.
Luki, Mayombe, B. C.	5° 38′ S., 13° 04′ E.
Lukifui (Lukifue, Lukivwa) River, Tanganyika Dist., B. C.	7° 45′ S., 29° 22′ E. to 8° 01′ S., 29° 06′ E.
Lukolansala River, Tanganyika Terr.	5° 56′ S., 30° 50′ E.
Lukolela ("Lukolele"), middle Congo River, B. C.	1° 07′ S., 17° 11′ E.
Lukonzolwa, Lake Moero, B. C.	8° 46′ S., 28° 39′ E.
Lukuga River, Tanganyika Dist., B. C.	5° 55′ S., 29° 12′ E. to 5° 39′ S., 26° 55′ E.
Lukula, Mayombe, B. C.	5° 24′ S., 12° 57′ E.
Lukula River, Mayombe, B. C.	4° 57′ S., 13° 24′ E. to 5° 08′ S., 12° 29′ E.
Lukumbi, Tanganyika Dist., B. C.	7° 51′ S., 28° 53′ E.
Lukumbi River, Tanganyika Dist., B. C.	7° 04′ S., 29° 05′ E. to 8° 02′ S., 28° 44′ E.
Lukumi (Rukumi), on Mt. Karisimbi	1° 29′ S., 29° 27′ E.
Lulenga (Tongres Ste. Marie, Rugari), Kivu, B. C.	1° 24′ S., 29° 22′ E.
Lulenge (Loulengué, Lulenge Brook) River, Upper Katanga, B. C.	9° 25′ S., 27° 13′ E.
Lulimala River, Northern Rhodesia	12° 20′ S., 30° 25′ E. to 12° 10′ S., 29° 40′ E.
Lulinda, Kivu, B. C.	3° 53′ S., 29° 06′ E.
"Lulindi," misprint = Luvinvi	
Lulingila River, Northern Rhodesia	11° 19′ S., 31° 10′ E. to 11° 22′ S., 30° 29′ E.

"Lulombo" = Lubombo	
Lulonga (Lolonga), upper Congo River, B. C.	0° 35′ N., 18° 23′ E.
Lulonga District, B. C.	0° 31′ S. to 1° 50′ N., 18° 26′ E. to 23° 34′ E.
Lulonga River, B. C.	1° 14′ N., 19° 49′ E. to 0° 39′ N., 18° 23′ E.
Lulua District, B. C.	8° 00′ S. to 11° 27′ S., 21° 36′ E. to 25° 40′ E.
Lulua Post, Upper Katanga, B. C.	10° 46′ S., 25° 12′ E.
Lulua River, southern B. C.	10° 55′ S., 23° 30′ E. to 5° 02′ S., 21° 06′ E.
Luluabourg (Malandji), Kasai, B. C.	5° 56′ S., 22° 18′ E.
Luluabourg Railway Station, Kasai, B. C.	5° 53′ S., 22° 25′ E.
Luluabourg-St. Joseph = St. Joseph, Mission, Kasai	
Luma Island, Ubangi River, northern B. C.	4° 35′ N., 20° 29′ E.
Lumatululu, Stanleyville, B. C.	0° 31′ N., 25° 23′ E.
"Lumbia" = Zumbia	
Lumbwa, Kenya Col.	0° 11′ S., 35° 30′ E.
Lume, Semliki Valley, B. C.	0° 17′ N., 29° 35′ E.
Lume River, Ruwenzori	0° 17′ N., 29° 52′ E. to 0° 15′ N., 29° 34′ E.
Lumi River, Kenya Col.	3° 20′ S., 37° 43′ E. to 3° 32′ S., 37° 43′ E.
Lunda country, northern Angola	7° 30′ S. to 11° 20′ S., 18° 10′ E. to 22° 00′ E.
Lundazi, Northern Rhodesia	12° 20′ S., 33° 12′ E.
Lundazi District, Northern Rhodesia	11° 52′ S. to 12° 42′ S., 32° 12′ E. to 33° 31′ E.
Lundazi River, Northern Rhodesia	12° 20′ S., 33° 12′ E. to 12° 04′ S., 32° 24′ E.
Lundjulu, Kivu, B. C.	0° 19′ S., 28° 36′ E.
Lundu, Upper Mayombe, B. C.	4° 45′ S., 13° 03′ E.
Lungwe (Longwe), Lake Kivu, B. C.	3° 02′ S., 28° 49′ E.
Lunsongwe (Lunjongwe) River, Northern Rhodesia	12° 30′ S., 24° 08′ E. to 13° 14′ S., 24° 25′ E.
Luofu, Kivu, B. C.	0° 37′ S., 29° 07′ E.
Luombwa (Loömbwa, Luombo) River, southeastern Katanga, B. C.	13° 24′ S., 29° 43′ E. to 12° 13′ S., 29° 33′ E.
Luozi, Lower Congo Dist., B. C.	4° 56′ S., 14° 08′ E.
Lupampa Mountains (Serra Lupampa), Northern Rhodesia	13° 58′ S., 28° 11′ E.
Lupande (Lupandi, Lupundi) River, Northern Rhodesia	13° 55′ S., 32° 01′ E. to 13° 04′ S., 31° 45′ E.
"Lupe" River = Lufu River	
Lupungu (Lumpungu, Kabinda), Lomami, B. C.	6° 08′ S., 24° 27′ E.
Lur country, northeastern B. C. and Uganda	2° 10′ N. to 2° 38′ N., 30° 48′ E. to 31° 30′ E.

Lusaka (Lusaka-St. Jacques, St. Jacques de Lusaka), Tanganyika Dist., B. C.	7° 09′ S., 29° 27′ E.
Lusaka, Northern Rhodesia	15° 24′ S., 28° 18′ E.
Lusambo, Sankuru, B. C.	4° 58′ S., 23° 25′ E.
Lusasa (Ishasha), Uganda	0° 54′ S., 29° 44′ E.
Lusenfwa (Lunsemfwa, Lunsamfwa) River, Northern Rhodesia	13° 16′ S., 29° 39′ E. to 14° 38′ S., 30° 05′ E.
Lusengo, on upper Congo River, B. C.	1° 46′ N., 19° 28′ E.
Lushadu, Lake, Kivu, B. C.	2° 22′ S., 28° 51′ E.
Lushasha, Kivu, B. C.	2° 12′ S., 28° 48′ E.
Lusigi (Lushigi) River, Kivu, B. C.	3° 03′ S., 28° 49′ E. to 3° 10′ S., 28° 36′ E.
Lusilubi (Lusilube, Rusirubi) River, Ruwenzori, B. C.	0° 24′ N., 29° 53′ E. to 0° 33′ N., 29° 39′ E.
Lusinga, Katanga, B. C.	8° 56′ S., 27° 12′ E.
Lusinga, Marungu, B. C.	6° 50′ S., 29° 18′ E.
Lutete = Ngombe Lutete	
Lutindi, Mt., Usambara, Tanganyika Terr.	5° 07′ S., 38° 23′ E.
Lutobo, southwestern Uganda	1° 09′ S., 30° 08′ E.
Lutoto, Uganda	0° 20′ S., 30° 07′ E.
Lutshatsha River, Kasai, B. C.	6° 49′ S., 21° 57′ E. to 6° 03′ S. 22° 13′ E.
Lutunguru, Kivu, B. C.	0° 29′ S., 28° 47′ E.
Luvilombo (Luvilombe) Falls, Upper Katanga, B. C.	9° 31′ S., 27° 02′ E.
Luvilombo River, Upper Katanga, B. C.	9° 35′ S., 26° 22′ E. to 9° 31′ S., 27° 02′ E.
Luvinvi (Luvimvi, "Lulindi") River, Kivu, B. C.	2° 47′ S., 29° 00′ E.
Luvua River, Tanganyika Dist., B. C.	8° 29′ S., 28° 53′ E. to 6° 46′ S., 26° 58′ E.
Luvule River (Lubule), Tanganyika Dist., B. C.	8° 54′ S., 28° 06′ E. to 8° 20′ S., 28° 47′ E.
Luvumba (Lubumba), Kivu, B. C.	3° 19′ S., 28° 50′ E.
Luvundi, Urundi	4° 15′ S., 29° 33′ E.
Luvungi, Kivu, B. C.	2° 52′ S., 29° 03′ E.
Luwingu, Northern Rhodesia	10° 09′ S., 30° 07′ E.
Luz, Missão de, Angola	10° 40′ S., 20° 26′ E.
Lwasinga (Lwasingwa, Luassinga, Luacinga) River, Angola	14° 26′ S., 18° 11′ E. to 15° 44′ S., 18° 43′ E.
Lwiro (Luiru), Kivu, B. C.	2° 14′ S., 28° 49′ E.
Lwiro River, Kivu Dist., B. C.	2° 13′ S., 28° 46′ E., to 2° 14′ S., 28° 52′ E.
Mabali, Lake Tumba, B. C.	0° 55′ S., 18° 09′ E.
Mabenga, Kivu, B. C.	1° 01′ S., 29° 20′ E.
Maberu, middle Congo River, B. C.	1° 07′ S., 17° 14′ E.
Mabira, Uganda	0° 28′ N., 32° 54′ E.

Mabira Forest, Uganda	0° 23′ N. to 0° 32′ N., 32° 54′ E. to 33° 07′ E.
Mabode Country = Mabudu Country	
Mabrué, Khor (Chor Mabruë), southern Bahr-el-Ghazal	4° 33′ N., 29° 11′ E.
Mabudu Country, northern Ituri, B. C.	2° 08′ N. to 2° 45′ N., 27° 33′ E. to 28° 10′ E.
Mabwe, Lake Upemba, B. C.	8° 42′ S., 26° 28′ E.
Macaco, Kasai, B. C.	5° 28′ S., 21° 10′ E.
Machakos (Machako's, Matchakos), Kenya Col.	1° 31′ S., 37° 16′ E.
Machinga Plateau = Chisinga Plateau	
Machinge = Maxinje	
Macondo district, eastern Angola	12° 33′ S., 23° 47′ E.
Macra-Ssugari = Makraka Sugaïre	
Madagascar	11° 50′ S. to 25° 35′ S., 43° 10′ E. to 50° 20′ E.
Madeira Island	32° 40′ N., 17° 00′ W.
Madingo-Kayes (Madingo), French Congo	4° 04′ S., 11° 21′ E.
Madingou, French Congo	4° 12′ S., 13° 31′ E.
Madjamboni = Nyangabo	
Madonguéré (Modonguéré), southern Ubangi-Shari	6° 27′ N., 21° 01′ E.
Madrapili's, Upper Uelle, B. C.	3° 48′ N., 30° 00′ E.
Mafeking, British Bechuanaland	25° 52′ S., 25° 39′ E.
Mafia Island, south of Zanzibar	7° 36′ S. to 7° 59′ S., 39° 35′ E. to 39° 54′ E.
Mafinga Mountains, Nyasaland	9° 55′ S., 33° 23′ E. to 10° 06′ S., 33° 20′ E.
Magadi, Lake, Kenya Col.	1° 45′ S. to 2° 00′ S., 36° 12′ E. to 36° 18′ E.
Magaidu Forest, Tanganyika Terr.	2° 05′ S., 35° 37′ E.
Magaliesberg, Transvaal	25° 40′ S., 27° 30′ E.
Maganga Forest = Moganga Forest	
Magera, Lake, Kivu, B. C.	1° 25′ S., 29° 03′ E.
Magungo, Uganda	2° 15′ N., 31° 30′ E.
Mahagi, northeastern Ituri, B. C.	2° 16′ N., 30° 59′ E.
Mahagi, old, Ituri, B. C.	2° 06′ N., 31° 13′ E.
Mahagi Port, Ituri, B. C.	2° 08′ N., 31° 14′ E.
Mahare Mountains (Mahari), Tanganyika Terr.	6° 10′ S., 29° 50′ E. to 6° 30′ S., 30° 15′ E.
Mahenge, Tanganyika Terr.	8° 40′ S., 36° 43′ E.
Mahera, Sierra Leone	8° 35′ N., 12° 55′ W.
Mahoma River, east Ruwenzori, Uganda	0° 18′ N., 29° 55′ E. to 0° 22′ N., 30° 00′ E.
Mahuka, southern Tanganyika Terr.	10° 45′ S., 34° 58′ E.
Mai-na-Ivi = Ivui River	
Mai-na-Kwenda (May-ya-Kwenda), Kivu, B. C.	1° 09′ S., 29° 34′ E. to 1° 00′ S., 29° 21′ E.
Mai-na-Kwenda Camp, Kivu, B. C.	1° 02′ S., 29° 27′ E.

Mai-ya-Moto, Kivu, B. C.	0° 53′ S., 29° 21′ E.
Mai-ya-Moto Bay, Ruanda	1° 46′ S., 29° 17′ E.
Maika River, northern Ituri, B. C.	2° 50′ N., 28° 15′ E. to 2° 28′ N., 27° 58′ E.
Maiko River, Stanleyville, B. C.	0° 35′ S., 27° 44′ E. to 0° 14′ N., 25° 33′ E.
Maji Mazuri, Kenya Col.	0° 01′ S., 35° 42′ E.
Maka, Lualaba River, B. C.	8° 56′ S., 26° 04′ E.
Makaia-Ntete (Makaya Tete), Mayombe, B. C.	5° 33′ S., 13° 02′ E.
Makala, Stanleyville, B. C.	0° 33′ N., 27° 44′ E.
Makalama = Mkalama	
Makamba Mission, Urundi	4° 08′ S., 29° 49′ E.
Makere country, southern Uelle, B. C.	2° 25′ N., 26° 31′ E.
Makindu, Kenya Col.	2° 17′ S., 37° 50′ E.
Makkwari (Matlowing) River, British Bechuanaland	27° 36′ S., 23° 54′ E. to 27° 04′ S., 23° 04′ E.
Makobo Plain, Upper Katanga, B. C.	11° 33′ S., 27° 55′ E.
Makobo (Mokabo) River, Upper Katanga, B. C.	11° 36′ S., 27° 54′ E. to 11° 31′ S., 27° 57′ E.
Makojoba ("Makoioba," misprint), Semliki Valley, B. C.	0° 45′ N., 29° 44′ E.
Makoko (Mokoko), Ituri, B. C.	1° 35′ N., 29° 05′ E.
Makora, Semliki Valley, B. C.	0° 04′ N., 29° 38′ E.
Makourou, Ubangi-Shari	7° 26′ N., 20° 14′ E.
Makraka (Macraca, Makraká), A.-E. Sudan	4° 20′ N. to 4° 40′ N., 29° 50′ E. to 30° 30′ E.
Makraka Sugaïre (Makraka Sughaijara, Makraka Ssugaire, Makarakashair), southern A.-E. Sudan	4° 28′ N., 30° 11′ E.
Makumbi, Kasai, B. C.	5° 50′ S., 20° 41′ E.
Makwera Forest, Kivu, B. C.	1° 01′ S., 29° 34′ E.
Malabo (Marabu), eastern Ituri, B. C.	1° 28′ N., 29° 59′ E.
Malagarasi (Mlagarasi, Malagarazi) River, Tanganyika Terr.	3° 45′ S., 30° 27′ E. to 5° 10′ S., 29° 48′ E.
Malagulo, near Serenje, Northern Rhodesia = probably a misspelling of Ibulangulu	
Malambwe (Mulambwe), Upper Katanga, B. C.	11° 19′ S., 27° 51′ E.
Malandji = Luluabourg, old post	
Malangali, Tanganyika Terr.	8° 25′ S., 33° 50′ E.
Malange (Malanje), Angola	9° 29′ S., 16° 19′ E.
Malek, Mongalla, A.-E. Sudan	6° 03′ N., 31° 35′ E.
Malela, lower Congo River, B. C.	5° 59′ S., 12° 38′ E.
Malele, upper Congo River, B. C.	1° 00′ N., 18° 29′ E.
Malengoya, Lower Uelle, B. C.	3° 32′ N., 25° 24′ E.
Malimba (Malimba Bay, Malimbe, Malemba, Malembo), Enclave of Cabinda	5° 18′ S., 12° 09′ E.

Malindi, Kenya Col.	3° 13′ S., 40° 08′ E.
Malisawa (Malisawo), eastern Ituri, B. C.	0° 50′ N., 29° 52′ E.
Malisawa (Marissawa), on Semliki River, Ituri, B. C.	0° 48′ N., 29° 55′ E.
Maliwungu (Iwungu, Ibungu), Tanganyika Terr.	8° 26′ S., 32° 54′ E.
Maluku, middle Congo River, B. C.	4° 03′ S., 15° 34′ E.
Mambamuku, Ituri, B. C.	0° 38′ N., 29° 17′ E.
Mambasa, Ituri, B. C.	1° 21′ N., 29° 03′ E.
Mambettu = Mangbetu	
Mamboio (Mamboya), Tanganyika Terr.	6° 15′ S., 37° 12′ E.
Mambuti, Kampi-na- = Kampi-na-Mambuti	
Mambutu, middle Congo River, B. C.	4° 00′ S., 15° 49′ E.
Mambwe District, on Tanganyika Terr.-Northern Rhodesia border	8° 44′ S. to 9° 02′ S., 31° 35′ E. to 32° 12′ E.
Mampenga Island, lower Congo River, B. C.	6° 02′ S., 12° 33′ E.
Manakwa, southern Kivu, B. C.	4° 42′ S., 28° 40′ E.
Manamama, northern Ituri, B. C.	2° 00′ N., 27° 38′ E.
Manda, Tanganyika Dist., B. C.	7° 06′ S., 29° 55′ E.
Manda Island, coast of Kenya Col.	2° 15′ S., 40° 56′ E.
Mandated Territories of Ruanda and Urundi	1° 03′ S. to 4° 28′ S., 28° 52′ E. to 30° 58′ E.
Mandoko, southeastern Katanga, B. C.	13° 24′ S., 29° 48′ E.
Manenguba, Mt., French-British Cameroons border	5° 00′ N., 9° 50′ E.
Mangai (Manghai), Kasai, B. C.	4° 03′ S., 19° 35′ E.
Mangandu, Lowa, B. C.	1° 00′ S., 26° 16′ E.
Mangbanga, Upper Uelle, B. C.	3° 44′ N., 27° 17′ E.
Mangbetu country (Mangbattu, Mambettu, Mangbettu, Mombuttu), Upper Uelle, B. C.	3° 10′ N. to 3° 45′ N., 27° 50′ E. to 29° 00′ E.
Manghai = Mangai	
Mangiki (Kimangitchi), on Mt. Elgon, Kenya Col.	0° 53′ N., 34° 36′ E.
Mangonga River, Benguella Prov., Angola	12° 49′ S., 15° 49′ E.
Mangwa, Kivu, B. C.	0° 45′ S., 28° 52′ E.
Maniema = Manyema District	
Manika, northern Marungu, B. C.	6° 20′ S. to 7° 10′ S., 28° 58′ E. to 29° 30′ E.
Manika Plateau (Biano), Upper Katanga, B. C.	9° 13′ S., 26° 33′ E. to 10° 43′ S., 25° 52′ E.
"Manjema" = Ipoto (a settlement of Manyema natives in employ of Arabs)	
Manjonjo (Monjonjo, Manyonyo, Munyonyo), Uganda	0° 14′ N., 32° 38′ E.
Mano (Manow), southwestern Tanganyika Terr.	9° 15′ S., 33° 48′ E.

