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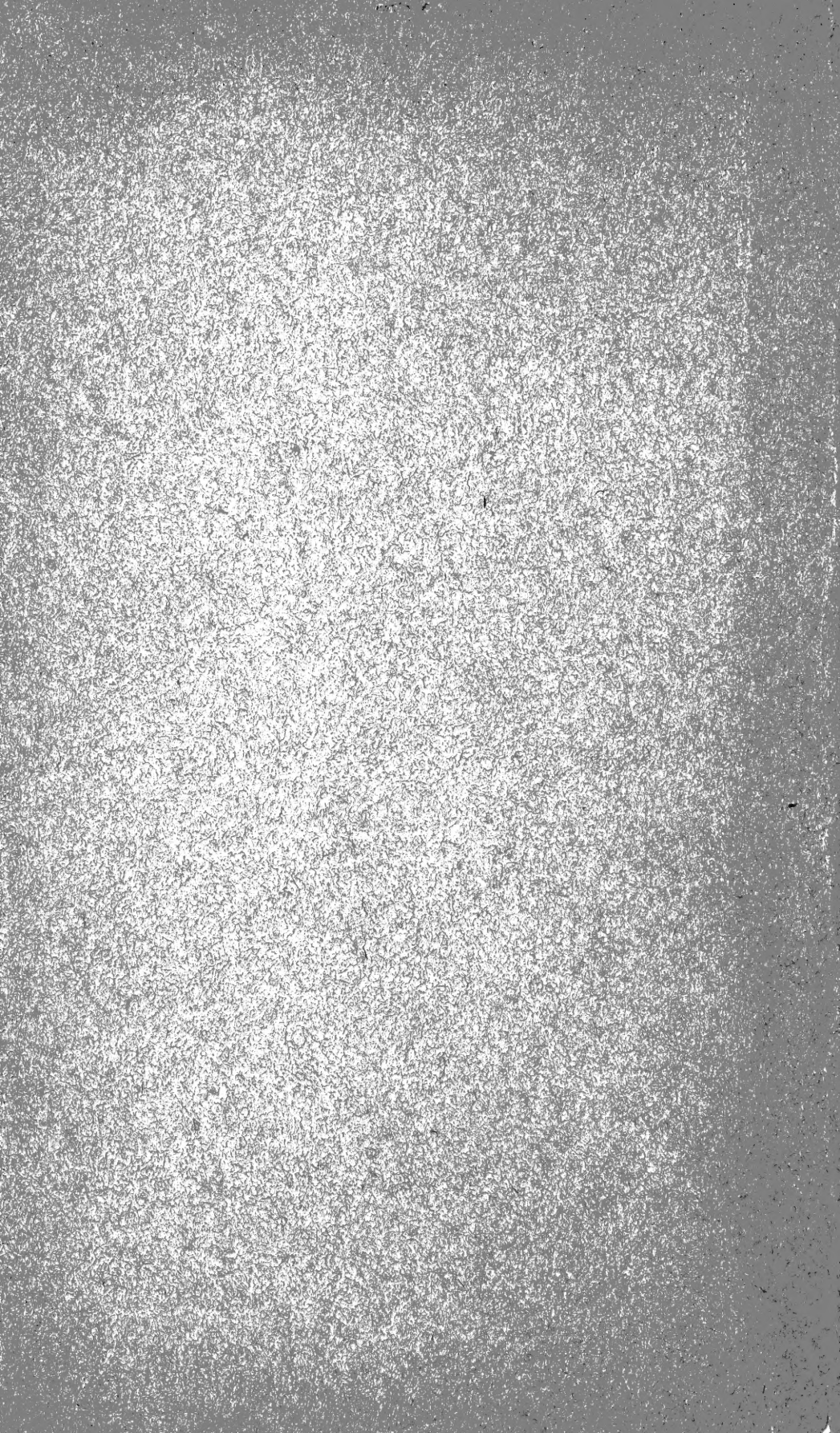
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A CONTRIBUTION TO THE ORNITHOLOGY
OF THE ORINOCO REGION

BY
GEORGE K. CHERRIE

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A CONTRIBUTION TO THE ORNITHOLOGY OF THE
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BY GEORGE K. ^{Cherrie}CHERRIE.

This paper is based chiefly on specimens in the collection of the Museum of The Brooklyn Institute of Arts and Sciences, obtained by the writer, together with his field notes on the same.¹ It includes, however, observations on the specimens sent to the American Museum of Natural History from the vicinity of Ciudad Bolivar on the Orinoco and various points on the Caura River by Mr. Samuel M. Klages.

In 1905 collections were made by the writer for the Brooklyn Museum in the vicinity of Ciudad Bolivar and the village of Caicara covering the period from April 3rd to June 24th inclusive. In 1907 collecting was carried on in the same localities as in 1905, and in addition at various points on the River San Feliz, near its junction with the River Cuchivero, a tributary of the Orinoco, entering that stream some forty miles below the village of Caicara. Also a week's time was spent in the middle delta region of the Orinoco at the village of Las Barrancas. The collecting in 1907 covered the period between April 6th and August 7th inclusive. In addition, however, to the notes on specimens in the Brooklyn Museum collection, there have been added certain notes and observations on species collected and observed by Stella M. Cherrie and the writer in the valley of the Orinoco in 1897, 1898, and 1899, while engaged in collecting birds for the Tring Museum, England. Thus not only are

¹The manuscript for this paper was completed some five or six years ago, and passed out of the author's hands at that time. After some vicissitudes, it was being published under the editorship of the late Edward L. Morris, acting Curator-in-Chief of the Brooklyn Museum. His untimely death left it partly in page proof and partly in galley proof. The old proof sheets have been placed in the writer's hands, and recently published investigations of various students of tropical American ornithology have made considerable revision necessary. The paper, therefore, is not as complete as might be desired, nor does it represent the most recent views on classification.

I wish to express my sincere gratitude to Mr. Waldron DeWitt Miller for his patient, careful work in reading the proof. To Dr. J. A. Allen and Dr. Frank M. Chapman I am also indebted for granting me full use of the collections in the American Museum of Natural History.—THE AUTHOR.

species actually represented in the Brooklyn Museum collections included, but also all additional forms that were collected or observed on my first expedition to the Orinoco; while, to make the paper more complete, and particularly in the interest of those who may not have access to Berlepsch and Hartert's paper "On the Birds of the Orinoco Region,¹" there are added all species from the Orinoco proper, and its tributary the Caura River, included in that paper, but not observed by the writer. Also, species that have been recorded from the Orinoco region, since the publication of Berlepsch and Hartert's paper, and that have come to the notice of the writer are included.

Where colors are given of the eye and naked parts about the head, of the bill, and of the feet, they are the result of a direct comparison with the colored plates in Ridgway's "Nomenclature of Colors" and were made in the field from freshly killed specimens.

For almost all groups "keys" for the more ready determination of the various genera, and their species, have been inserted, following the preliminary observations under each of the family headings. Many of these keys, with slight alterations, were prepared by the writer for his convenience in the identification of specimens in the field. And while the keys were constructed primarily as aids in identifying the species known to inhabit the immediate valley of the Orinoco, there are frequently included the necessary "characters" distinguishing many species known to be found in contiguous territory. It must be understood, however, that no effort has been made to supply "keys" to the birds of other regions of northern South America.

The nomenclature and determination of species is much the same as that employed by Berlepsch and Hartert in their paper which was based chiefly on the collection made in the same region by Mrs. Cherrie and myself in 1897 to 1899, and the André and Klages collections from the Caura River district.

The references to Berlepsch and Hartert, unless specifically noted to the contrary, are to their paper, and the nomenclature where not otherwise indicated is the same.

TURDIDAE—THE THRUSHES.

Six thrushes are found on the Orinoco: five are resident forms of the genus *Planesticus* and one a North American migrant of the genus *Hyllocichla*. The latter is probably never found in juvenal plumage

¹Novitates Zoologicae IX. 1902. p. 134.

on the Orinoco, consequently the character of having the breast spotted will serve to distinguish *Hylocichla* from adult examples of *Planesticus* among birds seen or taken in the Orinoco region.

KEY TO THE GENERA, SPECIES AND SUBSPECIES OF TURDIDAE.

- a.* None of the primaries sinuated on the outer webs..... *Catharus*.¹
a'. Some of the primaries sinuated on the outer webs.
b. Not more than three primaries sinuated on the outer webs..... *Hylocichla aliciae aliciae*.
b'. Four primaries sinuated on the outer webs..... *Planesticus*.
c. Skin about eye bare (in life bright citron yellow)..... *Planesticus gymnophthalmus*
c'. Skin about eye feathered.
d. A white patch below the blackish or dusky streaks on the throat.
e. Above a rich olive brown strongly washed with rufous..... *Planesticus phaeopygus phaeopygus*.
e'. Above rich olive brown with greenish wash..... *Planesticus phaeopygus phaeopygoides*.
d'. No white patch below the streaks on the throat.
e. General color above a subdued olive brown, below greyish brown. *Planesticus albiventer*.
e'. General color above tawny olive brown, below ochraceous brown. *Planesticus fumigatus*.

PLANESTICUS GYMNOPHTHALMUS (Cabanis).

Turdus gymnophthalmus Cab. in Schomb. Reise Brit. Guiana III. 1848. p. 665; Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 2.

Retiring and shy, frequenting clumps of trees and thickets in the open savanna, and the underbrush near the borders of large timber. It has a pleasing song, and call and alarm notes that somewhat resemble those of the American Robin. Insects and fruits are included in the diet and obtained chiefly from among the branches as I rarely saw this thrush on the ground. The common native name for this and the following species is "Paraulata Montañera." They are occasionally kept as cage birds and become exceedingly tame.

In life the eye is chestnut, the bare skin about eye citron yellow; bill dusky olive buff with pale cutting edges; feet smoke grey. A male bird taken at Maipures above the first falls on the Orinoco, had the bare skin about eye ochre yellow and the eyelids orange-rufous.

Nesting begins with the approach of the rainy season—in the vicinity of Caicara, early in May—and continues until the end of June. A nest taken at Caicara June 9, 1905, (Brooklyn Museum Collection) was loosely placed on the thickly matted horizontal branches of a low shrub, about 1.21 m. from the ground. It was a rather bulky affair with the exterior outlines of a truncated cone, 9 centimeters high, 25 centimeters in diameter at the base and 12 at the top. The bulky

¹The "Orinoco Valley" is taken as type locality (!) for *Catharus birchalli* Seeborn.

part of the nest consists of coarse dead grass, weed stems, rootlets, and a few dead leaves. Then comes the nest cavity built up of rather fine rootlets and dead grasses mixed with mud, with an inner lining of coarse rootlets. The inside of the nest measures 9 cm. in diameter by 4 cm. in depth. Incubation was so far advanced in the two eggs taken with this nest that only one could be saved. The egg is a pale greenish blue rather thickly speckled all over with russet. In addition spots of burnt umber are thickly mixed with the russet about the larger end, and some underlying ecru-drab spots. This egg measures 30×21.5 mm.

Another nest collected at Caicara June 21, 1907, was taken inside the village limits in a courtyard and not over 7 m. from the door of a house where a large family of children were constantly passing back and forth. This nest was about 3.5 m. from the ground at the base of a large horizontal limb of a Guava tree. It resembled the first in all essential features. The dimensions of this nest are: outside, depth 7 cm., diameter at rim 11.5 cm.; inside depth 4 cm., diameter 8.2 cm. The outlines of this nest are not as symmetrical as the one in the previous description. Incubation had begun in the three eggs taken with this nest. The eggs themselves are smaller than the one previously described and are more typically ovate in form; they measure 29×19 ; 27.5×19.5 and 28.5×19.5 mm. respectively. The greenish blue ground color is less clear, and in two of the set the markings are much larger, and more thickly speckled over the surface, especially about the larger end; in the last of the set the specks and spots are nearly uniformly distributed over the entire surface.

In yet another set of three eggs, collected on the 20th of June, the pattern of coloration differs considerably from those described above. In one of the three the greenish blue ground color has a yellowish or buff wash; the irregular small spots and dots of color are larger all over the surface and very thickly massed about the larger end. In the other two eggs the ground color is the same pale greenish blue but the markings are confined entirely to the larger end. In one egg these form a chestnut cap, the edges of which are broken into spots and dots of chestnut overlying rufous. In the last egg the spots and blotches of chestnut overlying others of rufous form a broad band about the larger end. These eggs measure $27. \times 19.5$; 28.75×20.2 ; 28.5×20 mm., respectively.

The nest from which these eggs were taken and from which the

parent bird was flushed, was located about 3.5 m. up amid the thick branches of a small tree standing in a thicket on the edge of the savanna. When discovered there was over half an inch of water in the bottom of the nest, the mud that had been used in its construction having been so firmly packed and mixed with the grasses and other nesting materials that after a heavy rain the water escaped through very slowly.

My observations indicated that the number of eggs in a set varies from two to four; the latter number is, however, unusual.

Specimens of the Bare-eyed Thrush from Trinidad, together with one example from the delta region of the Orinoco, are uniformly richer, less greyish olive above than examples from the middle Orinoco, and there appears to be a greater amount of white on the lower breast and abdomen. It seems not improbable that the examination of a large series would justify the subspecific separation of the two forms.

PLANESTICUS ALBIVENTER (Spix).

Turdus albiventer Spix. Av. Bras. I. 1824. p. 70; Berlepsch & Hartert p. 2.

Specimens were collected on the Orinoco at various points, including Ciudad Bolivar, Altagracia, Caicara, Quiribana de Caicara, Urbana and Maipures, from the delta region at Las Barrancas upward, as far as the mouth of the Vichada River.

In life the eye is vandyke brown; bill mouse grey with yellowish cutting edges; feet smoke grey.

Spix's Thrush, like the preceding species, frequents dense thickets and is shy and retiring. In many of its actions this bird resembles the American Robin but is usually conspicuous by its absence about the houses, both in the country and in the villages. The nesting habits and nests are similar to those of *T. gymnophthalmus*. A nest taken at Caicara, June 14, 1904, was found in a dense thicket, in the forks of a small sapling, 1.52 m. from the ground. This nest contained three eggs, only one of which was preserved, owing to the advanced state of incubation. This egg is a pale bluish green thickly marked with blotches and spots varying in color from cinnamon-rufous to chestnut overlying pale ecru-drab blotches; it is ovate in form and measures 20 x 28 mm.

Three fresh eggs and a nest were taken at Caicara, June 6, 1905. This nest was only about 1.2 m. from the ground in the forks of a sapling. These eggs have the same ground color as that described above, but two of them are so thickly marked with small spots and specks of rufous and chestnut as to remind one of eggs of the Brown Thrasher (*Toxostoma rufum*). The remaining egg is marked less thickly and with larger spots of varying shades of color from rufous to chestnut overlying pale ecru-drab spotting. The eggs are all ovate. They measure 26 x 20 mm.; 27 x 21 mm. and 28 x 21 mm.

Another nest collected on May 22nd, at Caicara is rather unusual, being less bulky than is the rule, and constructed almost entirely of the long fine rootlets that spring from about the trunks and larger branches of some of the trees of the genus *Ficus*. Only a very little mud is used in the structure. There is a lining of larger rootlets as in the ordinary nest. The inside measurements of the nest are 8.5 cm. in diameter by 4 cm. in depth. The three eggs taken with this nest, as is the case with those described above, show much individual variation. They average smaller, measuring 19 x 24; 19 x 25 and 18 x 23.5 mm.

A nest with four fresh eggs (No. 1451 Brooklyn Museum Collection) collected at Agua Salada de Ciudad Bolivar, April 15, 1907, was unusual in that no mud had been employed in its construction. It was located in a niche, 2.4 m. up, in the side of a huge boulder that was surrounded by low trees and tangled bushes of the savanna. That mud had not been used in the building of this nest was probably due to the fact that it could not have been obtained within a distance of less than two miles: the dry season was at its height, and the savanna on all sides was parched and dry. This nest was placed so closely against the wall of rock that at its back only the thickness of the inner lining of rootlets intervened between them. Parallel with the face of the rock the base of the nest measured 24 cm.: at right angles to the face 18 cm.: the outside depth was 7.5 cm. The nest cavity measures 9 cm. diameter by 4.5 cm. in depth,—almost a perfect hemisphere. The body of the nest is made up of very fine bits of grass and plant stems, strips of soft inner bark, dead leaves, etc. Of the four eggs taken with this nest two are thickly marked with small spots and specks (chiefly pale rufous) nearly evenly distributed over the entire surface. The other two are marked with much larger

spots and blotches of various shades of brown, from rufous to chestnut; in one, nearly uniformly distributed, in the other thickest about the larger end. They are ovate in form and measure 28.25×20 ; 28.75×19 ; 26.5×19 and 27.75×20 mm. respectively. The eggs of *P. albiventer* cannot be distinguished from those of its congener *P. gymnophthalmus*.

PLANESTICUS FUMIGATUS (Lichtenstein).

Turdus fumigatus Licht., Verz. Doubl. 1823. p. 38; Berlepsch & Hartert p. 3.

The marked variation in color presented by a series of these thrushes from various localities throughout northern South America has been already commented on by ornithologists. The series before the writer is entirely too small and too meagre in localities represented, to give any satisfactory idea of the geographical distribution of the three or four races into which it seems the species might be separable. Indeed, the distribution indicated by the material at hand is most perplexing.

The writer has met with this thrush on the upper Orinoco, above the falls of Atures and those of Maipures, and in Trinidad. At the present time he has for comparison, specimens from Trinidad, British Guiana, El Pilar on the north coast of Venezuela, Nericagua on the upper Orinoco, Cayenne, and three points in Brazil, viz., Santarem, Diamantina and Maranhao.

From the upper Orinoco region (Nericagua) only one bird is available for comparison. It is a female, taken April 23rd, and agrees almost exactly in color with an example from Santarem, Brazil (without sex or other data), but is decidedly smaller, the wing measuring only 105 mm. and the tail 95, while in the Brazilian specimen the wing measures 118 mm. and the tail 110 mm.

The specimens from Trinidad are uniformly much lighter in color than those from the other localities in the series before me, being a raw umber, with a pronounced olive wash and with a narrow russet edging to the outer edges of the quills, greater, and middle wing coverts. The Nericagua and Santarem birds are dark mummy brown above with a wash of vandyke, while the tips and outer edges of greater and middle coverts are cinnamon-rufous in the Nericagua example (a characteristic which may be due to immaturity). The

Trinidad birds are so different that I have recently separated them as *P. fumigatus aquilonalis*.¹

PLANESTICUS PHAEOPYGUS PHAEOPYGUS (Cabanis).

Turdus phaeopygus Cab. in Schomb. Reise Brit. Guiana II. 1848. p. 666; Berlepsch & Hartert p. 3.

Collected on the Caura River² by Klages (Mountains west of Suapure) and by André (La Pricion). It is replaced in the delta region of the Orinoco by the Tobagan subspecies. (*P. p. phaeopygoides*.)

PLANESTICUS PHAEOPYGUS PHAEOPYGOIDES (Seebohm).

Turdus phaeopygoides Seebohm, Cat. Birds Brit. Mus. V. 1881. p. 404 (Tobago).

Turdus phaeopygus phaeopygoides Hellmayr, Novit. Zool. XIII, 1906. p. 4 (Guanoco, Orinoco Delta).

Hellmayr in preparing his paper on the birds of Trinidad records a specimen from Guanoco in the Orinoco delta, collected by André.

HYLOCICHLA ALICIAE ALICIAE (Baird).

Turdus aliciae Baird, Rep. Pacific R. R. Surv. IX. 1858. p. 217; Berlepsch & Hartert p. 3.

On my first expedition to the Orinoco the Grey-cheeked Thrush was observed at irregular intervals from December until the middle of April. Specimens were collected at Quiribana de Caicara and at Maipures above the falls. Only solitary birds were seen. None have been observed on the more recent expeditions.

MIMIDAE—THE MOCKING BIRDS.

This family is represented in the Orinoco region by a single subspecies of the genus *Mimus* and one species of the genus *Donacobius*.

KEY TO THE GENERA OF MIMIDAE.

- a. "No naked space on side of neck; tail graduated for less than one-fourth its length."³..... *Mimus*.
 a'. "A large naked space on side of neck; tail graduated for nearly half its length"³..... *Donacobius*.

MIMUS GILVUS MELANOPTERUS Lawrence.

Mimus melanopterus Lawr., Ann. Lyc. Nat. Hist. N. Y., 1849. p. 35.

Mimus gilvus melanopterus Berlepsch & Hartert, p. 3.

¹Sci. Bull. Mus. Bklyn. Inst. I. 1909. p. 387.

²The Caura is a tributary of the Orinoco entering from the right side, and draining a considerable portion of the mountainous region between British Guiana and Venezuela.

³Ridgway Birds of North and Middle America, IV. 1907. p. 183.

Native name *Paraulata*. Common everywhere on the savannas, frequenting the small clumps of trees and more open thickets. The habits are similar to those of our own mocking-bird, although it is perhaps less shy. Nests are frequently built in the immediate vicinity of the native ranch houses.

At San Mateo de Caicara on May 22, 1905, three fresh eggs were taken from a nest, found in a small tree, about 1.5 m. from the ground. The tree stood alone, close to a house and the nest was in plain view from all sides. The eggs are marked with reddish brown spots, which in two of them were so thickly set as to nearly obscure the pale bluish green ground color. The third egg is rather sparsely spotted, except about the larger end, and the color of the spots is darker, while the ground is a richer bluish green. The eggs are ovate in form and measure 25.5×19.75 ; 26.2×19.75 and 25.5×19.5 mm. Four days elapsed after the completion of the nest before any eggs were laid, then one egg was deposited every twenty-four hours.

A nest taken by the writer at Quiribana de Caicara, April 21, 1898, was found in a low bush at the edge of the open savanna about 91.5 cm. from the ground. It was constructed of coarse dry sticks lined with dry grasses and rootlets. The eggs taken with this nest measure " 27×19.5 ; 25.6×19.5 ; and 25.6×19.8 mm."¹

Another nest found May 25, 1898, was in a dense clump of thorny bushes at the edge of the open savanna. This nest was only 61 cm. from the ground.

At Caicara on the 6th day of May, 1907, a nest with three eggs was taken that was similarly placed to that of the last, only about 61 cm. up in a thicket of thorny palm stems. Incubation had begun, and was much further advanced in one egg than in the other two. The eggs measure 27.4×19.5 ; $27.5 \times 20.$ and 27.75×19 mm. Compared with the set first described the markings are somewhat darker and in larger spots. In the smallest of the three eggs the markings are uniformly distributed over the entire surface and very thickly set. In the largest egg the markings are lightest in color, fewest in number and clustered most about the larger end.

Eggs of the Colombia Mocking-bird are indistinguishable from those of either *Planesticus albiventer* or *P. gymnophthalmus*.

A male in juvenal plumage taken at Caicara, June 2, 1905, has a greyish eye and dusky bill and feet. It is smoke grey above, clear on

¹Berlepsch & Hartert, p. 3.

the head and mottled with a wash of wood brown. The wings and tail are black, tips and outer edges of primaries and alula white. Tertiaries, secondaries and coverts are tipped and edged with pale buffy wood brown. Outer edges of outer pair and tips of five outer rectrices white. Below dull white washed with buff and spotted with dusky brown except on crissum and belly. Postocular and malar streaks and auriculars grayish white. Lores and subocular streak blackish. A faintly indicated dusky sub-malar streak.

DONACOBIOUS ATRICAPILLUS ATRICAPILLUS (Linnaeus).

Turdus atricapillus Linn., Syst. Nat.: ed. 12. I. 1766. p. 295. ("Cap Bon Spei"—Berlepsch & Hartert substitute E. Brazil.)

Donacobius atricapillus Berlepsch & Hartert, p. 4.

Klages sent a specimen that he collected on the Mato River, one of the small tributaries of the Caura River, to the Tring Museum; and Mr. Beebe collected and noted this species as abundant in the delta at Guanoco.

TROGLODYTIDAE—THE WRENS.

Five genera are represented in the Orinoco region including six species and four subspecies. All are notable as songsters and characteristic birds of the regions that they frequent.

KEY TO GENERA, SPECIES AND SUBSPECIES OF TROGLODYTIDAE.

- | | | |
|-----|---|--|
| a. | Tail equal to or longer than wing..... | <i>Heleodytes</i> . |
| b. | Under parts white without spots or markings. | |
| c. | Upper parts greyish brown with scarcely a trace of umber, smaller... | <i>H. griseus</i> . |
| c'. | Upper parts strongly raw umber brown or washed with brown (between a raw umber and mummy), larger..... | <i>H. minor</i> . |
| b'. | Under parts white with breast, sides, flanks and under tail-coverts spotted with blackish..... | <i>H. nuchalis</i> . |
| a'. | Tail shorter than wing. | |
| b. | Chin and throat pale and without dusky or blackish cross bars. | |
| c. | Feathers on sides of neck mottled black and white, the centres being white, edges black..... | <i>Leucolepis musicus</i> . ¹ |
| c'. | Feathers on sides of neck not black and white mottled. | |
| d. | Nostrils rounded, at forward end of the nasal fossa..... | <i>Thryophilus</i> . |
| e. | Throat white, remainder of under parts buff, on sides, flanks and under tail-coverts becoming ochraceous. (On the Caura River, the Cuchivero River and probably other tributaries of the Orinoco, entering that stream from the Guiana side)..... | <i>T. albipectus albipectus</i> . |

¹This wren so far as known is found only in British Guiana, but it is not improbable that it may be taken in the delta region of the Orinoco.

- e'. Much paler below, the brownish-olive color being confined almost entirely to the flanks and under tail-coverts; upper surface also paler with less rufous. (Middle stretches of the Orinoco from the delta region—Las Barrancas—up as far as the first Falls, Atures)..... *T. albipectus hypoleucus.*
- e''. Entire upper parts much darker rufous brown, below, sides, flanks and crissum deep ochraceous, very much richer in color than either of the preceding forms. (The Upper Orinoco from above the Falls of Atures)..... *T. albipectus bogotensis.*
- d'. Nostrils, if rounded, *not* at forward end of nasal fossa.
- e. Nostrils linear, opening along lower edge of nasal fossa.
- f. Throat white, breast grey..... *Phlegopediis griseipectus caurensis.*
- f. Throat and breast buffy..... *Troglodytes musculus clarus.*
- e'. Nostrils rounded, near center of nasal fossa.
- f. Prominent white wing-bands formed by subterminal white tips to greater wing-coverts..... *Microcerculus caurensis.*
- f'. No wing-bands..... *Henicorhina leucosticta.*

HELEODYTES GRISEUS (Swainson).¹

Furnarius griseus Swains., Anim. in Menag. 1838. p. 325.

Campylorhynchus griseus Berlepsch & Hartert, p. 4.

Native name *Cucarachero*. In life the eye is vandyke brown; bill black above, greyish horn color below; feet slate color.

Birds of this species are usually seen (and heard) in pairs, or, after the breeding season, from April to July, in family parties of from three to eight. They are rarely seen in the dense forest, keeping near the borders of open savannas and localities abounding with scattering scrub oaks and clumps of underbrush.

The nesting habits of this species are quite unusual. Early in my acquaintance with it I had believed it constructed its own nests, but that the nests built one year were not employed,—at least not for the rearing of a brood of young,—until the following season. Later observations have convinced me, however, that rarely, if ever, does this wren do more in the way of nest building than to refurnish the abandoned nest of some other bird, and that the more dilapidated the structure is in outward appearance, the more acceptable it is as a true nesting site. The old abandoned nests of *Pitangus sulphuratus* are the ones that appear to be selected most frequently. Several of these nests together with nests of *Myiozetetes* are frequently found in the same tree, often within three or four feet of one another, and if one of the *Pitangus* nests is the real nest of a pair of wrens the owners may be seen entering the other old nests quite as frequently as they do their

¹Berlepsch & Hartert, p. 4, have called attention to the error in the British Museum Catalogue regarding this species and *bicolor*, the names having been transposed.

own. Not only do they enter the other nests but they may be seen industriously carrying in nesting material. This curious habit, I have observed, is indulged in chiefly when the birds are being watched.—when they feel their homes may be in danger. While nesting materials, such as soft dry grasses, may be carried into any and all of the old nests in the tree where a Large Cactus Wren is nesting, only one nest will receive a lining of the soft down-like substance that envelops the seed of the silk-cotton tree, and there the eggs or young will be found. I never ascertained that more than one pair of birds nested in a single tree, but found from three to eight nests in a tree occupied by a single pair of birds.

I first took eggs of this species at Quiribana de Caicara, April 10, 1898. The clutch contained only three eggs in which incubation was far advanced. The nest was an old one, doubtless that of *Pitangus sulphuratus rufipennis* with a fresh lining. It was a large globular affair composed of dry grasses, set in a tangle of small limbs of a scrub oak, about 3.5 m. from the ground. The entrance was at one side near the top. In the same tree were six other nests, none of which were occupied and there was apparently only the one pair of birds in the neighborhood.

Another clutch of three eggs with incubation far advanced was taken April 17th. The nest was about 4.5 m. up in a scrub oak, that stood well out in the savanna. It was an old nest, globular in form, ragged and dilapidated in appearance, but it had been supplied with a little fresh lining of soft grasses. A new nest of *Pitangus* had been built in the same tree, not ten feet from the old one, but had been deserted by the original owners and the wrens had selected the old one in preference.

A clutch of five incubated eggs of this species (now in the Tring Museum), was taken at Caicara, June 27, 1898. They were of a "glossy brownish brick-red, darker spots being traceable."¹ Others are "whitish red, the brick-red patches leaving some of the ground color free."¹ They measure "24.5 x 18.5; 24.5 x 17.4; 24 x 17.5 mm."¹ The nest in this case was as usual an old one and much dilapidated. It was situated about 2.4 m. up in a small scrub oak. There was a much newer nest in the same tree not over 1.2 m. from the one containing the eggs. Both birds were present and manifested much concern, scolding me soundly. Before I climbed the tree to search

¹Berlepsch & Hartert. p. 4.

for eggs I watched the parents for some time and noted them frequently entering and leaving the new nest but not approaching the old one in which were the eggs. While I was taking the clutch of eggs on April 17th the parent birds remained close by but seemed to take little notice of my presence.

A nest which together with a set of four eggs and the parent birds was taken at Caicara May 5th, 1907 (No. 14,655 Geo. K. Cherrie Coll.) was a nest of *Pitangus sulphuratus rufipennis* that, having served as a home for a brood of its builders' young, had been abandoned by that builder and appropriated by a Cactus Wren. A new lining of coarse dry grasses only had been taken in. The nest was located at the extreme end of a long horizontal branch of a *Guaramal* tree and was about 2.4 m. above the ground. The parent birds, both of which were collected, were not at all demonstrative. The female was shot as she left the nest. The ground color of the eggs varies from a salmon-buff to a vinaceous-cinnamon. They are everywhere thickly speckled with hazel and chestnut. Of the four eggs, one was on the point of hatching, one about half incubated, one fresh, the fourth rotten and pierced with two small holes on the larger end. They measure 24×17.5 ; 23×17.5 ; 23.5×17.75 and 24.5×16.5 mm. respectively. Three are ovate in form and one decidedly elongate ovate.