Mansya River, Northern Rhodesia	11° 18′ S., 31° 47′ E. to 10° 57′ S., 31° 07′ E.
Manyanga, lower Congo River, B. C.	4° 54′ S., 14° 23′ E.
Manyara, Lake, northern Tanganyika Terr.	3° 29′ S., 35° 48′ E. to 3° 51′ S., 35° 47′ E.
Manyema District (Maniema), B. C.	2° 25′ S. to 5° 00′ S., 24° 45′ E. to 28° 30′ E.
Manyinga (Maninda) River, Northern Rhodesia	12° 24′ S., 24° 05′ E. to 13° 17′ S., 24° 21′ E.
Manyoni, Tanganyika Terr.	5° 45′ S., 34° 49′ E.
Manyonyo (Munyonyo), Uganda	0° 14′ N., 32° 38′ E.
"Manyuema" = Ipoto (natives from Manyema in the employ of Arabs were called Manyuema)	
Manzia, Kivu, B. C.	0° 21′ S., 29° 00′ E.
Manzira Forest, Uganda	0° 56′ S., 31° 36′ E.
Mapanda, Mt., Kivu, B. C.	0° 12′ S., 29° 16′ E.
Mapicuti, Portuguese East Africa	18° 45′ S., 34° 50′ E.
Mara River (Amala, Ngare Dobash), Kenya Col. and Tanganyika Terr.	0° 28′ S., 35° 46′ E. to 1° 31′ S., 33° 56′ E.
Maracò, Abyssinia	8° 00′ N. to 8° 20′ N., 38° 30′ E. to 38° 50′ E.
Marakwet (Maraquet), Kenya Col.	0° 59′ N., 35° 32′ E.
Marandellas, Southern Rhodesia	18° 12′ S., 31° 33′ E.
Marassawa = Malisawa, on Semliki River	
Maraünde, Semliki Valley, B. C.	0° 25′ N., 29° 37′ E.
Maraye, Lake = Muanga, Lake	
Marchal, Cataracts Dist., B. C.	5° 17′ S., 14° 57′ E.
Mareb River, northern Abyssinia and Eritrea	15° 10′ N., 38° 47′ E. to 15° 46′ N., 36° 15′ E.
Margherita Peak, Ruwenzori	0° 23′ N., 29° 52′ E.
Marico District, northern Transvaal	24° 37′ S. to 25° 58′ S., 25° 30′ E. to 26° 35′ E.
Maridi (Meridi), southern Bahr-el-Ghazal	4° 55′ N., 29° 28′ E.
Marienseen (St. Mary's Lakes, Lake Marieen), northeastern Urundi	2° 30′ S., 30° 23′ E.
Maringa River, Lulonga, B. C.	0° 02′ S., 23° 17′ E. to 1° 14′ N., 19° 49′ E.
Marissagua, Marissawa = Malisawa, on Semliki River	
Maroto, Mt. = Moroto, Mt.	
Maroubi = Marubi	
Marsabit, Mt., Kenya Col.	2° 16′ N., 37° 57′ E.
Marsabit plains, Kenya Col.	2° 10′ N., 37° 36′ E. to 2° 38′ N., 38° 00′ E.
Marua, northern Cameroon	10° 35′ N., 14° 20′ E.
Marubi (Mwanalubi, Maroubi, "Naroubi"), Ituri, B. C.	0° 55′ N., 29° 52′ E.
Maruka's, Upper Uelle, B. C.	3° 46′ N., 29° 45′ E.

Marungu, southeastern B. C.	6° 20′ S. to 8° 25′ S., 28° 55′ E. to 30° 35′ E.
Marungu, Lower (Manika), B. C.	6° 20′ S. to 7° 10′ S., 28° 58′ E. to 29° 30′ E.
Marungu Mountains, southeastern B. C.	6° 53′ S. to 8° 25′ S., 28° 55′ E. to 30° 17′ E.
Marungu, Upper, B. C.	7° 10′ S. to 8° 25′ S., 28° 55′ E. to 30° 35′ E.
Masaka (Mussoka), Uganda	0° 21′ S., 31° 44′ E.
Masamba Forest, Lower Congo Dist., B. C.	5° 37′ S., 13° 46′ E.
Mascarene Islands, Indian Ocean	16° 00′ S. to 21° 25′ S., 55° 25′ E. to 63° 35′ E.
Masembe, Marungu, B. C.	6° 46′ S., 29° 24′ E.
Mashonaland, Southern Rhodesia	16° 50′ S. to 21° 45′ S., 30° 00′ E. to 32° 40′ E.
Masidongo, Kivu, B. C.	0° 09′ N., 29° 30′ E.
Masikini, eastern Ituri, B. C.	1° 57′ N., 30° 29′ E.
Masimango's, Semliki Valley, B. C.	0° 33′ N., 29° 44′ E.
Masi-Manimba, Kwango, B. C.	4° 47′ S., 17° 52′ E.
Masindi, Uganda	1° 41′ N., 31° 42′ E.
Masindi Port, Uganda	1° 42′ N., 32° 05′ E.
Masisi, Kivu, B. C.	1° 23′ S., 28° 49′ E.
Masombwe, Katanga, B. C.	9° 06′ S., 27° 07′ E.
Masongoleni (Masongaleni), Kenya Col.	2° 28′ S., 38° 02′ E.
Massabe (Massabi), Enclave of Cabinda	5° 00′ S., 12° 01′ E.
Massadorf (Massa-Town), Cameroon	4° 06′ N., 9° 44′ E.
Massailand, Kenya Col. and Tanganyika Terr.	1° 00′ S. to 5° 15′ S., 34° 30′ E. to 37° 30′ E.
Massangano (Masangano), northwestern Angola	9° 38′ S., 14° 20′ E.
Massaua, Eritrea	15° 35′ N., 39° 30′ E.
Masuku (Misuku) Mountains, northern Nyasaland	9° 33′ S., 33° 20′ E. to 9° 39′ S., 33° 34′ E.
Matabeleland, Southern Rhodesia	18° 35′ S. to 20° 40′ S., 26° 50′ E. to 30° 25′ E.
Matadi, lower Congo River, B. C.	5° 49′ S., 13° 27′ E.
Matafa, Upper Uelle, B. C.	3° 19′ N., 29° 55′ E.
Matafali, Marungu, B. C.	7° 47′ S., 29° 43′ E.
Matchakos (Machako's), Kenya Col.	1° 31′ S., 37° 16′ E.
Mateba Island, lower Congo River, B. C.	5° 52′ S., 13° 01′ E. to 5° 58′ S., 12° 46′ E.
Mateli, Kivu, B. C.	3° 20′ S., 28° 23′ E.
Matembe, Kivu, B. C.	0° 27′ S., 29° 11′ E.
Matengo (Matengo highland), southern Tanganyika Terr.	10° 29′ S., 34° 42′ E. to 11° 35′ S., 35° 18′ E.
Mato, Lower Katanga, B. C.	8° 02′ S., 24° 55′ E.
Matongo (Matonga) Island, Lake Bangweolo, Northern Rhodesia	11° 35′ S., 30° 25′ E.
Mau (Summit station), Kenya Col.	0° 10′ S., 35° 41′ E.

Mau Escarpment, Kenya Col.	0° 06′ S., 35° 44′ E. to 0° 55′ S., 36° 07′ E.
Mau Plateau, Kenya Col.	0° 05′ S. to 1° 10′ S., 35° 27′ E. to 36° 12′ E.
"Mauamli" = Mawambi	
Mauda (Maoda), Upper Uelle, B. C.	4° 05′ N., 27° 41′ E.
Maun, northern Bechuanaland	19° 55′ S., 23° 30′ E.
Mauritius Island, Indian Ocean	20° 15′ S., 57° 30′ E.
Mawa, Upper Uelle, B. C.	2° 58′ N., 26° 43′ E.
Mawagongo (Ma Gongo), Manyema, B. C.	4° 47′ S., 27° 27′ E.
Mawakota, Uganda	0° 09′ S. to 0° 24′ N., 31° 53′ E. to 32° 25′ E.
Mawambi, Ituri, B. C.	1° 03′ N., 28° 36′ E.
Maxinje (Machinge), northern Angola	8° 45′ S. to 9° 15′ S., 18° 15′ E. to 19° 10′ E.
Mayama, French Congo	3° 50′ S., 14° 54′ E.
Mayik, Bahr-el-Ghazal Prov.	8° 21′ N., 29° 00′ E.
Mayombe (Mayumbe) country	3° 22′ S. to 5° 40′ S., 11° 10′ E. to 13° 25′ E.
Mayombe, Belgian	4° 45′ S., 12° 55′ E. to 5° 40′ S., 13° 25′ E.
Mayombe Forest	3° 22′ S., 11° 35′ E. to 5° 40′ S., 13° 20′ E.
Mayombe, French	3° 22′ S., 11° 15′ E. to 4° 50′ S., 12° 00′ E.
Mayotte Island, Comoro Islands	12° 50′ S., 45° 10′ E.
Mayumba (Mayoumba, Mayumba Bay), Gaboon	3° 23′ S., 10° 40′ E.
Mayumba River, Gaboon	3° 30′ S., 10° 52′ E. to 3° 23′ S., 10° 40′ E.
Mayumbe = Mayombe	
Mazabuka, Northern Rhodesia	16° 05′ S., 27° 46′ E.
Mazanguli (Mazangule), Upper Katanga, B. C.	9° 41′ S., 25° 43′ E.
Mazonde, Tanganyika Dist., B. C.	7° 07′ S., 29° 40′ E.
Mba, Cameroon	7° 00′ N., 11° 50′ E.
Mbaiki, French Congo	3° 53′ N., 18° 00′ E.
Mbala country, Northern Rhodesia	14° 05′ S. to 14° 25′ S., 31° 10′ E. to 31° 50′ E.
Mbalaka, Kwango, B. C.	4° 11′ S., 18° 23′ E.
Mbale, Uganda	1° 04′ N., 34° 11′ E.
Mbamba Bay, Lake Nyasa, Tanganyika Terr.	11° 18′ S., 34° 47′ E.
Mbamu Island = Bamu Island	
Mbanti (Mbamti, Mbambi), Cameroon	6° 30′ N., 12° 08′ E.
Mbarara, Uganda	0° 37′ S., 30° 39′ E.
Mbeya, southwestern Tanganyika Terr.	8° 55′ S., 33° 25′ E.
Mbiambana, Upper Uelle, B. C.	4° 05′ N., 29° 16′ E.
Mbigou, Gaboon	1° 53′ S., 11° 56′ E.
Mbima = Bima, Northern Nigeria	
Mbisi Forest, Tanganyika Terr.	8° 05′ S., 31° 45′ E.

Mbisi Highland, Tanganyika Terr.	7° 35′ S., 31° 25′ E. to 8° 20′ S., 31° 45′ E.
Mbiundsu (Mbundsu, Mbuendsu), Upper Uelle, B. C.	4° 02′ N., 29° 38′ E.
Mbiya, near Dakwa, Uelle, B. C., probably same as Bia	
Mbo Island, Lake Bangweolo, Northern Rhodesia	11° 48′ S., 29° 52′ E.
Mboga = Boga in Ituri	
Mboka = Munie Moboka	
Mbololo, Mt., Kenya Col.	3° 20′ S., 38° 26′ E.
Mboma = Boma on Congo River	
Mbomu River = Bomu River	
Mbondwe (Mbondwi) River, Uganda	0° 04′ N., 29° 48′ E. to 0° 02′ S., 29° 43′ E.
Mbuga, on Luvule River, Tanganyika Dist., B. C.	8° 34′ S., 28° 31′ E.
Mbuga Ufile = Mfile	
Mbuga Viano, Upper Katanga, B. C.	9° 35′ S., 26° 20′ E.
Mbulu, Tanganyika Terr.	3° 51′ S., 35° 33′ E.
Mbulu District, Tanganyika Terr.	3° 40′ S. to 4° 00′ S., 35° 20′ E. to 35° 45′ E.
Mbuma (Mbumba), Mayombe, B. C.	4° 50′ S., 12° 54′ E.
Mbwahi (Mubwahi), Kivu, B. C.	2° 05′ S., 28° 45′ E.
Mchinga Escarpment (Muchinga), Northern Rhodesia	10° 50′ S., 32° 15′ E. to 13° 20′ S., 30° 35′ E.
Mé, Mt., Ituri, B. C.	2° 16′ N., 30° 57′ E.
Medje (Meje, Madié), northern Ituri, B. C.	2° 26′ N., 27° 17′ E.
Medje country, northern Ituri, B. C.	2° 00′ N. to 2° 48′ N., 26° 47′ E. to 27° 51′ E.
Melpess (Melbeis, Jebel Melbis), Kordofan	12° 55′ N., 30° 30′ E.
Melsetter District, Southern Rhodesia	19° 34′ S. to 21° 18′ S., 32° 16′ E. to 33° 06′ E.
Menaballa (Manabella, Manniballa), Abyssinia	9° 00′ N., 39° 24′ E.
Mengo, Uganda	0° 18′ N., 32° 34′ E.
Meninga (Mininga), Tanganyika Terr.	4° 16′ S., 32° 26′ E.
Menzou, southern A.-E. Sudan	4° 00′ N., 31° 27′ E.
Méré Belenia (Djebel Belinian), A.-E. Sudan	4° 49′ N., 31° 46′ E.
Meridi = Maridi	
Mérode, Kasai, B. C.	6° 17′ S., 23° 13′ E.
Merowe, A.-E. Sudan	18° 30′ N., 31° 55′ E.
Meru, Kenya Col.	0° 04′ N., 37° 39′ E.
Meru, Mt., Tanganyika Terr.	3° 14′ S., 36° 45′ E.
Mesanangue (Mezanangwa), Portuguese East Africa	15° 45′ S., 33° 07′ E.
Metet, Cameroon	3° 24′ N., 11° 46′ E.
Mfile (Mbuga Ufile), Tanganyika Terr.	7° 28′ S., 31° 03′ E.

Mfini (Mfimi, Fimi, Fima, Fini) River, outlet of Lake Leopold II, B. C.	2° 44′ S., 18° 10′ E. to 3° 01′ S., 16° 58′ E.
Mfumbiro Volcanoes = Kivu Volcanoes	
Mgahinga, Mt. = Gahinga, Mt.	
Mgera, Tanganyika Terr.	5° 22′ S., 37° 33′ E.
Mgunda Mkali, Tanganyika Terr.	5° 50′ S., 33° 45′ E.
Migere, southwestern Uganda	0° 40′ S., 29° 43′ E.
Mihunga, Ruwenzori, Uganda	0° 20′ N., 30° 03′ E.
Mihunga Ridge, Ruwenzori, Uganda	0° 19′ N., 30° 02′ E. to 0° 20′ N., 30° 04′ E.
Mikeno, Mt., Kivu, B. C.	1° 27′ S., 29° 25′ E.
Miki, Kivu, B. C.	3° 22′ S., 28° 40′ E.
Milumba, Manyema, B. C.	4° 37′ S., 28° 04′ E.
Mimbulu River, Upper Katanga, B. C.	11° 43′ S., 27° 19′ E. to 11° 45′ S., 27° 22′ E.
Mimongo, Gaboon	1° 10′ S., 11° 37′ E.
Minghannan (Minkamman), A.-E. Sudan	6° 03′ N., 31° 32′ E.
Mirrote, northern Portuguese East Africa	14° 00′ S., 39° 10′ E.
Misahöhe, Togoland, West Africa	6° 56′ N., 0° 37′ E.
Missale, near Mano, Tanganyika Terr., probably now called Kissale	
Missão de Luz = Luz, Missão de	
Mission de la Sainte Famille (Holy Family Mission, Beso, Bessou), on Ubangi River	5° 07′ N., 19° 29′ E.
Mistandunga (Mistandungu), middle Congo River, B. C.	2° 02′ S., 16° 24′ E.
Misuku Mountains = Masuku Mountains	
Misunye = Musenyi	
Mitimone (Mitimoni), southern border of Tanganyika Terr.	11° 33′ S., 35° 29′ E.
Mitiyana, Uganda	0° 24′ N., 32° 02′ E.
Mitumba Mountains, southeastern B. C.	6° 08′ S., 29° 02′ E. to 10° 28′ S., 25° 40′ E.
"Mitumba Mts.," occasionally applied to mountains west of Lake Edward or Lake Kivu	
Mitumbwe Mountains, those west of Ruzizi Valley	
Miuta, Mt. = Mumbarafue, Mt.	
Mkalama (Makalama), Tanganyika Terr.	4° 06′ S., 34° 38′ E.
Mkaramo, Tanganyika Terr.	4° 59′ S., 38° 07′ E.
Mkingo = Mukingo	
Mkomasi (Mkomazi), Tanganyika Terr.	4° 38′ S., 38° 06′ E.
Mkombe River, Tanganyika Terr.	7° 07′ S., 30° 55′ E. to 7° 05′ S., 30° 33′ E.
Mkuli = Mukuli	
Mkushi, Northern Rhodesia	14° 00′ S., 29° 32′ E.
Mkusi River, Zululand	27° 40′ S., 31° 08′ E. to 27° 51′ S., 32° 28′ E.
Mlalo, Tanganyika Terr.	4° 34′ S., 38° 19′ E.

Mlanje (Mlanji), Mt., Nyasaland	15° 59′ S., 35° 37′ E.
Mlanje Plateau = Lichenya Plateau	
Mlonde, Marungu, B. C.	7° 06′ S., 29° 43′ E.
Moanda, Lower Congo Dist., B. C.	5° 55′ S., 12° 21′ E.
Moanza, Kwango, B. C.	5° 31′ S., 17° 38′ E.
Moba, Tanganyika Dist., B. C.	7° 03′ S., 29° 46′ E.
Mobaye (Mobbai, Mobaie, Mobei), southern Ubangi-Shari	4° 20′ N., 21° 10′ E.
Mobeka, Bangala, B. C.	1° 53′ N., 19° 49′ E.
Mobendi, Kasai, B. C.	4° 22′ S., 20° 21′ E.
Moçambique, Portuguese East Africa	15° 00′ S., 40° 45′ E.
Moçambique, District of, Portuguese East Africa	13° 30′ S. to 16° 50′ S., 36° 20′ E. to 40° 50′ E.
Moco, Mt., Angola	12° 27′ S., 15° 12′ E.
Mocussueze (Mocussuege, Mukuzwezi, Mocassueze), Angola	11° 03′ S., 21° 51′ E.
Modder River, Orange Free State	29° 30′ S., 26° 48′ E. to 29° 00′ S., 24° 32′ E.
Modidi (Muniyiri) River, Semliki Valley, B. C.	0° 26′ N., 29° 46′ E.
Moenda = Mwenda	
Moenge, Lower Uelle, B. C.	2° 02′ N., 22° 53′ E.
Moera (Sikwakira), Ituri, B. C.	0° 38′ N., 29° 32′ E.
Moero (Mweru), Lake	8° 28′ S., 28° 54′ E. to 9° 27′ S., 28° 29′ E.
Mofinje River, Tanganyika Dist., B. C.	5° 25′ S., 27° 12′ E.
Moganga (Maganga) Forest, Kivu, B. C.	2° 55′ S., 28° 44′ E. to 4° 00′ S., 28° 30′ E.
Moggu, southern Bahr-el-Ghazal	4° 55′ N., 29° 25′ E.
Mohalla = Mohara	
Mohanga, Kivu, B. C.	0° 25′ S., 28° 55′ E.
Mohapoani (Mohopaani, Mohopani), western Transvaal	24° 55′ S., 27° 15′ E.
Mohara (Mohalla), Ituri, B. C.	1° 02′ N., 28° 40′ E.
Mohasi (Mohazi), Lake, Ruanda	1° 51′ S., 30° 12′ E. to 30° 29′ E.
Mohi, Mt. = Muhi, Mt.	
Mohokyia = Mokia	
Mohopani = Mohapoani	
Mohoro, Tanganyika Terr.	8° 09′ S., 39° 10′ E.
Moipungoi, Upper Katanga, B. C.	8° 45′ S., 26° 05′ E.
Mokabe-Kasari, Upper Katanga, B. C.	9° 58′ S., 26° 16′ E.
Mokabo = Makobo	
Mokambo Hills (Mt. Mokamba), Upper Katanga, B. C.	12° 30′ S., 28° 25′ E.
Mokambo (Abok) Plain, west of L. Albert, B. C.	2° 02′ N., 31° 04′ E.
Mokia (Mohokyia, Mohokiya, Muhokia), western Uganda	0° 05′ N., 30° 03′ E.
Mokia (Mohokyia) River, Uganda	0° 09′ N., 29° 59′ E. to 0° 04′ N., 30° 04′ E.

Mokope (Mokopi), Stanleyville, B. C.	1° 55′ N., 26° 25′ E.
Mokoto (Mokoto Lakes, Mukoto), Kivu, B. C.	1° 12′ S. to 1° 17′ S., 29° 00′ E. to 29° 03′ E.
Moku, Upper Uelle, B. C.	2° 57′ N., 29° 22′ E.
Mokwangu Falls, on Uelle River, northern B. C.	3° 45′ N., 22° 55′ E.
Molegbwe (Molegbe, Melegbwe), Ubangi, B. C.	4° 14′ N., 20° 52′ E.
Molekera ("Ndekera"), Kivu, B. C.	0° 01′ S., 29° 34′ E.
Molemba, Semliki Valley, B. C.	0° 30′ N., 29° 34′ E.
Molilo's, Northern Rhodesia	14° 01′ S., 30° 48′ E.
Molindi (Mulindi) River, Kivu, B. C.	1° 10′ S., 29° 19′ E. to 1° 01′ S., 29° 21′ E.
Moliro, southwest shore of Lake Tanganyika, B. C.	8° 12′ S., 30° 34′ E.
Molo, Kenya Col.	0° 15′ S., 35° 44′ E.
Molundu, southeastern Cameroon	2° 05′ N., 15° 16′ E.
Mombasa, Kenya Col.	4° 04′ S., 39° 41′ E.
Mombasa, Ituri = Mambasa	
Mombera District, Nyasaland	10° 58′ S., to 12° 21′ S., 33° 13′ E. to 34° 03′ E.
Mombo, Mayombe Forest, B. C.	5° 16′ S., 12° 57′ E.
Mombolo District, Angola	11° 40′ S. to 12° 00′ S., 14° 45′ E. to 15° 30′ E.
Mombuttu = Mangbetu	
Mommpara = Mpala	
Mompono (Bompona), Lulonga, B. C.	0° 04′ N., 21° 48′ E.
Mompoto, on middle Congo River, B. C.	1° 07′ S., 17° 13′ E.
Mona Hongola, Angola	9° 00′ S., 20° 25′ E.
Monbuttu = Mangbetu country	
Mondo, Uganda	0° 23′ N., 33° 10′ E.
Mondu = Mundu	
Mongala River, Bangala, B. C.	3° 18′ N., 21° 12′ E. to 1° 53′ N., 19° 49′ E.
Mongala, Zone of the, northern B. C.	1° 56′ N. to 4° 00′ N., 19° 40′ E. to 23° 00′ E.
Mongalla, A.-E. Sudan	5° 10′ N., 31° 44′ E.
Mongalla Province, A.-E. Sudan	3° 30′ N. to 6° 12′ N., 29° 17′ E. to 35° 50′ E.
Mongalula, northeastern Ituri, B. C.	2° 15′ N., 30° 47′ E.
Mongbwalu, Ituri, B. C.	1° 57′ N., 30° 02′ E.
Mongende, middle Congo River, B. C.	2° 06′ S., 16° 20′ E.
Mongimbo (Poste du Baniembé, Bétou), French Congo	3° 03′ N., 18° 30′ E.
Mongo Hill = Cambier, Pic	
Mongombo, Bangala, B. C.	2° 17′ N., 21° 08′ E.
Mongoumba, Ubangi River, French Congo	3° 34′ N., 18° 43′ E.
Mongu, Northern Rhodesia	15° 12′ S., 23° 18′ E.
Mongwa = Mangwa	
Monjonjo = Manjonjo	
Monrovia, Liberia	6° 18′ N., 10° 48′ W.

Monsembe (Mosembe), upper Congo River, B. C.	1° 15′ N., 18° 38′ E.
Mooi River, Transvaal	25° 52′ S., 27° 02′ E. to 26° 50′ S., 26° 54′ E.
Moonda (Mondah) River, Gaboon	0° 30′ N., 9° 37′ E.
Moposhi, Mt. = Kalapumina, Mt.	
Mopti, French Sudan	14° 32′ N., 4° 00′ W.
Morocco (Maroc)	28° 10′ N. to 35° 10′ N., 1° 00′ W. to 11° 00′ W.
Morogoro, Tanganyika Terr.	6° 47′ S., 37° 44′ E.
Morogoro District, Tanganyika Terr.	5° 58′ S. to 7° 52′ S., 36° 30′ E. to 38° 30′ E.
Moroto (Maroto), Mt., eastern Uganda	2° 31′ N., 34° 45′ E.
Mosaka (Mossaka), French Congo	1° 11′ S., 16° 48′ E.
Moshi (Old Moshi), Tanganyika Terr.	3° 18′ S., 37° 24′ E.
Moshi, New, Tanganyika Terr.	3° 21′ S., 37° 21′ E.
Mossamedes, Angola	15° 10′ S., 12° 05′ E.
Mossamedes District, Angola	13° 43′ S. to 17° 18′ S., 11° 41′ E. to 13° 44′ E.
Moto, Upper Uelle, B. C.	3° 00′ N., 29° 21′ E.
Moto River, Upper Uelle, B. C.	2° 48′ N., 29° 27′ E. to 3° 06′ N., 29° 31′ E.
Moto, Mai-ya- = Mai-ya-Moto	
Motokolea (Motokalia), southern Ituri, B. C.	0° 22′ N., 28° 45′ E.
Mouila, Gaboon	1° 50′ S., 11° 03′ E.
"Moujimbo" = Mongimbo	
Moulera = Mulera	
Moushosi = Musoshi	
Movóko, Ituri, B. C.	1° 42′ N., 30° 43′ E.
Moyen, Bahr-el-Ghazal	7° 50′ N., 28° 15′ E.
Mozambique (Moçambique), Colony of = Portuguese East Africa	
Mpala (Qua Mpara, Pala, Mompara, Mommpara), Tanganyika Dist., B. C.	6° 45′ S., 29° 31′ E.
Mpandi (Pande, Panda) River, Upper Katanga, B. C.	10° 20′ S., 26° 03′ E. to 10° 15′ S., 26° 34′ E.
Mpanga (Kibale, Kibali) Forest, Uganda	0° 20′ N. to 0° 40′ N., 30° 19′ E. to 30° 32′ E.
Mparo (Umparu, Mparo-Njamoga), Uganda	1° 23′ N., 31° 26′ E.
Mphunzi, Nyasaland	14° 21′ S., 34° 07′ E.
Mpika, Northern Rhodesia	11° 49′ S., 31° 30′ E.
Mpimbwe, Tanganyika Terr.	7° 08′ S., 30° 29′ E.
Mpondi River, Tanganyika Terr.	4° 44′ S., 35° 01′ E. to 6° 02′ S., 35° 09′ E.
Mporokoso, Northern Rhodesia	9° 24′ S., 30° 08′ E.
Mpororo, southwestern Uganda	0° 50′ S., to 1° 10′ S., 29° 45′ E. to 30° 25′ E.
Mpouya, French Congo	2° 37′ S., 16° 13′ E.
Mpumu, Uganda	0° 14′ N., 32° 49′ E.

"Mragoro" = Bogoro	
Msimu Island, Lake Tanganyika, Tanganyika Terr.	7° 28′ S., 30° 32′ E.
Msiri's village, Upper Katanga, B. C.	10° 24′ S., 26° 59′ E.
Msofu (Musofu) River, Northern Rhodesia	13° 23′ S., 29° 08′ E. to 13° 44′ S., 29° 05′ E.
Mssukáli = Mtarega	
Msua, Tanganyika Terr.	6° 40′ S., 38° 34′ E.
Msuata (Mswata, Suata), middle Congo River, B. C.	3° 23′ S., 16° 11′ E.
Msukali = Mtarega	
Mswa (Swa, Meswa, Msva, Msvar), Lake Albert, B. C.	1° 56′ N., 30° 59′ E.
Mtagata, Tanganyika Terr.	1° 13′ S., 30° 50′ E.
Mtarega (Mterega, Mssukali, Msukali), near Ruwenzori, B. C.	0° 33′ N., 29° 50′ E.
Mtesa = Mengo	
Mtessa, kwa, Uganda	0° 40′ N., 32° 09′ E.
Mualaba River, southern Katanga, B. C.	11° 44′ S., 25° 30′ E. to 11° 29′ S., 25° 44′ E.
Muanga (Mwanga, Murehi, Mulehe, Mureyhe, Maraye, Mureyne), Lake, Uganda	1° 13′ S., 29° 43′ E.
Muanza River, Upper Katanga, B. C.	9° 24′ S., 26° 18′ E. to 9° 01′ S., 26° 12′ E.
Mubendi (Mubende), Uganda	0° 35′ N., 31° 22′ E.
Mubuku Glacier, Ruwenzori, Uganda	0° 22′ N., 29° 54′ E.
Mubuku River, Uganda	0° 22′ N., 29° 54′ E. to 0° 10′ N., 30° 14′ E.
Mubwahi = Mbwahi	
Muchinga (Mchinga) Escarpment = southeast slope of Muchinga Mountains, Northern Rhodesia	
Muchinga Mountains, Northern Rhodesia	10° 38′ S., 32° 10′ E. to 14° 40′ S., 30° 05′ E.
Mucuio, Angola	13° 28′ S., 14° 44′ E.
Mudyanyama ("Mudyana") River, Northern Rhodesia	11° 30′ S., 24° 10′ E. to 11° 45′ S., 24° 27′ E.
Muene Ntenque = Ntenkwe	
Mufumbiro Volcanoes = Kivu Volcanoes	
Muganga (Magunga), Ituri, B. C.	1° 45′ N., 30° 45′ E.
Mugarura (Bugarura) Island, Lake Kivu, Ruanda	1° 55′ S., 29° 16′ E.
Muggi, southern A.-E. Sudan	4° 07′ N., 31° 40′ E.
Mugunga (Wabikale), Lake, Kivu, B. C.	1° 37′ S., 29° 08′ E.
Muhalala (Muhulala), Tanganyika Terr.	5° 48′ S., 34° 55′ E.
Muhavura (Muhabura), Mt., Ruanda	1° 22′ S., 29° 41′ E.
Muhi (Muhe, Mohi), Mt., Kivu, B. C.	3° 00′ S., 28° 51′ E.
Muhinga Plain, Upper Katanga, B. C.	10° 25′ S., 25° 04′ E.
Muhokia = Mokia	
Muhungwe, Ruanda	1° 41′ S., 29° 23′ E.

Mukamba (Munkamba), Lake, southern Sankuru, B. C.	5° 43′ S., 23° 02′ E.
Mukimbungu, Lower Congo Dist., B. C.	5° 08′ S., 14° 01′ E.
Mukingo (Mkingo), Ruanda	2° 18′ S., 29° 47′ E.
Mukoto = Mokoto	
Mukotshi, Kivu, B. C.	0° 01′ N., 29° 24′ E.
Mukula Gombe (Bukula Gombe), Lulua, B. C.	9° 37′ S., 24° 33′ E.
Mukuli (Mkuli, Mukuri, Lisobola), Marungu, B. C.	7° 22′ S., 29° 48′ E.
Mukutu Mountains, Northern Rhodesia	10° 27′ S., 33° 17′ E.
Mukuzwezi = Mocussueze	
Mulando, Upper Katanga, B. C.	10° 47′ S., 28° 17′ E.
Mulehe, Lake = Muanga, Lake	
Mulema, Uganda	0° 56′ S., 30° 56′ E.
Mulera (Mvulera, Mwulera), Ruanda	1° 28′ S., 29° 36′ E. to 29° 42′ E.
Mulinga River, on Idjwi Island, Lake Kivu, B. C.	2° 08′ S., 29° 03′ E.
Mulo, Kivu, B. C.	0° 07′ S., 29° 16′ E.
Mulolo, southwest Kivu, B. C.	3° 17′ S., 28° 15′ E.
Mulonga (Mulongo), Tanganyika Dist., B. C.	7° 52′ S., 26° 59′ E.
Mulu, Kivu, B. C.	0° 03′ S., 29° 26′ E.
Mulumbu Kazadi, Katanga, B. C.	9° 46′ S., 25° 57′ E.
Mulungu, Ruwenzori, B. C.	0° 21′ N., 29° 51′ E.
Mulungu, Kivu, B. C.	2° 19′ S., 28° 48′ E.
Mulungwishi, Upper Katanga, B. C.	10° 47′ S., 26° 38′ E.
Mumbarafue, Mt., southeastern Katanga, B. C.	12° 52′ S., 29° 47′ E.
Mumbo, Semliki Valley, B. C.	0° 35′ N., 29° 32′ E.
Mumbwa, Northern Rhodesia	14° 58′ S., 27° 04′ E.
Mumia's (Kwa Mumia), Kenya Col.	0° 20′ N., 34° 28′ E.
Munagana (Bunagana), on border between Uganda and Kivu, B. C.	1° 18′ S., 29° 36′ E.
Munama (Muniama), Upper Katanga, B. C.	11° 47′ S., 27° 29′ E.
Munama (Muniama) River, Upper Katanga, B. C.	11° 51′ S., 27° 23′ E. to 11° 53′ S., 27° 42′ E.
Mundjaffa, French Equatorial Africa	11° 13′ N., 15° 22′ E.
Mundu (Mondu), Upper Uelle, B. C.	3° 41′ N., 29° 48′ E.
Mundwigi Plain, Northern Rhodesia	11° 28′ S., 24° 51′ E.
Muni, River (Rio Muni, Danger River, Rivière d'Angers), Spanish Guinea and Gaboon	1° 05′ N., 9° 51′ E. to 1° 02′ N., 9° 36′ E.
Munie Moboka (Munie Mboka, Moniemboko, Mboka), Manyema, B. C.	4° 37′ S., 27° 58′ E.
Muniengashi River, southeastern Katanga, B. C.	13° 11′ S., 29° 36′ E. to 12° 26′ S., 29° 25′ E.
Munigi (Monigi), Kivu, B. C.	1° 38′ S., 29° 15′ E.

Muniuni, Kenya Col.	2° 00′ S., 40° 10′ E.
Munkamba, Lake = Mukamba	
Munoï River, Upemba National Park, B. C.	8° 48′ S., 26° 46′ E.
Munyé Katoto (Munye Katolo, Miyinye-Katoto), Stanleyville, B. C.	0° 40′ N., 25° 56′ E.
Munyonyo = Manyonyo	
Muombe, Upper Katanga, B. C.	9° 00′ S., 27° 40′ E.
Murama District, Ruanda	1° 57′ S., 29° 21′ E.
Murchison Falls, Uganda	2° 17′ N., 31° 42′ E.
Murchison Falls (Murchison Rapids), Nyasaland	15° 33′ S., 34° 52′ E. to 15° 55′ S., 34° 46′ E.
Mureyhe, Lake = Muanga, Lake	
Musandama (Msandama), Mt., Uganda	0° 45′ N., 30° 10′ E.
Musango, Ituri, B. C.	1° 03′ N., 29° 51′ E.
Muse, Ruanda	2° 30′ S., 29° 27′ E.
Musenyi (Musenye, Misunye), Ruanda	2° 35′ S., 29° 30′ E.
Mushie, on Kasai River, B. C.	3° 01′ S., 16° 55′ E.
Mushinene, Semliki Valley, B. C.	0° 24′ N., 29° 42′ E.
Mushongero, Uganda	1° 12′ S., 29° 41′ E.
Mushosi = Musoshi	
Mushumangabo, Kivu, B. C.	1° 26′ S., 29° 16′ E.
Musolo (Musala), Lake, Lulua, B. C.	9° 31′ S., 24° 48′ E.
Musonoi (Musonoie), Upper Katanga, B. C.	10° 42′ S., 25° 27′ E.
Musosa, Tanganyika Dist., B. C.	8° 22′ S., 29° 36′ E.
Musoshi, Upper Katanga, B. C.	12° 14′ S., 27° 38′ E.
Musoshi Escarpment, Upper Katanga, B. C.	12° 16′ S., 27° 40′ E.
Musoshi (Moushosi) River, Upper Katanga, B. C.	12° 16′ S., 27° 41′ E. to 11° 54′ S., 27° 46′ E.
"Mussoka" = Mosaka	
Musule, Mt., Kivu, B. C.	1° 23′ S., 29° 33′ E.
Mutambala (Mtambala), Marungu, B. C.	7° 13′ S., 29° 45′ E.
Mutanda, Lake, Uganda	1° 13′ S., 29° 40′ E.
Mutero, Kivu, B. C.	1° 35′ S., 28° 54′ E.
Mutiba, near Ruwenzori, B. C.	0° 37′ N., 29° 54′ E.
Mutjora = Mutsora	
Mutombo-Mukulu, Lomami, B. C.	7° 58′ S., 24° 00′ E.
Mutondo, Mt., Kivu, B. C.	3° 00′ S., 28° 37′ E.
Mutshunga Mabese, Semliki Valley, B. C.	0° 29′ N., 29° 40′ E.
Mutsora (Mtsora, Mutjora, Katumbaka), near Ruwenzori, B. C.	0° 19′ N., 29° 44′ E.
Mutum-Peke, Manyema, B. C.	4° 44′ S., 27° 36′ E.
Mutumbo-Mukulu = Mutombo-Mukulu	
Mutura, Ruanda	1° 39′ S., 29° 22′ E.
Mutwanga (Bambume), Semliki Valley, B. C.	0° 20′ N., 29° 45′ E.
Muusi, southern Kivu, B. C.	3° 03′ S., 28° 45′ E.
Muyé River, Katanga, B. C.	8° 48′ S., 26° 49′ E. to 9° 01′ S., 26° 39′ E.

Muyoméma (Muyeméma, Kinnene, Kinnena, Kinena, Kinene), Lowa, B. C.	0° 45′ S., 26° 25′ E.
Muzima Rocks, Uganda	0° 02′ N., 32° 29′ E.
Muzyatama, Northern Rhodesia	11° 01′ S., 32° 27′ E.
Mvolo, southeastern Bahr-el-Ghazal	6° 11′ N., 29° 52′ E.
Mvulera = Mulera	
Mwabo (Mwabu), Upper Katanga, B. C.	12° 15′ S., 29° 39′ E.
Mwana, Kivu, B. C.	3° 02′ S., 28° 28′ E.
Mwanza, Tanganyika Terr.	2° 32′ S., 32° 54′ E.
Mwanza District, Tanganyika Terr.	2° 10′ S. to 3° 20′ S., 31° 30′ E. to 33° 30′ E.
Mwata Yamvo = Lunda country	
Mwati (Moati) River, Upper Katanga, B. C.	11° 12′ S., 27° 37′ E. to 11° 15′ S., 27° 56′ E.
Mwenda (Moenda), Ruwenzori, B. C.	0° 24′ N., 29° 46′ E.
Mwenzo, Northern Rhodesia	9° 15′ S., 32° 34′ E.
Mweru, Lake = Moero, Lake	
Mweru Wantipa, Northern Rhodesia	8° 30′ S., 30° 00′ E. to 9° 00′ S., 29° 23′ E.
Mwinilunga, Northern Rhodesia	11° 44′ S., 24° 26′ E.
Mwinilunga District, Northern Rhodesia	10° 54′ S. to 14° 00′ S., 23° 54′ E. to 25° 35′ E.
Mwulera = Mulera	
Mwuleru (Boleru, Bolero, Bulero, Bulera), Lake, Ruanda	1° 27′ S., 29° 46′ E.
Mzimba, Nyasaland	11° 54′ S., 33° 36′ E.
Mzimbiti (Masambeti), Portuguese East Africa	19° 33′ S., 34° 45′ E.
Nabere (Naberet), Upper Uelle, B. C.	3° 33′ N., 28° 28′ E.
Nagichot, A.-E. Sudan	4° 16′ N., 33° 34′ E.
Nairobi, Kenya Col.	1° 17′ S., 36° 48′ E.
Naivasha, Kenya Col.	0° 44′ S., 36° 26′ E.
Naivasha, Lake, Kenya Col.	0° 40′ S. to 0° 50′ S., 36° 16′ E. to 36° 26′ E.
Najran (Nedjran, Makhlaf), Arabia	17° 30′ N., 45° 23′ E.
Nakabimba (Nykabimba), Uganda	0° 37′ N., 31° 04′ E.
Nakavali, Lake	0° 47′ S., 30° 52′ E.
Nakuru, Kenya Col.	0° 18′ S., 36° 05′ E.
Nakuru, Lake, Kenya Col.	0° 18′ S., 36° 04′ E. to 0° 25′ S., 36° 07′ E.
Nakwai Hills, Uganda	2° 32′ N., 33° 50′ E.
Nala, Upper Uelle, B. C.	2° 54′ N., 27° 39′ E.
Namambula (Babambula) Hill, northern Ituri, B. C.	2° 41′ N., 27° 37′ E.
Namanjera (Namanyere), western Tanganyika Terr.	7° 34′ S., 31° 07′ E.
Namaqualand, Great, Southwest Africa	24° 00′ S. to 29° 00′ S., 14° 28′ E. to 20° 00′ E.