On the 22nd of May, 1907, near La Cascabel on the River San Feliz, a nest was found containing two half grown young and one rotten egg. The nest was undoubtedly one that had been built by a *Pitangus*. It was about 4.5 m. from the ground. The egg is ovate in form and measures 25×18 mm. In color the ground is nearly a salmon-buff and is thickly speckled with vinaceous-cinnamon. Mr. Hartert in describing the eggs sent by the writer to the Tring Museum refers to them as "glossy," but that term would hardly be applicable to the examples that are before me.

HELEODYTES MINOR Cabanis.¹

Heleodytes minor Cab., Mus. Hein. I. 1851. p. 80.

This species was collected at Ciudad Bolivar by Klages, and the

¹In the American Museum collection is a series of specimens from the Santa Marta region, Colombia, identified by Allen as *H. griseus* (Swains)—Bull. Am. Mus. Nat. Hist., XIII. 1900. p. 180—that seem to belong to this species, but doubtless represent a different race that differs from the Venezuelan birds by the almost total lack of barring to the tail-feathers (being faintly indicated in three or four only), and in the greater extent and deeper shade of chestnut red on the back, rump, and wing-quill edges.

writer secured a single example at Agua Salada de Ciudad Bolivar on the 1907 expedition. There is also in the American Museum collection a small series of specimens collected by Klages from Maripa, in the Caura River region.

HELEODYTES NUCHALIS (Cabanis).

Campylorhynchus nuchalis Cab., Orn. Not. in Arch. Naturg. XIII. 1847. p. 206; Berlepsch & Hartert, p. 5.

An abundant species along the middle Orinoco. Specimens were collected at Altagracia, Caicara and Quiribana de Caicara. It frequents similar localities to those where *H. griseus* is found and may be usually seen in pairs or family parties.

In fresh specimens the colors are: eye straw yellow; feet slate grey; bill above dusky, below pale flesh color.

The nesting habits of this species are somewhat similar to those of *H. griseus*, and equally interesting. A nest containing four fresh eggs was found at Caicara, May 12, 1907 (No. 14,737 Cherrie Coll.). It was one of half a dozen irregular shapeless masses of fine soft rootlets, grasses, feathers and tufts of the soft silky down from fruits of the silk-cotton (*balsamo*) tree. Each of the nests, apparently masses of rubbish, was provided with two or three entrances to as many chambers, or instead of opening into separate chambers they were in some cases entrances to tunnels through the nest mass! Only one of the several nest masses, however, was in use as a nest proper. That contained four fresh eggs. To the nest cavity proper there was only one entrance, but in addition there were in the same nest mass two tunnels running from side to side. At the time when the eggs were secured both parent birds were present and showed the greatest excitement. Their actions were most extraordinary, and instead of employing their time with cries of distress, or scolding the intruder, they immediately went to work, industriously carrying mouthfuls of soft feathers and *balsamo* from one nest mass to another, but not going near the real nest. However, when they realized that the enemy could not be deceived by their artifice, they turned their attention to the nest mass containing the eggs, and worked with such a will, and with such good effect, packing the entrance with *balsamo* and soft feathers, even while I was engaged in cutting the branch that supported the nest, that by the time the nest was on the ground no entrance was visible. For a moment I was inclined to believe I had made a mistake.

I believe the nests of this wren, like those of *H. griseus* always have as a foundation the abandoned, and frequently half-decayed nests of either *Pitangus* or some species of *Myiozetetes*.

The eggs are elongated-ovate in shape and a delicate pure white in color.

HENICORHINA LEUCOSTICTA (Cabanis).

Cyphorhinus leucostictus Cab., Orn. Not. in Arch. Naturg. XIII. 1847. p. 206.

Henicorhina leucosticta Berlepsch & Hartert, p. 5.

André collected specimens of this wren on the Caura River.

MICROCERCULUS CAURENSIS Berlepsch & Hartert.

Microcerculus caurensis Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 5.

A single specimen of this wren, said by its describers to be "closely allied to *M. bambla* from Guiana" was collected by André at Nicare on the Caura River.

THRYOPHILUS ALBIPECTUS ALBIPECTUS Cabanis.

Thryophilus albipectus Cab. in Schomb. Reise Brit. Guiana, III. 1848. p. 673 (Cayenne); Berlepsch & Hartert, p. 6 (Saupure, La Pricion, La Union and Nicare, Caura River).

In the Brooklyn Museum collection and that of the American Museum of Natural History, the writer has had for study Venezuelan specimens from localities in the Orinoco region as follows:—On the Orinoco proper; Nericagua, Munduapo, Caicara, Ciudad Bolivar, Agua Salada de Ciudad Bolivar and Las Barrancas; La Cascabel (on the River San Feliz near its junction with the River Cuchivero); Mato River (near its junction with the Caura River); Maripa and La Union on the Caura River. Typical examples of three forms are represented, together with specimens that are intermediate in character.

Specimens collected by the writer at "La Cascabel" compared with an example of typical *albipectus* from Cayenne (No. 668 Cherrie and Gault Coll.) in the American Museum collection, agree almost exactly in color both above and below, but lack the faint traces of dusky bars on the back that are to be seen in that specimen. The American Museum series from Maripa and a single example among those labeled "La Union" (Klages Coll.) are referable to this form. Typical examples have been also recorded from Saupure, La Pricion,

La Union and Nicare on the Caura River. The Brooklyn Museum specimens from Las Barrancas (Orinoco Delta region) are referred to this form but are somewhat intermediate in character between *albipectus albipectus* and *albipectus hypoleucus*.

THRYPHILUS ALBIPECTUS HYPOLEUCUS Berlepsch & Hartert.

Thryophilus albipectus hypoleucus Berlp. & Hart., Bull. B. O. C. XII. 1901. p. 12; Novit. Zool. IX. 1902. 6.

This, the lightest colored form of the white-breasted wren, is found everywhere along the Orinoco from Ciudad Bolivar up as far as, possibly beyond, the mouth of the Meta River. It, in common with the other races of this species, frequents the denser clumps of trees and bushes that dot the edges of savanna regions.

Fresh birds have the eye mummy brown; bill blackish above, slate color below; feet plumbeous.

Specimens were collected at Agua Salada de Ciudad Bolivar, Ciudad Bolivar, Altigracia, Caicara and Quiribana de Caicara. The specimens collected by the writer at Agua Salada de Ciudad Bolivar and at Ciudad Bolivar are somewhat intermediate in character, forming with the Las Barrancas specimens of *albipectus albipectus* links in the evidence pointing to the common origin of the two forms.

THRYPHILUS ALBIPECTUS BOGOTENSIS Hellmayr.

Thryophilus albipectus bogotensis Hellmayr, Verhandl. Zool.-Botan. Gesellsch. Wien, LI. 1901. p. 774. (Type in Berlepsch Museum, Bogota Coll.).

Thryophilus albipectus subsp. Berlepsch & Hartert, p. 6.

This dark race was observed and collected by the writer on the Upper Orinoco at Perico, Maipures, Munduapo and Nericagua. In the American Museum collection there are specimens from La Union (on the Caura River) and from the Mato River collected by S. M. Klages, and two examples from Surinam (Chunkoo Coll.) that, by comparison with specimens collected by the writer at Maipures and Nericagua on the Upper Orinoco, seem to be typical of this race.

In a female from Nericagua there are faint traces of narrow dusky bars on the back. In the female from Surinam such bars are quite evident and they are indicated in both a male and female example from La Union.

PHEUGOPEDIUS GRISEIPECTUS CAURENSIS (Berlepsch & Hartert).

Thryothorus griseipectus caurensis Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 7.

Described from specimens secured on the Caura River by Mr. Eugene André. It has been recorded from La Union, La Pricion and Nicare (type locality).

TROGLODYTES MUSCULUS CLARUS Berlepsch & Hartert.

Troglodytes musculus clarus Berlepsch & Hartert, Novit. Zool. IX. 1902, p. 8. (*Type*, Bartica Grove, British Guiana.)

Common throughout the Orinoco region at least as far as the Falls of Atures.

Specimens were collected at Ciudad Bolívar, Altigracia, Caicara and Quiribana de Caicara.

In life the eye is seal brown; bill above blackish, below pale grey; feet dusky slate grey.

A set of four slightly incubated eggs, together with the parent birds, were taken at Caicara, July 10, 1906 (15,078 Cherrie Coll.). The eggs are short ovate in form and measure 17.5 x 14; 16.9 x 13.5; 17 x 13.75 and 17.5 x 13.6 mm. They are thickly dotted over the entire surface with brown varying in shade on the different examples from vinaceous to chestnut. In two of the eggs the specks and dots are more thickly clustered about the larger end, forming a cap. The ground color is a pale buffy pink. The nest was located in a natural cavity in the trunk of a *Chaparo* oak about 2.1 m. from the ground. Very little nesting material had been taken into the nest cavity, and consisted of a few black hair-like vegetable fibres on top of which was a lining of the wing and tail feathers of small birds so arranged that the quills stuck outward and upward around the edge of the nest, and the soft tips rested on the bottom. Here and there between the feathers were bits of the cast skin of some small lizard.

The parent birds were shy and wary. The female when flushed would fly directly to a thicket some twenty-five yards distant where she would remain quietly in hiding until she believed all danger to have passed.

SYLVIIDAE—THE KINGLETS AND GNATCATCHERS.

Only a single species pertaining to this family was observed on the Orinoco.

Mr. Hellmayr, who has made a careful study of the South American members of the genus *Polioptila*, has, in his last word on the subject¹, concluded that there are six recognizable races of *P. livida*.

Only one of this number has been recorded from the Orinoco region but as there are two others whose geographical distribution when better known may be found to extend to the territory under consideration, I have included them in the following key.

KEY TO SUBSPECIES OF POLIOPTILA LIVIDA.

- a.* Outer tail-feathers black at base of both inner and outer webs. *Polioptila livida plumbeiceps*.
a'. Outer tail-feathers entirely white.
b. Upper wing-coverts edged with whitish and broad white edgings of the tertials reaching almost to the shaft. (Cayenne, Surinam, Lower Amazonia from Para to Santarem) *Polioptila livida livida*.
b'. Upper wing-coverts edged with pale bluish grey and white edges to tertials much narrower. (British Guiana, Rio Branco in North Brazil) *Polioptila livida innotata*.

POLIOPTILA LIVIDA PLUMBICEPS (Lawrence).

Polioptila plumbeiceps Lawrence, Proc. Acad. N. Sc. Phila. XVII. 1865. p. 37 (Venezuela).

Polioptila nigriceps Berlepsch & Hartert (non Baird) p. 9.

P[olioptila] livida plumbeiceps Hellmayr, Novit. Zool. XIV, 1907. p. 4.

This species is common along the Middle Orinoco from Ciudad Bolivar to the Falls of Atures, and less abundant above the falls where specimens were collected at Maipures.

A nest of this species, which the young were just leaving, was found at Caicara June 20, 1907. It closely resembled nests of the Blue-grey Gnatcatcher of Eastern North America, being a neat, trim, lichen-covered cup, saddled on to a horizontal branch. The nest measures outside: depth 45, diameter at middle of nest, 55; inside: depth 31; diameter at rim 35; diameter half way down 41 mm. It was about 5 m. from the ground on one of the branches of a *Chaparo* oak that stood near the edge of the open savanna. It is by merest chance that such a nest is discovered as it is so small, so inconspicuous and its lichen covered walls match so exactly the color of the branch on which it rests.²

¹Novitates Zoologicae XIV. 1907. pp. 4-5.

²It seems somewhat doubtful to the writer if the nest described as that of Lawrence's Gnatcatcher by Clark (Auk XIX. 1902. p. 266.) from Margarita Island could have belonged to that species. Gnatcatcher nests certainly do not resemble those of the yellow Warbler.

MNIOTILTIDAE—THE WARBLERS.

The author has collected seven species of Warblers on the Orinoco, four of which number were North American migrants. One other species (*Basileuterus mesoleucus*) was included in Berlepsch and Hartert's paper and was collected by Klages at Suapure on the Caura River. Now I am able to add *Basileuterus auricapillus olivascens* based on a specimen collected by Mr. C. William Beebe at Guanoco in the delta region and *Oporornis agilis* collected by L. E. Miller at Maipures.

In the following key I have included some other species and subspecies that are recorded from various points in British Guiana that not improbably may be later found to enter the Orinoco valley.

KEY TO THE SPECIES AND SUBSPECIES OF MNIOTILTIDAE.

- a.* Having a distinct superciliary stripe and breast not red.
- b.* Breast and sides streaked with dusky or blackish..... *Seiurus noveboracensis.*
- b'.* No streaks on breast and sides.
- c.* Throat, breast and belly white..... *Basileuterus mesoleucus.*
- c'.* Throat, breast and belly yellow..... *Basileuterus auricapillus olivascens.*
- a'.* No distinct superciliary stripe; or, if present, then centre of breast and belly vermilion (geranium red).
- b.* Throat white, whitish grey or black, and sides and breast not streaked.
- c.* Centre of breast and belly red, sides and flanks grey..... *Granatellus pelzelni.*
- c'.* Centre of breast and belly not red.
- d.* Centre of breast and belly white or whitish, sides of breast yellowish or reddish pink..... *Setophaga ruticilla.*
- d'.* Belly yellow, throat and upper breast slate grey or pale grayish brown..... *Oporornis agilis.*
- b'.* Throat yellow, or, sides and flanks streaked with blackish.
- c.* Under tail-coverts of the same general color as other under parts.
- d.* Inner webs of outer tail-feathers marked with yellow or white.
- e.* Under parts white with dusky or blackish streaks on sides..... *Dendroica striata.*
- e'.* Under parts yellow, with or without russet or brownish streaks. *Dendroica aestiva.*
- d'.* No markings on inner webs of outer tail-feathers..... *Geothlypis aequinoctialis.*
- c'.* Under tail-coverts white in sharp contrast to the yellow breast.
- d.* Above slate grey with olive green triangular patch in centre of back..... *Compsothlypis pitiayumi elegans.*
- d'.* Above, head yellow shading into olive green on back, rump slate grey..... *Protonotaria citrea.*¹

COMPSTHLYPIS PITIAYUMI ELEGANS Todd.

Sylvia pitiayumi Vieillot, Nouv. Dict. d'Hist. Nat. XI. 1817. p. 276.

Parula pitiayumi Berlepsch & Hartert, p. 10.

C[ompsothlypis] p[itiayumi] pitiayumi Ridgw. Auk. XIX. 1902. p. 69 in text.

¹Chapman, *Bull. Am. Mus.* VI: 1894: 24, included the Prothonotary Warbler in his list of the birds of Trinidad. Future collecting may discover it in the delta region of the Orinoco.

Compsothlypis pitiayumi elegans Todd Ann. Carnegie Mus. VIII. 1912, p. 204 (Type ♂, Anzoategui, Lara. Venez., in Carnegie Museum).

At Altigracia, midway between Ciudad Bolivar and Caicara, this little warbler was not uncommon during January and February, 1897, and on the 1907 expedition I found it common at Agua Salada de Ciudad Bolivar during April and at Caicara during May.

GRANATELLUS PELZELNI PELZELNI Sclater¹

Granatellus pelzelni Sclater, P. Z. S. 1864. p. 607; Berlepsch & Hartert, p. 10.

G[ranatellus] p[elzelni] pelzelni Hellmayr, Novit. Zool. XIII. 1906. p. 355.

A single specimen of this handsome warbler, an adult female, was captured in the thick forest at Munduapo (above the second falls) in February, 1899. Klages collected it at La Pricion, André at Nicare and La Union on the Caura, and the writer secured a single specimen at La Cascabel, May 26, 1907. In the La Cascabel specimen the eye was dark; bill black above, slate grey below; feet slate grey. It is a male not yet in full plumage, having the entire top of the head slate blue like the back but with the feathers black basally; the feathers on the forehead are tipped with ochraceous; lores, cheeks and streak above eye and ear coverts ochraceous buff flecked with blackish on lores and sides of face; auriculars slate blue with some buffy shaft streaks.

GEOTHLYPIS AEQUINOCTIALIS (Gmelin).

Motacilla aequinoctialis Gm., Syst. Nat. I. 1789. p. 972 ("Cayenna").
Geothlypis aequinoctialis Berlepsch & Hartert, p. 11.

Many taken at Quiribana de Caicara and at Altigracia in 1897-'98. At the former place it was common in the tall grass and sedges, growing along the low marshy banks of Quiribana Creek, some six or seven miles back from the Orinoco, on the open savanna. When flushed these birds would flutter just above the tops of the grasses for twenty or thirty yards and then drop out of sight. The action was what one would look for in a rail and very unwarbler-like.

¹In Cat. Birds Brit. Mus. X. 1885, p. 369, under the "key to species," Mr. Sharpe erroneously places *G. pelzelni* in a section "having a black pectoral collar," but there is no pectoral collar in specimens I have seen and the white throat is followed immediately by the red breast.

At La Casabel and Las Guacas in 1907 this species was found common in the tall grasses bordering the marshes.

OPORORNIS AGILIS (Wilson).

Sylvia agilis Wilson, Am. Orn., 1812, p. 64 (Connecticut).

There is in the American Museum collection a specimen collected by Miller and Igseder at Maipures. I believe this to be the first record of the species in the Orinoco valley.

BASILEUTERUS MESOLEUCUS Sclater.

Basileuterus mesoleucus Scl., P. Z. S. 1865, p. 286; Berlepsch & Hartert, p. 11.

Klages sent examples of this species to the Tring Museum that he obtained at Suapure on the Caura River.

BASILEUTERUS AURICAPILLUS OLIVASCENS Chapman.

Basileuterus vermivorus olivascens Chapm., Auk. X. 1893, p. 343 (Trinidad).

This is an abundant species in Trinidad and Mr. C. William Beebe secured a good example, in April, at Guanoco in the Orinoco Delta region which agrees exactly with the Brooklyn Museum series from Trinidad.

SETOPHAGA RUTICILLA (Linnaeus).

Motacilla Ruticilla Linn. Syst. Nat. ed. 10. X. 1758. p. 186.

Setophaga ruticilla Berlepsch & Hartert, p. 11.

Not uncommon about Quiribana de Caicara during April, 1898, but observed only during the first week in May on the two recent expeditions.

DENDROICA AESTIVA AESTIVA (Gmelin).

Motacilla aestiva Gm. Syst. Nat. I. 1788. p. 996.

Dendroica aestiva Berlepsch & Hartert, p. 9.

The Yellow Warbler was noted from November 3rd to May 3rd and was not uncommon.

DENDROICA STRIATA (Forster).

Muscicapa striata Forster, Phil. Trans. LXXII. 1772. p. 406.

Dendroica striata Berlepsch & Hartert, p. 9.

Only four species of North American warblers are found in the valley of the Orinoco, the Black-poll, Yellow Warbler, Redstart, and the "Water-Thrush." The Yellow Warbler and Black-poll are not uncommon from October to early May. The "Water-Thrush" is found during the same months but is much less common. Redstarts I only observed during April and the first week in May.

SEIURUS NOVEBORACENSIS NOVEBORACENSIS (Gmelin).

Motacilla noveboracensis Gm. Syst. Nat. 1788. p. 958.

Seiurus noveboracensis Berlepsch & Hartert, p. 10.

Not uncommon. The sight of a "Water-Thrush" daintily bowing from left to right as he wandered along the shore of some stream or pond was as cheering as seeing the face of an old friend from home.

VIREONIDAE—THE VIREOS, PACHYSYLVIAS AND PEPPER-SHRIKES.

Some eight or nine members of this family are to be found in the Orinoco Region, but of this number the writer has collected only four. Berlepsch and Hartert in their paper include seven species of which they had specimens. I am now able to add *Pachysylvia aurantiifrons saturata* of the northern coast of Venezuela and Trinidad, based on specimens from the delta while *P. brunneiceps*, *P. hypoxantha*, *P. semicinerea* *Vireosylva calidris calidris* and *Vireosylva olivacea* enter the region from the upper Orinoco.

KEY TO THE SPECIES AND SUBSPECIES OF VIREONIDAE.

- a. Outermost primary (tenth) obsolete, and wing rather long and pointed.
- b. With a dusky or blackish submalar streak *Vireosylva calidris calidris*.
- b'. Without dusky or blackish submalar streak.
- c. Sides and flanks strongly washed with olive yellow, under tail-coverts sulphur yellow, wing less than 75 *Vireosylva chivi agilis*.
- c'. Sides and flanks only faintly washed with olive yellow, under tail-coverts pale yellowish or white, wing more than 75 *Vireosylva olivacea*.
- a'. Outermost primary (tenth) about half as long as the ninth, and wing short and rounded.
- b. Bill slender and but slightly decurved terminally; wing less than 65 mm. long.
- c. A distinct olive yellow jugular band *Pachysylvia thoracicus griseiventris*.
- c'. Without olive yellow jugular band.
- d. General color of under parts yellow *Pachysylvia aurantiifrons saturata*.
- d'. General color below not yellow.
- e. Forehead, crown and tail strongly rufous *Pachysylvia ferrugineifrons*.
- e'. No rufous on tail.
- f. General color of under parts buffy brownish *Pachysylvia flavipes acuticauda*.

- f'*. Under parts *not* buffy brownish.
- g*. Crown and nape grey in sharp contrast with olive green back..... *Pachysylvia muscipina muscipina*.
- g'*. Crown and nape not grey in sharp contrast with color of back.
- h*. Under tail-coverts greyish white, uniform with centre of abdomen..... *Pachysylvia thoracicus seminereva*.
- h'*. Under tail-coverts pale yellow in contrast with greyish white of centre of abdomen..... *Pachysylvia brunneiceps*.
- b'*. Bill stout and strongly decurved terminally; wing more than 70 mm. in length.
- c*. Throat and fore neck orange-yellow, rest of under parts washed with green..... *Vireolanus leucotis chlorogaster*.
- c'*. Throat and breast lemon or greenish yellow, rest of under parts white or pale buffy white..... *Cyclarhis gujanensis flavipectus*.

VIREOSYLVA CALIDRIS CALIDRIS (Linnaeus).

[*Motacilla*] *calidris* Linnaeus, Syst. Nat., ed. 10, 1758, p. 184 (Jamaica).

In the American Museum collection is a specimen collected at Boca de Sina, Rio Cunucunuma, Upper Orinoco, by Miller and Iglseider.

This species has not previously been recorded from the Orinoco.

VIREOSYLVA CHIVI AGILIS (Lichtenstein).

Sylvia chivi Vieill. Nov. Dict. d'Hist. Nat. XI. 1817. p. 174.

Lanius agilis Lichtenstein, Verz. Doubl. 1823. p. 526.

Vireo chivi Berlepsch & Hartert, p. 13.

Common. A nest containing young was found June 8th, and on June 24 many young were seen. The nest is much like that of the common *V. olivacea* of Eastern North America, suspended between the slender twigs of a small branch, about 2.5 m. from the ground, and measures: outside depth 4.5 cm. inside depth 3.5 cm.; outside diameter about 5.5 cm., inside diameter about 4.5 cm. at the rim, which is slightly contracted. The general outlines of the nest are somewhat irregular, as it conforms more or less to the triangular supports from which it is suspended. The nest walls are frail and composed of soft dry grasses over which there is a veneer of half decayed leaves held in place by spider webs; there is no inner lining.

In my series from the Orinoco there are quite as many birds of this species having the bill blackish as there are those that have the bill brownish horn-color, and there is no appreciable difference in size between them and birds from the island of Trinidad.¹

¹This is entirely at variance with Mr. Hellmayr's conclusions, based on the series in the Tring Museum. Novit. Zool. XIII. 1906. p. 11.

VIREOSYLVA OLIVACEA (Linnaeus).

[*Muscicapa*] *olivacea* Linnaeus Syst. Nat., ed. 12, 1766, p. 327.

This species has not been observed by the writer, but Miller and Iglseider sent to the American Museum two examples from Boca de Sina, Rio Cunucunuma, Upper Orinoco.

PACHYSYLVA THORACICA GRISEIVENTRIS (Berlepsch & Hartert).

Hylophilus thoracicus griseiventris Berlepsch & Hartert. Novit. Zool. XI. 1902. p. 11.

Klages collected the type (male) and a female at Suapure on the Caura River in November, 1899. They were sent to the Tring Museum, as was also a male specimen collected by André at La Pricion on the Caura. The writer did not find this species on the Orinoco proper.

PACHYSYLVA AURANTIIFRONS SATURATA Hellmayr.

Pachysylvia aurantiifrons saturata Hellmayr, Novit. Zool. XIII. 1906. p. 12 (Type, San Antonio, Cumana, Venezuela).

Mr. C. W. Beebe collected specimens of this *Pachysylvia* at Guanoco which agree exactly with Trinidad skins.

PACHYSYLVA FERRUGINEIFRONS (Sclater).

Hylophilus ferrugineifrons Sclater, P. Z. S. 1862. p. 110; Berlepsch & Hartert, p. 12.

In the heavily wooded regions above the falls of the Orinoco this species replaces the abundant *P. flavipes acuticauda* of the middle and lower stretches of the river. Except during the nesting season it associates in small flocks or family parties which frequently join the mixed companies of birds that are so characteristic of tropical forests. This species was also collected on the Caura River at Suapure (Klages) and Nicare and La Pricion (André).

PACHYSYLVA FLAVIPES ACUTICAUDA (Lawrence).

Hylophilus acuticauda Lawr., Proc. Acad. Nat. Sci. Phila. XVII. 1865. p. 37.

Hylophilus flavipes acuticauda Berlepsch & Hartert, p. 12.

Common at Ciudad Bolivar and Caicara.

All specimens procured indicated that the species was brooding in May and June, but I did not succeed in finding either nest or eggs.

In life the eye is drab grey: bill dusky above, pale, below; feet pale flesh color.

PACHYSYLVA MUSCICAPINA MUSCICAPINA (Sclater & Salvin).

Hylophilus muscicapinus Sclater & Salvin, Nomencl. Av. Neotr. 1873. p. 156; Berlepsch & Hartert, p. 12.

This is another species taken on the Caura River by both André and Klages but one that I did not see on the Orinoco proper. Miller and Igleseder have recently taken examples at the foot of Mount Duida.

PACHYSYLVA THORACICUS SEMICINEREA (Sclater & Salvin).

Hylophilus semicinereus Sclater & Salvin, P. Z. S. 1867, p. 570 (Para).

In the Miller and Igleseder collection made near the foot of Mount Duida, Upper Orinoco (Am. Mus. collection), is a single specimen that probably pertains to this race.

This specimen, an apparently adult female, taken Mch. 31st, is *dark citron* green above, the feathers of the crown and nape showing much slate grey basally and centrally (the feathers of the nape and crown might be said to be slate grey heavily bordered with the color of the back): ear-coverts pale brownish drab. Below grey, dark neutral grey on throat and upper breast, pale neutral grey on sides and flanks, centre of breast, abdomen and under tail-coverts very pale grey; sides of neck, throat and breast washed lightly with color of back throat and upper breast faintly washed with buffy. Axillaries, under wing-coverts and narrow inner edges of wing-quills lemon yellow. Wing 56 mm., tail 45 mm.

There is no indication of the olive green jugular band of *P. m. muscicapina*.

PACHYSYLVA BRUNNEICEPS (Sclater).

Hylophilus brunneiceps Scl. P. Z. S. 1866: p. 322 (Barcellos, Rio Negro).

The American Museum collection also contains an example of this rare vireo from San Fernando de Atabapo, Upper Orinoco, collected by Miller and Igleseder.

VIREOLANIUS LEUCOTIS CHLOROGASTER Bonaparte.

Vireolanius chlorogaster Bonap., Compt. Rendus, XXXVIII. 1854. p. 381.

Vireolanius leucotis chlorogaster Berlepsch & Hartert, p. 13.

A single specimen collected by Mr. Klages at Suapure on the Caura River (*l. c.*) was sent to the Tring Museum.

CYCLARHIS GUJANENSIS FLAVIPECTUS Sclater.

Cyclarhis flavipectus Scl., P. Z. S. 1858. p. 448 (Trinidad); Berlepsch & Hartert, p. 13.

Common. In life the eye is tawny ochraceous; bill drab above, plumbeous grey below; feet vinaceous buff.

On my first expedition to the Orinoco I found this species breeding at the end of August. In 1907 I found a nest at La Casabel (near the mouth of the San Feliz on the Cuchivero River) on the 23rd day of May. The nest was situated in a *Chaparo* oak that stood near the edge of an extensive open savanna. It was placed at the extreme tip of a long horizontal limb, about 4.5 m. from the ground, suspended between forked twigs. For a pendant nest it was unusually shallow; the walls thin, and it might be described almost as a net woven between the forks and sagging in the centre. Outwardly it was composed entirely of soft grasses, and there was an inner lining of a very few hair-like vegetable fibres. The attachment to the supporting twigs was slight and frail-looking. The nest walls were so thin and the meshes so open, that the eggs were visible when looking from the ground through the bottom of the nest. The nest cavity is oval in form and measures inside 7.2 by 6 cm., depth 1.6 cm.¹ The eggs, three in number, were fresh. They are ovate in form; white, faintly washed with buffy pink and marked with blotches, spots and tiny dots, varying in color from hazel brown to dark chestnut. The eggs measure 22 x 16.5; 23 x 16.5 and 22.75 x 16.5 mm. respectively. The male was shot as he left the nest; the female was not seen.

HIRUNDINIDAE—THE MARTINS AND SWALLOWS.

Seven species are included in Berlepsch and Hartert's paper on the Birds of the Orinoco Region. The writer secured only five of the species there listed but has since collected another species, one not previously recorded from the region. All but the Barn Swallow are probably resident species and three of the number have been found breeding. *Progne*, *Iridoprocne* and *Diplochelidon*² were the most common, the latter two very abundant.

¹The nest found at Urbana, on the Orinoco, Aug. 28, 1898, measured inside 7 cm., depth 3.5 cm.

²Ridgway, Birds of North and Middle America. III. 1904. p. 27.

KEY TO THE SPECIES AND SUBSPECIES OF HIRUNDINIDAE.

- a. Nostrils rounded, opening upward, and under parts not entirely white; no white spots on inner webs of rectrices.
- b. Size large; wing more than 120 mm.
- c. Chin and upper throat nearly uniform with breast. Entire upper parts, in adults, glossy blue black, in young blackish, washed with glossy steel bluish; lateral rectrices narrowed terminally.
- d. Under parts glossy steel blue like upper parts (adult male), or else feathers of throat and chest edged with paler, giving a squamate appearance (female and young) *Progne subis subis*.
- d'. Under parts not glossy steel blue like upper parts, and throat and chest feathers without prominent paler margins—not squamate. *Progne chalybea chalybea*.
- c'. Chin and upper throat much paler than breast. Upper parts brownish grey with a faint gloss; lateral rectrices more rounded terminally. *Phaeoprogne tapera immaculata*.
- b'. Smaller; wing less than 115 mm.
- c. Tail less than half as long as wing.
- c'. Tail half as long or more than half as long as wing. *Pygochelidon*¹ *cyanoleuca*.²
- d. Under tail-coverts white (with blackish subterminal spots in same) and throat or crown, or both, rufous or tawny.
- e. Both crown and throat tawny or rufous. *Alopochelidon*³ *fucata*⁴
- e'. Throat only, tawny or rufous; outer primary roughened by recurved tips to the barbs (not apparent in young) *Stelgidopteryx ruficollis aequalis*.
- d'. Under tail-coverts black, blackish or brown with slight purplish wash, no rufous or tawny on either throat or crown; tail rather deeply forked.
- e. In adults a blue black band across breast, throat and belly white. *Diplochelidon melanoleuca*.⁵
- e'. Under parts glossy blue-black (like the back) with a band of white across the breast. *Atlicora fasciata*.
- a'. Nostrils longitudinal, opening laterally, at lower edge of nasal fossa; under parts white, or rectrices marked with white spots on inner webs near tips.
- b. Rectrices with white spot on inner webs. *Hirundo erythrogaster*.⁶
- b'. Rectrices not marked with white spots near tips on inner webs *Iridoprocne olbiventer*.