Namaqualand, Little, Cape Prov.	28° 08′ S. to 31° 12′ S., 16° 28′ E. to 19° 15′ E.
Namba, in Mombolo Distr., Angola	11° 54′ S., 14° 55′ E.
Nambia brook, Upper Uelle, B. C.	3° 52′ N., 28° 41′ E. to 3° 46′ N., 28° 46′ E.
Nambiri brook, Upper Uelle, B. C.	3° 47′ N., 28° 45′ E.
Nambunchu, southwestern Tanganyika Terr.	10° 34′ S., 34° 58′ E.
Namlagira, Mt. = Nyamlagira, Mt.	
Namuli, Mt., Portuguese East Africa	15° 22′ S., 37° 00′ E.
Namwala, Northern Rhodesia	15° 44′ S., 26° 27′ E.
Namwamba River, Ruwenzori, Uganda	0° 18′ N., 29° 54′ E. to 0° 04′ N., 30° 09′ E.
Namwewe, northern Nyasaland	10° 56′ S., 33° 25′ E.
Nana Candundo (Cavungo), eastern Angola	11° 31′ S., 23° 03′ E.
Nana Kru, Liberia	4° 50′ N., 8° 44′ W.
Nandi District, Kenya Col.	0° 02′ S. to 0° 32′ N., 34° 45′ E. to 35° 18′ E.
Nandi Escarpment, Kenya Col.	0° 03′ S., 34° 58′ E. to 0° 32′ N., 34° 44′ E.
Nandi Forest, Kenya Col.	0° 09′ N. to 0° 24′ N., 34° 58′ E. to 35° 09′ E.
Nanyuki (Ngare njuki), Kenya Col.	0° 02′ N., 37° 06′ E.
Narok, Kenya Col.	1° 09′ S., 35° 48′ E.
Narok, Ol Doinyo = Donje Erok	
Narossura (Narossera) River, Kenya Col.	1° 40′ S., 35° 45′ E. to 1° 37′ S., 36° 06′ E.
"Naroubi" = Marubi	
Nasondoye, Upper Katanga, B. C.	10° 22′ S., 25° 04′ E.
Natal, South Africa	26° 47′ S. to 31° 06′ S., 28° 52′ E. to 32° 52′ E.
Natron, Lake, Tanganyika Terr.	2° 06′ S. to 2° 36′ S., 35° 53′ E. to 36° 08′ E.
Nava River, northern Ituri, B. C.	2° 43′ N., 27° 54′ E. to 1° 53′ N., 27° 05′ E.
Nchanga, Northern Rhodesia	12° 31′ S., 27° 52′ E.
Ncheta Island, Lake Bangweolo, Northern Rhodesia	11° 40′ S., 30° 15′ E.
Ncheu, southern Nyasaland	14° 48′ S., 34° 40′ E.
Nchilenge, Lake Moero, Northern Rhodesia	8° 41′ S., 29° 10′ E.
Ndala Tando (Ndalla Tando, Dala Tando, Vila Salazar, Dalatando), Angola	9° 15′ S., 14° 52′ E.
Ndalala, Lake = Ndaraga, Lake	
Ndalu (Dalu), Mayombe, B. C.	4° 57′ S., 12° 52′ E.
Ndaraga (Ndalala, Dalala, Detala), Lake, Kivu, B. C.	1° 17′ S., 29° 00′ E.
Ndassekera (Ndasegera), Tanganyika Terr.	1° 58′ S., 35° 43′ E.
"Ndekera" = Molekera	
Ndekesha (Dekesha, Katabwa), Kasai, B. C.	6° 27′ S., 22° 02′ E.

Ndekkere (Dekere), Lower Uelle, B. C.	3° 52′ N., 23° 42′ E.
Ndele, eastern Ituri = Dele	
Ndélé, Ubangi-Shari	8° 22′ N., 20° 40′ E.
Ndjiri (Njiri, Nyiri), Kenya Col.	2° 40′ S., 37° 17′ E.
Ndola, Northern Rhodesia	12° 58′ S., 28° 39′ E.
Ndoruma, Upper Uelle, B. C.	4° 49′ N., 27° 37′ E.
Ndoto Mountains = Endoto Mountains	
Ndussuma, eastern Ituri, B. C.	1° 19′ N. to 1° 34′ N., 29° 48′ E. to 30° 17′ E.
Ndwa, Middle Congo, B. C.	2° 07′ S., 16° 22′ E.
Negunda, Upper Uelle, B. C.	3° 27′ N., 28° 41′ E.
Nemlao (Nembao), near Congo River mouth, B. C.	5° 58′ S., 12° 27′ E.
Neng, Kenya Col.	2° 15′ N., 38° 32′ E.
Nepoko Ferry, Ituri, B. C.	2° 28′ N., 27° 53′ E.
Nepoko River, northeast B. C.	2° 20′ N., 29° 17′ E. to 1° 44′ N., 27° 08′ E.
Netia, Portuguese East Africa	14° 45′ S., 39° 50′ E.
New Helgoland = Helgoland, New	
Ngabe (N'Gabé), French Congo	3° 08′ S., 16° 10′ E.
Ngami, Lake, Bechuanaland	20° 36′ S., 22° 34′ E.
Ngamiland, Bechuanaland	17° 50′ S. to 21° 00′ S., 21° 00′ E. to 26° 50′ E.
Nganchu (Nganciu, Ganciu, Nganciou, N'Gantchou), middle Congo River, French Congo	3° 17′ S., 16° 11′ E.
Ngando, Lake = Gando, Lake	
Nganza, Tanganyika Dist., B. C.	7° 08′ S., 29° 23′ E.
Nganzi, Semliki Valley, B. C.	0° 21′ N., 29° 45′ E.
Ngapou country, Ubangi-Shari	6° 55′ N. to 7° 05′ N., 19° 55′ E. to 20° 13′ E.
Ngara, Angola	11° 04′ S., 14° 05′ E.
Ngara, northwest Tanganyika Terr.	2° 29′ S., 30° 39′ E.
Ngara (Ngara Boma), Nyasaland	13° 17′ S., 33° 35′ E.
Ngare Dobash = Mara River	
Ngaundere, Cameroon	7° 15′ N., 13° 28′ E.
Ngayu (Gayu), Ituri, B. C.	1° 45′ N., 27° 33′ E.
Ngesho, Kivu, B. C.	1° 17′ S., 29° 06′ E.
Ngigmi, on Lake Chad, French West Africa	14° 18′ N., 13° 10′ E.
Ngingwe, Kivu, B. C.	1° 29′ S., 28° 51′ E.
Ngiri (Giri) River, Bangala, B. C.	2° 04′ N., 19° 05′ E. to 0° 32′ N., 17° 58′ E.
Ngiro (Nyiro), Mt., Kenya Col.	2° 09′ N., 36° 49′ E.
Ngoi, Upper Katanga, B. C.	8° 43′ S., 26° 07′ E.
Ngolo = Gulu	
Ngoma = Goma	
Ngombe, in Kasai, B. C.	6° 40′ S., 20° 57′ E.
Ngombe, on middle Congo River, B. C.	0° 43′ S., 17° 35′ E.
Ngombe Lutete (Ngombe, Ngombi, Gombe Lutete), on lower Congo River, B. C.	4° 58′ S., 14° 41′ E.
Ngome, Tanganyika Terr.	3° 20′ S., 32° 40′ E.

Ngomingi (Igomingi), Tanganyika Terr.	8° 10′ S., 35° 12′ E.
Ngomo, Kivu, B. C.	2° 40′ S., 28° 50′ E.
Ngong, Kenya Col.	1° 20′ S., 36° 40′ E.
Ngorongoro (Laroda's), Tanganyika Terr.	3° 12′ S., 35° 30′ E.
Ngorongoro Crater, Tanganyika Terr.	3° 05′ S. to 3° 16′ S., 35° 30′ E. to 35° 40′ E.
Ngosa-Kapenda (Inkosakapenda), southeastern Katanga, B. C.	12° 30′ S., 29° 43′ E.
Ngote (Gote), eastern Ituri, B. C.	2° 13′ N., 30° 47′ E.
Ngové (Ngobé), Lake, Gaboon	1° 55′ S., 9° 30′ E.
Ngoye (Umgoye) Forest, Zululand	28° 52′ S., 31° 40′ E.
Ngoyo, Lower Congo Dist., B. C.	5° 58′ S., 12° 26′ E.
Ngungo (N'Gungo), Angola	10° 52′ S., 15° 32′ E.
Nguru Mountains, Tanganyika Terr.	5° 50′ S. to 6° 15′ S., 37° 32′ E. to 37° 44′ E.
Nguruman, Kenya Col.	2° 00′ S., 36° 05′ E.
Ngurru (Gurru), Lower Uelle, B. C.	4° 00′ N., 23° 17′ E.
Niakamaga (Nyakamaga), Tanganyika Terr.	3° 00′ S., 32° 07′ E.
Niam-Niam (Azande) Country, southern Bahr-el-Ghazal and northern Uelle, B. C.	4° 15′ N. to 5° 10′ N., 27° 23′ E. to 29° 10′ E.
Niamey, Niger R., French W. Afr.	13° 32′ N., 2° 06′ E.
Niangara, Upper Uelle, B. C.	3° 42′ N., 27° 53′ E.
Niangwe = Nyangwe	
Niapu, southern Uelle, B. C.	2° 25′ N., 26° 31′ E.
Niarembe (Niarombe), eastern Ituri, B. C.	2° 14′ N., 31° 07′ E.
Niarembe Escarpment, eastern Ituri, B. C.	2° 14′ N., 31° 08′ E.
Niari River, French Congo	3° 10′ S., 14° 26′ E. to 3° 24′ S., 12° 37′ E.
Niembo, Manyema, B. C.	4° 30′ S., 28° 15′ E.
Nieuwdorp, southern Katanga, B. C.	12° 14′ S., 27° 49′ E.
Niger Delta, Southern Nigeria	4° 15′ N. to 5° 20′ N., 5° 25′ E. to 7° 10′ E.
Niger River	9° 08′ N., 10° 43′ W. to 4° 16′ N., 6° 04′ E.
Niger Territory, French (French Niger Colony), West Africa	11° 00′ N. to 23° 30′ N., 1° 30′ W. to 16° 00′ E.
Nigeria, West Africa	4° 15′ N. to 13° 50′ N., 2° 35′ E. to 14° 38′ E.
Nigeria, Northern	6° 40′ N. to 13° 50′ N., 2° 45′ E. to 14° 38′ E.
Nigeria, Southern	4° 15′ N. to 9° 10′ N., 2° 35′ E. to 9° 25′ E.
Nikiváli Island, Lake Albert, B. C.	1° 18′ N., 30° 23′ E.
Nile, Blue (Bahr-el-Azrak)	11° 35′ N., 37° 30′ E. to 15° 35′ N., 32° 33′ E.
Nile (West Nile) Province, Uganda	2° 10′ N. to 3° 50′ N., 30° 44′ E. to 32° 02′ E.
Nile, Victoria, in Uganda	0° 25′ N., 33° 11′ E. to 2° 14′ N., 31° 21′ E.

Nile, White (Bahr-el-Jebel and Bahr-el-Abiad)	2° 15′ N., 31° 21′ E. to 15° 35′ N., 32° 33′ E.
Nimba Mountains, on French Guinea–Liberia border	7° 30′ N. to 7° 37′ N., 8° 24′ W. to 8° 34′ W.
"Nimboo" = Nemlao	
Nimule, southern A.-E. Sudan	3° 35′ N., 32° 02′ E.
Ninagongo, Mt. = Niragongo, Mt.	
Ninda, northern Ruanda	1° 28′ S., 29° 38′ E.
Nioka, Ituri, B. C.	2° 09′ N., 30° 40′ E.
Niragongo, Mt. (Ninagongo, Nyiragongo, Tshaninagongo, Shaninagongo), Kivu, B. C.	1° 31′ S., 29° 15′ E.
Nizi, Ituri, B. C.	1° 45′ N., 30° 18′ E.
Nizi River, Ituri, B. C.	2° 12′ N., 30° 49′ E. to 1° 40′ N., 30° 16′ E.
Njamusi (Niamusi, Nyamusi, Njemps Kubwa, Enjamusi) River, Kenya Col.	0° 29′ N., 36° 03′ E.
Njanda = Djanda	
Njangabo = Nyangabo	
Njombe, Tanganyika Terr.	9° 07′ S., 34° 42′ E.
Njombe highlands, Tanganyika Terr.	9° 00′ S. to 9° 15′ S., 34° 35′ E. to 34° 47′ E.
Nkabwe (Kabwe, Ngabwa), Mt., on Uganda-B. C. border	0° 54′ S., 29° 35′ E.
Nkinzi = Kinzi	
Nkole, on Luapula River, eastern Katanga. B. C.	9° 24′ S., 28° 32′ E.
Nkongsamba, Cameroon	4° 57′ N., 9° 57′ E.
Nkoumadjap, Spanish Guinea	2° 05′ N., 11° 10′ E.
Nkuli (Kilinkuli), Ruanda	1° 35′ S., 29° 30′ E.
Nkumajap, Cameroon	3° 08′ N., 12° 11′ E.
No, Lake, A.-E. Sudan	9° 30′ N., 30° 28′ E.
Noki (Noqui), Angola	5° 52′ S., 13° 26′ E.
Nokunda (No Kunda), Gambia	13° 39′ N., 15° 41′ W.
Nola, southwest Ubangi-Shari	3° 30′ N., 16° 03′ E.
Nomayo River = Bomokandi River	
Nouvelle-Anvers (Bangala Station, Iboko, Diboko), on Congo River, Bangala, B. C.	1° 36′ N., 19° 09′ E.
Novo Redondo, Angola	11° 11′ S., 13° 52′ E.
Nsabe (Nsabé), Lake Albert, B. C.	1° 28′ N., 30° 29′ E.
Nsangaui (Nsangani, Nsangassi), Semliki Valley, B. C.	0° 31′ N., 29° 33′ E.
Nsaza (Nsasa, "Nsara"), Ruanda	2° 08′ S., 30° 26′ E.
Nsombo, Northern Rhodesia	10° 49′ S., 30° 02′ E.
Ntambwa, Northern Rhodesia	15° 15′ S., 30° 15′ E.
Ntenkwe (Ntenke, Muene Ntenque, Ntenque, Tenke, Tenque), Upper Katanga, B. C.	11° 21′ S., 26° 45′ E.
Ntole (Ntolo), Kasai, B. C.	6° 35′ S., 22° 39′ E.
Ntotoro, Bwamba, Uganda	0° 48′ N., 30° 07′ E.

Nuba Mountains, A.-E. Sudan	10° 15′ N. to 12° 45′ N., 28° 30′ E. to 31° 45′ E.
Nubia, northeastern Sudan	18° 00′ N. to 22° 00′ N., 30° 00′ E. to 35° 30′ E.
Nu-Gariep = Orange River above mouth of Vaal River, South Africa	
Nukana, northwestern Bechuanaland	19° 38′ S., 22° 00′ E.
Nukoja, Uganda	0° 58′ N., 30° 20′ E.
Nun (Noun) River, Cameroon	6° 09′ N., 10° 25′ E. to 4° 53′ N., 11° 03′ E.
Nùn, River, Southern Nigeria	4° 16′ N., 6° 04′ E.
Nungba (Nongba), northern Uelle, B. C.	4° 53′ N., 25° 35′ E.
Nunje, Mt., Ituri, B. C.	1° 24′ N., 30° 16′ E.
Nunu River, Lomami, B. C.	5° 59′ S., 23° 46′ E.
Nyabirehe, Ruanda	1° 34′ S., 29° 36′ E.
Nyabitsindi, on border between Ruanda and Kivu, B. C.	1° 24′ S., 29° 31′ E.
Nyabukoko, Kivu, B. C.	0° 29′ S., 28° 47′ E.
Nya-Gezi = Nya-Ngezi	
Nyakabande, Kigezi Dist., Uganda	1° 16′ S., 29° 44′ E.
Nyakamaga = Niakamaga	
Nyakhowa (Nyamkhowa, Mt. Laws), Mt., Nyasaland	10° 33′ S., 34° 04′ E.
Nya-Luindja, close to Sibatwa, at 1800 meters, southern Kivu Dist., B. C.	
Nya-Lukemba, Kivu, B. C.	2° 30′ S., 28° 51′ E.
Nyamansi River, Tanganyika Terr.	6° 06′ S., 30° 33′ E. to 5° 38′ S., 31° 07′ E.
Nyamansi forests, Tanganyika Territory	5° 55′ S., 30° 55′ E.
Nyamgasani River, Ruwenzori, Uganda	0° 18′ N., 29° 53′ E. to 0° 10′ S., 29° 49′ E.
Nyamlagira, Mt. (Namlagira, Nyamulagira, Nyamuragira), Kivu, B. C.	1° 25′ S., 29° 12′ E.
Nyamsansi (Nyamsassi, Njamssanssi), on Lake Albert, Ituri, B. C.	1° 25′ N., 30° 27′ E.
Nyamukubi, Kivu, B. C.	1° 58′ S., 28° 54′ E.
Nyamukubi Mountains = mountains west of Nyamukubi, Kivu, B. C.	
Nyamulagira, Mt. = Nyamlagira, Mt.	
"Nya-Mundja" = Nya-Luindja	
Nyamuragira, Mt. = Nyamlagira, Mt.	
Nya-Muzinga, Ruanda	1° 37′ S., 29° 31′ E.
Nyamwamba (Namwamba) River, Uganda	0° 18′ N., 29° 54′ E. to 0° 04′ N., 30° 09′ E.
"Nyander" = Nyundo	
"Nyando" = Nyundo	
Nyando Valley, Kenya Col.	0° 07′ S., 35° 05′ E.
Nyanga River, Gaboon	1° 50′ S., 12° 28′ E. to 2° 57′ S., 10° 15′ E.
Nyangabo (Niangabo, Njangabo, Madjamboni, Nyangabi), Ituri, B. C.	1° 19′ N., 30° 03′ E.