PROGNE SUBIS SUBIS (Linnaeus).

Hirundo subis L., Syst. Nat. ed. 10 I. 1758. p. 192.

Progne subis Berlepsch & Hartert, p. 14.

Not met with on the Orinoco proper but Klages sent examples to the Tring Museum that were collected at Suapure on the Caura River in March and April as recorded by Berlepsch and Hartert.

¹*Pygochelidon*, Baird, Review Am. Birds. 1865. pp. 270, 305, 308 (Type, *Hirundo cyanoleuca* Vieillot).

²While I find no record of this species having been taken in the region under consideration further collecting will doubtless discover it as it has occurred at La Guayra, Venezuela, on the Island of Trinidad and at several points in British Guiana.

³*Alopochelidon*, Ridgway, Birds N. & M. Amer., III. 1904. p. 26 (Type, *Hirundo fucata* Temmnick).

⁴Although this species has not been recorded from the Orinoco, I include it in the key on the strength of its having been taken in the Roraima district in British Guiana.

⁵I have not sufficient material to properly characterize the young of this form, but from specimens before me I am led to think that in juvenal plumage the throat is greyish brown, with the feathers narrowly margined with pale greyish; breast, belly and shorter under-tail coverts white; longer tail coverts brown washed with purplish blue near tips.

⁶This species has been recorded from the island of Curacao, from Barbados, from Trinidad, and from several points in British Guiana, but there are as yet apparently no records for the Orinoco region.

PROGNE CHALYBEA CHALYBEA (Gmelin).

Hirundo chalybea Gm., Syst. Nat. I. 1788. p. 1026.

Progne chalybea Berlepsch & Hartert, p. 14.

Native name *Golondrina*. Common at Altagracia, Caicara and Quiribana de Caicara from December to April. Immature birds were collected at Las Guacas on the San Feliz River (near the Cuchivero River) in May.

Klages collected specimens on the Caura (Am. Mus. Coll.) in July and August.

PHAEOPROGNE¹ TAPERA IMMACULATA Chapman

Hirundo tapera L., Syst. Nat. ed. 12. I. 1766. p. 345.

Progne tapera Berlepsch & Hartert, p. 14.

Phaeoprogne tapera immaculata Chapman. Bull. Am. Mus. Nat. Hist. XXXI. 1912. p. 156 (Type ♂ Chicoral, Tolima, Colombia, in American Museum of Natural History).

A single specimen of this species was collected at Caicara, July 4th, 1898. None were observed on my more recent expeditions.

In the American Museum is a series of ten specimens collected by Klages sent from Suapure and Maripa on the Caura River, and two examples of *Progne chalybea chalybea*, one from La Union and the other from Maripa, indicating that this is the common form on the Caura, while my own experience showed *P. chalybea* to be the common form along the middle stretches of the Orinoco.

The American Museum specimens of *P. tapera immaculata* from the Caura river were collected during April, May and December.

STELGIDOPTERYX RUFICOLLIS AEQUALIS Bangs.

Stelgidopteryx ruficollis aequalis Bangs, Proc. New Engl. Zool. Club. II. 1901. p. 58 (Type, Santa Marta, Colombia).

Stelgidopteryx ruficollis uropygialis Berlepsch & Hartert, p. 15.

Common all along the middle and lower Orinoco throughout the year. Specimens were collected in February, March, May, June and August.

Two specimens in juvenal plumage were taken at Caicara during June. These young birds are interesting in that one does not show

¹*Phaeoprogne*, Baird Review Am. Birds 1865. pp. 272, 283.

a sign of the dusky or blackish spot at the tip of the longer under tail-coverts while in the other there is a small dusky spot near the tip of one web only. The outer web of the outer primaries of these juvenile birds is wider than in adults and the recurved tips to the barbs are scarcely evident. The plumage above resembles that of the adults, but the feathers of the back are narrowly edged with buff. The pale rufous or buffy tips to the greater wing-coverts form a decided band on the wing, and there are broad tips and edgings to the tertials. Below, the breast and sides are washed with pale rufous, paler than that on the throat. The centre of the white belly is washed with pale primrose yellow. An adult male taken at Las Barrancas seems to approach *ruficollis ruficollis* in the less evident paler rump and in the somewhat deeper rufous of the throat.

DIPLOCHELIDON¹, MELANOLEUCA (Wied).

Hirundo melanoleuca Wied, Reise. Bras. I. 1820. p. 342.

Atticora melanoleuca Berlepsch & Hartert, p. 15.

Common along the middle stretches of the river and rarely seen far from the river bank.

In life the eye is blackish; bill and feet black.

I found this species breeding at Caicara during February and March, 1898. The nests were placed far back in crevices between the rocks of a long low rocky peninsula which extends far out into the river, and was less than 2 m. above the surface of the river at that time. During the rainy season it would be many feet submerged. The nests were slight affairs made up of a small quantity of soft dead grasses lined with soft feathers. The eggs are a delicate pure white.

This species played an important part in an interesting spectacle that I witnessed, on the evening of the 19th of July, 1898, half way between Caicara and Altagracia. I had made my canoe fast in a tree top, above one of the many submerged islands that are so common in the Orinoco, at that season of the year. As a storm was gathering and it was near sun-down, we were too far from either shore to attempt to reach solid ground for a camp. But the bird drama I witnessed that evening amply repaid me for the night spent in the tree tops. Just before darkness I noted immense numbers of *Progne chaly-*

¹*Diplochelidon*, Ridgway, Proc. Biol. Soc. Wash., XVI, 1903, p. 106. (Type *Hirundo melanoleuca* Wied.)

bea, *Iridoprocne albiventer*, *Diplochelidon melanoleuca* and perhaps other species, arriving at or above one of the nearby islands of green tree tops, where already there seemed to be tens of thousands of birds wheeling and circling about. The great masses of winged bits of life seemed to be influenced by a single mind, rolling like a wind driven storm cloud, first to one end of the island and then to the other. Now rising high in the air, the next moment dropping almost into the tree-tops, then rising and circling again, the moving mass would resolve itself into a living cone descending rapidly point downward with a roar like a whirlwind. During this movement thousands appeared to drop into the tree-tops, then all orderly formation would be lost and the remaining multitudes returned to the rolling circling mass that marshalled its forces for another plunge toward the tree-tops. Darkness and the black angry clouds of the coming storm hid the last acts of the bird drama and we crept beneath the *carosa*¹ of our dugout canoe, where protected from the storm we were soon lulled to sleep by the rocking of the boat.

ATTICORA FASCIATA (Gmelin).

Hirundo fasciata Gmelin Syst. Nat. I. 1788. p. 1022 (Cayenne).

Atticora fasciata Berlepsch & Hartert, p. 15.

This species was not collected on the Orinoco proper, but examples were sent from the Caura River district to the Tring Museum by Klages (Berlepsch and Hartert); and in the American Museum collection are examples, also collected by Klages, from the Mato River (at its entrance into the Caura), taken in January.

IRIDOPROCNE ALBIVENTER (Boddaert).

Hirundo albiventer Bodd., Tab. Pl. Enl. 1783. p. 32.

Tachycineta albiventer Berlepsch & Hartert, p. 14.

Common along the river, frequenting the localities where there is little current; these birds may be seen sailing tirelessly back and forth close over the surface of the water.

I found this species breeding at Altagracia in February, 1898. Nests were placed over the water in the hollow trunks and branches

¹The roof or cover of the roofed-over part of a river canoe, in form like that of the canvas top of a covered wagon, usually consists of a light frame of bent poles having the two ends securely tied to the opposite edges of the canoe, the hoops being held in position above by other light poles bound on lengthwise of the canoe; this frame work is then thatched commonly with leaves of some species of palm.

of trees that lay as half submerged "snags." In 1907 I took a nest and set of eggs at Agua Salada de Ciudad Bolivar on the 13th of April. The nest was placed in a crevice between two huge boulders on the shore of the river and was about 1.5 m. above the level of the water. It was composed outwardly of fine rootlets and was lined with soft feathers. Five eggs were in the nest; two of them perfectly fresh, two just on the point of hatching, and one blackened in color and with its contents dried down into one end of the egg shell. This last egg was probably from a previous nesting. In color, the eggs are pure white; in form, short ovate, and measure 18 x 13.5; 17.5 x 13.5; 17.25 x 13.5 and 17 x 13.25 mm., respectively.

Both parent birds were present and evinced much solicitude for their home. Both were collected. They are in rather worn plumage with scarcely a trace of the white tips and outer edges to the greater wing coverts, while the white edging to the outer web of the inner secondaries is very narrow. This pair of birds also seem unusually small, the male measuring: wing 98, tail 46 mm.: female, wing 97, tail 47 mm.

COEREBIDAE—THE HONEY-CREEPERS.

Seven species were included in Berlepsch and Hartert's paper, of which number the writer met with only three (*Dacnis cayana cayana*, *Cyanerpes caerulea cherriei* and *Coereba luteola*) on the Orinoco proper. Two additional forms have been recorded from the region since the publication of the above mentioned paper, and it is probable that future collecting will increase the number by four or five more species already recorded from adjoining territory.

KEY TO THE GENERA, SPECIES AND SUBSPECIES OF COEREBIDAE.

- a. Bill abruptly hooked at tip..... *Diglossa*.¹
 a'. Bill not abruptly bent and hooked at tip.
 b. Superciliaries not white nor yellowish white.
 c. Bill longer than tarsus.
 d. Mandible yellow or yellowish..... *Chlorophanes spiza spiza*.
 d'. Bill black (both maxilla and mandible); males rich blue above and below; females green, or greenish, above; paler below and more or less streaked..... *Cyanerpes*.
 e. Adult males, with interscapulum black and throat blue like breast; females and immature males with under wing-coverts and inner edges of wing quills yellow..... *Cyanerpes cyanea cyanea*.

¹The only species of *Diglossa* at all likely to come into the region under consideration would be *D. major* from British Guiana (Roraima).

- e'*. Adult males, interscapulum blue, chin and throat black; females and immature specimens with white, or yellowish white, under wing-coverts and inner edges to wing quills.
- f*. Black of throat not extending on to the chest.
- g*. Larger; wing, 56 to 59 cm.; tail, 28 to 31 cm., and blue of back and head deeper and richer. *Cyanerpes caerulea caerulea*.
- g'*. Smaller; wing, 53 to 55 cm.; tail, 26 to 26.5 cm.; general color a paler blue, the anterior part of crown and cheeks a pale azure blue. *Cyanerpes caerulea cherriei*.¹
- f'*. Black of throat extending on to the chest. *Cyanerpes nitida*.
- d'*. Bill not longer than tarsus. *Dacnis*.
- d*. Males, more or less black about the head (chin, throat lores, etc.); or, nearly uniform dark purplish blue, or bluish grey above.
- e*. Chin and throat black or blackish.
- f*. General color blue. *Dacnis cayana cayana*.
- f'*. General color yellow. *Dacnis flaviventris*.
- e'*. Chin and throat not black or blackish.
- f*. Bright blue below, centre of belly white. *Dacnis angelica*.²
- f'*. Not bright blue below.
- g*. Above dark purplish blue. *Ateleodacnis analis*.³
- g'*. Above blueish grey. *Ateleodacnis bicolor*.
- b'*. Supercillaries white, or yellowish white.
- c*. A white spot at base of primaries. *Coereba luteola*.
- d*. Averaging smaller (wing average 54 mm.) yellow of breast, abdomen and upper tail coverts paler. *Coereba luteola luteola*.
- d'*. Averaging larger (wing 57 mm.) yellow color darker and richer. *Coereba luteola hellmayri*.
- e'*. No white spot at base of primaries. *Coereba guianensis*.

CHLOROPHANES SPIZA SPIZA (Linnaeus).

Motacilla spiza L., Syst. Nat. ed. 10. I. 1758. p. 188. excl. var. β .

Chlorophanes spiza Berlepsch & Hartert, p. 15.

Chlorophanes spiza spiza Hellmayr, Novit. Zool. XIII. 1906. p. 10.

While I have not observed this species either on the middle or on the Upper Orinoco, it has been recorded from Guanoco in the Orinoco Delta by Hellmayr, and Klages sent specimens from Suapure and Nicare on the Caura River to the Tring Museum, as recorded by Berlepsch and Hartert.

CYANERPES CYANEA CYANEA (Linnaeus).

Certhia cyanea L., Syst. Nat. ed. 12. I. 1766. p. 188.

Cyanerpes cyanea cyanea Hellmayr, Novit. Zool. XIII. 1906. p. 10.

This species has been recorded from the Orinoco Delta (Guanoco) by Hellmayr, and Beebe secured specimens at the same locality in April, 1908.

CYANERPES CAERULEA CAERULEA (Linnaeus).

Certhia caerulea L., Syst. Nat. ed. 10. I. 1758, p. 118. (Surinam).

Cyanerpes caerulea caerulea Hellmayr, Novit. Zool. XIII. 1906. p. 8.

Recorded from Guanoco (Orinoco Delta) by Hellmayr.

¹*C. caerulea trinitatis* Bonaparte (Hellm. Novit. Zool. XIII. 1906. p. 8) is believed to be confined to the island of Trinidad. It may, however, occur on the mainland of Venezuela. From *C. c. caerulea* and *c. cherriei* it is distinguished by its larger and (at the base) broader bill; and by the dark blue of the crown being uniform from the forehead to the nape.

²Recorded from British Guiana.

³Recorded from Cayenne.

CYANERPES CAERULEA CHERRIEI Berlepsch & Hartert.

Cyanerpes caerulea cherriei Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 16. (Type, Munduapo, Orinoco River.)

The type and five other individuals were taken at Munduapo, in the heavily forested region above the falls. Neither this nor *Dacnis cayana*, which was also observed above the falls of the Orinoco, were noted on the middle or lower stretches of the river.

CYANERPES NITIDA (Hartlaub).

Coereba nitida Hartl. Rev. Zool. 1847. p. 84; Berlepsch & Hartert, p. 16.

Specimens collected on the Caura River at Suapure by Klages and at Nicare by André were recorded by Berlepsch and Hartert. Not observed on the Orinoco proper.

DACNIS CAYANA CAYANA (Linnaeus).

Motacilla cayana L., Syst. Nat. ed. 12. I. 1766. p. 336.

Dacnis cayana Berlepsch & Hartert, p. 15.

Common at Maipures, at the second falls of the Orinoco. Although not noted by the writer elsewhere on the river, Beebe took specimens at Guanoco in the delta region.

DACNIS FLAVIVENTRIS Lafresnaye & D'Orbigny.

Dacnis flaviventris Lafr. & D'Orb., Mag. de Zool. VII. 1837. p. 21; Berlepsch & Hartert, p. 16.

A single specimen collected at Nicare on the Caura River was sent by André to the Tring Museum and recorded in Berlepsch and Hartert's paper.

DACNIS BICOLOR (Vieillot).

Sylvia bicolor Vieillot, Ois. Amer. Sept. II. 1807. p. 32.

Dacnis bicolor Beebe, Zoologica, N. Y. Zoo. Soc. I. Dec. 1909. p. 102 (Caños an Juan, Guanoco, Orinoco Delta).

This species was not observed by the writer and I believe Mr. Beebe's record is the first and only one for the Orinoco region.

COEREBEA LUTEOLA LUTEOLA (Cabanis).

Certhiola luteola Cabanis, Mus. Hein. I. 1850. p. 96; Berlepsch, Ibis, 1884. p. 432 (Angostura).

Coereba luteola Berlepsch & Hartert, p. 16.

Abundant. This species is found breeding most abundantly throughout the dry season; but, from my observations, I believe that they are to be found nesting during every month of the year. The nests are usually placed in small trees or bushes from 1 to 3.5 m. from the ground, the average height not being over 2 m. A nest taken at Caicara, June 27th was about 2 m. between upright forks, in the top of a bush. It is globular in form, about 12 cm. in diameter with a small round entrance at nearly the centre on one side. The materials used in construction are rather coarse and consist of dead grasses, leaves, weed stems, strips of fibrous bark and pieces torn from banana leaves. There is a lining of fine soft dead grass. The three eggs found in this nest are ovate in form and measure 15.75×11.75 and 15.5×11.75 mm.

On April 9, 1907, a nest and set of two badly incubated eggs were taken at nearly the same spot where those described above were found. This nest was about 2.4 m. from the ground. The eggs are less thickly marked, although the individual markings seem larger. In one they are pretty evenly scattered over the entire surface of the egg, being massed together only in a comparatively small area about the larger end. In the other egg the markings over the general surface are tiny dots, but there is a band of color just at the point of greatest diameter. The form is ovate, and they measure 16.75×12.75 and 17×12.5 mm. respectively.

Another nest that was collected is very compactly built, composed almost exclusively of very fine vegetable fiber woven into spherical shape, and was securely placed between the upright forks of one of the branches of a low shrub about 1 m. from the ground.

Nests of this species, collectively, show considerable individual taste in the selection of nesting material, and the finished nests indicate that some birds are far more expert builders than others, their finished work being compact and symmetrical, while that of others has a slovenly, ragged appearance.

COEREBALUTEOLA HELLMAYRI Riley.

C[oeereba] trinitatis Lowe, Ibis. 1907. p. 566 (Trinidad).

Coereba luteola hellmayri Riley, Proc. Biol. Soc. Wash. XXIII: 1910: p. 100.

This race is included in our list based on specimens from the Paria Peninsula (Cristobol, Colon) in the American Museum collection which compared with Trinidad examples seem identical. Thus the range of this race is extended to the mainland.

COEREBÀ GUIANENSIS (Cabanis).

Certhiola guianensis Cab., Mus. Hein. I. 1850. p. 97.

Coereba guianensis Berlepsch & Hartert, p. 17.

Klages sent specimens to the Tring Museum that were collected at Suapure on the Caura River; and there is a typical example in the American Museum collection, sent by the same collector from Ciudad Bolivar. So that *C. l. lutcola* and *C. guianensis* are found together at that point.

TANGARIDAE—EUPHONIAS AND TANAGERS.

Eighteen species and subspecies were collected by the writer on the middle and upper Orinoco, in the immediate vicinity of the river, which together with twelve additional species taken at various points on the Caura River formed the list of thirty included in Berlepsch and Hartert's paper.

Probably all, excepting *Piranga rubra*, are resident species, although the number of species or the number of individuals that may be found in any particular locality at any given season is influenced largely by the ripening of the various fruits that constitute their chief food.

KEY TO THE GENERA, SPECIES AND SUBSPECIES OF TANGARIDAE.

- a. Middle of belly and general color of under parts yellow, yellowish or rufous orange (not ochraceous nor buff) the throat and upper breast and the sides and flanks may or may not be uniform with the belly.
- b. No blue or black markings on sides or flanks.
- c. Throat black, blue-black or purplish black.
- d. No yellow or yellowish markings on the head (male) *Tanagra*¹ *rufiventris*.
- d'. Forehead and more or less of crown yellow or yellowish.
- e. Under tail coverts white *Tanagra olivacea olivacea*.
- e'. Under tail coverts yellow or yellowish white.
- f. Under parts dark chrome yellow; yellow crown patch extending little, if any, back of eye and truncated, rather than rounded in outline; back and nape with a decided violaceous gloss *Tanagra chlorotica aurea*.
- f'. Under parts pale orange-yellow; yellow crown patch extending back of eye and posterior outline convex rather than truncated; back and nape with a decided steel blue gloss *Tanagra trinitatis*.
- c'. Throat not black; blue-black, or violaceous black.
- d. Upper parts olive or olive-greenish (and crown not blue).
- e. Crissum rufous-orange (female) *Tanagra rufiventris*.
- e'. Crissum, orange-yellowish, yellow, yellowish or yellowish white.
- f. Wing less than 60 mm. (females) *Tanagra* { *chlorotica aurea*.
trinitatis.
olivacea olivacea.
violacea lichten-
sleini.
melanura.
- f'. Wing not less than 60 mm. (females) *Tanagra* { *chlorotica aurea*.
trinitatis.
olivacea olivacea.
violacea lichten-
sleini.
melanura.
- d'. Upper parts black with violaceous or steel blue gloss.
- e. Outer tail-feathers marked with white on inner webs *Tanagra violacea lichten-*
sleini.
- e'. No white markings on inner webs of outer tail-feathers *Tanagra melanura*.
- b'. Sides and flanks blue flecked with black.
- c. Middle of breast and abdomen pale sulphur yellow; shoulder patch of caerulean rather than greenish blue (Upper Orinoco and Upper Caura river region) *Tanagra mexicana media*.

¹The characters here employed to distinguish the various species of *Tanagra* apply, with rare exceptions, to the males only.

- c'*. Middle of breast and abdomen bright yellow, and shoulder patches greenish blue (Trinidad and Eastern Coast district of Venezuela) *Tangara mexicana vieilloti*.
- a'*. General color of under parts not yellow or if middle of belly is yellow it is in combination with decidedly green breast and sides.
- b*. General color of under parts olive green (with or without purplish gloss), blue, grey, pale grey or white, and without a dark breast band.
- c*. Throat black, blackish, purple or yellow (in adults).
- d*. Throat yellow (males).
- e*. Above dull sooty black; lower back bright yellow *Hemithraupis flavicollis auricularis*¹.
- e'*. Above cinereous; head and neck orange red *Thlypopsis sordida sordida*.
- d'*. Throat black, blackish or purple.
- e*. Crissum black *Tangara paradisea*.
- e'*. Crissum, not black.
- f*. Tail long and graduated, feathers tipped with white *Cissopis leveriana*.
- f'*. Tail feathers not white tipped *Schistochlamys aetrima*.
- c'*. Throat not black, blackish nor yellow *Tanagrella iridina*.
- d*. Middle of belly chestnut
- d'*. Middle of belly not chestnut.
- e*. Above olive green.
- f*. Crown bright blue *Sporathraupis cyanocephala subcinerea*.
- f'*. Crown olive green *Thraupis* { *palmarum melanoptera*.
palmarum palmarum.
- e'*. Not olive green above.
- f*. Under parts pale greyish or whitish and wing not over 80 mm. (male, cap black; female, nearly uniform cinereous grey above).
- f'*. Wing more than 80 mm.
- g*. Under tail coverts (crissum) white or pale bluish white *Nemosia pileata*.
- g'*. Under tail coverts not white nor pale bluish-white.
- h*. Lesser wing coverts violaceous or violet (and the under parts in adult plumage glossed with greater or lesser intensity with violet) *Thraupis glaucocolpa*.
- h'*. Lesser wing coverts blue and under parts with a greenish rather than a violet or bluish gloss *Thraupis episcopus nesophilus*.
- b'*. General color of under parts not olive-green, blue, grey, pale grey nor white or else with a distinct dark breast band.
- c*. Above and below bright vermillion *Piranga rubra rubra*.
- c'*. Not bright vermillion.
- d*. A distinct blackish band across breast *Tangara nigrocincla*.
- d'*. No dark breast band.
- e*. General color of under parts green.
- f*. Head chestnut brown and middle of belly blue or green *Tangara gyrola*.
- g*. Bend of wing golden yellow *Tangara desmaresti*.
- g'*. Bend of wing uniform with remaining upper surface *Tangara xanthogastra*.
- f'*. Head green, feathers black at base; middle of belly yellow
- e'*. General color of under parts not green.
- f*. Outer edges of wing-quills greenish blue or bluish green *Tangara cayana*.
- f'*. Outer edges of wing-quills not greenish nor bluish.
- g*. Mandible enlarged and swollen at base; breast dark maroon (male).
- h*. Back and belly black (males); females, above dusky seal brown *Ramphocelus atrosericeus capitalis*.
- h'*. Upper parts velvety blackish maroon glossed with crimson (males); females, above dark mummy brown.
- i*. Larger; wing 80 mm. or more *Ramphocelus carbo magnirostris*.
- i'*. Smaller; wing less than 80 mm *Ramphocelus carbo carbo*.
- g'*. Mandible not noticeably enlarged and swollen at base.
- h*. With a well marked median vertical crest (males).
- i*. Median crest bright scarlet *Phoenicolhraupis rubica rubica*.
- i'*. Median crest not scarlet.
- j*. With an ochraceous or buffy throat spot.
- k*. Crest small, bright orange red bordered with creamy buff *Tachyphonus cristatus cristatellus*.
- k'*. Crest larger, orange yellow narrowly bordered with creamy buff *Tachyphonus cristatus intercedens*.
- j'*. No gular spot; throat uniform with breast (male) *Tachyphonus surinamus surinamus*.
- h'*. Without elongated median vertical crest.

¹See American Museum Bull.

- i. Black above and below, with white under wing-coverts and shoulder patch.
- j. Larger; wing more than 75 mm. (males)..... *Tachyphonus rufus.*
- j'. Smaller; wing less than 75 mm. (males)..... *Tachyphonus luctuosus.*
- i'. General color above and below not black.
- j. Pileum (but not sides of head) dark grey with a more or less concealed olive green crown patch (female).... *Tachyphonus surinamus surinamus.*
- j'. Pileum not dark grey.
- k. Smaller; wing not over 65 mm. (female)..... *Tachyphonus luctuosus.*
- k'. Larger; wing over 65 mm. (females)..... *Tachyphonus rufus.*
- l. Above plain rufous chestnut..... *Tachyphonus rufus.*
- l'. Above bright olive brown; bases of crown feathers bright buffy or yellowish olive forming a more or less concealed crown spot..... *Phoenicothera rubica rubica.*

TANAGRA CHLOROTICA Linnaeus.

Tanagra chlorotica L., Syst. Nat. ed. 12. I. 1766. p. 317.

Euphonia chlorotica Berlepsch & Hartert, p. 17.

During the first expedition to the Orinoco, a series of *Euphonia* from Altagracia, Caicara, Quiribana de Caicara and Maipures were sent to the Tring Museum and identified by Berlepsch and Hartert, as pertaining to this species. At that time I seemed to have observed many more examples of this species than I did of *E. trinitatis*, but during the two last expeditions specimens of the latter species only have been collected.

No specimens of this species were found among the birds sent to the American Museum by Klages either from the neighborhood of Ciudad Bolivar or from points on the Caura River.

TANAGRA TRINITATIS (Strickland).

Euphonia trinitatis Strickl., Contr. Orn. 1851. p. 72; Berlepsch & Hartert. p. 17.

Venezuelan common name "*Fin-fin*" or "*Sin-fin*." On the recent expeditions I found this species common.

A female in adult nuptial plumage (taken June 14th) is a rich olive-green above, below, chrome yellow with sides of breast and flanks a deep olive yellow. Females in what is probably the first nuptial plumage are quite different from those in adult plumage and resemble greatly birds in juvenal dress. A female in what I consider the first nuptial plumage, taken April 17th, is greyish olive-green above; below, the throat, sides, flanks and under tail-coverts are olive yellow brightest on the under tail-coverts, centre of breast greyish, centre of abdomen greyish white.

A male in juvenal plumage, taken May 30th is greyish olive-green above (of a lighter shade than the female of May 10th); below, breast greyish, abdomen white, sides of breast light greyish olive;

throat, flanks and under tail-coverts light citron yellow, palest on the throat. Females in juvenal plumage resemble males in the same plumage.¹

The colors from an adult male taken June 28th were: eye seal; bill, above black, below plumbeous; feet slate grey. A male just assuming the adult phase had the bill above slate black, below slate grey with blackish tip.

In the series in the Brooklyn Museum and the Klages specimens in the American Museum the yellow on the crown is about intermediate in amount between that on the crown of *E. chlorotica violaceicollis* from Chapado Matto Grosso,² and *E. trinitatis*³ from Bonda, Santa Marta, Colombia. The Santa Marta birds probably represent a distinct race.

In the American Museum collection are specimens, sent by Klages, collected on the Caura River, during September and December, and from Ciudad Bolivar on the Orinoco collected in December. My own notes show that specimens were collected at various points on the Orinoco from March to August inclusive.

A nest and set of three fresh eggs together with the mother bird was collected at Agua Salada de Ciudad Bolivar April 17, 1907. The nesting site was a *Chaparo* oak in the midst of a savanna that was dotted thinly with trees. The nest was located near the tip of a long horizontal branch and only about 1.4 m. from the ground. In shape it is a flattened ball and is constructed entirely of dry grasses, of medium texture loosely woven into shape and is without other lining. The entrance is a round hole in the middle of one side. The nest rested on the main branch and two small horizontal twigs that proceed from opposite sides of the main branch, the result being a cross-shaped support. It was not tied in any way to the supporting branches and certainly gave one the impression that it was very insecure. My thought at the time of finding it was that with the first puff of wind it would go tumbling to the ground. The measurements are: horizontal diameter about 15 cm., vertical diameter about 10 cm.; the entrance hole is 3.5 cm. in diameter. The eggs are from ovate to medium short-ovate in form. They measure 15.5 x 12.25; 17.75 x 12

¹An examination of the specimens of *Tanagra* in the collections of the American Museum and the Brooklyn Museum, together with a consideration of my field notes and observations convinces me that our greatest advance in knowledge of the specific character of the various members of the group will result from a careful, systematic study of age and seasonal plumages correlated with field observations.

²Am. Mus. Coll.

³Idem.

and 16.5 x 12.5 mm. They are white with brown markings varying in color from a light hazel to a dark chestnut. In two of the eggs the markings consisting of small specks and dots are quite uniformly and thickly distributed over the entire surface of the egg; in the third egg of the set the markings are much fewer in number, average much larger in size, and are thickly massed about the larger end.

TANAGRA OLIVACEA OLIVACEA (Desmarest).

Euphonia trinitatis Strickl., Contr. Orn. 1851. p. 72; Berlepsch & Hartert. p. 17.

Reported from Nicare, on the Caura River by Berlepsch and Hartert.

TANAGRA VIOLACEA (Linnaeus).

Fringilla violacea L., Syst. Nat. ed. 10. I. 1758. p. 182.

Euphonia violacea Berlepsch & Hartert, p. 18.

Specimens collected on the Caura River at Saupure, La Pricion and La Union were sent to the Tring Museum by André and by Klages.

In the American Museum are Klages specimens collected on the Caura River at El Llagual in March, Suapure in April, Maripa in May and at La Union in October.

TANAGRA MELANURA (Sclater).

Euphonia melanura Scl., Contr. Orn. 1851. p. 86; Berlepsch & Hartert, p. 18.

Two specimens, male and female, taken at Maipures, December 17, 1898.

TANAGRA RUFIVENTRIS Vieillot.

Tanagra rufiventris Vieill., Nouv. Dict. XXXIII. 1819. p. 426.

Euphonia rufiventris Berlepsch & Hartert, p. 18.

Collected about Manduapo in February, 1899. Not common.

TANAGRA CHRYSOPASTA (Sclater & Salvin).

Euphonia chrysopasta Scl. & Salv., P. Z. S. 1869. p. 438; Berlepsch & Hartert, p. 18.

This was the common form of *Tanagra* above the falls of the river while *T. trinitatis* was the common species along the middle part of the river.

TANAGRELLA IRIDINA (Hartlaub).

Tanagra iridina Hartl., Rev. Zool. 1841. p. 305.

Tanagrella iridina Berlepsch & Hartert, p. 18.

Berlepsch and Hartert report a single specimen, a male, collected at Suapure on the Caura River and sent by Klages to the Tring Museum, and there is an adult mâle from La Union on the Caura River in the American Museum collection that was collected by Klages October 10th. This specimen agrees exactly with one from Bogota in the same collection.

TANGARA PARADISEA (Swainson).

Aglaiia paradisea Swains., Class. Birds, II. 1837. p. 286.

Calliste paradisea Berlepsch & Hartert, p. 18.

Collected on the Caura River at Suapure by Klages and at Nicare by André, and recorded in the Berlepsch and Hartert paper.

TANGARA XANTHOGASTRA (Sclater).

Calliste xanthogastra Scl., Contr. Orn. 1851. pp. 23, 55; Berlepsch & Hartert, p. 19.

Berlepsch and Hartert report this species as also taken on the Caura at Nicare by André.

TANGARA CAYANA CAYANA (Linnaeus).

Tanagra cayana L., Syst. Nat. ed. 12. I. 1766. p. 315.

Calliste cayana Berlepsch & Hartert, p. 19.

This is the most abundant species of this group of Tanagers to be found along the Orinoco. Specimens were collected at many points from Ciudad Bolivar up to above the falls of Maipures; Klages collected a series at Maripa on the Caura River during December, February, April and May.¹

In life the eye is dark sepia brown; bill blackish above and slate color below; feet light slate color. Adult birds of this species if held between the observer and the light, on a level or slightly below the level of the eye, appear a beautiful iridescent golden bronze both above and below.

¹Am. Mus. Coll.

The nesting season on the Upper Orinoco begins in December, while on the middle stretches of the river from Caicara downward, breeding does not begin before the first of April.

A nest of this species taken at Quiribana de Caicara April 9th, was taken from the branches of one of the small scrub oaks that grow scattered over the open savanna. It was about 2.4 m. from the ground amid a cluster of small branches, and admirably concealed by green leaves from above and on the sides. The outer walls of the nest were constructed almost entirely of leaf stems; the lining consisted of very fine, hair-like grass and rootlets together with a few bits of greenish-white lichens. There were two eggs, both incubated, only one of which was saved. In color this was a "whitish-brown," finely speckled all over, but more thickly on the larger end, with rufous brown. It measured 20 x 15.1 mm.

A nest collected at Maipures on the 9th of January, was held between the slender tips of the upright branches of a dwarf scrub oak, which had found a scanty foothold between rocks near the river bank. It was only about 1.5 metres from the ground, was similar in construction to the nest described above, but had a number of half decayed leaves woven into the body of the nest, all bound together with cobwebs. This nest measures, outside 8.2 cm. diameter by 6.5 cm. depth; inside 5 cm. diameter by 3.4 cm. depth. In the black hair-like vegetable fibres of the inner lining are several bits of greenish-white lichens. The two eggs are ovate in form and measure 20 x 15.2 mm. In color they are a soiled white, thickly marked all over with fine specks and dots of a shade of brown between vandyke and chestnut which are so closely set about the larger end as to form a band. In one egg the specks and spots are much larger and more prominent than in the other. Not more than two eggs were found in each of more than a dozen nests examined, so that two is probably a normal clutch.

TANGARA MEXICANA MEDIA (Berlepsch & Hartert).

Calliste mexicana media Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 19. (Type, Tring Museum, Maipures, Orinoco River.)

This form of *Tangara* which is intermediate in coloration between *T. mexicana mexicana* from Cayenne and *T. mexicana vieilloti* of Trinidad and the delta region of the Orinoco, was common at Perico, at the foot of the falls of Atures, and as far beyond as I collected on the upper Orinoco. It is often mentioned in my notes.

from September to February. Not observed on the lower Orinoco, but Klages sent specimens from La Union and Suapure on the Caura River to the American Museum.

TANGARA MEXICANA VIEILLOTI (Sclater).

Calliste vieilloti Scl., P. Z. S. 1856. p. 257.

Beebe secured specimens at Guanoco in the Orinoco Delta that agreed exactly with examples from Trinidad. There is a long stretch of country between the heavily timbered country above the falls and the equally heavily wooded region of the delta where no forms of *T. mexicana* seem to be found.

TANGARA NIGROCINCTA (Bonaparte).

Aglaiia nigrocincta Bonap., P. Z. S. 1837. p. 121.

Calliste nigrocincta Berlepsch & Hartert, p. 20.

The Tring Museum received specimens from Suapure and Nicare on the Caura River, and it is reported by Berlepsch and Hartert.

Thraupis episcopus nesophilus Riley, Proc. Biol. Soc. Wash. XXV. 1912. 185.

THRAUPIS EPISCOPUS NESOPHILUS (Riley).

Tanagra cana Berlepsch & Hartert, p. 20, not Swainson.

Native name *Azulejo*. Abundant. Found in all sorts of localities but not common in heavy timber.

The colors of fresh birds are: eye brown; bill blackish above, slate below; feet slate color.

On my first expedition to the Orinoco I took a nest and set of eggs of this species, on April 13, 1898. This nest was in a small scrub oak, about 6 m. from the ground. It was surrounded by a tangle of small twigs, and almost completely concealed by green leaves. The parent birds were very shy. The nest was thick-walled, outwardly composed chiefly of leaf stems, and lined with fine vegetable fibers and rootlets. The nest contained two eggs, both much incubated, only one of which was preserved. The egg is of a "dirty flesh-color, all over thickly covered with liver-brown and underlying pale purplish grey spots and patches, and measures 23.1 x 16.8 mm."¹

¹Berlepsch & Hartert, p. 20, through some error, insert the description of this nest and set of eggs under the head of *T. palmarum melanoptera*.

Four sets of eggs were taken in 1907, all showing a very considerable amount of variation in the shade of color and the amount and size of the markings.

One set taken at Caicara on the 7th of May, contained two fresh eggs. In the nest was also one egg of the Venezuelan Cow-bird, *Molothrus bonariensis venezuelensis*. The two eggs of *T. episcopus nesophilus* are ovate in form and measure 21.75 x 16.5 mm. and 22 x 15.75 mm. respectively. In one the ground color is dirty white with just a shade of bluish green rather thickly marked with dots, spots and blotches of pale ecru drab, underlying spots and blotches of blackish clove brown; the general ground color of the other egg is darker, the underlying markings are larger, brownish drab in color, forming a nearly solid mass of color about the larger end, and the superimposed blotches are a dark vandyke brown. The nest taken with this set of eggs is similar to that described above, a compactly woven, thick-walled cup composed largely of leaf stems and a few dead leaves held in place by a small quantity of spider webs. The nest lining was composed of small pieces and short strips of some soft thin bark beneath a few pieces of fine dead grasses. The nest measures: outside, 10 cm. in diameter by 6.5 cm. in depth; inside, 6 cm. in diameter by 4 cm. in depth. It is loosely, and it would seem, most insecurely set at the intersection of a small twig, with a larger horizontal branch, the union forming a V-shaped support for the nest.

A nest containing one fresh egg was found near the same point May 8th. It was placed between the forks of three large limbs which sprang from the same point, two branching almost horizontally and one rising at an angle of about 45° from the horizontal. The nest rested at the base of the angle between the two horizontal limbs which concealed it from below, while the third limb extending out over the nest concealed it from above. In the same tree with this nest, and none more than 3 m. from it were nests of *Myiozetetes texensis columbianus*, *Pitangus sulphuratus rufipennis* and *Icterus xanthornus*, all occupied. The single egg found in this nest is ovate and measures 24.5 x 18.5 mm. The ground color is similar to that of those last described; the markings vary from a mars brown to a dark vandyke, and consist of dots and spots thickly spread over the entire surface, and especially about the larger end.

A nest found May 10th, also at Caicara, contained two badly incubated eggs. This nest was about 4.57 m. from the ground in a *guamal*

oak. One of the eggs was broken in removing the embryo. The single specimen preserved is ovate in form and measures 22.5 x 16.75 mm. The ground color of this egg is uniform with the two last described, but the general color of the egg surface is considerably lighter owing to the sharp outlines of the small spots, which are thickly scattered over the entire surface, especially about the larger end, and which vary in color from drab to clove brown.

A fourth set of two fresh eggs, taken May 21, 1907, on the San Feliz River near its junction with the Cuchivero River, are so heavily marked as to almost completely hide the dirty white ground. In one of the eggs the markings of brown, from a bistre to a vandyke, blend into and overlap one another over the entire surface of the egg. The other egg differs only in having a few superimposed dots, spots and blotches of dark clove brown scattered irregularly over the egg surface. These eggs are ovate in form and measure 22.25 x 17.25 and 22.25 x 17.5 mm. In the same tree with the nest from which these eggs were taken, and not 2 m. from it, was an occupied nest of *Tyrannus melancholicus*.

From my observations and the material secured we may conclude that normally this species lays two eggs, and that the nesting season lasts from April to June in the middle Orinoco region. Nests are placed from 1.5 to 6 m. from the ground, favorite nesting sites being in the guamal or scrub oaks that sparsely dot much of the savanna country, and frequently in trees occupied by nests of other birds.

This form of the Blue Tanager is found throughout the delta region along the middle Orinoco and up beyond the falls of Atures and Maipures, where it is found in company with and is gradually replaced by *T. episcopus episcopus*.

The American Museum has specimens from Maripa, on the Caura River, collected in February, April, May and December, and from Ciudad Bolivar on the Orinoco collected in June, July and December. One of the December birds from Ciudad Bolivar, in the paleness of the blue shoulder patch, approaches *T. episcopus episcopus*. There is a wide variation in the intensity of the coloring of the blue shoulder patch which is due largely, if not entirely, to age. However, the same might be said regarding the general coloring.

Birds in *juvenal plumage* are greenish grey, heavily washed on the back with sage green, below much paler and only faintly washed with a slightly yellowish green. Median and lesser coverts like the back;

greater coverts dusky blackish edged with glaucous green; remiges black, broadly edged on outer webs, on tertials and secondaries with glaucous green which changes to a beryl green on primaries. Centre pair of tail feathers bice green, brightest on outer webs, remaining rectrices with outer webs bice green, inner webs blackish.

First nuptial plumage. Above and below greenish grey; back and scapulars heavily washed with bice green; rump a bluish beryl green; head and neck all around, and under parts washed with glaucous green. Median and lesser wing coverts nearly a cobalt blue; greater coverts and outer webs of remiges dark bice green with the extreme outer edges between a glaucous and beryl green; inner webs of wing quills black. Tail above dusky with greenish wash; outer webs of rectrices edged with beryl green. Under surface of tail greyish blue or greenish, varying in color when seen at different angles.

Adult nuptial plumage. Similar to the first nuptial, but with the glaucous green wash of the under parts replaced by a decided violet or bluish wash; the greater wing coverts and remiges with edges of outer webs bright Nile blue, and the median and lesser wing coverts nearer an azure than a cobalt blue. Only about ten per cent. of the specimens collected will be in adult nuptial plumage.

THRAUPIS CANA CANA Swainson.

T[anagra] cana Sw. Ornith. Drawings, Pl. XXXVII. 1836.

This is found with *T. e. nesophilus* on the upper Orinoco from above the falls, and is there the more common of the two forms.

THRAUPIS PALMARUM MELANOPTERA (Sclater).

Tanagra melanoptera Scl., P. Z. S. 1856. p. 235.

Tanagra palmarum melanoptera Berlepsch & Hartert, p. 20.

The *Azulejo ordinario* as this species is known to the Venezuelans is equally common and often in company with *T. e. nesophilus*.

In fresh birds the eye is seal brown; bill black; feet slate grey.

Specimens from above the falls of Atures¹ are heavily washed with violet both above and below, and the tarsus averages shorter than in specimens from Trinidad and points on the middle and lower Orinoco. In the American Museum are specimens collected by Klages at Ciudad Bolivar, in June, July, August and December, and at Maripa on the Caura River in May.

¹ Four specimens, two males and two females examined, collected in December, January and March.

RAMPHOCELUS CARBO CARBO (Pallas).

Lanius carbo Pallas in Vroeg. Cat. rais. d'Oiseaux, Adumbrat p. 2
(1764—Surinam).¹

Ramphocelus jacapa auct.; Berlepsch & Hartert, p. 20.

Typical *R. carbo* is abundant in the heavily wooded region above the falls of Atures, and may be occasionally found as far down the Orinoco as the mouth of the Apure River and Caicara; but from that point until one arrives at the tangled jungle of the upper part of the delta region where *R. carbo magnirostris* and *R. atrosericeus capitalis* abound, these tanagers are conspicuous by their absence.

Females. Above dark mummy brown, rich burnt umber on lower rump and upper tail coverts; wings and tail blackish brown; below chestnut shaded with dusky on breast; chin and throat drab.

Males in juvenal plumage. Resemble the female, but have the rump nearly a brick red, while on the throat there is a strong vinaceous wash. In the American Museum are specimens collected by Klages at Suapure and Maripa on the Caura River. They represent adults of both sexes collected during the months of May, September and November.

RAMPHOCELUS CARBO MAGNIROSTRIS Lafresnaye.

Ramphocelus magnirostris Lafresnaye, Rev. Zool. 1853. p. 243.

Ramphocelus jacapa magnirostris Hellmayr, Novit. Zool. XIII. 1906.
p. 15 (Guanoco, Orinoco Delta).

Hellmayr records specimens of this species from Guanoco in the Orinoco delta, and I have examined specimens collected at the same point by Mr. C. Wm. Beebe that agree exactly with specimens from Trinidad.

RAMPHOCELUS ATROSERICEUS CAPITALIS Allen.

Ramphocelus atrosericeus capitalis Allen, Bull. Am. Mus. IV. 1892. p. 51
(El Pilar near Cumana, Venezuela).

Five specimens collected by the writer at Las Barrancas have been compared with the type in the American Museum collection and found to agree exactly.

¹Hellmayr, Novit. Zool. XIII. 1906. p. 357.

Contrary to Mr. Hellmayr's conclusions based on material from Guanoco¹ I do not consider *R. a. capitalis* a synonym of *magnirostris* but a well marked race of *atrosericeus* and very readily distinguishable from the former. Of the specimens secured two are adult males, one a male in juvenal plumage, and two (probably) adult females.

The females are almost as easily distinguished from the females of *R. c. magnirostris* as are the males one from another.

Adult female. Above dusky seal brown; wings and tail more blackish; rump washed with bright chestnut; faintly vinaceous on forehead. Below, throat and upper breast bright bay, blending gradually into bright chestnut with a faint wash of dragon's blood red on belly and sides.

Immature male. A specimen taken July 31st is in transitional plumage from juvenal plumage to what would correspond to the first winter plumage of our northern Passeres. Above its head is dusky brownish black; back bright reddish chestnut, produced by the broad edges and tips to black feathers; rump bright reddish chestnut; wings and tail brownish black; lesser, median and greater coverts narrowly tipped and edged with chestnut; wing quills edged with chestnut on outer webs; below, throat dusky brownish; remaining under parts bright chestnut, washed with rufous on sides and flanks. Bill, in life, dusky slate; feet dusky slate.

PIRANGA RUBRA RUBRA (Linnaeus).

Fringilla rubra L., Syst. Nat. ed. 10. I. 1758. p. 181.

Piranga rubra Berlepsch & Hartert, p. 21.

Not observed on the middle or lower river, but noted on the upper Orinoco at Maipures from November to February during my first expedition.

This is the only species of tanager observed in the Valley of the Orinoco that is not resident there.

PHOENICOTHRAUPIS RUBICA RUBICA (Vieillot).

Saltator rubicus Vieill. Nouv. Dict. XIV. 1817. p. 107.

Beebe secured an example of this species at Guanoco. It had not been previously recorded from the Orinoco.

¹Novit. Zool. XIII. 1906. p. 15.

TACHYPHONUS RUFUS (Boddaert).

Tanagra rufa Bodd., Tabl. Pl. Enl. 1783. p. 44.

Tachyphonus rufus Berlepsch & Hartert, p. 21.

Not uncommon, but usually a shy bird; found both in the open thinly timbered borders of the savannas, and in densely timbered regions.

The eye is seal brown; maxilla black, mandible plumbeous with a blackish tip; feet black.

A female, apparently adult, taken June 10th has a number of *black* feathers on the right side of the face, neck and breast.

The nesting season extends from March to May. Nests are usually from 0.6 to 1.5 m. from the ground, placed in clumps of low trees or bushes in the sparsely wooded savanna regions. Two eggs constitute a full set.

A nest with two slightly incubated eggs was taken at Caicara April 7th, 1907. It was only about 60 cm. from the ground in a clump of thorny palm stems. Outwardly, the nest is composed of coarse, short pieces and strips of soft inner bark from the rotting stubs of some nearby trees, short strips torn from dead banana leaves, and a few weed stems. Inside there is a thin lining of plant tendrils and fine, black horse-hair-like vegetable fibers. The nest measures: outside, 14 cm. in diameter by 7 cm. in depth; inside, 7 cm. diameter by 4.5 cm. in depth.¹ The eggs are ovate in form, and measure 17.25 x 22.25 and 17 x 22.25 mm. respectively. One is white with a faint greyish wash, the other has a mere suggestion of rufous in the ground color. The markings are comparatively few, scattered chiefly about the larger end, and consist of irregularly rounded spots and dots of dark clove brown overlying similar spots of pale lavender. Many of the larger clove brown spots are surrounded by rufous as though the color had spread or "washed."

In the American Museum collection is a male collected by Klages at Ciudad Bolivar that is just finishing the moult assuming the black plumage of the adult, but shows a few brown feathers scattered through the plumage; one outer rectrix is black at the base and brown at the tip.

¹A nest of this species taken on the heights of Aripo, Trinidad, March 24, 1907, has been already described by the writer (Sci. Bull. I, p. 359). Only one of the eggs of the set contained in that nest was saved; that is ovate in form and measures 24.5 x 18.5 mm. It is white with a faint russet wash, marked with a few irregular spots and small dots of a blackish clove brown; there are also indications of a few underlying lavender markings.

TACHYPHONUS LUCTUOSUS Lafresnaye & D'Orbigny.

Tachyphonus luctuosus Lafr. & D'Orb., Syn. Av. in Mag. Zool. VII. 1837. p. 29; Berlepsch & Hartert, p. 21.

This species was not seen on the Orinoco proper, but Beebe took specimens at Guanoco in the delta region and I collected a single example May 26, 1907, at La Cascabel on the river San Feliz near its junction with the Cuchivero River.

The Tring Museum received specimens from Suapure, La Pricion, Nicare and La Union on the Caura River.

In the American Museum collection are specimens collected on the Caura River by Klages at El Llagual in March, Suapure in January and La Union in October.

In the La Cascabel specimen, an adult male, the eye was seal brown; bill above black, sides of mandible slate grey, center of ridge of gonys black; feet slate grey.

TACHYPHONUS CRISTATUS CRISTATELLUS Sclater.

Tachyphonus cristatellus Sclater. Cat. Am. Birds. 1867. p. 86 (Type, Bogota).

Tachyphonus cristatus Berlepsch & Hartert, p. 22.

Tachyphonus cristatus cristatellus Hellmayr, Novit. Zool. XII. 1905. p. 275.

The Tring Museum received specimens collected on the Caura River from both André and Klages; and in the American Museum collection is a series collected by Klages at Suapure, and at La Union on the Caura River during the months of September, October and February. This series includes both males and females in adult plumage, and immature specimens in transitional plumage. A "female" taken at Suapure, September 10th, is brownish olive above, washed with russet especially posteriorly, the rump being nearly pure russet; forehead and sides of crown greyish olive, centre of crown russet; wings and tail blackish; quills edged with mummy brown; sides of face olive but feathers of lores and auriculars with faint buffy shaft lines; below, raw sienna with buffy throat and under tail coverts ochraceous. An immature male taken at the same point is just assuming the plumage of the adult. The general color both above and below is black but interspersed with brownish olive feathers on the back and a few ochraceous ones below. The rectrices are all

brown as in the female; in the wings the outer four primaries are brownish black, edged with olive, the succeeding five are black as in the adult male. In the left wing the outermost secondary is black, the next two are brown, then a black one and the remainder brown; in the right wing the primaries are as in the left one, but the outer five secondaries are brown while the remainder are black. The crown is chiefly olive-grey with scattering orange-red feathers; the lateral and anterior border of buff is quite distinct.

TACHYPHONUS CRISTATUS INTERCEDENS Berlepsch.

Tachyphonus intercedens Berlepsch, Ibis. 1880. p. 113.

T[achyphonus] cristatus intercedens Hellmayr Novit. Zool. XII. 1905. 275.

The type of this species, according to Hellmayr (l. c.), is of the "Orinoco" make, and the Orinoco Delta is included by that writer in the habitat of this race.

TACHYPHONUS SURINAMUS SURINAMUS (Linnaeus).

Turdus surinamus L., Syst. Nat. ed. 12. I. 1766. p. 297.

Tachyphonus surinamus Berlepsch & Hartert, p. 22.

T[achyphonus] s[urinamus] surinamus Hellmayr, Novit. Zool. XIII. 1906. p. 358 (Guanoco, Orinoco Delta).

This species has been recorded from Guanoco in the Orinoco Delta, and also from various points on the Caurá River by Berlepsch and Hartert.

There are two specimens in the American Museum collected by Klages at Suapure, one in September, the other in November. They agree exactly with Cayenne examples.

HEMITHRAUPIS FLAVICOLLIS AURIGULARIS Cherrie.

Nemosia flavicollis Vieill. Nouv. Dict. XXII. 1818. p. 491; Berlepsch & Hartert, Novit. Zool. IX. 1902. 22. (Suapure and Nicare, Caura River, Orinoco region).

N[emosia] flavicollis flavicollis Hellmayr, Novit. Zool. XIV. 1907. p. 351 (Suapure and Nicare, Caura River).

Hemithraupis flavicollis Sharpe, Hand List, V. 1909. p. 597.

Hemithraupis flavicollis aurigularis Cherrie, Bull. Am. Mus. Nat. Hist. (Suapure, Caura River, Orinoco region).

In the American Museum collection are specimens collected by Klages at Suapure on the Caura River in February, September and November.

A male in that collection taken September 9, 1901, is in the plumage of the female.

The adult males from the Caura River differ from "Brazil" and "Bahia" skins, in the same collection, in having the white feathers of the upper breast and sides prominently marked with subapical v-shaped black bars. A specimen from Jungus, Bolivia, agrees in this respect. The "Brazil" and "Bahia" skins have the entire breast and belly strongly washed with pale lemon or sulphur yellow, the subapical bands dusky, and not at all prominent. Above, these birds have a brownish wash while the Suapure birds have a faint bronzy green wash and are also noticeably smaller.

Not noted on the Orinoco but recorded from its tributary, the Caura River, from Suapure and Nicare, by Berlepsch and Hartert.

THLYPOPSIS SORDIDA SORDIDA (Lafresnaye & D'Orbigny).

Nemosia sordida Lafr. & D'Orb., Syn. Av. I. 1837. p. 28.

Thlypopsis sordida Berlepsch & Hartert, p. 23.

Thlypopsis sordida sordida Hellmayr, Novit. Zool. XIII. 1906. p. 311.

Rare; six specimens collected for the Tring Museum during the months from August to January, at Capuchin, El Fraile and Altigracia; points on the middle Orinoco above Ciudad Bolivar and below the falls of Atures. Hellmayr in his paper on the types of little known species of birds¹ gives a list of localities from which specimens have been secured including points in Bolivia, Brazil, Venezuela and Eastern Ecuador.

CISSOPIS LEVERIANA (Gmelin).

Lanius leverianus Gm., Syst. Nat. I. 1788. p. 302.

Cissopis leveriana Berlepsch & Hartert, p. 24.

Not observed on the Orinoco proper but reported in the Berlepsch and Hartert paper as taken at La Pricion on the Caura River.

In the American Museum Collection is a specimen from Suapure (Caura River), received from Klages.

SCHISTOCHLAMYS ATRA (Gmelin).

Tanagra atra Gm., Syst. Nat. I. 1788. p. 898.

Schistochlamys atra Berlepsch & Hartert, p. 24.

¹Novit. Zool. XIII. 1906. p. 311.

On my first Orinoco expedition, this species was observed at and above the falls of Atures only, from which point onward it was not uncommon, but in April, 1907, examples were collected at Agua Salada de Ciudad Bolivar.

An immature male in transitional plumage, just assuming the nuptial dress, is dark olive green above with patches of grey here and there where the nuptial dress is developing. There are many black feathers in forehead and fore part of crown, and a few grey ones on top of head. Wing-coverts olive green brighter than the back; wing- and tail-quills blackish brown edged with yellowish olive. Sides of face and throat black mottled with olive yellow; breast, sides and flanks grey slightly mottled with olive yellow; centre of abdomen and under tail coverts pale olive yellow.

Fresh birds have the eye chestnut brown; bill plumbeous grey basally and forward to slightly beyond the nostrils, distally black; feet slate grey.

FRINGILLIDAE—THE GROSBEAKS, FINCHES, BUNTINGS AND SPARROWS.

Berlepsch and Hartert's paper included twenty-two species and subspecies pertaining to this family. Of that number the writer had at that time collected nineteen. The present paper includes twenty-six species and subspecies.

With the exception of the Dickcissel, *Spiza americana*, all are resident forms although there seems to be more or less local migration controlled by the local food supply. Several of the species congregate in flocks at the close of the breeding season. Some of the flocks are composed of a single species, while others will be made up of several species. This is particularly to be noted among members of the genus *Sporophila*.

Quite a number of species are habitually trapped and kept as cage birds, and nearly all seem to thrive in confinement.

KEY TO THE GENERA, SPECIES AND SUBSPECIES OF FRINGILLIDAE.

- a. Plumage more or less streaked above or below, or both.
- b. Tail feathers *not* acuminate, or if acuminate then tail is shorter than wing.
- c. Length 150 mm. or more, wing more than 85 mm. *Saltator* (in part)
- c'. Length less than 150 mm. and wing *not* more than 85 mm.
- d. Back not distinctly striated and no olive yellow edges to wing and tail quills (faint dusky brownish shaft streaks in the olive-brown feathers of the back of immature or female *Sicalis columbiana* are in combination with olive-yellow edges to wing and tail feathers).

Without olive-yellow wing and tail edgings.

- f.* Entire upper parts a nearly uniform brownish grey; belly and under tail-coverts white..... *Coryphospingus* (female and young).
- f'*. Upper parts, head and back, dark olive brown, wings and tail black, wing-coverts and tertials edged on outer webs with raw umber; belly whitish under tail-coverts brownish buff (wood brown); or immature males assuming adult plumage, under tail coverts mixed with black feathers with whitish tips..... *Volatinia* (females and young).
- e'*. Olive yellow edgings to wings and tail..... *Sicalis* (female and immature male).
- d'*. Back distinctly striated.
- g.* Head not striated; shoulders, lesser and median wing-coverts chestnut..... *Spiza*.
- g'*. Head striated, no chestnut wing coverts.
- h.* Wing short and rounded, outer primary (9th) shorter than 7th..... *Myospiza*.
- h'*. Wing more pointed and outer primary longer than the 7th.
- i.* Inner secondaries elongated reaching nearly to tips of primaries. *Sicalis* (immature and females).
- i'*. Inner secondaries and tertials not elongated..... *Sicalis* (adults).
- b'*. Tail-feathers acuminate and tail longer than wing..... *Emberizoides* (one species).
- 4.* Plumage not striated, either above or below.
- b.* Having well developed superciliary stripe yellowish, white or grey.
- c.* Well developed black or blackish stripes on sides of crown extending from the bill to the nape.
- d.* Narrow black band across the breast..... *Arremon*.
- d'*. No dark band across the breast..... *Arremonops*.
- c'*. No lateral stripes on crown..... *Sallator*.
- b'*. No superciliary stripe.
- c.* Depth of bill at base equal to distance from the angle of rictus to tip of bill..... *Oryzoborus*.
- c'*. Depth of bill at base less than distance from angle of the rictus to tip of bill.
- d.* Glossy blue black both above and below..... *Volatinia jacarini splendens* (adult males).
- d'* Not blue black both above and below.
- e.* A partially concealed crown-patch of bright scarlet..... *Coryphospingus pileatus* (adult male).
- e'*. No crown-patch.
- f.* Outer (9th) primary longer than 7th.
- g.* A white patch at base of outer webs of 5th, 6th and 7th primaries extending beyond tips of coverts
- h.* Under parts yellow..... *Astragalinus psaltria columbianus*.
- h'*. Under parts white..... *Dolospingus nuchalis*.
- g'*. No white patch at base of outer webs of 5th, 6th and 7th primaries..... *Sicalis* (adults.)
- h.* Inner webs of wing-quills broadly edged with yellow similar to under wing-coverts; size larger, wing more than 65 mm..... *Sicalis flaveola*.
- h'*. Inner webs of wing-quills narrowly edged with pale yellowish; smaller, wing less than 65 mm..... *Sicalis columbiana*.
- f'*. Outer primary shorter than the 6th.
- g.* Wing more than 65 mm.
- h.* Wing-tip equal to or longer than tarsus..... *Cyanocompsa rothschildi*.¹
- h'*. Wing-tip not equal to tarsus.
- i.* Under parts white, throat red (adult) or buff (immature) *Paroaria nigrogenys*.

¹Hellmayr, Novit. Zool. XII. 1905. p. 277.

- i'*. Under parts not white.
j. Throat white *Pitylus grossus*.
j'. Throat black.
k. Under wing-coverts yellow *Caryothraustes canadensis canadensis*.
k'. Under wing coverts rose red *Periporphyrus erythromelas*.
g'. Wing not over 65mm., usually less.
h. Culmen not strongly convex; maxillary tomia nearly straight but with basal portion strongly and abruptly deflected *Tiaris fuliginosa*.
h'. Culmen distinctly strongly convex; maxillary tomia not abruptly deflected at base *Sporophila*.
i. More or less black on head.
j. Broad white cheek stripe.
k. Lower throat white, mottled with black *Sporophila boutronides*.
k'. Lower throat not mottled with black *Sporophila lineola*.
j'. No white cheek stripe, entire sides of head, throat and upper breast black *Sporophila gutturalis*.
i'. No black on head.
j. Under parts chestnut *Sporophila minuta minuta*.
j'. Under parts not chestnut.
k. Throat slate grey, no white on cheeks or chin ... *Sporophila grisea grisea*.
k'. Throat ash grey, chin and base of cheeks white . *Sporophila plumbea whitelyana*.

PITYLUS GROSSUS (Linnaeus).