Nya-Ngezi (Nya-Gezi, Nya-Gesi, Nyangezi), Kivu, B. C.	2° 42′ S., 28° 52′ E.
Nyangiro, supposedly near Nyundo, Ruanda	
Nyangwe, Manyema, B. C.	4° 15′ S., 26° 11′ E.
Nyankira Island, Lake Kivu, Ruanda	2° 05′ S., 29° 16′ E.
Nyanza, Ruanda	2° 20′ S., 29° 47′ E.
Nyanza (Nyanza Migera), on L. Tanganyika, Urundi	4° 20′ S., 29° 35′ E.
Nyarondo, western Kenya Col.	0° 07′ S., 35° 08′ E.
Nyarusambo, Kivu, B. C.	1° 28′ S., 29° 02′ E.
Nyasa, Lake	9° 29′ S., 34° 00′ E. to 14° 25′ S., 35° 15′ E.
Nyasa, North, Nyasaland	9° 22′ S. to 11° 04′ S., 32° 57′ E. to 34° 16′ E.
Nyasa Rift	9° 25′ S., 34° 10′ E. to 17° 40′ S., 35° 20′ E.
Nyasa, West, Nyasaland	10° 45′ S. to 12° 33′ S., 33° 42′ E. to 34° 20′ E.
Nyasaland	9° 22′ S. to 17° 07′ S., 32° 42′ E. to 35° 55′ E.
Nyasheke, Kivu, B. C.	1° 23′ S., 29° 18′ E.
Nyawatura (Njawatura), Tanganyika Terr.	1° 02′ S., 30° 52′ E.
Nyemilima, Mt., Kivu, B. C.	0° 03′ S., 29° 26′ E.
Nyeri, Kenya Col.	0° 26′ S., 36° 56′ E.
Nyika Plateau, northern Nyasaland	10° 10′ S. to 10° 54′ S., 33° 35′ E. to 34° 03′ E.
Nyiragongo, Mt. = Niragongo, Mt.	
Nyondo Forest, southwestern Uganda	1° 02′ S., 29° 38′ E.
Nyong River, Cameroon	4° 25′ N., 13° 07′ E. to 3° 15′ N., 9° 54′ E.
Nyonga (Nionga), Lualaba R., B. C.	8° 35′ S., 26° 18′ E.
Nyongwe, Ruanda	2° 30′ S., 29° 13′ E.
"Nysagengua" = Niragongo	
Nyundo (Nyondo, Njundo), Ruanda	1° 42′ S., 29° 19′ E.
Nzerekore (Nzerékoré), French Guinea	7° 44′ N., 8° 50′ W.
Nzeruve River = Djelube River	
Nzingi, Tanganyika Terr.	6° 06′ S., 35° 42′ E.
Nzobe (Zobe), Belgian Mayombe	5° 07′ S., 12° 30′ E.
Nzobulu River = Djobulo River	
Nzombe (Zombe), eastern B. C.	3° 09′ S., 28° 21′ E.
Nzoro (Vankerckhovenville), Upper Uelle, B. C.	3° 17′ N., 29° 26′ E.
Nzulu (Nzuru, Nzuru Volcano, Kraterushi), Kivu, B. C.	1° 37′ S., 29° 06′ E.
Ogemwe (Oguémouen), Lake, Gaboon	1° 08′ S., 10° 00′ E.
Ogondjo, northeast Ituri, B. C.	2° 11′ N., 30° 56′ E.
Ogowé (Ogobai, Ogooué), River, Gaboon and French Congo	2° 41′ S., 14° 13′ E. to 0° 42′ S., 8° 58′ E.
Oguma (Agouma), Gaboon	1° 33′ S., 10° 05′ E.

Oguta, Southern Nigeria	5° 43′ N., 6° 48′ E.
Ohumbe, on Lake Onange, Gaboon	1° 00′ S., 10° 05′ E.
Oka, French Congo	0° 37′ S., 14° 53′ E.
Oka, Upper Uelle, B. C.	3° 06′ N., 30° 47′ E.
Okahandja, Southwest Africa	21° 58′ S., 16° 55′ E.
Okavango (Okovanggo) River, Angola and Southwest Africa	16° 54′ S., 18° 20′ E. to 18° 55′ S., 22° 24′ E.
Okello's village = Fanigoro	
Okkela = Wakkala	
Okondo, Upper Uelle, B. C.	3° 31′ N., 27° 55′ E.
Oku, British Cameroons	6° 10′ N., 10° 25′ E.
Oldeani, Mt., Tanganyika Terr.	3° 16′ S., 35° 26′ E.
Olifants River, western Cape Prov.	33° 20′ S., 19° 12′ E. to 31° 44′ S., 18° 11′ E.
Olinga, Ituri, B. C.	0° 53′ N., 28° 58′ E.
Olosirwa, Mt., Tanganyika Terr.	3° 04′ S., 35° 48′ E.
Omboué, Fernan Vaz, Gaboon	1° 35′ S., 9° 15′ E.
Ombrokua ("Ombrolema"), Gaboon	0° 49′ S., 9° 58′ E.
Omo, Nigeria = Omu	
Omo River, Abyssinia	8° 14′ N., 37° 42′ E. to 5° 00′ N., 36° 03′ E.
Omrora, southern Angola	16° 30′ S., 15° 25′ E.
Omu (Omo), Ilorin Prov., Nigeria	8° 08′ N., 5° 10′ E.
Onange (Onangué, Zonangué), Lake, Gaboon	1° 00′ S., 10° 05′ E.
Ondo, Southern Nigeria	7° 05′ N., 4° 53′ E.
Ondo Province, Southern Nigeria	5° 52′ N. to 8° 10′ N., 4° 28′ E. to 6° 00′ E.
Ondonga, Southwest Africa	17° 52′ S., 16° 06′ E.
Onyulu's, on Koli R., Uganda, probably = Angulo	
Opala, Aruwimi Dist., B. C.	0° 36′ S., 24° 20′ E.
Opari, southern A.-E. Sudan	3° 56′ N., 32° 04′ E.
Opu River, Fernando Po	3° 39′ N., 8° 39′ E.
Orange Free State, South Africa	26° 40′ S. to 30° 40′ S., 24° 20′ E. to 29° 40′ E.
Orange River (Gariep), South Africa	28° 56′ S., 29° 01′ E. to 28° 40′ S., 16° 25′ E.
Oso River, Kivu, B. C.	1° 37′ S., 28° 55′ E. to 1° 09′ S., 27° 19′ E.
Ossele, French Congo	1° 25′ S., 15° 23′ E.
Otjimbinque (Otjimbingue, Otyimbingue, Otjimbengue), Southwest Africa	22° 21′ S., 16° 07′ E.
Ouadda (Ouaddah, Wadda, Les Ouaddahs), on Ubangi River, Ubangi-Shari	4° 57′ N., 19° 08′ E.
Ouaddahs, Pays des, Ubangi-Shari	4° 52′ N. to 5° 09′ N., 18° 45′ E. to 19° 10′ E.
Ouaka district, Ubangi-Shari	4° 40′ N. to 7° 45′ N., 19° 47′ E. to 21° 53′ E.
Ouesso (Wesso), French Congo	1° 34′ N., 16° 02′ E.

Ouri (Oury, Crocodile) River, Transvaal	25° 49′ S., 27° 55′ E. to 24° 10′ S., 26° 50′ E.
Outeniqua (Anteniquoi), Cape Prov.	33° 50′ S., 22° 10′ E. to 22° 55′ E.
Ovamboland (Ovampoland, Amboland), Southwest Africa	17° 17′ S. to 18° 31′ S., 14° 10′ E. to 18° 00′ E.
Ovaquenyama (Kouanyama), southern Angola	16° 50′ S., 15° 55′ E.
Owerri, Southern Nigeria	5° 30′ N., 7° 01′ E.
Owerri Province, Southern Nigeria	4° 35′ N. to 6° 00′ N., 5° 30′ E. to 7° 41′ E.
Oyem, northern Gaboon	1° 35′ N., 11° 33′ E.
Oyo Province, Southern Nigeria	6° 40′ N. to 8° 50′ N., 2° 50′ E. to 5° 10′ E.
Pakihoma, Semliki Valley, B. C.	0° 32′ N., 29° 49′ E.
Pala = Mpala	
Palachwe (Palapye), eastern Bechuanaland	22° 35′ S., 27° 18′ E.
Palala River, Transvaal	24° 20′ S., 28° 25′ E. to 23° 05′ S., 27° 54′ E.
Palamasi, Upper Uelle, B. C.	3° 38′ N., 28° 21′ E.
Pallaballa, Lower Congo Dist., B. C.	5° 49′ S., 13° 33′ E.
Palmas, Cape, Liberia	4° 25′ N., 7° 45′ W.
Palombe, southern Nyasaland	15° 50′ S., 35° 38′ E.
Pande, Marungu, B. C.	7° 39′ S., 29° 43′ E.
Panga, on Aruwimi River, Stanleyville, B. C.	1° 51′ N., 26° 26′ E.
Panga, Bomokandi River, Upper Uelle, B. C.	3° 17′ N., 26° 44′ E.
Pangala, French Congo	3° 18′ S., 14° 35′ E.
Pangani District, Tanganyika Terr.	4° 57′ S. to 6° 01′ S., 37° 05′ E. to 39° 05′ E.
Pangani River (Rufu, Ruvu), Tanganyika Terr.	3° 30′ S., 37° 27′ E. to 5° 25′ S., 38° 58′ E.
Pangoula, Ubangi-Shari	7° 01′ N., 20° 10′ E.
Pania Mutombo, Lomami, B. C.	5° 11′ S., 23° 50′ E.
Parc National Albert = Albert National Park	
Paré Mountains, northeast Tanganyika Terr.	3° 32′ S. to 4° 37′ S., 37° 39′ E. to 38° 05′ E.
Paso-Konde (Paço Konde, Paso Konité), Lower Congo Dist., B. C.	5° 49′ S., 12° 53′ E.
Paulis, southern Uelle, B. C.	2° 46′ N., 27° 38′ E.
Pawa, northern Ituri, B. C.	2° 32′ N., 27° 40′ E.
Pedreira, Angola	12° 02′ S., 17° 13′ E.
Pedroma, São Tomé Island	0° 16′ N., 6° 42′ E.
Pelenge, Upemba National Park, B. C.	8° 41′ S., 26° 50′ E.
Pemba Island, Tanganyika Terr.	4° 52′ S. to 5° 29′ S., 39° 39′ E. to 39° 52′ E.

Pempele Pool (Etang Pempere, Etang Dempere), southwestern Katanga, B. C.	11° 44′ S., 25° 32′ E.
Penedo, Angola	8° 47′ S., 13° 16′ E.
Penge (Pengé), Ituri, B. C.	1° 23′ N., 28° 06′ E.
Pessy (Kpessi, Kpelle) District, Liberia	7° 20′ N. to 7° 45′ N., 9° 30′ W. to 10° 00′ W.
Petauke (Petauki), Northern Rhodesia	14° 01′ S., 31° 07′ E.
Petianga (Pebeangu), Kasai, B. C.	4° 26′ S., 20° 55′ E.
Pettii (Petti, Pettia), Northern Nigeria	9° 40′ N., 8° 20′ E.
Phillipshof (Magamba), Tanganyika Terr.	4° 44′ S., 38° 17′ E.
Piagga, Upper Uelle, B. C.	3° 40′ N., 29° 19′ E.
Pinetown, Natal	29° 50′ S., 30° 50′ E.
Pinga, Kivu, B. C.	1° 01′ S., 28° 42′ E.
Plateau Province, Northern Nigeria	8° 21′ N. to 10° 25′ N., 8° 00′ E. to 10° 33′ E.
Pointe Noire, French Congo	4° 48′ S., 11° 53′ E.
Poko, Upper Uelle, B. C.	3° 09′ N., 26° 53′ E.
Pokwo, northeastern Ituri, B. C.	2° 03′ N., 30° 03′ E.
Pompari (Pompeli, Basinga), Lower Uelle, B. C.	3° 32′ N., 25° 29′ E.
Pondoland, South Africa	30° 40′ S. to 31° 55′ S., 28° 40′ E. to 30° 10′ E.
Pongo, on Lake Albert, Ituri, B. C.	2° 09′ N., 31° 15′ E.
Pongo (Kosanga) River, Bahr-el-Ghazal Province	6° 45′ N., 26° 21′ E. to 9° 05′ N., 28° 10′ E.
Ponta da Lenha, on lower Congo River, B. C.	5° 59′ S., 12° 44′ E.
Ponthierville (Babundu), Stanleyville, B. C.	0° 22′ S., 25° 33′ E.
Popoi (Popoie, Popoïe), Stanleyville, B. C.	1° 49′ N., 25° 55′ E.
Popokabaka, on Kwango River, Kwango, B. C.	5° 40′ S., 16° 38′ E.
Poroto Mountains, Tanganyika Terr.	8° 52′ S. to 9° 10′ S., 33° 26′ E. to 33° 57′ E.
Port Francqui (Ilebo), Kasai, B. C.	4° 19′ S., 20° 34′ E.
Port Gentil, Gaboon	0° 43′ S., 8° 47′ E.
Port Harcourt, Southern Nigeria	4° 45′ N., 7° 00′ E.
Port Natal = Durban	
Port Shepstone, Natal	30° 48′ S., 30° 25′ E.
Portal, Fort (Fort Gerry), Uganda	0° 40′ N., 30° 17′ E.
Porto Amboim (Benguela Velha), Angola	10° 42′ S., 13° 45′ E.
Portuguese Congo = District of Cabinda, possibly also of Zaire and Congo, Angola	
Portuguese East Africa (Mozambique)	10° 30′ S. to 26° 48′ S., 30° 11′ E. to 40° 51′ E.
Possel, Fort de (Kemo), on Ubangi River, Ubangi-Shari	5° 02′ N., 19° 14′ E.
Potchefstroom, Transvaal	26° 43′ S., 27° 06′ E.
Pozo (Mpozo) Valley, Lower Congo Dist., B. C.	5° 50′ S., 13° 30′ E.
Prahsu (Prasu), Gold Coast	5° 54′ N., 1° 22′ W.

Pretoria, Transvaal	25° 40′ S., 28° 15′ E.
Pretoria District, Transvaal	24° 50′ S. to 26° 20′ S., 27° 35′ E. to 29° 25′ E.
Principe (Princes) Island, Gulf of Guinea	1° 35′ N., 7° 25′ E.
Province Orientale, B. C.	5° 25′ N. to 5° 30′ S., 22° 20′ E. to 31° 18′ E.
Pugu, eastern Tanganyika Terr.	6° 54′ S., 39° 09′ E.
Pugu Hills, eastern Tanganyika Terr.	6° 45′ S. to 7° 10′ S., 38° 50′ E. to 39° 10′ E.
Pungo Andongo, northern Angola	9° 45′ S., 15° 40′ E.
Putnam's Camp = Camp Putnam	
Pweto, on Lake Moero, Tanganyika Dist., B. C.	8° 29′ S., 28° 53′ E.
Qua Mpara = Mpala	
Quanza River = Cuanza River	
Que (Què) River, Angola	13° 44′ S., 14° 25′ E. to 14° 43′ S., 15° 05′ E.
Quelimane (Quilimane, Kilimane), Portuguese East Africa	17° 50′ S., 36° 52′ E.
Quelimane (Kilimane) Province, Portuguese East Africa	15° 10′ S. to 18° 53′ S., 35° 00′ E. to 39° 08′ E.
Quibala, Angola	10° 45′ S., 14° 58′ E.
Quibaxi (Quibaxe), Angola	8° 32′ S., 14° 38′ E.
Quibula (Chibula, Kibula), Angola	12° 15′ S., 14° 40′ E.
Quickborn, Southwest Africa	21° 05′ S., 17° 15′ E.
Quicolungo, Angola	8° 36′ S., 15° 17′ E.
Quillengues (Quilengues), Angola	14° 05′ S., 14° 02′ E.
Quillu (Quillo, Bas Kouilou), French Congo	4° 27′ S., 11° 41′ E.
Quilo = Kwilu River, French Congo	
Quindumbo (Chindumbo), Angola	12° 28′ S., 15° 03′ E.
Quinfunpa (Kinfoumpa), Northern Rhodesia	13° 35′ S., 28° 05′ E.
Quipungo (Fort Quinpungo), Angola	14° 53′ S., 14° 21′ E.
Quissanga = Kisanga	
Quissange (Kissange), Angola	12° 30′ S., 14° 05′ E.
"Quitta" = Quillu	
Quorra River = lower Niger River	
Rabai, eastern Kenya Col.	3° 56′ S., 39° 34′ E.
Radiadia, old = Kadiadia	
Raffali = Raffili	
Raffili (Raffali rapids), Bahr-el-Ghazal	6° 52′ N., 27° 58′ E.
"Rakowa" = Kakoma	
Rangu (Li Rangu), southern Bahr-el-Ghazal	4° 43′ N., 28° 21′ E.
Ratu, Ubangi-Shari	7° 25′ N., 19° 00′ E.
Ra-u, west Ruwenzori, B. C.	0° 21′ N., 29° 46′ E.
Ravine Station = Eldama Ravine	
Red Sea Hills, A.-E. Sudan	17° 30′ N., 38° 00′ E. to 22° 45′ N., 35° 00′ E.

Red Sea Province, A.-E. Sudan	17° 20′ N. to 23° 00′ N., 35° 40′ E. to 38° 35′ E.
Redjaf, southern A.-E. Sudan	4° 45′ N., 31° 35′ E.
Redjaf (Logwek) Hill, southern A.-E. Sudan	4° 44′ N., 31° 34′ E.
Rei Buba, northern Cameroon	8° 40′ N., 14° 12′ E.
Renk, A.-E. Sudan	11° 45′ N., 32° 49′ E.
Rethy (Rety), Ituri, B. C.	2° 05′ N., 30° 53′ E.
Réunion Island, Indian Ocean	20° 50′ S. to 21° 25′ S., 55° 15′ E. to 55° 50′ E.
Rhino Camp, Uganda	2° 58′ N., 31° 24′ E.
Rhodesia, Northeast	8° 15′ S. to 15° 00′ S., 28° 25′ E. to 33° 40′ E.
Rhodesia, Northern	8° 15′ S. to 18° 04′ S., 22° 00′ E. to 33° 40′ E.
Rhodesia, Northwest	10° 50′ S. to 18° 04′ S., 22° 00′ E. to 30° 30′ E.
Rhodesia, Southern	15° 40′ S. to 22° 24′ S., 25° 08′ E. to 33° 05′ E.
Richmond Road (Thornville Junction), Natal	29° 48′ S., 30° 28′ E.
Rift Valley of East Africa = Great Rift Valley	
Rift Valleys = Great Rift Valley and Albertine Rift	
Rigeza River (Rugetsi, Ruetsi, Rugezi), Semliki Valley, B. C.	0° 13′ N., 29° 45′ E. to 29° 38′ E.
Rimo, southern A.-E. Sudan	4° 16′ N., 30° 32′ E.
Rio de Oro, Northwest Africa	20° 45′ N., 17° 10′ W. to 28° 35′ N., 8° 40′ W.
Risaci = Ritaci	
Risasi, Manyema, B. C.	4° 37′ S., 28° 31′ E.
Risimu, Stanleyville, B. C.	0° 31′ N., 25° 35′ E.
Ritaci, Kivu, B. C.	4° 28′ S., 28° 43′ E.
Riva-Riva = Lokandu	
Rivière d'Angers = Muni River	
Roça Congulu (Fazenda Congulu), Angola	10° 41′ S., 14° 14′ E.
Rokelle River, Sierra Leone	9° 47′ N., 11° 11′ W. to 8° 35′ N., 13° 00′ W.
Roláni River = Luami River	
Rollas Island, São Tomé	0° 00′, 6° 32′ E.
Rombo River = Lomvo River	
Romée, La (Yalikombe), Stanleyville, B. C.	0° 35′ N., 24° 45′ E.
Rona, Mt., northeastern Ituri, B. C.	2° 21′ N., 30° 43′ E.
Rondebosch, Cape Prov.	33° 57′ S., 18° 28′ E.
Rosa, Island da, Congo River mouth, B. C.	6° 00′ S., 12° 26′ E.
Roseberry, Fort, Northern Rhodesia	11° 11′ S., 28° 53′ E.
Roseires, A.-E. Sudan	11° 52′ N., 34° 23′ E.
Rousset, Fort, French Congo	0° 27′ S., 15° 47′ E.
Rovuma (Ruvuma) River, on Tanganyika Terr.-Portuguese East Africa border	10° 50′ S., 35° 35′ E. to 10° 28′ S., 40° 25′ E.

Ruaketenge, Lake (Ruakatengi Swamp), southwestern Uganda	0° 53′ S., 30° 05′ E.
Ruanda, Mandated Territory	1° 03′ S. to 2° 50′ S., 28° 52′ E. to 30° 58′ E.
Ruanda, British, now included in Kigezi Dist., Uganda	1° 08′ S. to 1° 23′ S., 29° 34′ E. to 29° 54′ E.
Ruanda-Urundi = Ruanda and Urundi, Mandated Territories	
Ruanuli River = Rwanoli River	
Ruasa = Rwaza	
"Ruasa-Mulera" = between Rwaza and Mulera	
Rubengera = Lubengera	
Rubi River, Lower Uelle, B. C.	2° 26′ N., 26° 23′ E. to 2° 48′ N., 23° 58′ E.
Ruchiga = Rukiga Dist.	
Ruchuduru (Buchundura), Uganda	1° 04′ S., 29° 56′ E.
Rudolf, Lake, Kenya Col.	2° 24′ N., 36° 34′ E. to 5° 05′ N., 36° 07′ E.
Rufiji (Rufidji) River, Tanganyika Terr.	8° 32′ S., 37° 23′ E. to 7° 57′ S., 39° 24′ E.
Rufu River = Pangani River	
Rufua River, Uganda	1° 08′ S., 30° 07′ E. to 1° 04′ S., 30° 22′ E.
Ruganda, Ankole, Uganda	0° 37′ S., 30° 40′ E.
Rugari = Lulenga	
Rugasha (Bisongou, Bisongo, Ruga), Lake, Tanganyika Terr.	2° 07′ S., 30° 55′ E.
Rugege Forest (Forêt d'Astrida), southwestern Ruanda	2° 15′ S. to 2° 30′ S., 29° 14′ E. to 29° 30′ E.
Rugegera (Rugegero), northwestern Ruanda	1° 41′ S., 29° 18′ E.
Rugetsi (Rugezi, Ruetsi, Rigeza) River, Semliki Valley, B. C.	0° 13′ N., from 29° 45′ E. to 29° 38′ E.
Rugobagoba, Ruanda	2° 01′ S., 29° 52′ E.
Rugwero, Lake, eastern Ruanda-Urundi	2° 20′ S. to 2° 28′ S., 30° 16′ E. to 30° 23′ E.
Ruhengeri (Ruhengere), Ruanda	1° 29′ S., 29° 39′ E.
Ruindi = Rwindi	
Ruisamba, Lake = George, Lake	
Ruki River, Equator Dist., B. C.	0° 16′ S., 19° 01′ E. to 0° 05′ N., 18° 17′ E.
Rukiga (Ruchiga) District, southwestern Uganda	0° 56′ S., 29° 49′ E. to 1° 13′ S., 30° 07′ E.
Rukumi = Lukumi	
Rukwa, Lake, Tanganyika Terr.	8° 10′ S. to 8° 30′ S., 32° 30′ E. to 32° 52′ E.
Rulindo, northern Ruanda	1° 43′ S., 29° 55′ E.
Rumani, Southern Rhodesia	17° 30′ S., 31° 20′ E.

Rumbek, Bahr-el-Ghazal	6° 48′ N., 29° 50′ E.
Rumoka (Kateruzi), Mt., Kivu, B. C.	1° 34′ S., 29° 07′ E.
Rungu, Upper Uelle, B. C.	3° 11′ N., 27° 53′ E.
Rungwe District, southwestern Tanganyika Terr.	8° 59′ S. to 9° 42′ S., 33° 00′ E. to 34° 04′ E.
Rungwe, Mt., southwestern Tanganyika Terr.	9° 08′ S., 33° 41′ E.
Runssoro = Ruwenzori	
Runyoni (Mt. Runyoni), Kivu, B. C.	1° 20′ S., 29° 30′ E.
Runyoni (Nyandizima), Lake, Kivu, B. C.	1° 21′ S., 29° 31′ E.
Ruo District, southern Nyasaland	16° 06′ S. to 16° 41′ S., 34° 26′ E. to 35° 19′ E.
Ruonda, Lake = Luhondo	
Rupira (Lupila's, Uhanga), Tanganyika Terr.	9° 31′ S., 34° 16′ E.
Rusasa (Rushasha, Ruzasa), Uganda	0° 35′ S., 30° 31′ E.
Rusoka, Urundi	4° 08′ S., 29° 49′ E.
Russissi = Ruzizi	
Rustenburg, Transvaal	25° 40′ S., 27° 16′ E.
Rutegama, Urundi	4° 05′ S., 29° 38′ E.
Rutshuru (Rutschuru, Ruchuru), Kivu, B. C.	1° 11′ S., 29° 27′ E.
Rutshuru Bridge, Kivu, B. C.	1° 00′ S., 29° 20′ E.
Rutshuru Plain, Kivu, B. C.	0° 37′ S. to 1° 10′ S., 29° 19′ E. to 29° 33′ E.
Rutshuru River, Kivu, B. C.	1° 19′ S., 29° 39′ E. to 0° 37′ S., 29° 27′ E.
Ruvu River = Pangani River	
Ruwe, Upper Katanga, B. C.	10° 40′ S., 25° 33′ E.
Ruwenzori (Runssoro, Gambaragara, Wirika) Mountains, Uganda and B. C.	0° 05′ N., 29° 42′ E. to 0° 53′ N., 30° 13′ E.
Ruzizi-Kivu district, eastern B. C.	0° 50′ N., 30° 00′ E. to 5° 00′ S., 29° 00′ E.
Ruzizi Plain, Urundi and Kivu, B. C.	2° 45′ S., 29° 00′ E. to 3° 22′ S., 29° 20′ E.
Ruzizi (Russissi) River, on border between Ruanda-Urundi and Kivu, B. C.	2° 29′ S., 28° 53′ E. to 3° 21′ S., 29° 12′ E.
Rwamagara River = Ivui River	
Rwankeri (Gitwa, Rwankere, Oroankere), Ruanda	1° 32′ S., 29° 32′ E.
Rwanoli (Ruanuli) River, Ruwenzori	0° 28′ N., 29° 54′ E. to 0° 43′ N., 29° 47′ E.
Rwaza (Ruasa), Ruanda	1° 32′ S., 29° 42′ E.
Rwindi (Ruindi) Camp, Kivu, B. C.	0° 47′ S., 29° 17′ E.
Rwindi (Ruindi) Plain, Kivu, B. C.	0° 37′ S. to 1° 00′ S., 29° 10′ E. to 29° 22′ E.
Rwindi River, Kivu, B. C.	1° 12′ S., 29° 11′ E. to 0° 38′ S., 29° 22′ E.
Rwinkwavu (Rwingwavu), Ruanda	1° 59′ S., 30° 36′ E.

Sabi River, Southern Rhodesia and Portuguese East Africa	18° 36′ S., 31° 12′ E. to 20° 55′ S., 35° 05′ E.
Sabi Valley, Southern Rhodesia	20° 40′ S., 32° 10′ E.
Sabinyo (Sabinio, Sebinyo), Mt., Kivu, B. C.	1° 22′ S., 29° 36′ E.
Sacra-embaca (Sakra Ambaca) Island, lower Congo River, Angola	5° 52′ S., 13° 04′ E.
Sadi Malka, Abyssinia	9° 13′ N., 40° 05′ E.
Sagala, Kenya Col.	3° 31′ S., 38° 34′ E.
Sagayo (Zagayu), Tanganyika Terr.	2° 58′ S., 33° 40′ E.
Sagdshe (Sagdsche, Pic Saxe), northern Cameroon	7° 45′ N., 14° 20′ E.
Saidi, Ituri, B. C.	1° 26′ N., 28° 27′ E.
St. Gérard, Mission, Upper Katanga, B. C.	10° 56′ S., 26° 57′ E.
St. Gustave, Old Mission, Semliki Valley, B. C.	0° 10′ N., 29° 32′ E.
St. Helena Island, Atlantic Ocean	15° 50′ S., 5° 42′ W.
St. Jacques de Lusaka = Lusaka, B. C.	
St. Joseph, Mission, Kasai, B. C.	6° 01′ S., 22° 18′ E.
St. Joseph, Mission, Kivu, B. C.	1° 42′ S., 29° 00′ E.
St. Louis, Senegal	16° 00′ N., 16° 30′ W.
St. Louis (St. Louis de Rumbi, Plaine St. Louis), Tanganyika Dist., B. C.	7° 02′ S., 29° 44′ E.
St. Mary's Lakes = Marienseen	
St. Paul de Loanda (Loanda, Luanda, São Paulo de Loanda), Angola	8° 50′ S., 13° 13′ E.
St. Paul's River, Liberia	8° 05′ N., 8° 45′ W. to 6° 22′ N., 10° 48′ W.
Saka, Lake, Uganda	0° 42′ N., 30° 15′ E.
Sakabinda, Upper Katanga, B. C.	11° 09′ S., 25° 19′ E.
Sakania, southern Katanga, B. C.	12° 45′ S., 28° 33′ E.
Sakarumbi (Sakabumbi), Ituri, B. C.	0° 31′ N., 29° 31′ E.
Sakbayeme (Zakbayeme), Cameroon	4° 02′ N., 10° 34′ E.
Sake, Kivu, B. C.	1° 34′ S., 29° 02′ E.
Sakure, A.-E. Sudan	4° 21′ N., 28° 12′ E.
Salisbury, Southern Rhodesia	17° 40′ S., 31° 05′ E.
Salt Lake = lake at Katwe, Uganda	
Saltpannan = Hamanskraal	
Sam-Quita (Samkita), Gaboon	0° 25′ S., 10° 25′ E.
Sambo, Angola	12° 57′ S., 16° 02′ E.
Sambwe, Marungu, B. C.	7° 36′ S., 29° 52′ E.
San Antonio (Stazaire), Angola	6° 07′ S., 12° 20′ E.
Sanaga River, Cameroon	5° 14′ N., 13° 23′ E. to 3° 30′ N., 9° 38′ E.
Sandoa, Lulua, B. C.	9° 41′ S., 22° 52′ E.
Sandula ("Lebule"), Angola	12° 15′ S., 14° 58′ E.
Sanga River, French Equatorial Africa	5° 00′ N., 15° 52′ E. to 1° 14′ S., 16° 51′ E.
Sangesi, southern Tanganyika Terr.	11° 15′ S., 35° 27′ E.
Sanghé Camp, Kivu, B. C.	3° 05′ S., 29° 08′ E.
Sanghé River, Kivu, B. C.	3° 12′ S., 28° 56′ E. to 3° 04′ S., 29° 14′ E.

Sanghé-Ruzizi confluence, Kivu, B. C.	3° 04′ S., 29° 14′ E.
Sangwa, Tanganyika Dist., B. C.	5° 07′ S., 28° 58′ E.
Sankisia (Sankishia), Upper Katanga, B. C.	9° 22′ S., 25° 48′ E.
Sankuru District, B. C.	2° 00′ S. to 6° 00′ S., 21° 22′ E. to 25° 13′ E.
Sankuru River, B. C.	6° 01′ S., 23° 45′ E. to 4° 18′ S., 20° 24′ E.
Santa Isabel (Clarence), Fernando Po	3° 45′ N., 8° 49′ E.
Santa Isabel, Mt. (Clarence Peak, Owassa), Fernando Po	3° 34′ N., 8° 46′ E.
São Tomé (São Thomé) Island, Gulf of Guinea	0° 01′ N. to 0° 24′ N., 6° 28′ E. to 6° 46′ E.
Saria = Zaria	
Sasa, northern Uelle, B. C.	5° 14′ N., 25° 25′ E.
Sassa, northern Uelle, B. C.	5° 05′ N., 25° 30′ E.
Satadugu (Satadougou), western French Sudan	12° 36′ N., 11° 25′ W.
Saua, Tanganyika Terr.	7° 17′ S., 30° 35′ E.
Saurimo, Angola	9° 34′ S., 20° 20′ E.
Savé, Uganda	1° 24′ N., 34° 33′ E.
Schekho (Sheko), southwestern Abyssinia	7° 22′ N., 35° 39′ E.
Scierie, la (Ancienne Scierie), French Congo	4° 06′ S., 15° 29′ E.
Scioa = Shoa	
Sconga = Songa	
Sebinyo, Mt. = Sabinyo, Mt.	
Seeheim, Southwest Africa	26° 45′ S., 17° 50′ E.
Segu, French Sudan	13° 25′ N., 6° 11′ W.
Sekororo, northeastern Transvaal	24° 13′ S., 30° 26′ E.
"Selala" River = Palala River	
Selembe (Celembi), southern Marungu, B. C.	8° 00′ S., 29° 47′ E.
Selinda (Silinda, Chirinda), Mt., Southern Rhodesia	20° 24′ S., 32° 40′ E.
Selters Spring (Selters-Quelle), Ruanda	1° 31′ S., 29° 38′ E.
Sembiliki River = Semliki River	
Semien Province, Abyssinia	12° 50′ N. to 13° 30′ N., 37° 47′ E. to 39° 13′ E.
Semio (Semmio), French Equatorial Africa	5° 25′ N., 25° 25′ E.
Semliki Forest, Ituri, B. C., and Uganda	0° 20′ N. to 0° 54′ N., 29° 34′ E. to 30° 08′ E.
Semliki Plains = grassy regions in upper and lower Semliki Valley	
Semliki (Sembiliki, Duéru, Kakibi, Issango, Itiri, Etuli) River, near border between B. C. and Uganda	0° 08′ S., 29° 36′ E. to 1° 12′ N., 30° 30′ E.
Semliki Valley = valley of Semliki River, between Lakes Edward and Albert	
Sena, on Zambesi River, Portuguese East Africa	17° 25′ S., 34° 53′ E.

Senegal, western Africa	12° 30′ N. to 16° 35′ N., 11° 30′ W. to 17° 30′ W.
Senegal River	14° 28′ N., 11° 23′ W. to 16° 03′ N., 16° 30′ W.
Senegambia = Senegal and Gambia River Colony	
Sennar, A.-E. Sudan	13° 30′ N., 33° 35′ E.
Sennar Province, A.-E. Sudan	9° 00′ N. to 14° 10′ N., 32° 30′ E. to 35° 40′ E.
Serenje, Northern Rhodesia	13° 09′ S., 30° 45′ E.
Serenli, Italian Somaliland	2° 30′ N., 42° 07′ E.
Serikin Kudu, Northern Nigeria	8° 16′ N., 9° 44′ E.
Sero, Kenya Col.	1° 07′ S., 35° 31′ E.
Seroma (Kwa Seroma), Tanganyika Terr.	7° 15′ S., 31° 10′ E.
Serra Lupampa = Lupampa Mountains	
Sesheke, Northern Rhodesia	17° 30′ S., 24° 50′ E.
Sesse (Sese) Islands, Lake Victoria, Uganda	0° 10′ S. to 0° 45′ S., 32° 03′ E. to 32° 37′ E.
Setté Cama (Sette Cama), Gaboon	2° 31′ S., 9° 45′ E.
Seychelles Islands, Indian Ocean	3° 40′ S. to 4° 50′ S., 55° 05′ E. to 56° 00′ E.
Seyedi (Seyidi, Seyidie) Province, Kenya Col.	1° 38′ S., 41° 35′ E. to 4° 41′ S., 39° 13′ E.
Sezibwa River, Uganda	0° 16′ N., 33° 02′ E. to 1° 20′ N., 32° 45′ E.
Shambe = Gaba Shambe	
Shangani River, Southern Rhodesia	19° 51′ S., 29° 20′ E. to 18° 28′ S., 27° 08′ E.
Shangugu, Ruanda	2° 29′ S., 28° 54′ E.
Shari River, French Equatorial Africa	8° 31′ N., 19° 02′ E. to 12° 52′ N., 14° 30′ E.
Shari (Duki) River, Ituri, B. C.	2° 23′ N., 30° 38′ E. to 1° 31′ N., 29° 48′ E.
Sherwood's Creek, northern Angola	6° 06′ S., 12° 28′ E.
Shiloango, Enclave of Cabinda	5° 10′ S., 12° 08′ E.
Shiloango (Chiloango) River, Mayombe	4° 50′ S., 13° 26′ E. to 5° 10′ S., 12° 08′ E.
Shimba Hills, Kenya Col.	4° 15′ S., 39° 25′ E.
Shindaika, Upper Katanga, B. C.	11° 39′ S., 27° 41′ E.
Shiré River, Nyasaland and Portuguese East Africa	14° 24′ S., 35° 15′ E. to 17° 45′ S., 35° 21′ E.
Shirwa (Chilwa), Lake, Nyasaland and Portuguese East Africa	15° 04′ S. to 15° 31′ S., 35° 34′ E. to 35° 51′ E.
Shiwa Ngandu (Shiwangandu), Northeast Rhodesia	11° 15′ S., 31° 46′ E.
Shoa (Schoa, Choa, Scioa), Abyssinia	9° 00′ N. to 10° 50′ N., 38° 50′ E. to 39° 50′ E.
Shonga, Northern Nigeria	9° 02′ N., 5° 07′ E.

Sibatwa (Sibatoi), Kivu, B. C.	3° 50′ S., 28° 55′ E.
Sibatwa Forest, Kivu, B. C.	3° 45′ S. to 3° 54′ S., 28° 50′ E. to 29° 01′ E.
Sibokwa (Sibokwa's Kraal), southern Katanga, B. C.	12° 35′ S., 28° 50′ E.
Sibut, Fort (Krebedje), Ubangi-Shari	5° 45′ N., 19° 07′ E.
Sidabo, Ituri, B. C.	1° 25′ N., 30° 08′ E.
Sidamo, Abyssinia	6° 40′ N. to 6° 58′ N., 38° 24′ E. to 39° 02′ E.
Sierra Leone, western Africa	6° 45′ N. to 10° 00′ N., 10° 20′ W. to 13° 20′ W.
Silinda, Mt. = Selinda, Mt.	
Silva Porto (Bihé, Bié), Angola	12° 23′ S., 16° 57′ E.
Simba, Kenya Col.	2° 08′ S., 37° 36′ E.
Simbile, Tanganyika Terr.	5° 45′ S., 32° 33′ E.
Simbo, Ituri, B. C.	1° 31′ N., 29° 20′ E.
Simen (Simien) Province = Semien Province	
Simsima, A.-E. Sudan	5° 35′ N., 31° 20′ E.
Singa (Zinga), French Congo	3° 42′ N., 18° 35′ E.
Singitini = Stanleyville	
Sipopo, Fernando Po	3° 44′ N., 8° 55′ E.
Sirika, Upper Uelle, B. C.	2° 56′ N., 30° 04′ E.
"Skange" = Ikanga	
Sobat River, A.-E. Sudan	8° 30′ N., 33° 20′ E. to 9° 25′ N., 31° 35′ E.
Socotra Island, Arabian Sea	12° 30′ N., 54° 00′ E.
Sokoke, Kenya Col.	3° 27′ S., 39° 50′ E.
Solwezi, Northern Rhodesia	12° 12′ S., 26° 26′ E.
Somaliland, British	8° 00′ N. to 11° 30′ N., 42° 40′ E. to 49° 00′ E.
Somaliland, Italian (Somalia)	1° 30′ S., 41° 30′ E. to 12° 00′ N., 51° 15′ E.
Sombe (Zombe), Katanga, B. C.	8° 50′ S., 26° 02′ E.
Somerset East, eastern Cape Prov.	32° 44′ S., 25° 33′ E.
Songa (Ssonga, Sconga, Isonga), Ituri, B. C.	1° 53′ N., 30° 11′ E.
Songea, southern Tanganyika Terr.	10° 41′ S., 35° 38′ E.
Songololo, Lower Congo Dist., B. C.	5° 42′ S., 14° 03′ E.
"Sormit Station" = Lomié, Cameroon	
Soronko River, Uganda	1° 10′ N., 34° 28′ E. to 1° 38′ N., 34° 04′ E.
Sotik, Kenya Col.	0° 46′ S., 35° 24′ E.
Speke (Duwoni), Mt., Ruwenzori	0° 24′ N., 29° 53′ E.
Stanley Falls, Stanleyville, B. C.	0° 30′ N., 25° 11′ E.
Stanley Glacier, Ruwenzori	0° 22′ N., 29° 51′ E.
Stanley, Mt., Ruwenzori	0° 23′ N., 29° 52′ E.
Stanley Pool, Congo River, French and Belgian Congo	4° 06′ S., 15° 31′ E. to 4° 18′ S., 15° 14′ E.
Stanleyville (Kisangani, Singitini), B. C.	0° 30′ N., 25° 10′ E.
Stefanie, Lake, southern Abyssinia	4° 26′ N., 36° 56′ E. to 5° 00′ N., 36° 45′ E.