Loxia grossus L., Syst. Nat. ed. 12. 1766. p. 307.

Pitylus grossus Berlepsch & Hartert, p. 24.

The writer did not meet with this species on the Orinoco proper, but specimens were collected for the Tring Museum on the Caura River at Suapure, Nicare and La Pricion; and Klages sent specimens to the American Museum that were collected at La Union during September, October and January.

CYANOCOMPSA ROTHSCHILDI (Bartlett).

Guiraca rothschildi E. Bartl., Ann. Mag. Nat. Hist. 1890. p. 168; Hellmayr, Novit. Zool. XII. 1905. p. 277.

Guiraca cayanae rothschildi Berlepsch & Hartert, p. 25.

This species was seen on the upper Orinoco at Munduapo during February, 1899. It has not been seen by the writer on subsequent expeditions. Specimens were collected at La Pricion on the Caura River by André.

ORYZOBORUS CRASSIROSTRIS (Gmelin).

Loxia crassirostris Gm., Syst. Nat. I. 1788. p. 862.

Oryzoborus crassirostris Berlepsch & Hartert, p. 25.

Native name *Pico de plata grande*.

Not common along the Orinoco proper. It was observed, however, at Caicara and at Quiribana de Caicara, being found in the tangle of low shrubs that skirted the belt of heavy timber which marked the course of Quiribana Creek. On the San Feliz River, near its junction with the Cuchivero this species was, however, not uncommon during my visit there in May of 1907. Here it frequented the same character of locality as that about Quiribana de Caicara.

Young males resemble the females. One taken at Las Guacas, on the San Feliz River, May 18th, is in transitional plumage, just assuming that of the adult male. In the wings the 9th, 8th and 5th primaries are new, the others are in the dusky brown of the female, the three outermost secondaries are old succeeded by three new ones which are followed by a single brown quill and lastly two more new black quills. There are scattering black feathers on the back of the neck and top of the head and a few on the throat. The longest of the under tail-coverts are black.

ORYZOBORUS ANGOLENSIS (Linnaeus).

Loxia angolensis L., Syst. Nat. ed. 12. I. 1766. p. 303.

Oryzoborus angolensis Berlepsch & Hartert, p. 25.

Native name *Pico de plata, pico negro*.

Not common. Noted at Altagracia, Caicara, and Quiribana de Caicara along the Orinoco, and on the San Feliz River near its mouth. Like the preceding species the thickets of low shrubs and bushes bordering heavy timber were its favorite haunts. I found it very wary and difficult to approach. A young male just completing the moult in assuming the plumage of the adult male, shows many ochraceous buff feathers on the belly mixed with the new chestnut ones, while on the back are scattering feathers of olive-brown mixed with the new black ones.

SPOROPHILA GRISEA GRISEA (Gmelin).

Loxia grisea Gm., Syst. Nat. I. 1788. p. 857.

Sporophila grisea Berlepsch & Hartert, p. 25.

Native name *Pico de plata comun*. Common from the delta region all along the middle stretches of the river to and beyond the falls of Maipures on the upper river.

Male birds in life have the eye varying in color (probably with age) from a dark sepia brown to a seal brown; bill in adults, pale

whitish or flesh color, in immature birds, dusky blackish; feet slaty. Females have the eye dark sepia brown; bill blackish; feet dusky slate color.

Young males resemble the female, and mate and breed before acquiring the plumage of the adult.

A nest with three fresh eggs was taken at Caicara on the 8th of June, 1907. The nest is a frail, thin-walled cup 6.5 cm. in diameter by 4 cm. in depth outside and 5 cm. in diameter by 3.5 cm. in depth inside. It is composed almost entirely of fine rootlets, wood-brown in color, with a scant inner lining of black horse-hair-like vegetable fibres. The side walls and bottom of the nest are so thin and were so loosely put together that the eggs were readily visible from below. The nest was about 3.5 m. from the ground, near the extreme tip of one of the topmost branches of a small tree, the trunk and branches of which were thickly studded with long sharp thorns. It was loosely set on a small horizontal fork. No effort seemed to have been made toward "tying" it to its support.

The eggs approach elliptical ovate in form. The ground color is a dull greyish white. There is considerable variation in the amount and the color of the markings. One of the set is thickly and nearly uniformly covered over the entire surface with small specks and dots of vinaceous cinnamon. In addition there are some overlying spots and blotches of hazel brown, chiefly about the larger end. The other two eggs of the set are much less speckled although there is an abundance of minute dots of pale vinaceous cinnamon, the larger spots and blotches being about as evenly distributed as those in the egg first described, but nearer a pale drab brown than a hazel; in addition there are a few superimposed irregular shaped markings of dark seal brown (almost black) about the larger end.

On the 18th of June a nest with three eggs was collected, also at Caicara. This nest was about 2.7 m. up, between the thorns and thrust against the stem of a small thorny palm. It is less symmetrical in its outline, the walls are somewhat thicker and composed of coarser materials, so loosely woven that the eggs could be seen through the nest bottom. There is no lining of black, hair-like vegetable fibres, as in the other nests. Three eggs were found in this nest; but owing to their advanced state of incubation only two were saved. They are in every way similar in color and markings to the eggs of

the set described above, but are more nearly ovate in shape. They measure 17.5 x 13.25 and 17.75 x 13.25 mm. respectively.

SPOROPHILA PLUMBEA WHITELEYANA (Sharpe).

Spermophila whiteleyana Sharpe, Cat. Birds Brit. Mus. XII. 1888. p. 98.

Sporophila plumbea whiteleyana Berlepsch & Hartert, p. 26.

Abundant at Altigracia, midway between Ciudad Bolivar and Caicara, from November to February, 1897-8, when a good series was collected and sent to the Tring Museum. During my first Orinoco expedition the species was not observed at any other points along the river, and none have been secured on succeeding expeditions.

SPOROPHILA MINUTA MINUTA (Linnaeus).

Loxia minuta L., Syst. Nat. ed. 10. I. 1758. p. 176.

Sporophila minuta Berlepsch & Hartert, p. 26.

Common at all points visited along the Orinoco and abundant at Altigracia and at Caicara from January to March during which months the species was usually observed in small flocks, often in company with other members of the genus *Sporophila*. An adult male taken May 17, 1907, on the San Feliz River (near the river Cuchivero) had the eyes seal brown; bill dusky blackish; feet dusky slate.

SPOROPHILA LINEOLA (Linnaeus).

Loxia lineola L., Syst. Nat. ed. 10 I. 1758. p. 174.

Sporophila lineola Berlepsch & Hartert, p. 26.

Messrs. Berlepsch and Hartert identify three specimens collected by the writer at Caicara in 1898 as true *S. lineola*; and specimens sent from Ciudad Bolivar, by Klages as *S. lineola trinitatis*.¹ No specimens of this species have been noted on more recent expeditions.

SPOROPHILA BOUVRONIDES (Lesson).

Pyrrhula bouvronides Lesson, Traité d'Orn. 1831. p. 450 (no locality).

Spermophila bouvronides Léotaud, Ois. Trinidad 1866. p. 318 (Trinidad).

Spermophila ocellata Sclater & Salvin, P. Z. S. 1866. p. 181.

S[permophila] trinitatis Sharpe, Cat. Birds Brit. Mus. XII. 1888. p. 132 (Trinidad).

Sporophila lineola trinitatis Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 26.

¹The proper name for this form as pointed out by Hellmayr, Novit. Zool. XIII. 1906. p. 58, is *Sporophila bouvronides* (Less.). See also Hellmayr, Novit. Zool. XIV. 1907. p. 8.

Sporophila bouvronides Hellmayr, Novit. Zool. XIII. 1906. p. 58; idem. XIV. 1907. p. 8.

This species is nowhere common, but seems to be widely distributed on the Orinoco, where it was noted and collected from Las Barrancas in the delta region and at various other points up as far as the mouth of the Apure River. Of four birds taken at Caicara, three show traces of a white spot on the forehead represented by a number of crown feathers with diamond-shaped median spots. No trace of a white crown spot was seen in other specimens examined.

Birds of this species seem to have a preference for open spaces in the forest rather than the open savanna regions.

Eye seal brown; bill black; feet slate black.

SPOROPHILA GUTTURALIS GUTTURALIS (Lichtenstein).

Fringilla gutturalis Licht., Verz. Doubl. 1823. p. 26.

Sporophila gutturalis Berlepsch & Hartert, p. 26.

Found all along the river from Ciudad Bolivar to above the falls, but nowhere common.

In fresh birds, adult males, the eye is seal brown; bill plumbeous; feet dusky grey.

DOLOSPINGUS NUCHALIS Elliot.

Dolospingus nuchalis Elliot, Ibis 1871. p. 402.

The type of this interesting species, in the American Museum collection, is still the only known example.

VOLATINIA JACARINI SPLENDENS (Vieillot).

Fringilla splendens Vieill., Nouv. Dict. XII. 1817. p. 173.

Volatinia jacarina splendens Berlepsch & Hartert, p. 27.

Common both at Ciudad Bolivar and Caicara. Frequents borders of thickets on the open savanna.

On the 14th of June, at Caicara, a nest of this species was found containing three eggs, all of them pipped. The nest was in a tuft of grass, about 15 cm. from the ground, concealed by overhanging bushes. The eggs are pale bluish white, marked all over, but most thickly about the larger end, with reddish chestnut spots. The one egg saved measured 16.75 x 12.5 mm.

Young males resemble the females. One of the birds taken at Caicara was in transitional plumage, from that of the female to that of the adult male.

ASTRAGALINUS PSALTRIA COLUMBIANUS (Lafresnaye).

Chrysomitris columbiana Lafr., Rev. Zool. 1843. p. 292.

Spinus mexicanus columbianus Berlepsch & Hartert, p. 27.

On my first expedition to the Orinoco a fair series, representing birds in adult and in immature plumages, was collected, partly at Altigracia and partly at Caicara. Specimens were collected in December, February, March and June. Only a single example was secured on the two recent expeditions.

SICALIS FLAVEOLA (Linnaeus).

Fringilla flaveola L., Syst. Nat. ed. 12. I. 1766. p. 321.

Sycalis flaveola Berlepsch & Hartert, p. 27.

Native name *Arrocero grande*. Field observations and specimens before me leave no doubt that the adult female of this species is like the adult male. A female taken at Ciudad Bolivar, April 10th, can be distinguished from the male taken at the same place and date only by the presence of faint dusky shaft streaks in the feathers of the back. But three of the apparently adult males taken at Caicara show the same dusky streaks on the back, so that it is not improbable that with age the adult males and females will be absolutely indistinguishable. The series before me also shows that breeding begins before the females have attained the adult plumage. A female taken June 14th was brooding (as indicated by the condition of the abdomen). This bird is a rather light yellowish olive-green above. The feathers of the back are marked with dusky brownish streaks, top of head greyish olive with dusky shaft streaks; wing-coverts like the back; quills and rectrices dusky brownish, edged with the color of the back. Lores and side of face greyish, interspersed with wax yellow feathers; throat and upper breast wax yellow forming a broad band; breast and abdomen greyish white, palest on abdomen where there are a few canary yellow feathers. Under tail-coverts canary yellow; axillaries and under wing-coverts lemon yellow; inner edges of quills pale yellow.

In 1905 a nest of this species, found May 25th, occupied a deserted woodpecker's hole at the top of a dead palm stub about 7.6 m. from the ground. A little dead grass had been taken in as nesting material. Both parents were present, and indistinguishable in color, one from the other. The male was collected (No. 13,732, Geo. K. Cherrie, Caicara, Venezuela). Only one egg, perfectly fresh, was found

in the nest. It is ovate in form, pale bluish white in color, thickly marked all over with specks and spots varying in color from clove brown to olive brown, the lighter colors underlying the darker markings. The egg measures 19.5 by 15 mm.

On my first expedition to the Orinoco I found a nest of this species which from its history is worth recording. This nest was found at Caicara, June 27, 1898. It was a nest within a nest, the original builders having been Orioles (*Icterus xanthornus*), and was first discovered the last of April, at that time new, and containing young Orioles. The entrance then was at the top as is ordinary. After the Orioles left the nest it evidently whipped about in sunshine and rain and the neck or entrance dried and drew together and the nest came to look old and weather worn. But this apparently suited the new house hunters who made a neat small round hole in the body of the nest and carried in some fine soft grass and woody hair-like fibres as a nest lining. The remodelled nest contained three fresh eggs, which was evidently a full set, for the female was shot as she left the nest and dissection proved that no more eggs would have been laid. The nest was about 2.5 m. from the ground. "The eggs resemble those of a sparrow, being white, profusely covered with brown, and a few underlying pale gray spots, the spots almost entirely covering the thick end. They measure 20.5 x 14.5; 21.1 x 14.5 and 21.1 x 14.3 mm. and are rather pointed ovate.¹"

In 1907 additional nests and eggs were found, and notes relative to the nesting habits of this species were made as follows:

A set of three partially incubated eggs, collected at Caicara, June 6th, were taken from a nest with a story. One day toward the end of May while passing under the boughs of a tree containing a colony of the yellow-rumped hang-nest (*Cacicus cela*), a nest was picked up that had been broken away from its fellows and had fallen to the ground. It was carried for a short distance and then carelessly tossed among the branches of a tree, where it lodged. Passing that way some days later I was surprised to see a yellow finch fly from the old nest. An examination showed that a lining of soft, dry grasses had been taken in and that the old nest now sheltered new bird tenants.

The eggs found in this nest are similar in color to those described

¹Berlepsch & Hartert, p. 27.

above. They are ovate, one somewhat elongate, and measure 19.5×14.75 , 19.5×14.75 and 21.5×14.25 mm. respectively.

Another set of eggs collected July 1st, also at Caicara, were taken from a nest found at the bottom of a natural cavity in a large tree. The nest body is composed of strips of soft inner bark mixed here and there with tufts of cotton, while in the lining there is a considerable quantity of horse-hair-like vegetable fibres, the whole compactly woven into a cup that measures 4 cm. in depth by 6 cm. in diameter inside.

The eggs taken with this nest were four in number and perfectly fresh. One is similar in every way to other examples seen and described, but the remaining three are so thickly and uniformly speckled over the entire surface with brown of a shade varying from an olive to a clove brown as almost to conceal the whitish ground color. They measure respectively 19.5×14 , 19.5×14.5 , 19.75×15 and 20.25×14.5 mm.

SICALIS COLUMBIANA COLUMBIANA Cabanis.

Sycalis columbiana Cab., Mus. Hein. I. 1850. p. 147; Berlepsch, Ibis, 1884. p. 433; Berlepsch & Hartert, p. 28.

Native name *Arrocero pequeña*. Common, frequenting the borders of ponds and streams and keeping together in small flocks, except during the nesting season. An adult female taken April 5th had but one foot; the other, having been amputated just below the heel, had healed perfectly.

An adult female (No. 13,943 Cherrie Coll. Caicara, June 19th), is dusky olive brown above with faint shaft lines to the back feathers; head lighter brown; wing-coverts like the back. Edges of outer coverts olive green. Quills and tail-feathers dusky brown, edged with olive yellowish on outer webs. Below, grayish brown, paler on chin and upper throat and whitish in centre of belly; faint dusky shaft streaks on breast and flanks. Under tail-coverts pale yellowish. Axillaries pale yellowish. Under wing-coverts dusky olive yellow.

An immature male taken May 29th resembles the female but is appreciably darker, richer colored above, below a trifle lighter, with the dusky shaft streaks on the breast more prominent. There are a few yellowish feathers about the corners of the mouth. A second immature male taken June 14th has the upper parts like the female but with brighter olive yellow edgings to wing quills and rectrices.

Cheeks pale brownish, separated from the whitish chin and throat by a narrow dusky brownish submalar streak, sides of breast brownish, paler and inclined to buffy in centre of breast. Belly whitish, flanks buffy yellowish brown with dusky shaft streaks. Under tail-coverts pale yellow.

A specimen in juvenal plumage, taken May 17th, in company with both parents, which were also collected, is olive brown above and wood brown below with paler throat and crissum; the wing and tail quills are similar to those of the adult female but with the olive yellow quill edgings less pronounced.

The parent birds taken with the young described above indicate that the males begin breeding before having acquired the fully adult dress. The male in this case is similar to those described above as "immature" and is in what might be more specifically termed the first nuptial plumage.

Four nests of this species were found on the 1905 expedition. One, which was not taken nor the eggs secured, was placed in the hollow of a horizontal limb about 4.5 m. from the ground. The second, taken June 17th, was in a sand bank in an old nest-hole of the large Kingfisher, *Megasceryle torquata*, 45.7 cm. back from the mouth. The nest, which was rather deeply cup-shaped, was embedded in the sand as though a hole had been scratched for its reception. Inside it measured 2.2 cm. deep by 2.9 cm. in diameter. It is constructed entirely of fine rootlets and dried grass-stems. The four fresh eggs found in this nest are short ovate in form and measure 16.5 x 13.5, 17 x 13.5 and 17 x 13 and 17 x 13 mm. respectively. They are pale Nile blue speckled with vandyke and seal brown, the spots forming a ring about the larger end.

The third nest was found June 17th. This was placed about 91.5 cm. up in a crevice between the rocks in a stone wall. The eggs were fresh. One is rounded ovate in shape and the remaining three short ovate. They measure 13 x 15, 13 x 16, 13 x 16 and 13.5 x 16.5 mm. The color is as in the set described above, but the aggregation of spots about the larger ends is not so pronounced. The parent bird was shot as she left the nest and is the adult female described above. A nest found April 28, 1898, at Quiribana de Caicara contained four eggs with incubation far advanced. This nest was situated behind the loose bark of an old rotten stump about 30 cm. from the ground. The nesting materials consisted entirely of soft dry grasses.

Four nests and sets of eggs of this species were collected during the 1907 expedition. The first was taken the 8th of May and the last June 23rd. The eggs collected were fresh in each case. The set taken June 23rd contained five eggs. An interesting coincidence in the collecting of this season was the taking of a nest and set of eggs of this species (June 13th) from the same crevice in a stone wall as the set taken June 17, 1905 and described above.

From our observations and the material at hand we may conclude that the nesting season lasts from the middle of April to the end of June, and sets vary from three to five in number.

SICALIS ARVENSIS MINOR Cabanis.

Sicalis minor Cab., in Schomb. Reise Brit. Guiana III. 1848. p. 679.
Serinopsis arvensis minor Berlepsch & Hartert, p. 28.

Inhabits the open savannas where it is more frequently seen on the ground than perched in the low trees and bushes growing there in scattering clumps. The nest is placed in the tall marsh grass bordering inland ponds or streams.

A nest taken at San Mateo de Caicara May 16th in open swampy land was placed in a thick bunch of grass about 30.5 cm. from the ground. It contained three slightly incubated eggs, ovate in form, pale bluish green in color, two of the eggs being speckled and spotted all over with brown varying in color from vandyke to chocolate, the third with the markings confined chiefly to a distinct ring about the larger end. The eggs measure 16.5 x 12.75, 16.75 x 13 and 16.5 x 12.5 mm. The nest is rather neat, and compactly built; it is composed entirely of dry grasses, the outside course and the lining soft and fine. It measures outside 7.5 cm. diameter by 6 cm. deep; inside 4 cm. diameter by 2.5 cm. deep.

The song of this species is usually given while on the wing. I have frequently seen the male birds spring from the ground and rise to a height of thirty or forty feet, singing as they dropped on fluttering wings.

BRACHYSPIZA CAPENSIS (P. L. S. Müller).

Fringilla capensis P. L. S. Müller, Natursyst. Suppl. 1776. p. 165.
Brachyspiza capensis Berlepsch & Hartert, p. 28.

Two specimens, adult male and female, were taken April 6th, 1898, in a thicket bordering a low range of hills near Quiribana de

Caicara. They were sent to the Tring Museum and recorded in the Berlepsch and Hartert paper. That is the only record I have for this species in over three years' work in the valley of the Orinoco.

MYOSPIZA MANIMBE (Lichtenstein).

Fringilla Manimbe Licht., Verz. Doubl. 1823. p. 25.

Myospiza manimbe Berlepsch & Hartert, p. 28.

Abundant in the open savanna regions. Called *Ratonera* by the natives from its habit of running about between the tufts of grass and concealing itself by crouching down close to the ground.

An adult taken at Ciudad Bolivar, April 4th, had the eye vandyke brown; bill above dusky, below cinereous; feet pale.

A male bird was flushed from a nest found at Caicara May 22, 1905. The nest was on the ground at the foot of a bunch of rather long grass that drooped over and partially concealed it. It was constructed entirely of dry grasses loosely put together. Incubation had just begun in the three delicate, pure white and slightly glossy eggs. The eggs are short ovate in form and measure 18.25 x 14.5, 18.5 x 14.5 and 18.5 x 14.5 mm.

A second nest and set of eggs¹ of this species was taken at Las Guacas on the San Feliz River (a tributary of the Cuchivero) May 17, 1907. This nest also was on the ground at the foot of a tussock of grass which completely concealed it. The female flushing from almost beneath my feet disclosed the nest, which is an almost perfect sphere of soft dry grasses with the entrance on one side. The nest measures 8.5 cm. in diameter outside, the entrance to the nest cavity about 3.5 cm. in diameter and the nest cavity about 6 cm. The eggs, two in number, were fresh. They are pure white in color, between an ovate and a short ovate in form and measure 19 x 14.5 and 18.25 x 14.5 mm.

This species was observed by the writer at all points visited on the Orinoco. Klages sent a series to the American Museum that were collected at Maripa on the Caura River during the months of December, January, February, March and April. These, compared with a series from other points in South America, such as Matto Grosso, Bahia, Bogota, and Apolobamba, Bolivia, seem in every way similar.

¹Allen, Bull. Am. Mus. III. 1891. p. 374, describes two sets of eggs as belonging to this species, but says they are white with a delicate wreath of small spots of blackish brown and purplish lavender around the larger end. The measurements of two eggs are given as ".77 x .56 (19.56 x 22 mm.) and .65 x .55 (17.31 x 13.97 mm.)."

It is possible that some sets of eggs of this species are marked as above, but I am strongly of the opinion that the specimens described by Dr. Allen were incorrectly identified.

ARREMONOPS CONIROSTRIS VENEZUELENSIS Ridgway.

Arremonops venezuelensis Ridgw. Auk. XV. 1898. p. 228.

Arremonops conirostris venezuelensis Berlepsch & Hartert, p. 29.

Not common; keeps to the thickets about the borders of heavy woodland. Has a pleasant song that is usually delivered from the upper branches of some shrub or low tree.

I find in my field notes on my first expedition to Venezuela the record of finding a nest and one fresh egg of this species at Caicara on the 10th of August, 1898. The female was flushed from the nest and collected at the time. The nest was about 30.5 cm. from the ground in a tangle of thorny palm stalks. The opening or entrance was on one side of the somewhat bulky and roughly flask-shaped nest, turned slightly upward and was quite as large as the largest diameter of the nest cavity. The nest measured about 16.5 cm. in diameter by 25.4 cm. high. It was built of the dead blades of broad leaved grasses, sedges and other aquatic plants, lined with soft fine rootlets. The one egg found was white, without gloss, ovate in form and measured 25.5 x 17.7 mm.

ARREMON SILENS (Boddaert).

Tanagra silens Bodd., Tabl. Pl. Enl. 1783. p. 46.

Arremon silens Berlepsch & Hartert, p. 23.

I found this species not uncommon about Maipures on the upper river and collected specimens during December, January, February, March and April. The American Museum possesses birds collected on the Caura in Séptember, October and February. A female taken April 5th had a nearly fully developed egg in the oviduct.

Fresh birds have the eye seal brown; bill black; feet pale grey. The only note I heard from this species was a sharp *pssss*.

EMBERIZOIDES MACROURUS (Gmelin).

Fringilla macroura Gm., Syst. Nat. I. 1788. p. 918.

Emberizoides macrourus Berlepsch & Hartert, p. 29.

Not observed at Bolivar but it was common at Altagracia, Quiribana de Caicara and San Mateo de Caicara in certain restricted localities, such as marshy places, where tall sedge-grass grows on the open savannas. When flushed this bird will only fly for a few yards and then drop into the tall grasses.

SPIZA AMERICANA (Gmelin).

Emberiza americana Gm., Syst. Nat. I. 1788. p. 918.

Spiza americana Berlepsch & Hartert, p. 29.

During my stay at Ciudad Bolivar from April 1st to 17th, 1905, the dickcissel was very abundant in open patches of timber on the savannas and along the water courses. Large flocks containing many males and females were flitting about in the tree-tops. All were singing, and mating seemed to be going on. On my previous expedition I noted the dickcissel at Altigracia and Caicara from the 29th of December until May 10th.

PAROARIA NIGROGENYS (Lafresnaye).

Nemosia nigrogenys Lafr., Rev. Zool. 1846. p. 273.

Paroaria nigrogenys Berlepsch & Hartert, p. 29.

Abundant. The *Gorro colorado* of the natives is one of the characteristic birds of the Orinoco region. It is found everywhere but is not common in heavy timber. Often seen about the door yards of the native houses and in the houses themselves where the birds do not hesitate to enter if the openings at the gables and eaves afford an easy means of escape. They are fond of bits of meat and may be frequently seen helping themselves from the strings of fresh meat that are hung out in the sun to dry, whenever an animal is butchered at a native house.

The colors of fresh birds are: eye light brick red; bill black, grayish at base of the mandible; feet slate color.

The nest is usually placed among the thick branches in the top of some low shrub or tree, or in a tangle of vines, and is ordinarily in the area that is flooded during the rainy season. A nest found at Caicara August 6th, 1898, was in a tree top, but only about eight inches above the surrounding water. The nearest dry land was probably 500 yards from the nest site. This nest was not in any way attached to the surrounding twigs but set loosely in among them. "It is a shallow cup of dry twigs and rootlets, lined with fine smooth grass. The eggs are smooth almost glossless greenish white, covered with blotches and small patches of greenish brown, with a few underlying mauve spots, the markings being more frequent about the thick end. They measure 18.9 x 14.5 and 20.5 x 15 mm.¹" The nest contained three

¹Berlepsch & Hartert, p. 30.

eggs, one fresh and two badly incubated. One of the incubated eggs was broken. Of the measurements given above the smaller is for the fresh egg.

A second nest taken on the same date looks as though it were an old one that had been "refurnished" with a new lining which on one side extends considerably above the edge of the old nest which had tipped to one side. The lining is a fine root-like vegetable fibre (hazel brown in color). The old nest is made up of fine dead twigs, mostly thorny, firmly bound together and attached to the surrounding twigs and vines by spiderwebs. This nest was about 25.3 cm. above the water. The inside measurements are 4.8 cm. in diameter by 2.3 cm. in depth. The two fresh eggs measure 19.5 x 14.5 and 20.5 x 14.75 mm. June 5, 1905, a nest was found in the tops of some bushes, about 1.5 m. above the ground, in a marsh, that within another three weeks would have been completely inundated. The body of the nest is composed of fine dead grasses and weed tops firmly bound together and to the surrounding twigs by spiderwebs. The whole is neat, trim and substantial in appearance, although so lightly builded that the eggs are readily seen through the bottom of the nest. There is an inner lining of fine, horse-hair-like black vegetable fibres. The inside measurements are 5.5 cm. diameter by 2.9 cm. in depth; outside 9 x 5 cm. The nest contained two eggs with incubation far advanced. Only one was preserved, and that measures 20.75 x 14.5 mm.

In juvenal plumage, this species is a dark sepia brown above, wings and tail brownish black. There are only the faintest indications of paler edges to the feathers of the back and the wing coverts. Below the portion of the cheeks and throat that is crimson in the adult, is a pale ochraceous buff; the remaining under parts are white, faintly buffy on sides, flanks and under tail-coverts.

Succeeding the juvenal plumage, there is a partial moult, in which the sepia brown feathers of the head are replaced, on the centre of the crown largely by ones with brownish black tips and crimson bases, the feathers themselves somewhat lanceolate in form but not markedly elongated. In this stage of plumage the sides of the face, lores and ear-coverts become brownish black; the chin is blackish, and the ochraceous buff feathers of birds in juvenal plumage are largely replaced by rufous with slight intermixture of crimson, the crimson feathers having the lanceolate form of those of adult plumage. The remaining under parts are pale buffy white.

The adult or nuptial plumage seems to be acquired by a complete prenuptial moult and my observations indicate that breeding does not begin until the adult plumage has been acquired.

SALTATOR OLIVASCENS Cabanis.

Saltator olivascens Cab., in Schomb. Reise Brit. Guiana III. 1848. p. 676; Berlepsch & Hartert, p. 23.

Common throughout the delta region and along the middle stretches of the river as far up as the mouth of the Meta River.

Colors of fresh birds are: eye, seal brown; bill, blackish; feet, smoke grey.

Nesting begins in April as indicated by a female taken at Ciudad Bolivar April 15th that had an egg in the oviduct. Immature birds resemble the adults but are washed all over with bright olive green.

SALTATOR MAXIMUS (Müller).

Tanagra maxima Müller, Natursyst. Suppl. 1776. p. 159.

Saltator magnus Berlepsch & Hartert, p. 23, not Gmelin; et auctorum.

This species of *Saltator* was observed on the upper Orinoco only. *S. olivascens* and *S. orenocensis* taking its place on the middle and lower stretches of the river. André and Klages sent specimens from Suapure and La Pricion on the Caura River to the Tring Museum.

SALTATOR ORENOCENSIS Lafresnaye.

Saltator orenocensis Lafr., Rev. Zool. 1846. p. 274; Berlepsch & Hartert, p. 23, Pl. XII, fig. 3.

Common at all points along the Orinoco from the delta region (Las Barrancas) to Urbana or about the mouth of the Apure River.

An adult male had the eye sepia brown; bill, blackish slate above, plumbeous below; feet, slaty. The colors of an adult female were: eye pinkish cream color; bill greenish drab with a dusky line along ridge of culmen; feet pinkish; flesh white.

On May 10, 1898, I took a nest of this species containing one nearly fully fledged young and one addled egg. The nest was placed among the tops of a thick clump of canes, about 2.13 m. above the ground. It is a large loose structure of broad grasses, sedge and twigs without a particularly soft lining. The single egg reminds one of a large *Carpodacus* egg, being light greenish blue, with a few minute purplish black spots near the thick end. It measures 24 x 17.5 mm.¹

¹Berlepsch & Hartert, p. 24.

Both parent birds remained near while I was collecting the nest and evinced great excitement, frequently breaking into full song. The young bird did not show any fear when I carried it to my camp and readily took food from the hand. It met an unfortunate end a few nights later, being killed by rats.

On the 1907 expedition a nest with two fresh eggs together with the female parent bird was taken at Caicara on the 15th of June. This nest was placed between small upright forks, in the top of a small thorny tree, about 5 m. from the ground. It is loosely, seemingly carelessly, put together, and of somewhat ragged exterior outlines. The nesting material consists of weed stems, broad grasses, a few leaves and strips of soft vegetable fibers (partially disintegrated pieces from the leaves of some species of palm [?]), with a thin layer of somewhat coarse tendril-like plant stems forming the lining. It measures outside about 10 cm. in diameter, and 7 cm. in depth; inside about 6 cm. in diameter at the rim and 4.5 cm. in depth. The eggs are ovate in form, and measure 22.5 x 18 and 23.75 x 17.75 mm. They are a bluish Nile in color, one with dots, spots and irregular lines of black arranged in a band about the larger end, the other with a moderately wide band of irregular black lines and marks about the smaller end, and a few scattering black irregular lines and blotches over the body of the egg. Two eggs seem to constitute a full clutch.