Suanké (Zouangué), French Congo	2° 00′ N., 14° 04′ E.
Suata = Msuata	
Sudan, Anglo-Egyptian	3° 35′ N. to 23° 00′ N., 21° 45′ E. to 38° 40′ E.
Sudan, French	10° 15′ N. to 17° 30′ N., and 4° 20′ E. to 12° 15′ W.
Suk, Kenya Col.	1° 09′ N. to 1° 55′ N., and 34° 50′ E. to 36° 20′ E.
Suk District, West, Kenya Col.	1° 09′ N. to 1° 55′ N., and 34° 50′ E. to 35° 47′ E.
Suk-Soda (Sogsoda), British Somaliland	9° 56′ N., 45° 25′ E.
Sumba, northern Angola	6° 10′ S., 12° 34′ E.
Sumbawanga, Tanganyika Terr.	7° 57′ S., 31° 40′ E.
Sundi Lutete, Lower Congo Dist., B. C.	4° 33′ S., 13° 58′ E.
Sungu, on middle Congo River, B. C.	1° 04′ S., 17° 19′ E.
Sunzu (Mtope), Mt., Northern Rhodesia	9° 02′ S., 31° 30′ E.
Surunga (Surungo, Surango), Upper Uelle, B. C.	3° 51′ N., 27° 17′ E.
Suye, Lake, Northern Rhodesia	14° 26′ S., 27° 39′ E.
Suzi (Suse, Souzi), Lake, southern Marungu, B. C.	7° 58′ S., 30° 04′ E.
Swakopmund, Southwest Africa	22° 35′ S., 14° 30′ E.
Swaziland, Southeast Africa	25° 44′ S. to 27° 20′ S., 30° 50′ E. to 32° 10′ E.
Swima, on Lake Tanganyika, Kivu, B. C.	3° 39′ S., 29° 09′ E.
Tabaro, Ituri, B. C.	1° 07′ N., 29° 50′ E.
Table Bay, Cape Prov.	33° 55′ S., 18° 27′ E.
Table Mountain, Cape Prov.	33° 58′ S., 18° 26′ E.
Tabora (Kazé, Kaseh), Tanganyika Terr.	5° 01′ S., 32° 50′ E.
Tabora District, Tanganyika Terr.	4° 39′ S. to 5° 16′ S., 31° 34′ E. to 33° 30′ E.
Tacazzé River, Abyssinia, Eritrea, and A.-E. Sudan	12° 00′ N., 39° 35′ E. to 14° 23′ N., 35° 50′ E.
Taita (Teita) District, Kenya Col.	2° 54′ S. to 4° 04′ S., 37° 34′ E. to 39° 13′ E.
Taita (Teita) Hills, Kenya Col.	3° 18′ S. to 3° 35′ S., 38° 13′ E. to 38° 24′ E.
Takaungu, eastern Kenya Col.	3° 42′ S., 39° 51′ E.
Tala Mugongo, northern Angola	9° 37′ S., 17° 18′ E.
Talia (Talya) River, North, Kivu, B. C.	0° 10′ S., 29° 26′ E. to 0° 12′ N., 29° 38′ E.
Talia (Talya) River, South, Kivu, B. C.	0° 12′ S., 29° 21′ E. to 0° 31′ S., 29° 22′ E.
Talia-Semliki confluence, Kivu, B. C.	0° 12′ N., 29° 38′ E.
Taliha (Talya) River, west Ruwenzori, B. C.	0° 16′ N., 29° 50′ E. to 0° 17′ N., 29° 42′ E.
Talla Mogongo = Tala Mugongo	
Tambue, Ituri, B. C.	1° 22′ N., 27° 47′ E.
Tambura (Tembura), southern A.-E. Sudan	5° 33′ N., 27° 29′ E.

"Tambwe" = Tumbwe	
Tamira, northwestern Ruanda	1° 34′ S., 29° 24′ E.
Tamira district, northwestern Ruanda	1° 31′ S. to 1° 35′ S., 29° 23′ E. to 29° 29′ E.
Tamohanga, Kivu, B. C.	1° 24′ S., 29° 27′ E.
Tana (Tsana), Lake, Abyssinia	11° 35′ N. to 12° 16′ N., 37° 10′ E. to 37° 49′ E.
Tana River, Kenya Col.	0° 42′ S., 37° 14′ E. to 2° 33′ S., 40° 31′ E.
Tandalla (Tandala), southwestern Tanganyika Terr.	9° 24′ S., 34° 15′ E.
Tanga, eastern Tanganyika Terr.	5° 05′ S., 39° 06′ E.
Tanganyika District, B. C.	5° 00′ S. to 10° 30′ S., 25° 14′ E. to 30° 45′ E.
Tanganyika (Tanganyka, Liemba), Lake	3° 21′ S. to 8° 49′ S., 29° 04′ E. to 31° 10′ E.
Tanganyika-Nyasa Plateau, Northern Rhodesia and Tanganyika Terr.	8° 42′ S. to 9° 35′ S., 30° 30′ E. to 33° 12′ E.
Tanganyika Territory, East Africa	1° 00′ S. to 11° 43′ S., 29° 42′ E. to 40° 27′ E.
Tangasi = Tingasi	
Tarangole (Tirangole), Anglo-Egyptian Sudan	4° 25′ N., 32° 49′ E.
Taranta Mountains, Eritrea	15° 04′ N., 39° 22′ E.
Tatin (Tati) River, Southern Rhodesia	20° 36′ S., 27° 30′ E. to 21° 37′ S., 28° 02′ E.
Taufikia, A.-E. Sudan	9° 26′ N., 31° 39′ E.
Taveta, Kenya Col.	3° 24′ S., 37° 43′ E.
Tawa (Tahoua, Taua), French Niger Terr.	14° 50′ N., 5° 18′ E.
Tcherkin, Abyssinia	13° 00′ N., 36° 50′ E.
Tebehig (Tebeig), Aïr	16° 46′ N., 8° 22′ E.
Teita District = Taita District	
Temben (Tembien), Abyssinia	13° 25′ N. to 13° 45′ N., 38° 40′ E. to 39° 30′ E.
Tembo Aluma (Fort Don Carlos I), Angola	7° 39′ S., 17° 16′ E.
Tembura = Tambura	
Tembwe, Tanganyika Dist., B. C.	6° 31′ S., 29° 26′ E.
Tembwe, Northern Rhodesia	11° 21′ S., 32° 55′ E.
Temvo, Mayombe, B. C.	5° 31′ S., 13° 02′ E.
Tenke (Tenki), Upper Katanga, B. C.	10° 36′ S., 26° 07′ E.
Tenke (Ntenkwe, Tenque), Upper Katanga, B. C.	11° 21′ S., 26° 45′ E.
Ternan, Fort, Kenya Col.	0° 12′ S., 35° 24′ E.
Terra Caffrorum = Caffraria	
Tertala, southern Abyssinia	4° 40′ N. to 5° 00′ N., 37° 00′ E. to 38° 00′ E.
Tertale Hills (Tertala Mountains), southern Abyssinia	5° 00′ N., 37° 34′ E.
Tertale Wells, southern Abyssinia	4° 49′ N., 37° 16′ E.
Tete, Portuguese East Africa	16° 10′ S., 33° 30′ E.

Tete Province, Portuguese East Africa	14° 00′ S. to 17° 30′ S., 30° 14′ E. to 35° 20′ E.
Tharaka District, Kenya Col.	0° 03′ S., 37° 52′ E. to 0° 33′ S., 38° 03′ E.
Thika River, Kenya Col.	0° 44′ S., 36° 47′ E. to 0° 54′ S., 37° 28′ E.
Thysville, Lower Congo Dist., B. C.	5° 16′ S., 14° 51′ E.
Tibati, Cameroon	6° 27′ N., 12° 33′ E.
Tibati Highland, Cameroon	6° 00′ N. to 6° 55′ N., 12° 00′ E. to 13° 00′ E.
Tigré, Abyssinia	13° 30′ N. to 15° 00′ N., 37° 30′ E. to 40° 15′ E.
Timbuktu (Timbuctoo, Tombouctou) French Sudan	16° 40′ N., 2° 40′ W.
Tinda River, Ituri, B. C.	1° 18′ N., 30° 12′ E. to 1° 33′ N., 30° 06′ E.
Tingasi (Tangasi), Upper Uelle, B. C.	3° 24′ N., 27° 55′ E.
Tingi (Fingwi) Mountains, eastern Sierra Leone	8° 46′ N. to 8° 59′ N., 10° 43′ W. to 10° 53′ W.
Tiro (Tirro) River, Upper Uelle, B. C.	3° 10′ N., 28° 27′ E.
Titule, Lower Uelle, B. C.	3° 15′ N., 25° 33′ E.
Tjoko's Kraal, Southern Rhodesia	18° 45′ S., 28° 45′ E.
Tobbo, southern A.-E. Sudan	4° 03′ N., 30° 12′ E.
Togoland (Togo), West Africa	6° 00′ N. to 11° 00′ N., 0° 25′ W. to 1° 50′ E.
Tomaya (Tamaya), southern A.-E. Sudan	4° 38′ N., 29° 50′ E.
Tomi River, Ubangi-Shari	5° 45′ N., 18° 45′ E. to 5° 06′ N., 19° 20′ E.
Tondu (Tondo), Equator Dist., B. C.	0° 50′ S., 18° 07′ E.
Tonga, A.-E. Sudan	9° 30′ N., 31° 04′ E.
Tongo, Katanga, B. C.	9° 25′ S., 27° 13′ E.
Torit, southern A.-E. Sudan	4° 24′ N., 32° 34′ E.
Toro, western Uganda	0° 12′ S., to 1° 13′ N., 29° 43′ E. to 31° 15′ E.
Tororo, eastern Uganda	0° 42′ N., 34° 11′ E.
Toten, Bechuanaland	20° 22′ S., 22° 58′ E.
Toumbi (Toumby), Belgian Mayombe	5° 05′ S., 12° 31′ E.
Trans-Nzoia District, Kenya Col.	0° 40′ N. to 1° 18′ N., 34° 35′ E. to 35° 30′ E.
Transvaal, South Africa	22° 10′ S. to 28° 05′ S., 24° 40′ E. to 32° 00′ E.
Tripolitania, northwestern Libya	28° 10′ N. to 33° 10′ N., 9° 15′ E. to 18° 00′ E.
Tristan da Cunha Island, Atlantic Ocean	37° 30′ S., 12° 30′ W.
Tsana, Lake = Tana, Lake	
Tsavo, Kenya Col.	3° 00′ S., 38° 29′ E.
Tschara, Kenya Col.	2° 33′ S., 40° 20′ E.
Tschintschotscho = Chinchoxo	
Tshababa, Lulua, B. C.	10° 37′ S., 24° 32′ E.
Tshabirimu (Tshiaberimu), Mt., Kivu, B. C.	0° 08′ S., 29° 25′ E.

Tshaga (Chagga, Dchagga), Tanganyika Terr.	3° 09′ S., 37° 20′ E.
Tshahafi, Lake = Chahafi, Lake	
Tshamugussa, Kivu, B. C.	1° 22′ S., 29° 31′ E.
Tshangerewe (Tshanzargwe, Tshanzarwe), Ruanda	1° 38′ S., 29° 19′ E.
Tshela, Mayombe, B. C.	5° 00′ S., 12° 56′ E.
Tshibati, Kivu, B. C.	2° 14′ S., 28° 47′ E.
Tshibinda, Kivu, B. C.	2° 20′ S., 28° 44′ E.
Tshikambo (Tschikambo, Chikambo), French Congo	4° 44′ S., 12° 08′ E.
Tshikapa, Kasai, B. C.	6° 26′ S., 20° 49′ E.
Tshikapa River, Angola and Kasai, B. C.	11° 03′ S., 19° 20′ E. to 6° 24′ S., 20° 49′ E.
Tshingogo (Chingogo, Tschingogo Forest), Ruanda	1° 51′ S., 29° 35′ E.
Tshinsangwe (Kisangwe), Upper Katanga, B. C.	11° 28′ S., 27° 39′ E.
Tshinsenda (Tshinshenda), southern Katanga, B. C.	12° 19′ S., 27° 58′ E.
Tshipama, Kasai, B. C.	7° 19′ S., 23° 34′ E.
Tshisambo (Tschissambo, Chissambo, Kichambo), Enclave of Cabinda	5° 00′ S., 12° 09′ E.
Tshisika, Kasai, B. C.	7° 00′ S., 20° 54′ E.
Tshofa, Lomami, B. C.	5° 14′ S., 25° 13′ E.
Tshopo Falls, Stanleyville, B. C.	0° 33′ N., 25° 11′ E.
Tshopo River, Stanleyville, B. C.	0° 06′ N., 27° 25′ E. to 0° 33′ N., 25° 06′ E.
Tshuapa District = country along Tshuapa River, now a very large official district (roughly equivalent to Equator and Lulonga districts)	
Tshuapa River, central B. C.	3° 25′ S., 24° 30′ E. to 0° 14′ S., 20° 43′ E.
Tshumba, Kivu, B. C.	1° 17′ S., 29° 11′ E.
Tshumbiri, on middle Congo River, B. C.	2° 37′ S., 16° 15′ E.
Tsisilongo (Tsisirongo), Kivu, B. C.	1° 20′ S., 29° 35′ E.
Tsotsoroga Pan, northern Bechuanaland	18° 43′ S., 24° 22′ E.
Tugela River, Natal	28° 45′ S., 28° 50′ E. to 29° 14′ S., 31° 30′ E.
Tukpwo, Lower Uelle, B. C.	4° 24′ N., 25° 52′ E.
Tukuyu district, Tanganyika Terr.	9° 16′ S., 33° 38′ E.
Tumba, Lower Congo Dist., B. C.	5° 31′ S., 14° 36′ E.
Tumba Kapia, Kasai, B. C.	5° 18′ S., 21° 22′ E.
Tumba (Mamtoumba), Lake, Equator, B. C.	0° 37′ S. to 1° 00′ S. and 17° 49′ E. to 18° 09′ E.
Tumbwe, Upper Katanga, B. C.	11° 26′ S., 27° 20′ E.
Tungeddi, Lower Uelle, B. C.	3° 30′ N., 24° 32′ E.
Tungudu, Semliki Valley, B. C.	0° 48′ N., 29° 42′ E.

Tungula River (Bungulu brook), west Ruwenzori, B. C.	0° 26′ N., 29° 51′ E. to 0° 38′ N., 29° 41′ E.
Tunguru (Tunguru Island), Lake Albert, B. C.	2° 06′ N., 31° 12′ E.
Tunis, North Africa	36° 45′ N., 10° 10′ E.
Tunisia	30° 25′ N. to 37° 15′ N., 7° 30′ E. to 11° 30′ E.
Tununguo, Tanganyika Terr.	7° 01′ S., 37° 58′ E.
Tura, Tanganyika Terr.	5° 31′ S., 33° 52′ E.
"Turgula" = Tungula	
Turkana, Kenya Col.	1° 15′ N. to 4° 40′ N., 35° 00′ E. to 36° 20′ E.
Turkwell (Turkwel) District, Kenya Col.	1° 48′ N. to 3° 00′ N., 35° 00′ E. to 35° 28′ E.
Turkwell (Turkwel) River, Kenya Col.	1° 09′ N., 34° 35′ E. to 3° 07′ N., 36° 04′ E.
Turrabolonko, Abyssinia	9° 15′ N., 38° 11′ E.
Uam district, Ubangi-Shari	5° 40′ N. to 7° 30′ N., 14° 30′ E. to 18° 20′ E.
Uam (Ouahm) River, Ubangi-Shari	6° 14′ N., 15° 17′ E. to 7° 42′ N., 18° 06′ E.
Uanda district, Tanganyika Terr.	8° 10′ S. to 8° 25′ S., 32° 10′ E. to 32° 33′ E.
Uasin Gishu District (Uasingishu, Gwas' Ngishu, Guas Ngishu Plateau), Kenya Col.	0° 10′ N. to 0° 56′ N., 34° 50′ E. to 35° 32′ E.
Uaso = Guaso	
Ubangi District, B. C.	1° 34′ N. to 5° 08′ N., 18° 06′ E. to 23° 30′ E.
Ubangi (Mubangi, Oubangui) River, border between French Equatorial Africa and B. C.	4° 07′ N., 22° 22′ E. to 0° 38′ S., 17° 37′ E.
Ubangi-Shari (Oubangui-Chari) Province, French Equatorial Africa	4° 10′ N. to 10° 30′ N., 14° 00′ E. to 27° 30′ E.
Ubena district, Tanganyika Terr.	8° 22′ S. to 9° 43′ S., 34° 17′ E. to 35° 10′ E.
Ubena highland, Tanganyika Terr.	8° 45′ S. to 8° 53′ S., 34° 08′ E. to 35° 12′ E.
Ubende district, Tanganyil Terr.	5° 55′ S., 30° 55′ E.
Ubure, Stanleyville, B. C.	0° 10′ N., 27° 10′ E.
Uchi (Huxe), Angola	12° 40′ S., 13° 23′ E.
Udembo, Ituri, B. C.	1° 07′ N., 29° 38′ E.
Uelle (Uelé) District, Lower, B. C.	2° 00′ N. to 5° 20′ N., 22° 25′ E. to 26° 47′ E.
Uelle District, Upper, B. C.	2° 22′ N. to 5° 15′ N., 26° 08′ E. to 30° 57′ E.

Uelle (Uelé, Welle, Wele, Ouéllé) River, B. C.	3° 37′ N., 28° 33′ E. to 4° 07′ N., 22° 22′ E.
Uelle River, Spanish Guinea = Rio Benito	
Uére (Uëre, Were), Ituri, B. C.	1° 26′ N., 30° 28′ E.
Ueré (Uere, Ango), Lower Uelle, B. C.	4° 02′ N., 25° 51′ E.
Ueré (Api, Uere) River, Uelle Dist., B. C.	4° 50′ N., 27° 41′ E. to 3° 33′ N., 25° 16′ E.
Ufipa, Tanganyika Terr.	7° 00′ S., 30° 35′ E. to 8° 43′ S., 32° 00′ E.
Ufipa highland, Tanganyika Terr.	7° 30′ S., 31° 00′ E. to 8° 50′ S., 32° 20′ E.
Ugalla (Ugala) District, Tanganyika Terr.	5° 55′ S., 31° 00′ E. to 6° 30′ S., 32° 20′ E.
Ugalla River, Tanganyika Terr.	6° 12′ S., 32° 09′ E. to 5° 10′ S., 30° 45′ E.
Uganda Protectorate	1° 28′ S. to 4° 13′ N., 29° 35′ E. to 35° 00′ E.
Ugogo, Tanganyika Terr.	5° 40′ S., 36° 14′ E. to 6° 35′ S., 35° 12′ E.
Uhehe, Tanganyika Terr.	7° 15′ S., 35° 50′ E. to 8° 40′ S., 35° 30′ E.
Uhehe highlands, Tanganyika Terr.	7° 30′ S. to 8° 35′ S., 35° 06′ E. to 36° 04′ E.
Ujamba Forest, Tanganyika Terr.	6° 11′ S., 29° 53′ E.
Ujawagi (Ugiagi, Ujawaji), British Somaliland	9° 37′ N., 43° 35′ E.
Ujiji, Tanganyika Terr.	4° 56′ S., 29° 40′ E.
Ukaika (Ukaiko), Ituri, B. C.	0° 36′ N., 28° 51′ E.
Ukamba, Kenya Col.	0° 58′ S. to 2° 30′ S., 37° 08′ E. to 39° 05′ E.
Ukami, Tanganyika Terr.	7° 10′ S., 38° 20′ E.
Ukaturaka, Bangala, B. C.	1° 56′ N., 20° 22′ E.
Ukaturaka Island, Congo River, Bangala, B. C.	1° 44′ N., 19° 46′ E. to 1° 58′ N., 20° 37′ E.
Ukerewe Island, Lake Victoria, Tanganyika Terr.	1° 53′ S. to 2° 11′ S., 32° 49′ E. to 33° 12′ E.
Ukinga, Tanganyika Terr.	8° 55′ S., 33° 45′ E. to 9° 35′ S., 34° 25′ E.
Ukondju, Kivu, B. C.	0° 22′ S., 29° 13′ E. to 0° 48′ N., 29° 54′ E.
Ulegga (Bulegga, Lega), eastern Ituri, B. C.	1° 03′ N., 29° 56′ E. to 1° 38′ N., 30° 30′ E.
Ulike, in Urumbi, Stanleyville, B. C.	0° 05′ N., 27° 00′ E.
Ulindi River, eastern B. C.	3° 03′ S., 28° 49′ E. to 1° 38′ S., 25° 53′ E.
Uluguru Mountains, Tanganyika Terr.	6° 50′ S., 37° 45′ E. to 7° 18′ S., 37° 40′ E.
Ulungu (Ulungo), Mt., Northern Rhodesia	14° 32′ S., 30° 14′ E.