CORYPHOSPINGUS PILEATUS (Wied.).

Fringilla pileata Wied, Reise Bras. II. 1821. p. 160.

Coryphospingus pileatus Berlepsch & Hartert, p. 30.

Very abundant at Ciudad Bolivar in the scattering clumps of trees that border the water courses on the savannas; but not observed at any point higher up the river. In the adult male the eye is seal brown; bill above black, below cinereous; feet smoke grey.

ICTERIDAE—CASSIQUES, HANGNESTS, ORIOLES, BLACK-BIRDS.

Seventeen species and subspecies are included in Berlepsch and Hartert's paper, fifteen of which number have been observed and collected by the writer. All are probably resident in the localities where found,

but several of the species are more abundant at some seasons than at others. Or, it is not impossible that the relative abundance or paucity of a given species at any particular season is more apparent than real and is dependent on the habit certain forms have of congregating into great flocks during the dry season. As a group, birds of this family are well known and characteristic of the region. The long purse-like nests of colonies of some of the hang-nests are conspicuous objects in many a landscape. The brilliant plumages of others attract attention, while the vocal powers of certain species are unrivaled among tropical birds.

KEY TO THE GENERA, SPECIES AND SUBSPECIES OF ICTERIDÆ.

- a. Outstretched feet reaching beyond the end of the tail *and* claw of hind toe elongated.
- b. Outer tail-feathers largely or entirely white. *Sturnella magna meridionalis*.
- b'. Outer tail-feathers not white.
- c. More or less red in plumage of under parts (adult males with throat and breast bright scarlet) *Leistes militaris*.
- c'. No red in plumage of under parts. *Dolichonyx oryzivorus*.
- a'. Outstretched feet falling short of end of the tail *and* claw of hind toe not elongated.
- b. Black with iridescent lustre (male) or brown (female).¹
- c. Frontal plumes erect. *Lampropsar tanagrinus guianensis*.
- c'. Frontal plumes not erect.
- d. Size large, wing more than 150 mm. Neck feathers lengthened and expanded². *Cassidix oryzivora oryzivora*.
- d'. Smaller, wing less than 150 mm.
- e. Length of bill *not* more than twice its depth; tail square or but slightly rounded.
- f. Size large wing more than 120 mm. *Molothrus cabanisi*.³
- f'. Smaller, wing *not* more than 120 mm.
- g. Wing *not* over 105 mm. *Molothrus atronitens*.⁴
- g'. Wing more than 105 mm. *Molothrus bonariensis venezuelensis*.
- e'. Length of bill *more* than twice its depth. Tail much rounded, almost wedge-shaped. *Holoquisticus lugubris*.
- b'. Not uniformly black or brown, above and below.
- c. Throat uniform with breast and sides *and* general color of under parts olive green, black or brown.
- d. Entire under parts uniform (black); above, rump bright red. *Cacicus haemorrhous*.
- d'. Under tail-coverts not uniform with breast.
- e. Rump yellow. *Cacicus cela*.
- e'. Rump chestnut.
- f. Body black. *Ostinops decumanus*.
- f'. Body olive green. *Ostinops viridis*.

¹The females of *Lampropsar tanagrinus* resemble the males and are black and slightly glossy.

²Neck feathers not expanded in females.

³In the British Museum Catalogue of Birds, XI. 1886. 338, this species is recorded from Caracas, Venezuela, and Trinidad, so it is not improbable that it will be found later in the delta region of the Orinoco.

⁴Hellmayr, Novit. Zool. XIII. 1906. 20, designates the Coast of British Guiana as the type locality. The species is found in Trinidad, and Venezuela is included in the habitat given in the Catalogue of Birds, British Museum XI. 1886. 337, so we may confidently expect it in the delta region of the Orinoco.

- c'. If throat is uniform with breast and sides *then* general color of under parts is neither black nor brown.
- d. Throat uniform with remaining under parts.
- e. Upper parts bright olive yellowish; wings blackish with pale quill edges and two wing-bars formed by pale tips of greater and middle coverts. *Icterus xanthornus xanthornus* (juvenal).
- e'. Head yellow; back, wings and tail black. *Gymnomystax mexicanus*.
- d'. Throat not uniform with remaining under parts.
- e. Lower back and crissum chestnut. *Gymnostinops yuracares caurensis*.
- e'. No chestnut in plumage.
- f. Throat yellow. *Xanthosomus icterocephalus*.
- f'. Throat black.
- g. Head all around black. *Icterus icterus*.
- g'. Top of head yellow uniform with back. *Icterus xanthornus xanthornus* (adult).

GYMNOSTINOPS YURACARES CAURENSIS Todd.

Cassicus yuracares Lafr. & D'Orb., Syn. Av. H. p. 2; in Mag. Zool. VIII. 1838.

Gymnostinops yuracares Berlepsch & Hartert, p. 30.

Gymnostinops yuracares caurensis Todd; Proc. Biol. Soc. Wash. XXVI, 1913, 170 (Rio Mocho, Rio Caura, Venez.).

The Tring Museum received specimens collected on the Caura River, at Suapure by Klages, and at Nicare by André. None were seen on the Orinoco proper by the writer.

OSTINOPS DECUMANUS (Pallas).

Xanthornus decumanus Pall., Spic. Zool. Fasc. VI. 1769. p. 1.

Ostinops decumanus Berlepsch & Hartert, p. 30.

This species seemed to be confined to the heavily wooded regions above the falls in the Orinoco and the equally heavy forests of the delta region. It was not observed by the writer anywhere below the mouth of the river Meta. A number of trees in the vicinity of Maipures and Munduapo were conspicuous by the number of long nests of this species swinging from their branches.

Beebe collected a female at Guanoco in the delta region.

OSTINOPS VIRIDIS (Müller).

Oriolus viridis Müller, Natursyst. Supplement, 1776. p. 87.

Ostinops viridis Berlepsch & Hartert, p. 30.

Klages sent a specimen from the Mato River mouth (on the Caura River) to the Tring Museum and André sent one from Nicare. It was not observed by the writer.

CACICUS CELA (Linnaeus).

Parus Cela Linnaeus, Syst. Nat. ed. 10. 1758. p. 191.¹

Cassicus persicus Berlepsch, Ibis. 1884, p. 433 (Angostura and Rio Apure).

Cassicus albirostris Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 30.

Native name *Arrendajo*. A common bird all along the lower stretches of the river including the delta region, and along the middle stretches, as far as the mouth of the Meta. Also abundant along the lower Caura River. Nesting in colonies and frequenting the nesting-trees throughout the year. The colonies vary in size from half a dozen to seventy-five or eighty nests placed close beside one another and at heights above the ground of from 7.6 m. to 30 m. No single species of tree seems to be preferred; but the tree selected and the height from the ground appears to be determined by the presence of the nest of some species of wasp (most frequently *Polybia liliacea* Fabricius), or not uncommonly a nest of stingless bees which forms the centre about which the bird village is built. The most cordial good-fellowship appears to exist between the birds and their insect neighbors. My observations have not indicated any direct relationship between the size of the bird and insect colonies. However, when through accident or natural causes the wasp nests are destroyed or abandoned the surrounding bird colonies seem to dwindle in size and are finally also abandoned. A number of colonies of *Arrendajo* that I noted when on the Orinoco in 1897 and 1898, were still in existence in 1905, some flourishing, others in decadence and some abandoned. And in every instance where a colony had been abandoned or had decreased in population, the wasp nests were either broken down or had been abandoned.

Nesting begins toward the end of the dry season, in April, and continues until June; and what appears to be an intelligent adaptation to circumstances is seen in the finishing of the nests. During the early part of the breeding season, before the rains have begun to come, the nests are almost all open from the top as in the case of our common Baltimore Oriole. As the rains begin to come, after the eggs have been laid, and often the young hatched, the top entrance is gradually roofed over and the nest entrance becomes a bent tube with the opening downward. The nests are purse-shaped bags tightly woven from long, tough, narrow-bladed marsh grasses. Some are provided with an inner lining

¹See Hellmayr. Novit. Zool. XIII. 1906. p. 20.

of soft dead grasses, others are without lining. They average about 38 cm. in length and 15 cm. in diameter, but little constricted at the top.

The colonies are frequently so compact that three and four nests may press one against another and actually be woven one to another.

Two eggs constitute a set and there is considerable variation in shape and size between the various sets, but not between the eggs of individual sets. In five sets that I have before me there are good examples of ovate, elongate ovate and cylindrical ovate. The measurements of the five sets are 26.75 x 18.5 and 27.5 x 19.5; 27.75 x 19 and 27 x 18.75; 29.5 x 17.75 and 31 x 17.75; 27.25 x 18.5 and 28 x 18.5; 27 x 18.25 and 28.25 x 18.75 mm. The color is white with a faint bluish wash, marked with specks, spots and blotches of chestnut over vinaceous brown. In some eggs the markings are pretty evenly distributed over the entire egg; in others they are almost confined to large blotches in a ring about the larger end.

The colors in fresh birds are: eye azure blue; bill pale sulphur yellow; feet black.

CACICUS HAEMORRHOUS HAEMORRHOUS (Linnaeus).

Oriolus haemorrhous L., Syst. Nat. ed. 12. I. 1766. p. 161.

Cassicus haemorrhous Berlepsch & Hartert, p. 31.

This was the only form of *Cacicus* observed on the Orinoco above the falls of Atures and was found there almost as abundantly as was *C. cela* on the lower and middle stretches of the river.

ICTERUS CHRYSOCEPHALUS (Linnaeus).

Oriolus chrysocephalus L., Syst. Nat. ed. 12. I. 1766. p. 164.

Xanthornus chrysocephalus Berlepsch & Hartert, p. 31.

Native name *Moriche*. Specimens were secured in the vicinity of the first falls in the river, at Perico, and from that point onward up stream. I also noted this species in the trees along the river bank at several points below Ciudad Bolivar. It is somewhat remarkable that it was nowhere observed between Bolivar and the falls of Atures.

Orioles of this species are much sought after as cage birds by the natives and are sold often at from three to ten dollars each.

ICTERUS AURICAPILLUS Cassin.

Icterus auricapillus Cass., Proc. Acad. Nat. Sci. Phila. III. 1847. p. 332.

Xanthornus auricapillus Berlepsch & Hartert, p. 31.

Occasionally observed along the middle Orinoco. Among specimens collected at Caicara was a breeding female which was taken June 7, 1898.

ICTERUS XANTHORNUS XANTHORNUS (Gmelin).

Oriolus xanthornus Gm., Syst. Nat. ed. 13. I. 1788. p. 391.

Xanthornus xanthornus Berlepsch & Hartert, p. 31.

Native name *Gonzalito*. The colors in life are, eye seal brown; bill black; feet plumbeous.

A female in juvenal plumage, collected at Caicara May 4, 1907, is rich dark olive yellow above, darkest on the back; the wings are blackish, the primaries narrowly edged on the outer webs and the secondaries rather broadly edged and tipped with pale greyish; there are two wing-bands produced by pale tips of the greater and median wing-coverts, that on the greater coverts being buffy and the band on the median coverts shaded with the color of the back; the bend of the wing and under parts are canary yellow (without a sign of the black throat patch of the adults); the tail is dusky olive green.

An abundant species; in habits quite like our Baltimore Oriole. In trees where this oriole is nesting are very frequently found nests of one or more species of Flycatchers (*Pitangus*, *Myiozetetes*, *Legatus*, etc.), and not infrequently nests of the *Gonzalito* will be found close to those of a colony of the yellow-rumped Hangnest, *Cacicus cela*. The nests are typical oriole nests, bag-shaped, about 30 cm. long and 10 cm. in diameter at the bottom, slightly constricted at the top. They are usually suspended between forked twigs at the extreme tips of branches. I have found nests within 1.22 m. of the ground, in bushes, and again 15.25 m. up. During my two recent expeditions I noted a number of nests building in small trees over the water that, before the eggs could have been hatched and the young have left the nest, must have been submerged by the rapidly rising river.

A nest taken on the 11th of May, 1907, is somewhat unusual, as it is partially supported by an old nest of the same species, which a month earlier contained young yellow orioles almost ready to fly. Through some cause one of the supporting twigs of the old nest had broken, allowing the nest to sag and partially close the entrance. The new nest is supported by the remaining branch of the fork that held the old nest and also by being woven fast to the old nest itself. While there is no proof that both nests were built by the same pair of birds, yet the choice of the same locality, the construction of nests of the

same relative size and style, and the similarity of the materials employed would all seem to indicate that the orioles had found the locality a desirable one in which to rear a family, and had made preparations for their second brood. This nest was about 7.6 m. from the ground in a large tree standing in a rather thinly wooded savanna region. It contained three fresh eggs; they are elongated ovate in form and in color are white, beautifully marked with dark brown lines and spots over similar underlying pale mauve colored markings, especially about the larger end. They measure 23 x 15; 23.6 x 15.5 and 22.5 x 15.2 mm. A set of eggs sent by the writer to the Tring Museum measure 25.1 x 15.6 and 24.5 x 17.1 mm¹. A single egg taken with a nest May, 1905, measures 26 x 17.5 mm. and is nearly elongate ovate in form. Deserted nests of this species are often taken possession of for nesting purposes by other kinds of birds such as *Sicalis flaveola* and the striped Flycatcher, *Legatus albicollis*.

This oriole displays considerable individual taste in the selection of material and in the details of construction of its nests.

ICTERUS ICTERUS (Linnaeus).

Oriolus icterus L., Syst. Nat. ed. 12. I. 1766. p. 161. *pro parte*.

Xanthornus icterus Berlepsch & Hartert, p. 32.

Native name *Trupial*. Adult birds in life have the eye straw yellow, bare skin about eye cobalt blue; bill black, plumbeous at base of the mandible; feet plumbeous.

Not uncommon, but wary and shy; distributed everywhere along the river at least as far as the mouth of the Meta.

Very little has been written regarding the life history of this bird. It is, therefore, with much pleasure that I present the following notes.

A nest and set of eggs was collected at Caicara May 4, 1907. The nest had as its foundation the half decayed mass of grasses that had once served, most probably, as a nest of *Pitangus sulphuratus rufipennis*. Repairs had been made in the roof and a lining of soft grasses had been placed on the bottom of the nest cavity. From the outside there was nothing to indicate that it was more than an old nest long since abandoned. The entrance, the original one, was on one side but completely hidden from below by surrounding foliage. In the same tree were three other deserted nests of *Pitangus*, each of which was in a much better state of preservation than the one that the trupial had selected.

¹Berlepsch & Hartert, p. 32.

The set consisted of three eggs in which incubation had begun. The eggs seem somewhat large for the size of the bird; they are elongate ovate in form and measure 28×18.75 ; 28.5×18.5 and 27.5×18 mm. respectively. In color they are white, with a faint buffy pink shade, rather thickly marked, especially about the larger end, with two or three sets of markings consisting of dots, spots and irregular lines and blotches of brown. The outermost ones are clove brown superimposed on a brown, nearly a burnt umber in shade which overlies an inner set of markings varying in shade from a drab-brown to a smoke grey. Both parent birds were present and evinced much solicitude for their home.

Birds of this species are frequently kept in cages by the natives. In the market place at Ciudad Bolivar they bring fancy prices.

GYMNOMYSTAX MEXICANUS (Linnaeus).

Oriolus mexicanus L., Syst. Nat. ed. 12. I. 1766. p. 162.

Gymnomystax mexicanus Berlepsch & Hartert, p. 32.

Native name *Maizero*. Common from Ciudad Bolivar to the mouth of the Apure. In fresh birds the eye is seal brown, bare skin about eye black; bill black; feet black.

When I reached Ciudad Bolivar in April (1905), great flocks of these birds were to be seen every morning and evening feeding on a swampy piece of ground just back of the city.

A nest with set of eggs was taken at Caicara, May 8, 1907. It is a somewhat thick walled open cup, or bowl-shaped affair constructed of weed and grass stems and having the nest cavity lined with medium coarse rootlets. The materials are loosely, but neatly woven together. The nest measures inside 5.5 cm. in depth by about 8.5 cm. in diameter; outside 11 cm. in depth by 17 cm. in diameter. It was in the top of a *Chaparo* oak amid the thickly tangled branches of a parasitic plant about 6.10 m. from the ground. The eggs, three in number, were fresh. They are between an ovate and a short ovate in form, and measure 26.5×20.5 ; 26×20 and 26.5×20 mm. In color they are a very pale bluish (pale Nile blue) marked chiefly about the larger end, with dots, spots and blotches, of brown varying in shade from a clove-brown, the outermost markings, through burnt umber to drab, the latter underlying the darker markings.

With these eggs was found a single fresh egg of the Venezuelan Cowbird, *Molothrus venezuelensis*.

While the set of eggs and nest above described were being collected both parent birds were present and much excited. No other nests of the species were found in the same neighborhood.

In the American Museum is a series of birds of this species collected at Maripa on the Caura River by Klages during February, May and June.

XANTHOSOMUS ICTEROCEPHALUS (Linnaeus).

Oriolus icterocephalus L., Syst. Nat. ed. 12. I. 1766. p. 163.

Xanthosomus icterocephalus Cabanis, Mus. Hein., 1, 1851. p. 189.

Agelaeus icterocephalus Berlepsch & Hartert, p. 32.

Fresh birds have the eye seal brown; bill slate black; feet black.

Common in flocks at Altigracia and at Quiribana de Caicara, from November to January; noted at Caicara once in April. An adult female was collected at Ciudad Bolivar in April; an adult male was taken near the mouth of the San Feliz River on the Cuchivero River the 15th of May. Observed in small numbers above the falls of Maipures during December. Klages sent a pair to the American Museum that were collected on the Caura River near the mouth of the river Meta in January.

STURNELLA MAGNA MERIDIONALIS Sclater.

Sturnella meridionalis Scl., Ibis, 1861. p. 179.

Sturnella magna meridionalis Berlepsch & Hartert, p. 32.

Native name *Mochila vacia*. In life the colors are: eye seal-brown; bill black above, mandible and basal part of cutting edge of maxilla plumbeous grey, tip of mandible blackish slate; feet drab grey. Common on the savannas. Habits similar to those of our own Meadow-larks. While *Sturnella* is common on open savanna districts bordering the river all the way from below Ciudad Bolivar to the region above the falls, the birds found on the upper river, from the mouth of the Meta onward, are decidedly smaller and darker colored than those found on the middle stretches of the river.

LEISTES MILITARIS (Linnaeus).

Tanagra militaris L., Syst. Nat. ed. 12. I. 1766. pp. 162, 316.

Leistes militaris Berlepsch & Hartert, p. 33.

Common on the savannas but rather difficult to approach. Not observed farther up the river than the mouth of the Apure.

LAMPROPSAR TANAGRINUS GUIANENSIS Cabanis.

Icterus tanagrinus Spix. Av. Brasil. I. 1824. p. 67.

Lampropsar guianensis Cab. in Schomb. Reise Brit. Guiana III. 1848.
p. 682.

Lampropsar tanagrinus Berlepsch & Hartert, p. 33.

The writer observed this species only on the upper river above the falls of Maipures, where it was common. Beebe on a recent expedition secured a specimen at Guanoco in the Orinoco delta¹. However, the species has been previously recorded from the same point by Hellmayr.²

I was informed by the natives that this species builds a hanging nest, similar to those of *Cacicus*, but was unable to verify the statement.

CASSIDIX ORYZIVORA ORYZIVORA (Gmelin).

Oriolus oryzivorus Gm., Syst. Nat. I. 1788. p. 386.

Cassidix oryzivorus Berlepsch & Hartert, p. 33.

A single specimen was taken at Caicara June 28, 1898. Not seen elsewhere.

MOLOTHRUS BONARIENSIS VENEZUELENSIS Stone.

Molothrus venezuelensis Stone, Auk. VIII. 1891. p. 347.

Molothrus bonariensis venezuelensis Berlepsch & Hartert, p. 33.

Common in the open country along the lower and middle stretches of the river. At Ciudad Bolivar, in April, it was associating in flocks with *Gymnomystax mexicanus* and *Holoquiscalus lugubris*.

Three breeding females, as indicated by the active condition of the ovaries, collected at Caicara, one May 15th, another June 12th and the third, June 13th, are almost exactly uniform in size. The measurements of the one taken May 15, 1907 (No. 4861, Brooklyn Institute Museum), being wing 102 mm., tail 78 mm., exposed culmen 17 mm., depth of bill at nostrils 8 mm. Above, the three are also almost of identically the same shade of dusky brownish, the individual feathers being brownish black bordered with dusky greyish; below, the three present a quite distinct appearance. No. 4861 (Bklyn. Inst. Mus.), is greyish hair brown, faintly washed on the breast and sides with olive yellowish

¹In the (British Mus.) Catalogue of Birds XI. 1886. p. 389, Trinidad is included in the list of localities. But it is not in Chapman's list nor in that of Hellmayr, Novit. Zool. XIII. 1906. pp. 1-60, not even in his hypothetical list.

²Revision der Spixschen Typen brasilianischer Vögel, München Abh. Ak. Wiss. math.-phys. Kl. 1906. p. 22; Novit. Zool. XIV. 1907. p. 46.

which blends into the color of the chin and upper throat which is olive yellow. No. 4862 (Bklyn. Inst. Mus.), is of a somewhat lighter shade of greyish hair brown; the olive yellowish wash is perhaps a trifle more pronounced, but does not extend on to the chin or the throat which is pale, dusky grey. This specimen is further distinguished from the other two examples by distinct dusky shaft streaks on the feathers of the breast and sides. No. 4863 (Bklyn. Inst. Mus.), is nearly uniform greyish hair brown, with only a trace of olive yellow wash on the breast, and the chin and upper throat scarcely any paler than the belly.

Eggs that are believed to be of this species were taken on two occasions. One, with a nest and set of eggs of *Gymnomystax mexicanus*, was collected at Caicara May 8, 1907. This egg was fresh. It is short ovate in form and measures 22 x 17 mm. It is thickly spotted with brown varying in shade from hazel to dark chestnut; the lighter markings are overlaid by the darker ones of chestnut; about the larger end the whitish ground color is entirely concealed.

Two fresh eggs taken at Caicara July 2, 1907, with a nest and set of eggs of *Synallaxis cinnamomea*, are short ovate in form and measure 21.5 x 17 and 21 x 16.5 mm. They are similar to the single egg described above, but have the entire surface thickly covered with the hazel and chestnut spots but not uniting at any point to conceal the ground color.

HOLOQUISCALUS LUGUBRIS (Swainson).

Quiscalus lugubris Sws., Anim. in Menag. 1838. p. 299; Berlepsch & Hartert, p. 33.

Native name *Tordito*. During my stay at Ciudad Bolivar in April (1905), large flocks of this species of grackle were to be seen feeding in the same localities with *Gymnomystax mexicanus* and *Molothrus bonariensis venezuelensis*. They are gregarious at all seasons. I found a small colony breeding in a swamp near Caicara early in June. The nests were placed in the tops of small cabbage palms, the *Moriches* of the natives, four and five nests often in a single tree. The nests are strongly built, first having a foundation of dead leaves and mud, mixed; then there is a superstructure of rather coarse dead grass and weed stems and a lining of moderately fine dead plant tendrils. The outside measurements of a nest now before me which was collected June 3, 1905,

are about 17 cm. in diameter by 10 cm. in depth; inside it is 7 cm. in diameter by 6 cm. in depth. The eggs, four in number, taken with this nest were fresh. They are typical grackle eggs of a soiled greenish white color, marked with spots, dashes and irregular streaks of blackish brown on an underlying rusty brownish wash. They are ovate in form and measure 25.75 x 18.5; 26.5 x 18.5; 25.5 x 18.5 and 24.75 x 18.5 mm.

Young birds just from the nest were observed on this same date.

The colors of fresh birds are: eye straw yellow; bill and feet black.

CORVIDAE—THE CROWS AND JAYS.

Only two jays have been recorded from the Orinoco region, *Cyanocorax violaceus* and *C. cayanus*. *Xanthura yncas caeruleocephala* is recorded from Trinidad and Venezuela¹ and is consequently included in the following key.

KEY TO THE SPECIES OF CORVIDAE.

<i>a</i>	Upper parts of body (except head and neck) uniform green.....	<i>Xanthura yncas caeruleocephala</i> .
<i>a'</i>	Upper parts <i>not</i> green.	
<i>b</i>	Tail uniform; no white tips.....	<i>Cyanocorax violaceus</i> .
<i>b'</i>	Tail feathers tipped with white.....	<i>Cyanocorax cayanus</i> .

CYANOCORAX VIOLACEUS DuBus.

Cyanocorax violaceus DuBus, Bull. Acad. Brux. XIV. 2. 1847. p. 103; Berlepsch, Ibis 1884. p. 438 (Angostura); Berlepsch & Hartert, p. 34.

Native names *Corobero*; *Chua*. A common species, keeping in the tree tops wherever there is tall timber along the water courses; and frequenting groves of mangos, of whose ripe fruit it is very fond. It is noisy and jay-like in its actions.

Colors of fresh birds are: eye seal brown; bill and feet black.

A nest and five fresh eggs were taken at Caicara, April 12th. The nest was about 9.15 m. from the ground in the top of a tree that stood at the edge of a grove of mangos. It was held between upright forks, was somewhat bulky and constructed of quite large, long, dry twigs with a lining of fine root-like vegetable fibres. It was found before completion and visited daily until the five eggs were laid, these being deposited on five consecutive days. They are a bluish white, thickly speckled all over with various shades of brown from vinaceous to

¹Sharpe, Cat. Birds, Brit. Mus. III. 1877. p. 131.

chestnut, the darker markings overlying the others. Ovate in form, the eggs measure 32.5 x 24.5; 33.25 x 24; 34 x 24; 33 x 24.25 and 32.5 x 24 mm. respectively.

CYANOCORAX CAYANUS (Linnaeus).

Corvus cayanus L., Syst. Nat. ed. 12. I. 1766. p. 157.

Cyanocorax cayanus Berlepsch & Hartert, p. 34.

According to Berlepsch and Hartert, Klages obtained specimens at Suapure and André at La Pricion on the Caura. None were observed by the writer on the Orinoco proper.

TYRANNIDAE—THE TYRANT-FLYCATCHERS, KINGBIRDS.

Sixty-nine species and subspecies of Flycatchers are included in the present list. Several, however, such as *Ornithion inerme*, *Tyrannulus elatus*, *Myiopagis viridicata viridicata*, *M. gaimardi*, *M. floxivertex*, and *M. cinerea* might better be placed with the *Cotingidae*. But as they were included in my original "key" to the flycatchers they are so retained.

Many of the flycatchers are conspicuous in the *llanos* districts of the Orinoco region, conspicuous alike for their harsh cries, their brilliant colors (particularly bright yellows) and extraordinary nesting habits. As nest builders they have few rivals, certain species constructing delicate lichen covered affairs as tiny and trim as those of some humming birds, others whose nests might serve as models for the weaver-birds, and again the great bulky grass nests, such as those of *Pitangus*, placed in the tree tops are prominent objects in the landscape. But not all are birds of the open *llanos*, many are quiet and retiring both in dress and disposition. These must be sought for in the semitwilight of the thick forest where they flit about, as silent as the shadows, in the undergrowth.

KEY TO THE GENERA, SPECIES AND SUBSPECIES OF TYRANNIDAE.

- | | |
|---|---|
| a. Tail very long and deeply forked..... | <i>Muscivora tyrannus</i> . |
| a'. Tail not unusually long or deeply forked. | |
| b. Chest barred with olive brown..... | <i>Onychorhynchus coronatus</i> . |
| b'. Chest not barred. | |
| c. Under parts more or less streaked with dusky or blackish. | |
| d. Wing less than 60 mm..... | <i>Todirostrum maculatum</i> . |
| d'. Wing more than 60 mm. | |
| e. A well marked black or blackish auricular stripe. | |
| f. Inner web of tail-feathers <i>broadly</i> edged with rufous..... | <i>Myiodynastes maculatus maculatus</i> . |
| f'. Inner webs of tail-feathers <i>not</i> broadly edged with rufous. | |
| g. Upper tail-coverts <i>broadly</i> edged with rufous; inner webs of tail feathers <i>not</i> edged with rufous..... | <i>Empidonomus varius</i> . |
| g'. Upper tail-coverts <i>not</i> edged with rufous; inner webs of tail-feathers narrowly edged with rufous..... | <i>Legatus albicollis</i> . |
| e'. No black or blackish auricular stripe (♂ im. or ♀)..... | <i>Pyrocephalus rubinus saturatus</i> . |

- c'*. Under parts *not* streaked.
d. Under parts bright red (adult ♂) *Pyrocephalus rubinus saturatus*.
- d'*. Under parts *not* bright red.
e. Throat, middle of breast and belly nearly uniform white or very pale greyish white.
f. Wing more than 90 mm *Tyrannus dominicensis*.
f'. Wing less than 90 mm.
g. Wings and tail black (with or without white markings).
h. Both maxilla and mandible black to the base; rectrices tipped with white *Fluvicola pica*.
h'. Mandible pale at base; rectrices *not* white tipped (female) *Arundinicola leucocephala*.
g'. Wings and tail dusky brownish or blackish *Serpophaga hypoleuca*.
- e'*. Throat, middle of breast and belly *not* uniform white or very pale greyish white.
f. General color above and below black or slate black.
g. Head white (male) *Arundinicola leucocephala*.
g'. Head *not* white.
h. Outer primaries acuminate *Knipolegus pusillus*.
h'. Outer primaries *not* acuminate *Knipolegus orenocensis*.
f'. General color above and below *not* black or slate black.
g. A prominent white or yellow superciliary stripe *and* wing more than 70 mm.
h. Superciliary stripe white.
i. Bill less than 15 mm. from the nostrils to the tip.
j. No bright colored crown patch *Conopias inornata*.
j'. With a bright colored crown patch.
k. Inner webs of wing-quills edged (broadly) with rufous *Myiozetetes cayennensis cayennensis*.
k'. Inner webs of wing-quills *not* edged with rufous .. *Myiozetetes texensis columbianus*.
i'. Bill *more* than 15 mm. from the nostrils to the tip.
j. Smaller; wing less than 100 mm *Pilangus lictor*.
j'. Larger; wing more than 100 mm.
k. Culmen strongly decurved from base to tip *Megarhynchus pilangua pilangua*.
k'. Culmen straight, sharply bent at tip only.
l. Inner webs of tail-feathers almost entirely rufous *Pilangus sulphuratus rufipennis*.
l'. Inner webs of tail-feathers edged (only) with rufous—that color *not* extending to the shafts of the feathers *Pilangus sulphuratus trinitatis*.
h'. Superciliary stripe yellow (and wing more than 70 mm.)
g'. No prominent white or yellow superciliary stripe, or wing less than 70 mm.
h. Rump yellow.
i. Yellow of under parts suffused with fulvous, and olive green of back less intense *Myiobius modestus*.
i'. Yellow of under parts brighter, *not* suffused with fulvous, and back deep rich olive green *Myiobius barbatus barbatus*.
h'. Rump *not* yellow.
i. Width of bill at nostrils equal to or greater than distance from the nostrils to the tip of the bill.
j. Coronal patch red; general color above rich olive brown, darker on the head *Platytriccus saturatus*.
j'. Without coronal patch, general color above dark olive green *Craspedoprion intermedius*.
i'. Width of bill at nostrils *not* equal to distance from the nostrils to the tip of the bill.
j. Outstretched feet reaching to or beyond the end of the tail.
k. Tail *more* than half as long as wing *Todirostrum cinereum cinereum*.
k'. Tail less than half as long as wing *Perissotriccus ecaudatus*.
j'. Outstretched feet *not* reaching to the end of the tail.
k. The three or four outer primaries much reduced in size.
l. With a well developed crest—three outer primaries reduced *Colaptes galeatus*.
l'. Not crested—four outer primaries reduced *Atalotriccus pilaris venezuelensis*.
k'. Outer primaries *not* greatly reduced in size.
l. A more or less prominent sometimes concealed or partially concealed crown patch.
m. Smaller, wing less than 80 mm.

- n.* With pale tips to wing-coverts forming wing-bands.
- o.* Wing less than 55 mm. *Tyrannulus elatus.*
- o'.* Wing more than 55 mm.
- p.* Centre of abdomen bright sulphur yellow—crown patch large bordered laterally with black or blackish *Myiopagis gaimardi gaimardi.*
- p'.* Centre of abdomen pale primrose yellow or pale yellowish white.
- q.* Feathers of crown elongated, forming a crest. { *Elaenia martinica flavogastra.*
Elaenia cristata.
- q'.* Feathers of crown not elongated into a crest.
- r.* Centre of belly whitish. *Elaenia albiceps parvirostris.*
- r'.* Centre of belly pale primrose yellow *Elaenia chiriquensis chiriquensis.*
- n'.* No wing-bands. *Myiopagis viridicata viridicata*
- m'.* Wing more than 80 mm.
- n.* Throat nearly uniform yellow with breast
- n'.* Throat grey—not uniform with breast. *Machelornis rixosa flavigularis*
- o.* Crown patch orange yellow *Tyrannopsis sulphureus.*
- o'.* Crown patch scarlet (bordered with orange) *Tyrannus melancholicus satrapa.*
- l'.* No concealed or partially concealed crown patch.
- m.* Outer webs of outer rectrices pale dirty whitish or pale yellowish.
- n.* Above greyish olive brown; below, throat greyish white, belly pale primrose yellow.
- n'.* Above dusky olive, below sulphur yellow with a buffy wash on the breast *Xenopsaris albinucha.*¹
- m'.* Outer webs of outer rectrices not conspicuously lighter colored than the inner webs.
- n.* Bright olive green above.
- o.* Pileum slate grey in marked contrast with olive green of back.
- p.* Larger; tail about equal to wing (Trinidad) *Leptopogon superciliaris.*
- p'.* Smaller; tail less than wing *Todirostrum schistaceiceps.*
- o'.* Pileum not slate grey, or if grey or dusky not in sharp contrast with olive greenish back.
- p.* Abdomen bright tawny olive { *Pipromorpha oleagineus oleagineus.*
Pipromorpha oleagineus pallidiventris.
- p'.* Abdomen not tawny olive.
- q.* Throat distinctly grey rather than yellow or olive yellow *Ornithion pusillum napaeum.*
- q'.* Throat yellow or yellowish olive.
- r.* A distinct yellow or yellowish superciliary streak *Capsiempis flaveola.*
- r'.* No superciliary stripe.
- s.* Throat and breast olive yellow.
- l.* Mandible blackish horn-color, whitish at base only. *Rhynchoicyclus sulphurescens klagesi.*
- l'.* Mandible nearly uniform from tip to base (pale dusky horn-color.)
- u.* Darker, pileum and hind neck deep slate color *Rhynchoicyclus sulphurescens assimilis.*
- u'.* Paler, pileum and hind neck slate grey *Rhynchoicyclus sulphurescens sulphurescens.*
- s'.* Throat and breast chrome or lemon yellow with a faint ochraceous wash *Rhynchoicyclus flaviventris flaviventris.*
- n'.* Not bright olive green above.

¹This is out of place here, as *Xenopsaris* belongs with the *Cotingidae*.

- o. Belly and crissum bright ochraceous buff..... *Terenotriccus erythrurus erythrurus.*
- o'. Belly not ochraceous buff.
- p. Pileum black or blackish in rather marked contrast with the olive green back and both maxilla and mandible black..... *Myiarchus tuberculifer.*
- p'. Pileum *not* black nor blackish in marked contrast with the olive green back; or else mandible pale.
- q. Inner webs of rectrices edged with rufous..... *Myiarchus tyrannulus.*
- q'. Inner webs of rectrices not edged with rufous.
- r. Throat and upper breast grey not separated by a darker band of olive or olive greyish from the yellow or pale yellow of the belly.
- s. With more or less well defined wing-bands formed by light tips to greater and median coverts.
- t. Tips to wing-coverts cinnamon brown..... *Phaenomyias murina incompta.*
- t'. Tips to wing-coverts pale greyish or buffy white..... *Sublegatus brevirostris glaber.*
- s'. No well defined wing-bands.. *Myiarchus ferox venezuelensis.*
- r'. Breast olive or olive greyish separating grey of throat from pale yellowish or whitish of belly.
- s. With prominent well defined cinnamon brown wing-bands.. *Empidonax cabanisi.*
- t. If wing-bands are present they are *not* cinnamon brown (pale whitish, yellowish or dusky).
- u. Mandible almost wholly black or blackish..... *Empidonax arenaceus.*
- u'. Mandible almost wholly pale or dusky.
- v. Middle of belly and crissum a rather bright pale yellow..... *Empidonax lawrencei.*
- v'. Middle of belly and crissum only faintly if at all washed with yellowish.
- w. Tarsus *less* than one-fifth as long as wing..... *Myiochanes brachytarsus.*
- w'. Tarsus *more* than one-fifth as long as wing..... *Elaenia cristata.*

FLUVICOLA PICA (Boddaert).

Muscicapa pica Bodd., Tabl. Pl. Enl. 1783. p. 42.

Fluvicola pica Berlepsch & Hartert, p. 34.

Native name *Viudita*. Common, frequenting the edges of ponds and streams and keeping to the low underbrush.

Not observed above the mouth of the Meta.

In life the eye is seal brown; bill and feet black.

Birds in immature plumage have the primaries and secondaries dusky brownish with the white tips and edgings that are so prominent in the adults, nearly obsolete; top of head blackish with brownish wash;

back dusky sepia brown, the feathers with greyish bases; the longer upper tail-coverts with blackish or brownish tips.

ARUNDINICOLA LEUCOCEPHALA (Linnaeus).

Pipra leucocephala L., Mus. Ad. Frid. II. Prod. 1764. p. 33.

Arundinicola leucocephala Berlepsch & Hartert, p. 34.

Less common than the preceding species, and like that species lives near the water especially in grassy marshes with scattering clumps of bushes and trees where it is as likely to be seen in the tree tops as among the bushes. It is active and flycatcher-like in habits.

Adult birds have the eye seal brown; bill black above, yellowish below with the tip blackish; feet black. Young males resemble the female.

A just completed nest of this species was found at Caicara on the 19th of May. It was in the top of a small dead *Moriche* palm-tree about 7.6 m. from the ground. Built of soft dry grasses, it was globular in form and about 18 cm. in diameter, with a small round entrance hole in the middle on one side. Unfortunately no eggs had been deposited when I cut the palm. Close beside the birds' nest was a nest of wasps. A second nest of *Arundinicola leucocephala* in process of construction was placed in the upright forks of a low shrub that grew near the edge of an extensive marsh. The nest was about 91.5 cm. from the ground, just above the top of the long marsh grass surrounding the bushes.

PYROCEPHALUS RUBINUS SATURATUS Berlepsch & Hartert.

Pyrocephalus rubinus saturatus Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 34 (Type, Altagracia, Orinoco River, Venezuela).

Native name *Sangre de Toro*. Common, frequenting the clumps of trees in open savanna regions.

In the neighborhood of Caicara I found many nests of this species. They were usually in scrub oak from 1.52 m. to 3.5 m. from the ground, nearly always at forks well away from the body of the tree, and usually on one of the larger lower limbs. In no instance have I found them in any way concealed by surrounding leaves. The nests are neatly rounded, shallow cups set loosely in the forks of the supporting limbs. The materials used are rather short bits of dead grass, weed-stems and twigs, all presenting a brownish gray color in close harmony with the grayish bark of the supporting branches. There is an inside lining

of small feathers with an occasional bit of gray lichen. A nest before me, collected on the 19th of May, measures inside 4.5 cm. in diameter by 1 cm. in depth. I have never found more than two eggs in a nest. In a set, taken April 29th at Quiribana de Caicara, they are short ovate in form, pale bluish white in color marked with two sets of rather large spots about the larger end. The underlying spots are cinereous, the superimposed ones blackish brown. They measure 17.75×13.75 and 18×14.2 mm.

Nesting birds are very confiding. I have on several occasions touched a brooding female before she would leave the nest.

OCHTHORNIS LITTORALIS (Pelzeln).

Elainea littoralis Pelz., Orn. Bras. 1868. pp. 108, 180.

Ochthornis littoralis Berlepsch & Hartert, p. 35.

Only one specimen observed, an adult female taken at Bichaco midway between the mouth of the river Meta and the falls of Atures, September 18, 1898. Specimens have been taken also on the Caura River, at Suapure and La Pricion by Klages, and at Nicare by André.

SISOPYGIS ICTEROPHRYS (Vieillot).

Muscicapa icterophrys Vieill., Nouv. Dict. XII. 1817. p. 458.

Sisopygis icterophrys Berlepsch & Hartert, p. 35.

Only the single specimen, recorded by Berlepsch and Hartert, was collected; an adult female taken at Altagracia, September 19, 1898. Not again observed.

KNIPOLEGUS ORENOCENSIS Berlepsch.

Cnipolegus orenocensis Berlepsch, Ibis. 1884. p. 433. Pl. XII. (Angostura); Berlepsch & Hartert, p. 35 (Ciudad Bolivar, Venezuela).

The type of this species came from Ciudad Bolivar (Angostura), where specimens were secured on the last Museum expedition, but it was observed more frequently about Altagracia and at Caicara; it was not noted beyond the mouth of the Meta River.

A bird in juvenal plumage taken at Agua Salada de Ciudad Bolivar, April 13th, is a dark dusky olive brown above; the wings and tail brownish black narrowly edged with pale brownish (raw umber); greater and median wing-coverts tipped with raw umber brown; below greyish hair brown, belly brownish or buffy brownish white.

The fresh colors of adult birds are: eye seal brown; bill plumbeous; feet black.

This species frequents the thickets bordering the streams and ponds. Its actions are much like those of *Sayornis*.

KNIPOLEGUS PUSILLUS Scater & Salvin.

Cnipolegus pusillus Scl. & Salv., Nomencl. Av. Neotr. 1873. p. 158; Berlepsch & Hartert, p. 36.

Observed only in the vicinity of the falls of Atures where two males that were sent to the Tring Museum and recorded by Berlepsch & Hartert, were taken in September, 1898.

MACHETORNIS RIXOSA FLAVIGULARIS Todd.

Tyrannus rixosus Vieill., Nouv. Dict. XXXV. 1819. p. 85.

Machetornis rixosa Berlepsch & Hartert, p. 36.

Machetornis rixosa flavigularis Todd., Ann. Carnegie Mus. VIII. 1912.

p. 210 (Type ♂, Tocuys, Lara, Venezuela, in Carnegie Museum).

Native name, *Pajaro amarillo jinetero*. A common, although not abundant species, inhabiting the open and sparsely wooded savanna regions. While it is neither noisy nor brilliant in plumage, its curious habit of keeping on the ground close about domesticated animals, as they wander about the savannas and open commons of the villages, is certain to attract attention. Or, if not intent on capturing the insects that are constantly fluttering up from the grass, these birds are sure to be seen contentedly riding about on the back of some animal. About Altagracia and Caicara I observed them riding on the backs of dogs, pigs, cattle, horses and burros.

A female taken May 9th was brooding.

Adult birds have the eye saturn red; bill black; feet blackish.

Not observed above Caicara.

PLATYTRICUS GRISEICEPS (Salvin).

Platyrrhynchus griseiceps Salv., Bull. B. O. Club, VII. 1897. p. 15; Berlepsch & Hartert, p. 37.

Specimens were sent from points on the Caura River to the Tring Museum by Klages from Suapure, and by André from Nicare and La Pricion.

PLATYTRICCUS MYSTACEUS INSULARIS (Allen).

Platyrrhynchus insularis Allen, Bull. Am. Mus. Nat. Hist., II 1889. p. 143 (Type, Tobago).

Platyrrhynchus mystaceus Berlepsch & Hartert, p. 37 (Caicara on the Orinoco and La Pricion on the Caura River).

Platyrrhynchus mystaceus insularis Hellmayr, Novit. Zool., XIII, 1906, p. 22 (Caicara, Orinoco).

Platytriccus insularis Ridgway, Proc. Biol. Soc. Wash., XVIII, 1905, p. 211.

Mr. Hellmayr in his paper on the Birds of Trinidad¹ considered the birds from the Orinoco (Caicara), as intermediate between the typical *mystaceus* and *mystaceus insularis*, but the series in this Museum and that of the American Museum does not confirm that opinion. I am unable to find any differences between birds from Caicara (on the upper river), or birds from Las Barrancas (in the delta region), and birds from Trinidad.

Adult birds have the eye seal brown; bill, maxilla black, and mandible pinkish flesh color; feet delicate greyish flesh white, claws greyish white. In an immature male taken at Las Barrancas August 3, 1907, both mandible and maxilla are blackish.

This little flycatcher frequents the undergrowth in heavily wooded districts.

PLATYTRICCUS SATURATUS (Salvin & Godman).

Platyrrhynchus saturatus Salv. & Godm., Ibis. 1882. p. 78; Berlepsch & Hartert, p. 37.

On the writer's first expedition to the Orinoco, a single specimen was collected at Nericagua above the falls of Maipures; this and specimens collected by André at La Pricion on the Caura, were recorded by Berlepsch and Hartert (*l. c.*).

TODIROSTRUM CINEREUM CINEREUM (Linnaeus).

Todus cinereus L., Syst. Nat. ed. 12. I. 1766. p. 178.

Todirostrum cinereum Berlepsch & Hartert, p. 37.

Common, frequenting second growth clearings, and the thickets and low trees on the borders of open savannas.

Adults have the eye straw yellow; bill black above, whitish below; feet plumbeous.

¹Novit. Zool. XIII. 1906. p. 22.

Three nests and sets of eggs were taken at Caicara in 1905. The first set of eggs, collected May 11th, shows more variation than the others. Two of the three eggs are ovate in form and one is elongate ovate. They are white without gloss, two of them with a few tiny brownish spots on the larger end, the third with the larger end sparsely marked with wood-brown spots. The eggs of this set measure 16×11 ; 17.25×11 and 16.5×11.25 mm. On the 18th of June two sets of three eggs each were taken. One set is white without any markings, ovate in form and measure 16.25×11.15 ; 16.75×11.15 and 15.75×11.5 mm. One of the eggs of the second set, taken on the 18th, has a very few tiny brownish spots about the larger end, the other two are without markings. These are ovate in form and measure 15.75×11.25 ; 16×11.5 ; and 16×11.5 mm.

The three nests display considerable individuality in the respective builders both in the selection of materials and in the details of construction, although the general characteristics are the same in each case. In another place¹ I have described nests of this species that were taken in Costa Rica, and the descriptions there given would apply equally to the ones from the Orinoco before me now.

Two adult females taken April 1st and 3rd respectively, at Ciudad Bolivar, show small white partially concealed crown spots formed by white bases to some of the crown feathers.

This species was not observed beyond Caicara.

TODIROSTRUM MACULATUM (Desmarest).

Todus maculatus Desmarest, Hist. Nat. Tang. 1805. (hab. "Guiane").

In the collection made by Mr. C. Wm. Beebe at Guanoco, Orinoco delta, is an example of this species.

TODIROSTRUM SCHISTACEICEPS Slater.

Todirostrum schistaceiceps Scl., Ibis, 1859. p. 444; Berlepsch & Hartert. p. 37.

Only a trifle less common than *T. cinereum*, but unlike that species it frequents the undergrowth of the heavily forested regions, and while common at Caicara and points higher up the river it was not seen anywhere below that point.

In life the eye varies from a sepia to a chocolate brown; bill black; feet drab grey.

¹Auk. VII. 1890. p. 233.

On our last expedition three nests and sets of eggs together with the parent birds were collected. All were found in the neighborhood of Caicara. The first taken June 15th contained two fresh eggs. One is elongate ovate the other ovate in form. They measure 17.5×12 mm. and 16×12.2 mm. respectively. In color they are white with a slight creamy tinge, marked about the larger end with small dots and irregular blotches of brown, varying from a light hazel to a dark chestnut.

The nest looks exactly like a handful of broad-leaved drift grasses suspended from the tip of a slender drooping twig. The structure is 45 cm. in length and 12 cm. in greatest diameter where the nest cavity is situated. There is no extension built out over the entrance to the nest cavity such as is seen in nearly all nests of *T. cinereum*, but only the round entrance partially concealed by loose blades of dead grasses hanging down over it. The grass blades forming the outer covering on the upper half of the nest all hang straight down over the sides, forming a perfect thatch. I imagine that the structure will shed water perfectly. The nest cavity is shallow, hollowed only a little below the entrance. There is a nest lining of fine soft grasses. This nest was suspended barely 75.72 cm. above the ground. It was in the centre of a thicket of undergrowth in the heavily forested belt of timber along the river bank.

The parent birds were exceedingly shy, and not until after an hour's waiting was I able to make sure of the owner's identity and to collect the male parent.

The second nest was found June 19th. It contained only one egg and that with incubation far advanced. This egg is ovate in form and measures 17×12 mm. The ground color is similar to the two described above, but the markings consist of tiny dots and some larger spots of dark chestnut brown scattered over the entire surface of the egg, but most thickly about the larger end. The nest was in the centre of a thicket that bordered a pool of water in the thick forest. It was suspended from the extreme tip of a slender twig, that bent out over the water, and only about 91.5 cm. above its surface.

The female parent was seen to fly from the nest, and was then collected.

The third and last nest collected was taken June 29th. It contained two eggs in which incubation was far advanced. One egg is ovate; the other is longer, nearly an elongate ovate. The two eggs measure 17.25×12.5 mm. and 18.5×12.5 mm. respectively. They are a little

more heavily marked than the first set. The nest was located in a locality exactly similar to that last described.

From this material it would seem that two eggs is the normal clutch for this species. The three nests are very similar to one another.

TAENIOTRICCUS ANDREI Berlepsch & Hartert.

Taeniotriccus andrei Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 38.
(Type, La Pricion, Caura River, Venezuela, Tring Museum).

The type of this species, collected by Mr. André is, I believe, unique. The specimen, now in the Tring Museum, was taken at La Pricion, on the Caura River, February 18, 1901.

PERISSOTRICCUS ECAUDATUS (Lafresnaye & D'Orbigny).

Todirostrum ecaudatum Lafr. & D'Orb. in Mag. Zool. VII. 1837. p. 47
(Yuracares, Bolivia).

Orchilus ecaudatus Berlepsch & Hartert, p. 39 (Munduapo, Upper Orinoco and Suapure on the Caura River, Venezuela).

Perissotriccus ecaudatus Oberholser, Proc. U. S. Nat. Mus., XXV, 1902, p. 64.

Only a single specimen of this species has been taken by the writer in the Orinoco region. An adult male was taken at Munduapo on the upper Orinoco, March 15, 1899, and Klages collected an example at Suapure on the Caura River. Colors of the fresh bird were, eye sepia brown; bill black; feet mouse grey.

ATALOTRICCUS PILARIS VENEZUELENSIS Ridgway.

Colopteryx pilaris Cab.; Berlepsch & Hartert, p. 39. (Points on the Orinoco, Ciudad Bolivar, Altigracia, Caicara, Quiribana de Caicara, Maipures.)

Atalotriccus pilaris venezuelensis Ridgw., Proc. Biol. Soc. Wash., XIX. 1906. p. 115.

Common in the thickly wooded areas along the river banks from Ciudad Bolivar to above the falls of Maipures.

Adults have the eye straw yellow; bill blackish with pale edges and extreme basal part of the mandible pale; feet cinerous grey.

COLOPTERYX GALEATUS (Boddaert).

Motacilla galeata Bodd., Tab. Pl. Enl. 1783. p. 24.

Colopteryx galeatus Berlepsch & Hartert, p. 39.

This, like the preceding species, is found all along the river from Ciudad Bolivar to beyond the falls of Maipures, but is much less common.

HABRURA PECTORALIS BREVIPENNIS Berlepsch & Hartert.

Habrura pectoralis brevipennis Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 40.

This must be a very rare form in the Orinoco region. The writer secured the type specimen at Caicara, April 26, 1898. It was the only example taken during that expedition and none have been since met with.

The type is said to differ from *H. pectoralis* in having shorter wings, only.

Mr. Ridgway¹ has suggested that "*Habrura* might not be out of place in the Cotingidae," but some recent studies of my own of the tarsi of Mesomyodian birds, chiefly flycatchers, have persuaded me that for the present at least *Habrura* may be safely left with the Tyrannidae.

INEZIA² CAUDATA (Salvin).

Capsiempis caudata Salvin, Bull. Brit. Orn. Club. VII. No. 48. 1897. p. xvi. (Ourumee, Brit. Guiana); Ibis. 1898. p. 154 (reprint); Ridgway, Birds N. & M. Am. IV. 1907. p. 467.

Capsiempis caudata Sharpe, Hand-list III. 1901. p. 117.

Serpophaga orinocensis Berlepsch & Hartert, p. 40 (Altagracia, Caicara, Quiribana de Caicara, Orinoco, Venez.)

Serpophaga caudata (Salvin), apud Hellmayr, Novit. Zool. XIII. 1906. p. 323.

Inezia caudata Cherrie, Sci. Bull. Mus. Bklyn. Inst. I. No. 16. 1909. p. 390.

A not uncommon species in sparsely wooded savanna regions and the borders of heavy timber. It was observed and collected at various points from Las Barrancas, in the delta region, up as far as Munduapo beyond the falls of Maipures.

In life the eye is straw yellow; bill black, slate grey at base of mandible; feet slate grey.

This species was properly removed from the genus *Capsiempis* by Mr. Hellmayr (*vide supra*), but it certainly can not be referred to

¹Birds of North and Middle America. IV. 1907. p. 339.

²Sci. Bull., Mus. Bklyn. Inst. I. 1909. p. 390.

Serpophaga. Inezia caudata and *I. subflava* differ widely from the typical species of *Serpophaga* in the style of coloration, being olive green above and yellowish below, and in the absence of a concealed vertical crown spot. The character of the tarsal envelope is also quite distinct, being taxaspidean.¹

As I have already pointed out (Sci. Bull. I. 1909. p. 390), in fresh specimens of *Inezia* the acrotarsium is seen to cover the anterior half of the tarsus only, on the inner side extending back a little farther than on the outer side. "The upper posterior third of the back of the tarsus seems to be entirely nonscutellate, but on the distal two-thirds is a double series of small elongated scutella, one on each side."

INEZIA SUBFLAVA (Sclater & Salvin).

Serpophaga subflava Sclater & Salvin, Nomencl. Av. Neotr. 1873. p. 158 (Pará, Brazil); Sclater, Cat. Birds Brit. Mus. XIV. 1888. p. 105.

Serpophaga subflava Berlepsch & Hartert, Novit. Zool. IX, 1902. 40-41, in part ("Munduapo," upper Orinoco, Venezuela).

Berlepsch and Hartert (*l. c.*), called attention to the differences between specimens from the middle Orinoco and an example from Munduapo on the upper Orinoco, a difference which seems to be borne out by the series in this museum from the middle and delta regions and a single example from Nericagua on the upper river. And Mr. Hellmayr² who made a comparison between the type of *subflava* and a series of *I. caudata* seemed to find exactly those differences pointed out by Berlepsch and Hartert, and to be observed in the specimens before the writer.

I. caudata is distinguished from *I. subflava* by slightly longer wings and tail, by having the lower throat and upper breast suffused with fulvous, the whitish chin spot spreading on to the upper throat, and belly paler yellow.

SERPOPHAGA HYPOLEUCA Sclater & Salvin.

Serpophaga hypoleuca Scl. & Salv., P. Z. S. 1866. p. 188; Berlepsch & Hartert, p. 41.

On the three expeditions I have made to the Orinoco region, only six of these rare little Flycatchers have been collected. Specimens were

¹Fresh specimens of *Serpophaga hypoleuca* that have been examined, have the acrotarsium extending across the outer side, to and, for the distal two-thirds, around on to the back; on the inside it extends about half way across. The area between the edges of the acrotarsium on the back and inner posterior half of tarsus is occupied by a series of elongated quadrate (better described as oval, perhaps) scutella. On the posterior outer half of the tarsus, above that portion of the acrotarsium extending on to the back, is a single quadrate scutellum, and above that a nonscutellate triangular area.

²Novit. Zool. XIII. 1906. p. 323.

taken at San Mateo de Caicara, Altagracia, and Agua Salada de Ciudad Bolivar. It was found only in the open, sparsely wooded savanna regions.

PIPROMORPHA OLEAGINEA OLEAGINEA¹ (Lichtenstein).

Muscicapa oleaginea Licht., Doubl. Verz. 1823. p. 55.

Mionectes oleagineus Berlepsch & Hartert, p. 41.

Pipromorpha oleaginea Cabanis & Heine, Mus. Hein. II, 1859, p. 55.

Rare on the Orinoco proper where only a single specimen has been collected by the writer. That was taken at Nericagua above the falls of Maipures in April, 1899. It is apparently not uncommon on the Caura River as it was there obtained by both André and Klages. In the American Museum are four specimens collected on the Caura River by Klages, two from La Union taken in October, and two from Suapure, taken in November.

The *Pipromorphae* inhabit thick woods and frequent the low trees and bushes therein.

CAPSIEMPIS FLAVEOLA (Lichtenstein).

Muscicapa flaveola Licht., Doubl. Verz. 1823. p. 56.

Capsiempis flaveola Berlepsch & Hartert, p. 41.

A not common species, but one found all along the river from Las Barrancas in the delta to above the falls of Maipures.

Fresh birds have the eye seal brown; bill above black, mandible pale at base; feet slate.

PHAEOMYIAS MURINA INCOMTA (Cabanis & Heine).

Elaeena incomta Cab. & Heine, Mus. Hein. II. 1859. p. 59 (Cartagena).

Phaeomyias incomta Berlepsch & Hartert, p. 41 (Orinoco, Venezuela; Altagracia, Caicara, Ciudad Bolivar).

A common species frequenting sparsely wooded savanna regions along the middle Orinoco from Ciudad Bolivar to beyond the mouth of the Apure. Specimens have been collected at Ciudad Bolivar, Agua Salada de Ciudad Bolivar, Altagracia, and Caicara.

Eye seal brown; bill above blackish, below dusky with blackish tip; feet slate black.

A nest with the male parent bird was collected at Caicara May 8,

¹It is probable that *P. o. pallidiventris*, the Trinidadian *Pipromorpha* will be found in the coast region of the Orinoco delta.

1907. The nest was saddled between the forks of a small branch at the extreme top of a *Chaparo* Oak which stood in the open savanna. It was about 6.10 m. from the ground. When found, one young bird was perched on the edge of the nest but flew away and was lost when I started to climb after the nest. The nest is a shallow, open, cup-shaped affair, resembling somewhat nests of the wood-pewee (*Myiochanes virens*), or more perhaps that of *Pyrocephalus* or *Sublegatus*. It is a slight affair, loosely saddled in the forks, composed of rather short pieces of fine grass stems and other vegetable fibres with which are mixed many empty spider egg cases. The whole is held together largely with spider-webs. The inner lining consists of a few feathers and more empty spider egg cases. Outside it measures 2.8 cm. in depth by 6 cm. in diameter; the nest cavity measures 1.3 cm. in depth by 4.2 cm. in diameter.

ORNITHION INERME Hartlaub.

Ornithion inerme Hartl., J. F. O., 1853. p. 35 (locality unknown¹); Berlepsch & Hartert, p. 42 (Suapure, Caura River, Venezuela).

Rare. Not observed by the writer (on first trip), but in Berlepsch and Hartert's paper a single specimen is reported collected at Suapure on the Caura River by Klages. In the Brooklyn Museum is a specimen collected by the writer at Maipures in December, 1905. In this example the eye was clay color; bill above black, below slate color; feet blackish slate.

ORNITHION PUSILLUM NAPAEUM (Ridgway).

Myiopatris pusilla Cabanis & Heine, Mus. Hein., II. Sept. 1859. p. 58 (Cartagena, Colombia).

Ornithion napaeum Ridgway, Proc. U. S. Nat. Mus., X. 1888. p. 520 (Diamantina, lower Amazon Valley).

Ornithion pusillum Berlepsch & Hartert, p. 42 (Suapure and La Pricion, Caura River; Altagracia, Caicara, Ciudad Bolivar, Orinoco River, Venezuela).

Common throughout the savanna regions. Young birds are much paler, more cinereous below than the adults.

Iris seal brown; bill blackish, pale at base of the mandible; feet dusky slate gray.

¹Berlepsch & Hartert (l. c.), substitute Bahia.

TYRANNULUS ELATUS ELATUS (Latham).

Sylvia elata Lath., Ind. Orn. II. 1790. p. 549.

Tyrannulus elatus Berlepsch & Hartert, p. 42.

Rare. Specimens were collected at Altagracia, Maipures and Nericagua.

TYRANNISCUS GRACILIPES Sclater & Salvin.

Tyranniscus gracilipes Berlepsch & Hartert, p. 43.

A female of the species was collected at Maipures on the upper river December 18, 1898. No others noted.

ELAENIA MARTINICA FLAVOGASTRA (Thunberg).

Pipra flavogaster Thunb., Mem. Acad. Imp. St. Petersburg, VIII. 1822. p. 286.

Elainea pagana Berlepsch & Hartert, p. 43.

Native name *Capiton*. The same name is applied to all species of the genus and frequently to others of the small dull colored Flycatchers. Common from the delta region up at least to the first falls, frequenting the sparsely wooded savannas. The nesting season about Caicara occurs in April. The nest is usually saddled well out toward the tip of a limb of a scrub oak and rarely over 1.83 m. or 2.44 m. from the ground, often not over 91.5 cm. It resembles the nest of our wood-pewee, but with fewer lichens ornamenting the outside. It is a neat, compact little cup lined with feathers. A nest containing two slightly incubated eggs, collected at Quiribana de Caicara, April 17th (No. 10,766 Coll. G. K. and Stella M. Cherrie), was placed near the end of a limb in a scrub oak about 1.5 m. from the ground. Both parents remained very near, while the nest was being collected, chirping uneasily. The nest measures about 7 cm. outside diameter and 5.5 cm. inside, by 1.7 cm. in depth. The two handsome eggs are rather short ovate in form, of a rich cream color, marked with irregular spots of reddish brown overlying pale mauve-colored markings. In one of the eggs the markings are arranged chiefly in an irregular band about the larger end, in the other the markings are confined chiefly on the larger end itself. The measurements are 22.5 x 17 and 21 by 16.5 mm.