Uma River, southern Abyssinia	6° 46′ N., 36° 30′ E.
Umangi, Bangala, B. C.	2° 07′ N., 21° 25′ E.
Umfuli (Umvuli) River, Southern Rhodesia	18° 15′ S., 30° 50′ E. to 17° 34′ S., 29° 24′ E.
Umlalazi River, Zululand	28° 55′ S., 31° 38′ E.
Umlazi (Umlaas) River, Natal	29° 43′ S., 30° 33′ E. to 30° 00′ S., 30° 57′ E.
Umparu = Mparo	
Umpokosa, Gaboon	1° 08′ S., 10° 00′ E.
Umuagwu (Umuagu, Umuakpo), Southern Nigeria	5° 20′ N., 6° 55′ E.
Umvuli River = Umfuli River	
Undussuma, Undusuma = Ndussuma	
Ungomongo, Enclave of Cabinda	4° 51′ S., 12° 08′ E.
Unyamwezi, Tanganyika Terr.	2° 40′ S. to 5° 30′ S., 31° 40′ E. to 33° 50′ E.
Unyanyembe district, Tanganyika Terr.	5° 05′ S., 33° 20′ E. to 5° 20′ S., 32° 20′ E.
Unyika (Unyiha, Unjika), Tanganyika Terr.	8° 40′ S. to 9° 20′ S., 32° 30′ E. to 33° 25′ E.
Unyoro (Bunyoro), Uganda	1° 04′ N. to 2° 18′ N., 30° 40′ E. to 32° 22′ E.
Upemba (Upämba), Lake, Katanga, B. C.	8° 30′ S. to 8° 48′ S., 26° 13′ E. to 26° 34′ E.
Upemba National Park	8° 09′ S. to 9° 52′ S., 25° 56′ E. to 27° 16′ E.
Upoto (Upotu), Bangala, B. C.	2° 08′ N., 21° 29′ E.
Uraguess, Mt. = Gargues, Mt.	
Urigi, Lake = Burigi, Lake	
Urselia, Mayombe, B. C.	5° 11′ S., 12° 59′ E.
Urua (Uruwa), southeastern B. C.	8° 00′ S. to 9° 15′ S., 26° 10′ E. to 28° 25′ E.
Urumbi, Ituri, B. C.	0° 55′ N., 28° 20′ E.
Urumbi country, northeastern B. C.	0° 00′ to 1° 20′ N., 26° 25′ E. to 28° 28′ E.
Urundi, Mandated Territory	2° 19′ S. to 4° 28′ S., 28° 59′ E. to 30° 51′ E.
Urungu (Wungu), Tanganyika Terr. and Northern Rhodesia	8° 30′ S. to 9° 05′ S., 30° 10′ E. to 31° 35′ E.
Uruwiti (Uruwita) Plain, Ruanda	1° 27′ S., 30° 32′ E.
Urwald westlich vom Tanganjika-See	3° 27′ S. to 3° 59′ S., 28° 45′ E. to 29° 05′ E.
Usafua, Tanganyika Terr.	8° 02′ S. to 9° 08′ S., 33° 14′ E. to 33° 50′ E.
Usagara, Tanganyika Terr.	7° 00′ S. to 7° 25′ S., 36° 05′ E. to 37° 23′ E.
Usambara, northeastern Tanganyika Terr.	4° 07′ S. to 5° 20′ S., 37° 45′ E. to 38° 55′ E.

Usambara Mountains, Tanganyika Terr.	4° 25′ S. to 5° 12′ S., 38° 10′ E. to 38° 44′ E.
Usambiro (Ussambiro), Tanganyika Terr.	2° 59′ S., 32° 30′ E.
Usandawe (Usandawi), Tanganyika Terr.	5° 22′ S. from 35° 08′ E. to 35° 55′ E.
Usaramo, Tanganyika Terr.	6° 50′ S. to 7° 30′ S., 38° 22′ E. to 39° 32′ E.
Useguha (Usegua, Uzegula, Uzigua), Tanganyika Terr.	5° 40′ S., 38° 25′ E. to 6° 40′ S., 37° 30′ E.
Usongora (Ussongora, Busongora), south of Ruwenzori	0° 11′ S. to 0° 17′ N., 29° 36′ E. to 30° 12′ E.
Ussambiro = Usambiro	
Ussure (Usure), Tanganyika Terr.	4° 45′ S., 34° 17′ E.
Usumbura, Urundi	3° 23′ S., 29° 21′ E.
Usuvi (Usuwi, Ussuwi, Biharamulo), northern Tanganyika Terr.	2° 41′ S., 31° 23′ E.
Usuvi District, northern Tanganyika Terr.	2° 35′ S. to 2° 52′ S., 30° 32′ E. to 31° 38′ E.
Uvamba = Awamba	
Uvidunda Mountains, Tanganyika Terr.	7° 45′ S., 36° 52′ E.
Uvinza district, Tanganyika Terr.	5° 05′ S. to 5° 45′ S., 29° 45′ E. to 31° 20′ E.
Uvira, Kivu, B. C.	3° 24′ S., 29° 08′ E.
Uzinza (Uzinja), Tanganyika Terr.	3° 14′ S. to 3° 38′ S., 31° 44′ E. to 32° 35′ E.
Uzungwe (Udzungwa, Utschungwe) Mountains, Tanganyika Terr.	7° 56′ S. to 8° 27′ S., 35° 40′ E. to 36° 05′ E.
Vaal River, South Africa	27° 30′ S., 29° 43′ E. to 29° 05′ S., 23° 40′ E.
Valiasnge, Stanleyville, B. C.	0° 35′ N., 27° 43′ E.
Valsch River, Orange Free State	28° 20′ S., 28° 10′ E. to 27° 21′ S., 26° 31′ E.
Vanga, Kenya Col.	4° 39′ S., 39° 13′ E.
Vankerckhovenville = Nzoro	
Vatako (Watako), southern A.-E. Sudan	3° 50′ N., 30° 35′ E.
Victoria, British Cameroons	4° 00′ N., 9° 12′ E.
Victoria Falls, Zambesi River, Rhodesia	17° 55′ S., 25° 45′ E.
Victoria, Lake (Victoria Nyanza)	0° 28′ N. to 3° 00′ S., 31° 37′ E. to 34° 52′ E.
Victoria Nile, Uganda	0° 25′ N., 33° 11′ E. to 2° 14′ N., 31° 21′ E.
Vila Luzo (Vila Luso), Angola	11° 47′ S., 19° 54′ E.
Villa General Machado (Camacupa), Angola	12° 05′ S., 17° 36′ E.
Villa Pereira, Portuguese East Africa	17° 25′ S., 36° 35′ E.
Vindo (Ivindo, Iwindo), Enclave of Cabinda	5° 02′ S., 12° 26′ E.
Vipya Plateau, Nyasaland	11° 18′ S., 34° 00′ E. to 12° 25′ S., 33° 40′ E.

Virunga = Kivu Volcanoes	
Visoke, Mt. (Bishoke, Kishasha, Bisoke), Kivu and Ruanda	1° 27′ S., 29° 29′ E.
Vista, Lower Congo Dist., B. C.	5° 51′ S., 12° 17′ E.
Vitshumbi (Bitshumbi), Kivu, B. C.	0° 39′ S., 29° 22′ E.
Vivi, Lower Congo Dist., B. C.	5° 48′ S., 13° 28′ E.
Voi River, Kenya Col.	3° 22′ S., 38° 23′ E. to 3° 37′ S., 39° 48′ E.
Volta River, Gold Coast	8° 39′ N., 1° 01′ W. to 5° 45′ N., 0° 41′ E.
Volta River, Black, French West Africa and Gold Coast	10° 45′ N., 5° 01′ W. to 8° 39′ N., 1° 01′ W.
Volta River, White, French West Africa and Gold Coast	14° 00′ N., 1° 15′ W. to 8° 39′ N., 1° 01′ W.
Volta, Upper, French West Africa	9° 30′ N. to 15° 00′ N., 5° 45′ W. to 2° 45′ E.
Voro (Voro Rapids), on Uelle River, northern B. C.	3° 45′ N., 22° 55′ E.
Vouga, Angola	12° 15′ S., 16° 46′ E.
Vube, northern Ituri, B. C.	2° 34′ N., 27° 52′ E.
Vuga, Mt., northern Ruanda	1° 34′ S., 29° 25′ E.
Vugarama, Semliki Valley, Uganda	0° 46′ N., 30° 07′ E.
Vumba, Southern Rhodesia	19° 05′ S., 32° 44′ E.
Vundekakare, Semliki Valley, B. C.	0° 45′ N., 29° 46′ E.
Vungu (Kitsengo), Lower Congo Dist., B. C.	5° 30′ S., 13° 23′ E.
Waalia (Walia), Abyssinia	12° 50′ N., 37° 20′ E.
Wad Medani, A.-E. Sudan	14° 24′ N., 33° 33′ E.
Wadda = Ouadda	
Wadelai, Uganda	2° 42′ N., 31° 22′ E.
Wadi-Medine = Wad Medani	
Wagadugu (Ouagadougou), Upper Volta	12° 20′ N., 1° 35′ W.
Wago, Mt., eastern Ituri, B. C.	1° 44′ N., 30° 49′ E.
Waka district = Ouaka district	
Wakkala (Okkela), A.-E. Sudan	4° 42′ N., 32° 28′ E.
Wala (Mwhala) River, Tanganyika Terr.	5° 35′ S., 34° 05′ E. to 5° 04′ S., 33° 56′ E.
Walfish (Walvisch) Bay, Southwest Africa	23° 00′ S., 14° 30′ E.
Walia (Wallia), Kivu, B. C.	0° 17′ S., 29° 26′ E.
Walikale, eastern Lowa, B. C.	1° 27′ S., 28° 06′ E.
Wamala, Lake (Isolt), Uganda	0° 22′ N., 31° 55′ E.
Wamba, Ituri, B. C.	2° 12′ N., 27° 57′ E.
Wambanga, Stanleyville, B. C.	1° 54′ N., 26° 17′ E.
Wambera (Wanbera, Ouambera) Plateau, Abyssinia	10° 37′ N., 35° 45′ E.
Wambugu, Kenya Col.	0° 35′ S., 37° 02′ E.
Wanbanga = Wambanga	
Wandi, A.-E. Sudan	4° 37′ N., 30° 30′ E.

Wangata, Equator, B. C.	0° 02′ N., 18° 13′ E.
Wanzalabana, near Ruwenzori, B. C.	0° 18′ N., 29° 46′ E.
Wardji, Abyssinia	8° 32′ N., 36° 34′ E.
Warma, Kivu, B. C.	0° 35′ S., 29° 20′ E.
Warri, Southern Nigeria	5° 36′ N., 5° 50′ E.
Waterberg, Southwest Africa	20° 22′ S., 17° 20′ E.
Watsa, Upper Uelle, B. C.	3° 02′ N., 29° 32′ E.
Wau, Bahr-el-Ghazal	7° 42′ N., 28° 00′ E.
Wau (Wahu) Island, Lake Kivu, B. C.	1° 56′ S., 29° 08′ E.
Wau River, Bahr-el-Ghazal	6° 04′ N., 26° 33′ E. to 7° 40′ N., 28° 04′ E.
Wazimba (Wazimra) Forest, Manyema, B. C.	3° 57′ S., 26° 38′ E.
Weko (Ueko), Stanleyville, B. C.	1° 05′ N., 24° 29′ E.
Welgelegen ("Welgelen"), southern Katanga, B. C.	12° 07′ S., 27° 31′ E.
Welle River = Uelle R.	
Wembere Plains (Wembere Steppe), Tanganyika Terr.	3° 50′ S., 34° 20′ E. to 5° 10′ S., 33° 55′ E.
"Wembi" = Kembe	
Wemi River = Wimi River	
Wesso = Ouesso	
Whidah (Whydah, Ouidah), Dahomey	6° 20′ N., 2° 05′ E.
Wilhelm Falls (Chutes Guillaume), Kwango River	7° 41′ S., 17° 12′ E.
Wilhelmstal (Lushoto), Tanganyika Terr.	4° 48′ S., 38° 16′ E.
Wima (Wimi River camp), Uganda	0° 23′ N., 30° 11′ E.
Wimi River, Uganda	0° 23′ N., 30° 05′ E. to 0° 20′ N., 30° 17′ E.
Windhoek (Windhuk, Windhuck), Southwest Africa	22° 32′ S., 17° 08′ E.
Winneba, Gold Coast	5° 20′ N., 0° 40′ W.
Wissmann Pool, lower Kasai River, B. C.	3° 02′ S., 16° 56′ E. to 3° 10′ S., 17° 12′ E.
Witfontein Mountains, western Transvaal	24° 56′ S., 26° 25′ E. to 24° 52′ S., 27° 25′ E.
Witu, Kenya Col.	2° 24′ S., 40° 26′ E.
Wogara, northern Abyssinia	13° 00′ N., 39° 40′ E.
Wungingi (Kuwingingi, Kuwinkingi), Ruanda	2° 30′ S., 29° 29′ E.
Wuri (Vouri) River, Cameroon	4° 24′ N., 9° 53′ E. to 4° 03′ N., 9° 44′ E.
Yakoma, Ubangi, B. C.	4° 06′ N., 22° 23′ E.
Yakota, French Equatorial Africa	5° 46′ N., 19° 00′ E.
Yakuluku, Upper Uelle, B. C.	4° 21′ N., 28° 49′ E.
Yala River (Lukosa), Kenya Col.	0° 07′ N., 35° 02′ E. to 0° 02′ N., 33° 59′ E.
Yalemba (Yalembe), Aruwimi, B. C.	1° 08′ N., 23° 48′ E.
Yalonga (Yaolonga), Stanleyville, B. C.	0° 16′ S., 24° 28′ E.

Yamba-Yamba, Kivu, B. C.	4° 20′ S., 28° 50′ E.
Yambio, southern A.-E. Sudan	4° 34′ N., 28° 23′ E.
Yambuya, Aruwimi River, B. C.	1° 17′ N., 24° 31′ E.
Yanga, western Ituri, B. C.	1° 38′ N., 27° 25′ E.
Yanonge, Stanleyville, B. C.	0° 36′ N., 24° 38′ E.
Yaunde (Yaounde), Cameroon	3° 50′ N., 11° 30′ E.
Yavello (Javello, Iavello), southern Abyssinia	4° 57′ N., 38° 12′ E.
Yei, southern A.-E. Sudan	4° 05′ N., 30° 41′ E.
Yellala Falls, lower Congo River, B. C.	5° 43′ S., 13° 34′ E.
Yelwa, Northern Nigeria	10° 48′ N., 4° 41′ E.
Yemen (Yaman), Arabia	12° 35′ N. to 16° 40′ N., 42° 40′ E. to 45° 00′ E.
Yeria (Yeriya, Yediya, "Yerua") Forest, east Ruwenzori, Uganda	0° 31′ N., 30° 06′ E.
Yeria (Yeriya, Yediya) River, Uganda	0° 32′ N., 30° 05′ E. to 0° 30′ N., 30° 14′ E.
Yeyena, near coast of southern Gaboon	3° 01′ S., 10° 26′ E.
Yindi, Ituri, B. C.	1° 40′ N., 27° 46′ E.
Yindu = a small protected forest patch at Kisantu, B. C.	
Yofofe, eastern Equator, B. C.	1° 39′ S., 23° 06′ E.
Yokadouma = Yukaduma	
Yoko highland, Cameroon	5° 24′ N. to 5° 37′ N., 12° 05′ E. to 12° 24′ E.
Yola, Northern Nigeria	9° 13′ N., 12° 30′ E.
Yolombo, eastern Equator, B. C.	1° 38′ S., 23° 13′ E.
Youmba, on Ubangi River, French Congo	0° 27′ N., 17° 52′ E.
Young, Lake, Northern Rhodesia	11° 13′ S., 31° 45′ E.
Yubo (Yubu) River, A.-E. Sudan	5° 23′ N., 27° 16′ E. to 5° 59′ N., 27° 52′ E.
Yukaduma (Youkadouma, Yokadouma), Cameroon	3° 25′ N., 15° 03′ E.
Yumbi, on middle Congo River, B. C.	1° 52′ S., 16° 32′ E.
Zaire District, Angola	5° 51′ S. to 7° 49′ S., 12° 15′ E. to 14° 02′ E.
Zaïre, River = lower Congo River	
Zak River, Cape Prov.	32° 15′ S., 22° 30′ E. to 29° 38′ S., 21° 08′ E.
Zalingei, Darfur, A.-E. Sudan	12° 55′ N., 23° 28′ E.
Zalma, São Tomé Island	0° 18′ N., 6° 45′ E.
Zambesi (Zambezi, Zambeze) River	11° 21′ S., 24° 16′ E. to 18° 51′ S., 36° 08′ E.
Zambi, lower Congo River, B. C.	5° 51′ S., 12° 52′ E.
Zambo (Zembi), Semliki Valley, B. C.	0° 40′ N., 29° 40′ E.
Zankab (Zankhab, Esh Shankhab), A.-E. Sudan	13° 35′ N., 32° 33′ E.
Zanzibar Island, off the coast of Tanganyika Terr.	5° 42′ S. to 6° 29′ S., 39° 12′ E. to 39° 35′ E.

Zaria, Northern Nigeria	11° 03′ N., 7° 40′ E.
Zémio, French Equatorial Africa	5° 02′ N., 25° 08′ E.
Ziaka forest, Lower Congo Dist., B. C.	5° 38′ S., 14° 43′ E.
Zimbiti = Mzimbiti	
Zinder, French Niger Terr.	13° 46′ N., 9° 00′ E.
Zobia, Lower Uelle, B. C.	2° 58′ N., 25° 55′ E.
Zobue (Dzobwe Hill), on border between Portuguese East Africa and Nyasaland	15° 36′ S., 34° 27′ E.
Zomba, southern Nyasaland	15° 23′ S., 35° 17′ E.
Zomba plains, southern Nyasaland	15° 18′ S. to 15° 30′ S., 35° 18′ E. to 35° 36′ E.
Zombe (Sombe), Lualaba R., B. C.	8° 50′ S., 26° 02′ E.
Zombe (Nzombe), Kivu, B. C.	3° 09′ S., 28° 31′ E.
Zombia = Zumbia	
Zouangué (Souanké, Suanké), French Congo	2° 00′ N., 14° 04′ E.
Zululand, South Africa	26° 50′ S. to 29° 15′ S., 30° 33′ E. to 32° 50′ E.
Zumbia (Zombia), Semliki Valley, B. C.	0° 18′ N., 29° 29′ E.
Zumbo, Portuguese East Africa	15° 34′ S., 30° 25′ E.
Zwai, Lake, Abyssinia	7° 48′ N. to 8° 06′ N., 38° 44′ E. to 38° 55′ E.

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