ELAENIA CHIRIQUENSIS CHIRIQUENSIS Lawrence.

Elainea chiriquensis Lawrence. Ann. Lyc. Nat. Hist. N. Y. VIII. 1865. p. 177 (Type ex David, Chiriqui in U. S. Nat. Mus.).

Elaenia albivertex Berlepsch, Proc. IVth Internat. Orn. Cong., 1905. p. 402.

On my first expedition to the Orinoco region a single specimen of this species was collected at Quiribana de Caicara¹ but was not included in Berlepsch and Hartert's paper. In 1905 an adult male and an adult female were taken at Ciudad Bolivar, April 3rd.

ELAENIA CRISTATA Pelzeln.

Elainea cristata Pelz. Orn. Bras. 1868. pp. 107, 177; Berlepsch & Hartert, p. 43.

This and the preceding species occur together throughout the middle stretches of the Orinoco. Specimens were collected at Ciudad Bolivar, Agua Salada de Ciudad Bolivar, Caicara and Quiribana de Caicara. A nest and set of eggs were taken at Quiribana de Caicara April 16th, 1898, and described in the Berlepsch and Hartert paper.

ELAENIA PARVIROSTRIS Pelzeln.

Elainea parvirostris Pelz., Orn. Bras. 1868, pp. 107, 178.

Elainea albiceps parvirostris Berlepsch & Hartert, p. 44. (Caicara, Quiribana de Caicara.)

Common, noted at various points along the river from Caicara down as far as Las Barrancas in the delta region. Only two specimens of this species were taken on my first expedition to the Orinoco. One of the two collected at that time, together with a nest and set of eggs, was taken on the 2nd of April. Both the nest and the eggs resemble those of other species of *Elaenia* that have come under my observation, except that the nest-lining used by *E. cristata* and the present species is composed of the soft, silky hair-like fibres covering the seeds from the silk cotton tree, whereas feathers are usually employed.

Specimens from Caicara and from Las Barrancas have been compared with the type of *Elaenia albiventris*² in the collection of the American Museum and found to be identical.

MYIOPAGIS VIRIDICATA VIRIDICATA (Vieillot).

Sylvia viridicata Vieillot, Nouv. Dict. XI. 1817. p. 171 (Type, Paraguay).

Elainea viridicata Berlepsch & Hartert, p. 44. (Caicara and Quiribana de Caicara, Orinoco River, Venezuela.)

Elaenia viridicata delicata Berlepsch³ Proc. IVth Internat. Orn. Cong., 1907, p. 430 (Caicara and Quiribana de Caicara, Orinoco River).

¹Berlepsch, Proc. IVth Internat. Orn. Cong. 1905. p. 402.

²*Elaenia albiventris* Chapman, Auk. XIV. 1897. p. 368 (Type, Cumanacoa, Venezuela, W. H. Phelps Collection).

³Count Berlepsch writes me under date of Dec. 5th, 1908, that his *E. v. delicata* is true *viridicata*!

Elainea placens Authors, cf. *Scl., Cat. Birds, Brit. Mus. XVI. 1888.*
p. 148.

Not uncommon about Caicara where they frequent the sparsely wooded savanna regions.

MYIOPAGIS GAIMARDI (D'Orbigny).

Muscicapara gaimardii D'Orb., *Voy. dans l'Am. Merid., IV. Ois. 1839. p.*
326 (Yuracares, Bolivia).

Elainea gaimardi Berlepsch & Hartert, p. 44 (Caicara, Maipures, Munduapo, Orinoco River, Saupure and La Union, Caura River, Venezuela).

*E[lainopsis]*¹ *gaimardii* Ridgway, *Birds N. and M. Amer., IV. 1907.*
p. 800 (Santa Marta, Colombia, Venezuela, Trinidad, Brazil).

MYIOPAGIS FLAVIVERTEX (Sclater).

Elainea flavivertex Scl., *P. Z. S. 1887. p. 49; Berlepsch & Hartert, p. 45*
(Munduapo, Orinoco River, Venezuela).

This species was met with on my first expedition only. In the neighborhood of Munduapo it was not uncommon. It is easily distinguished from *M. viridicata* by its smaller size, and the deeper, richer, olive green above, deeper yellow on the belly and heavier wash of olive on the lower throat and upper breast. The yellowish tips to the greater and median line coverts forming two well defined bands are also distinctive.

MYIOPAGIS CINEREA (Pelzeln).

Elainea macilvaini Berlepsch & Hartert (not Lawrence), *Novit. Zool.*
IX. 1902. p. 44 (Saupure, Caura River, Venezuela).

Elainea cinerea Pelz., *Orn. Bras. II. 1870. pp. 108, 180; Berlepsch*
& Hartert, p. 45 (Saupure, Caura River, Venezuela).

E[laenia] cinerea Hellmayr, *Novit. Zool., XV. 1908. p. 47* (Saupure, Caura River, Venezuela).

This species was not observed on the Orinoco proper by the

¹Mr. Ridgway in a paper in the proceedings of the Biological Society of Washington. XVIII. 1905. pp. 207-210, describing new genera of *Tyrannidae*, *Pipridae* and *Cotingidae*, removes *Elaenia elegans* Pelzeln (= *Muscicapara gaimardii* D'Orbigny) from the *Tyrannidae* and constitutes it as the type of a new genus (*Elaenopsis*) of *Cotingidae*, on the ground that it has pycnospidean tarsi and that the basal phalanx of the middle toe is wholly united to the outer toe. However, I find these characters shared by all the species of *Myiopagis* that I have examined—*viridicata*, *flavivertex*, *macilvaini* and *caniceps*.

writer, but two specimens were sent to the Tring Museum by Klages which were collected at Suapure on the Caura River. One of these was identified by Berlepsch and Hartert as *Elainea macilvaini* but Hellmayr has shown it to belong to this species.

SUBLEGATUS GLABER Sclater & Salvin.

Sublegatus glaber Scl. & Salv., P. Z. S. 1868. p. 171. Pl. XIII, fig. 2.

Sublegatus brevirostris glaber Berlepsch & Hartert, p. 45. (Ciudad Bolivar, Altagracia, Caicara, Orinoco, Venezuela).

An abundant species on the sparsely wooded savanna, from Ciudad Bolivar as far as the mouth of the Apure. A nest and two eggs were taken at Quiribana de Caicara, April 15th (No. 1075 Coll. G. K. and Stella M. Cherrie). In general characters the nest is similar to nests of *Pyrocephalus* or *Elaenia*. A neat, compact, although rather frail cup saddled on a horizontal limb usually at a fork where a broader foundation is available. Short bits of thin dry bark and plant stems, held together by cobwebs, form the body of the nest and there is a lining of a few soft feathers. The inside measurements are 5 cm. diameter, by 1.3 cm. in depth. The eggs are ovate in form; thickly marked with irregular seal brown spots that overlie other spots of a pale lavender color, all on a ground color of bluish white. In one egg the spots are pretty uniformly distributed over the entire egg, in the other they are confined chiefly about the larger end. The measurements are 17.5 x 13.5 and 17 x 13 mm.

A nest which, together with a set of eggs and the female parent, was taken at Agua Salada de Ciudad Bolivar, April 15th, was placed on and between the forks near the tip of a horizontal branch of a scrub oak, and only about 1.8 m. from the ground. The body of the nest seems to be made up almost entirely of short bits of the thin paper-like outer bark of the scrub oak, or *guaramal*; held together and attached to the supporting branch by spiders' webs. There is a scant lining of short pieces of fine wire-like, thin, dead grass stems, a few bits of soft bark and more cobwebs. The nest is a shallow open cup measuring 6.5 cm. outside diameter by 4.5 cm. inside and only 2.5 cm. outside depth. Being constructed of the same sort of bark as the supporting branch it is very inconspicuous.

The parent bird sat so closely that my hand almost touched her before she fluttered away. Incubation was far advanced in the two

eggs—so far that I was able to save only one. It is rather short ovate measuring 18.25 x 13.75 mm. The color and markings are similar to those described above. The markings are massed chiefly in a circle about the larger end.

A male in juvenal plumage taken at Caicara, June 8, 1905, (No. 13,844 Cherrie Coll.), is dark brown (nearly a clove brown) above, wings and tail darker. Feathers of the back and head narrowly tipped with buffy brownish. Wing-coverts rather broadly tipped and tertials tipped and edged on the outer webs, with the same color. Throat and upper breast brownish gray, slightly mottled by buffy tips to the feathers; remaining under parts including under surface of the wing a primrose yellow. Eye grayish brown; bill and feet blackish.

In adult fresh specimens the eye is vandyke brown or seal brown; bill is black or blackish; feet slate black.

In the American Museum is a single specimen from Maripa on the Caura River (Klages Coll.).

S. glaber is probably replaced in the delta regions by the following species.

LEGATUS ALBICOLLIS ALBICOLLIS¹ (Vieillot).

Tyrannus albicollis Vieillot, Nouv. Dict. XXXV. 1819. p. 89.

Legatus albicollis Berlepsch & Hartert, p. 45.

A not uncommon inhabitant of the strips of woodland bordering the smaller streams of the savanna regions.

Fresh birds have the eye seal; bill and feet black.

A young bird 24 to 48 hours old had the skin of the back jet black, that below reddish flesh color. The natal down is a tawny russet with olive shade.

The nesting season in the middle Orinoco region occurs during April and May. Some six or eight nests of this species have come under my observation, and in each case they have been in trees in which other species of birds were nesting. Two of the nests examined, taken at Quiribana de Caicara April 8th and 14th, 1898,

¹Mr. Ridgway in characterizing the genus *Legatus* (Birds of North and Middle America, IV. 1907. 438), says:—tarsus "typically exaspidean." However, a careful examination of the specimens in the series in this Museum indicates that the tarsus is far from typically exaspidean; rather it is pycnaspidean, or perhaps it would be better described as quasi taxaspidean. The acrotarsium extends across the outer side of tarsus, but apparently does not overlap the posterior edge at any point. The broad planter space between the edges of the acrotarsium is occupied on the posterior edge by three series of small roundish scutella or granules between which and the inner edge of the acrotarsium is a narrow area of non-scutellate integument.

(No. 10,768, 10,769 Coll. G. K. & Stella M. Cherrie) were apparently year-old, abandoned nests of the common yellow Oriole (*Icterus xanthornus*). A few small dead leaves of the *Salada* tree formed a lining, but whether they had been carried in by the birds or had fallen there by chance seemed open to question. The first of these nests contained a single egg, the second contained two eggs. In each case the parent birds were collected, the female taken with nest No. 10,768 Cherrie Coll. having an egg in the oviduct. A nest without eggs, together with the owners, taken at Caicara, May 4, 1905, is exactly similar in materials employed and style of structure with another nest of *Icterus xanthornus*, containing eggs, that hung within a few feet of it in the same tree. Also in the same tree were nests containing eggs of *Pitangus derbianus rufipennis* and *Myiozetetes superciliosus columbianus*.

An egg collected with the nest (one originally built by the yellow Oriole), and female parent bird at Auga Salada de Ciudad Bolivar April 17, 1907, is ovate in form and measures 22 x 15 mm. The oviduct of the female contained two imperfect eggs indicating that the full set would have been three. On the 7th of May, at Caicara a nest containing one egg just on the point of hatching and a day old chick, was collected; the full set in this case was evidently two.

MYIOZETETES CAYANENSIS RUFIPENNIS Lawrence.

Myiozetetes rufipennis Lawrence, Ann. Lyc. N. Y. IX. p. 267. (Type, Puerto Cabello.)

Myiozetetes cayannensis rufipennis Berlepsch & Hartert, p. 45.

M[yiozetetes] cayanensis rufipennis Hellmayr, Novit. Zool., XV, 1908, p. 49 (N. Venezuela, Orinoco Valley).

M[yiozetetes] c[ayanensis] rufipennis Hellmayr, P. Z. S., 1911, p. 1134 (Ciudad Bolivar, Altagracia, Caicara, Quiribana de Caicara, Orinoco River).

Native name *Pecho amarillo*, a name applied to all the yellow-breasted flycatchers.

An abundant species throughout the sparsely wooded portions of the savanna regions.

Adults have the eye dark sepia brown; bill and feet black.

Young birds in juvenal plumage are dark brown with a faint olive wash above; head black without colored crest, broad superciliary

stripes, white, faintly washed with yellowish, meeting across the forehead and extending backward almost uniting in a band across the occiput; wings and tail blackish; edges of outer webs of wing-coverts, and quills, outer and inner webs of tail feathers, and tips of feathers of lower back, rump and upper tail coverts, rufous; below, including under wing-coverts, bright yellow; throat white; inner webs of wing feathers, except at tips, rufous (juvenal male, Caicara, Venezuela, June 8, 1905, Geo. K. Cherrie, No. 3577, Brooklyn Institute Museum).

Adults in fresh nuptial plumage show rufous edges to the tail feathers.

The nesting season along the middle Orinoco begins early in April and continues into June. The nests are large, loosely woven ragged looking balls of plant fibres and soft grasses, with a large entrance hole on one side. They are usually placed near the ends of large horizontal limbs and rarely more than 3.48 m. from the ground. Two or three (rarely four) eggs are laid; they are speckled and spotted with reddish brown, with a few underlying pale purplish gray patches in some specimens. Usually the markings are confined to a zone about the larger end, but occasionally are quite evenly distributed over the entire surface. The ground color varies from a delicate white to a faint pinkish buff. The form varies from ovate to elongate ovate. A set of three eggs collected at Caicara May 10, 1907 (No. 14,735 Cherrie Coll.) measure 23.5 x 14.75; 22.5 x 14.5 and 22 x 14.7 mm. A set of two taken in the same locality, June 21st (No. 14,983 Cherrie Coll.) measure 23 x 15 and 23 x 15 mm.

MYIOZETETES TEXENSIS COLUMBIANUS Cabanis & Heine.

M[yiozetetes] columbianus Cab. & Hein., Mus. Hein. II. 1859. p. 62.

Myiozetetes texensis columbianus Berlepsch, Ibis, 1884. p. 434 (Angostura).

Myiozetetes superciliosus columbianus Berlepsch & Hartert, p. 46 (Ciudad Bolivar, Altagracia, Orinoco, Venezuela).

Abundant from the delta region up to some distance beyond the mouth of the Caura River. In 1897 and 1898 I found it common at Altagracia, midway between Ciudad Bolivar and Caicara. Not at all common at Caicara. Like the preceding species, it is an inhabitant of the thinly wooded savannas.

In life the eye is light brown to seal brown; bill and feet black.

Birds in juvenal plumage resemble the adults, but are without

the scarlet crown patch and the wing and tail quills and wing-coverts are edged with ochraceous or ochraceous rufous.

A nest containing three fresh eggs was collected at Caicara May 4, 1905. The nest was about 9.14 m. from the ground in the same tree with nests of *Legatus*, *Pitangus* and *Icterus*. In the location, shape and materials employed, it is similar to nests of *M. cayanensis cayanensis*, globular mass of plant fibers and long-bladed grass, placed near the end and pressed in between the forks near the tip of a large horizontal limb. The entrance about 5 cm. in diameter is on the side looking toward the end of the limb. In getting the nest down two of the eggs were broken. The remaining egg is ovate in form, delicate flesh pink in color, quite thickly speckled about the larger end with reddish brown spots overlying other spots of vinaceous brown. The egg measures 20.5 x 19.5 mm. In 1907 sets of eggs were collected April 9th and May 8th.

The nests and eggs of this species are indistinguishable from those of *M. cayennensis*.

MYIOZETETES GRANADENSIS Lawrence.

Myiozetetes granadensis Lawr., Ibis, 1862. p. 11.

Myiozetetes granadensis subsp. ?; Berlepsch & Hartert, p. 46.

This species was not observed by the writer; André, however, sent a single example, collected at La Pricion, on the Caura River, in February, 1901, to the Tring Museum. It is recorded in the Berlepsch and Hartert paper.

TYRANNOPSIS SULPHUREUS (Spix).

Muscicapa sulphurea Spix, Av. Bras. II. 1825. p. 16, Pl. 20.

Myiozetetes sulphureus Berlepsch & Hartert, p. 46 (Quiribana de Caicara, Orinoco River).

Tyrannopsis sulphureus Ridgway, Proc. Biol. Soc. Wash., XVIII, 1905, p. 209.

On my first expedition to the Orinoco this species was found.

Not uncommon about Quiribana de Caicara during April. Not noted elsewhere.

CRASPEDOPRION OLIVACEUS GUIANENSIS (McConnell).

Rhynchocyclus olivaceus guianensis McConnell, Bull. Brit. Orn. Cl. XXVII; 1911; 106 (British Guiana).

Craspedoprion intermedius Todd, Ann. Carnegie Mus. VIII; 1912; p. 207 (Rio Yuruan, a tributary of the Guyuni Riv., Venezuela) La Lajita, Rio Mato.

C[raspedoprion] guianensis Chapman, Bull. A. M. N. H. XXXIII; 1914; 176 (Caura and Yuman in Venezuela).

This species is recorded from La Lajita, Rio Mato (a tributary of the Caura).

RHYNCHOCYCLUS KLAGESI Ridgway.

Rhynchocyclus klagesi Ridgway, Proc. Biol. Soc. Wash. XIX; 1906; p. 115 (Type ex Maripa, Venezuela).

Besides the type there is in the American Museum collection a specimen from the foot of Mount Duida, Upper Orinoco.

RHYNCHOCYCLUS SULPHURESCENS SULPHURESCENS (Spix).

Platyrrhynchus sulphurescens Spix, Av. Bras. III. 1825. p. 10. Pl. 12, fig. 1.

A single adult male was collected at Caicara May 13, 1907. The species was not observed on either of the previous expeditions, nor is it included in Berlepsch and Hartert's list.

Eye yellowish; mandible delicate flesh pink; feet slate color.

RHYNCHOCYCLUS SULPHURESCENS ASSIMILIS Pelz.

Rhynchocyclus assimilis Pelzeln, Orn. Bras. (1869); p. 110, p. 181.

Rhynchocyclus sulphurescens assimilis Berlepsch 4th Internat. Orn. Congress 1907; p. 482.

The American Museum collection contains a specimen from the "Foot of Mount Duida," Upper Orinoco, collected by Miller and Iglseder.

RHYNCHOCYCLUS POLIOCEPHALUS SCLATERI Hellmayr.

Rhynchocyclus poliocephalus sclateri Hellmayr, Verh. Zool.-bot. Ges. Wien. LIII. 1903. p. 207. (Type, Barra de Rio Negro) Nericagua and Maipures, Orinoco River, and Suapure and La Pricion, Caura River, Venez., and other points: Hellmayr, Novit. Zool. XIII. 1906. p. 86.

Rhynchocyclus poliocephalus Berlepsch and Hartert, p. 47. (Nericagua and Maipures, Orinoco River; Suapure and La Pricion, Caura River, Venezuela).

Only observed on the upper river where specimens were collected at Maipures and Nericagua from December to March. Klages and André sent specimens to the Tring Museum from the Caura River.

RHYNCHOCYCLUS FLAVIVENTRIS FLAVIVENTRIS (Wied).

M[uscipeta] flaviventris Wied, Beitr. Naturg. Bras. III. 1831. p. 929.
Rhynchocyclus flaviventer (nec. Spix) Berlepsch & Hartert, p. 46.

Common, frequenting the edges of heavy timber land and the larger, denser areas of woodland that here and there dot the savannas.

In life the eye is drab brown; bill black above, pale flesh color below; feet slate color.

The nesting season in the middle Orinoco region extends from the last of April to the end of July. The nest is suspended from the extreme tip of some slender branch hanging from the limb of a tree or low bush, occasionally hanging within 15.24 cm. of the ground and rarely over 1.52 m. up. A nest taken at Caicara, June 10th, was suspended at the extreme tip of a slender twig, about 1.52 m. up and hanging directly over a forest path that was much frequented by cattle. It is pouch-shaped, or perhaps better described as retort shaped, (especially the interior cavity), about 20 cm. in length and 8 or 9 cm. in diameter at the bottom or bulbous portion. It is suspended by being tightly tied about the tip of the supporting twig. The entrance, which is from below, is a tube about 6 cm. in diameter, which hangs 10 cm. below the bottom of the nest proper. The materials used are soft, fine dry grasses and vegetable fibres; the whole neat and trim in appearance. A nest taken May 5th is less trim in appearance and the entrance tube hangs about 20 cm. below the bottom of the nest and is carried out at an angle of 30° from the perpendicular. Also on the opposite side of the nest from the entrance tube there hangs a bunch of dead grass making the outlines of the hanging nest that of an inverted V with the apex solid.

The eggs, two or three (usually the latter number) constituting a set, vary in form from ovate to short ovate. In color they are creamy white speckled about the larger end with rufous brown spots and dots and some grayish or lavender underlying spots. A dozen eggs representing six sets average 19.9 x 13.5 mm. The smallest is 18.25 x 13.25 mm. and the largest 21 x 14.2 mm.

Three nests of this species collected within a few days of one another, and in the same general locality (within an area of a circle, the radius of which would not exceed 75 metres) seem to the writer excellent examples of the individual tastes of birds. Each nest is constructed of material distinct not only in its character but also in its color. The various materials from my observations seemed equally abundant, yet one nest is constructed entirely of black fibers and each of the others of a distinct shade and texture of grayish brown fibers. Not only was the character and color of the materials employed in each case distinct, but the builders displayed individual taste in the execution and style of the exterior of the nest structure.

RAMPHOTRIGON RUFICAUDA (Spix).

Platyrhynchus ruficauda Spix, Av. Bras. II. 1825, p. 9. Pl. II, fig. I.

Ramphotrigon ruficauda Berlepsch & Hartert, p. 47.

The writer obtained a single specimen, an adult female at Munduapo, March 15th, 1899. No others were observed. Specimens were, however, collected by both Klages and André on the Caura River at Suapure and La Pricion respectively, and there is a single example in the American Museum, collected at La Union, Caura River, by Klages.

CONOPIAS INORNATUS (Lawrence).

Myiozetetes inornatus Lawr., Ann. Lyc. Nat. Hist. N. Y. IX. 1869. p. 268.

Conopias inornatus Berlepsch & Hartert, p. 47.

A not uncommon species frequenting the sparsely wooded savanna regions occasionally in company with species of *Myiozetetes*. It was observed at various points from Ciudad Bolivar up as far as Caicara.

Eye dark brown; bill black; feet blackish.

A nest and set of eggs together with the female parent bird were collected at Caicara May 6th, 1907. The nest is an open, cup-shaped affair, closely resembling that of our wood-pewee (*Myiochanes virens*). It was saddled on to the forks of a good sized limb, about 4.57 m. from the ground. The tree in which it was placed stood just at the edge of a belt of heavy timber bordering the river. The nest walls seem to be composed almost entirely of grey lichens that are bound together by cobwebs. There is a somewhat scant lining of fine

brownish-colored, vegetable fibers interspersed with bits of grey lichens. The whole is neat and trim in appearance. The measurements are: outside diameter at base 9.3 cm.; height 3.5 cm.; inside diameter 5.7 cm.; depth 2 cm. The eggs are short ovate, white with a faint buffy tinge marked with a few spots and blotches of chestnut brown about the larger end. They measure 21×16 mm. and 21.25×16 mm. The female parent was collected, and dissection showed that no more eggs would have been deposited. Two therefore constitute a full set.

PITANGUS SULPHURATUS RUFIPENNIS (Lafresnaye).

Saurophagus rufipennis Lafr., Rev. Zool. III. 1851. p. 471.

Pitangus derbyanus rufipennis, Berlepsch, Ibis, 1884. p. 434 (Angostura).

Pitangus derbianus rufipennis Berlepsch & Hartert, p. 47 (Ciudad Bolivar, Altagracia and Caicara, Orinoco River).

Native name *Christofue*. Common throughout the savanna regions. Adults have the eye seal brown; feet and bill black.

The nesting season in the middle of the Orinoco region lasts from early April until the end of June. The nests built by this species are modelled on the same plan as nests of *Myiozetetes* as described, but are very much larger and the materials employed are much coarser. A nest, together with three eggs and the parent birds, taken at Caicara, May 3rd, was about 4.57 m. from the ground. It is a great, rough, ragged-looking ball of grass and weed stems, the body of which measures about 30 cm. in diameter. There is an elliptical entrance hole on one side, the minor axis of which measures about 5 cm. and the major about 9 cm. The dead grass immediately about the nest cavity and entrance hole is soft and fine. The nest was well out toward the end of a large horizontal limb, pressed in between forks that supported it from below and on the sides. The three eggs taken with this nest were slightly incubated. There is a noticeable variation in size and shape. One egg is ovate, one a short ovate and the other intermediate between them. They are a rich cream color with seal brown specks and spots, and a lesser number of underlying drab spots, grouped in an irregular zone about the larger end. Measurements 26.5×19 ; 27.5×20.5 and 29.5×20.5 mm.

A second set of three badly incubated eggs, taken on the same date, are similar in color and markings, and measure 28.3 x 20; 30.8 x 20 and 29 x 19.8.

In a set of four fresh eggs, taken May 4th, there are many large irregular spots in the markings which are clustered on the larger end. These eggs measure 28.2 x 19.5; 27.5 x 20; 27.7 x 19 and 27.1 x 19.7 mm.

In the same tree with the nest containing the last set of eggs above described, were nests of *Icterus*, *Myiozetetes* and *Legatus*, and it was the rule rather than the exception to find nests of the present species and those of *Icterus xanthornus* not far from one another in the same tree.

PITANGUS SULPHURATUS TRINITATIS Hellmayer.

Pitangus sulphuratus trinitatis Hellmayer, Novit. Zool., XIII. 1906. p. 24.
(Type "♀", Coparo, Trinidad.)

This form of *P. sulphuratus* was found at Las Barrancas; *P. s. rufipennis* is found throughout the dryer savanna regions of the middle Orinoco and is probably replaced in the entire delta region by *trinitatis*.

PITANGUS LICTOR (Lichtenstein).

Lanius lictor Licht., Verz. Doubl. 1823. p. 49.

Pitangus lictor Berlepsch & Hartert, p. 48.

Birds of this species were found frequenting the edges of the narrow belts of timber bordering the watercourses that cross the open savannas.

Eye seal brown; bill black; feet slate black.

MYIODYNASTES MACULATUS MACULATUS (Müller).

Muscicapa maculata Müller, Natursyst. Supplement, 1776. p. 169.
(“Cayenne”).

Myiodynastes audax Berlepsch & Hartert, p. 48. (Caicara and Quiribana de Caicara, Orinoco and Suapure, Caura River, Venezuela.)

This species was observed from Ciudad Bolivar up as far as Caicara. It was not observed in heavily wooded districts.

An immature male collected June 10th differs from the adult only in the absence of a concealed yellow crest.

In adults the eye is seal brown; bill black, pale at base of the mandible; feet slate color.

A female taken at Caicara May 8th had in the oviduct an egg ready to be deposited. On the same date a nest from which the young were just emerging was found. It was a natural cavity in the trunk of a *Chaparo* oak, about 3 m. up. The tree stood at the edge of an open savanna.

MEGARHYNCHUS PITANGUA (Linnaeus).

Lanius pitangua L., Syst. Nat. ed. 12. I. 1766. p. 136.

Megarhynchus pitangua Berlepsch & Hartert, p. 48.

Not uncommon, noted from the delta region as far up the river as San Fernando de Atabapo.

Eye vandyke brown; bill and feet black.

The juvenal plumage is similar to that of the adult, but darker above, being dark olive brown, and lacking the colored concealed crown patch. A young female taken just as it was leaving the nest (collected at Caicara May 10th) has the wing and tail quills and wing and tail-coverts edged and terminally margined with rufous, the feathers of the back hind neck and occiput are narrowly margined with grayish buff.

An immature female taken July 10th (also at Caicara) is in what is probably the post-juvenal or first winter plumage. This plumage is similar to the juvenal plumage, but the back is more olive and less brownish, agreeing more closely with the adult. There are no greyish buff tips to the feathers of the crown nor to those of the hind neck and they are much less prominent than those of the back. The inner secondaries are margined on the outer webs and tipped with buffy white, the remaining wing quills, wing and tail-coverts and tail quills are margined and tipped with pale rufous.

A nest which the young were just leaving was collected at Caicara May 10th. It was placed on a horizontal limb of a *Chaparo* oak about 3 m. up, and at a point where several radiating small branches supported it on all sides. It is an open cup-shaped structure. The body is composed of coarse dead twigs lined with rather coarse vegetable fibers and plant tendrils. Outside it measures 10 cm. in depth by 16 cm. in diameter. The nest cavity is about 3.5 cm. deep and 9 cm. in diameter. The structure is so loosely put together that the eggs might be seen through the nest walls.

ONYCHORHYNCHUS¹ CORONATUS (P. L. S. Müller).

Muscicapa coronata Müll., Natursyst. Supplement, 1776. p. 168.

Muscivora coronata Berlepsch & Hartert, p. 48. (La Pricion and Nicare, Caura River, Venezuela.)

This species was not observed by the writer but it is reported by Berlepsch and Hartert in their paper as collected by André on the Caura River.

MYIOBIUS BARBATUS BARBATUS (Gmelin).

Muscicapa barbata Gm., Syst. Nat. I. 1788. p. 933.

Myiobius barbatus. Berlepsch & Hartert, p. 49.

Specimens of true *barbatus* were sent from various points on the Caura River to the Tring Museum, and recorded in the Berlepsch and Hartert paper.

MYIOBIUS MODESTUS Todd.

Myiobius barbatus atricaudus (Lawr.)? [*sic.*]; Berlepsch & Hartert, p. 49.

Myiobius modestus Todd, Ann. Carnegie Mus. VIII. 1912. p. 207 (Type ♂, Upata, Venezuela, in Carnegie Museum).

Rare. Found in the thick woods. Specimens were collected at Caicara and on the River San Feliz near its junction with the Cuchivero River. Only two specimens were collected on my first expedition to the Orinoco in February, 1898; a male and female collected at almost the same spot as the Caicara specimens were taken in 1905.

In actions this bird reminds one of our American Redstart.

TERENOTRICCUS² ERYTHRURUS ERYTHRURUS (Cabanis).

Myiobius erythrurus Cab. in Wieg. für Naturg. 1844. p. 249, Pl. 5, fig. 1; Berlepsch & Hartert, p. 49. (Nericagua, Orinoco River, Nicare and Suapure, Caura River.)

A single specimen was taken in April, 1899.

EMPIDochANES ARENACEUS (Sclater & Salvin).

Ochthoeca arenacea Scl. & Salv., P. Z. S. 1877. p. 20.

Empidochanes arenaceus Berlepsch & Hartert, p. 50.

Observed and collected at various points along the river from Las Barrancas in the delta region as far as Caicara. This species frequents the thickets in heavily timbered areas.

¹For the use of this generic name instead of *Muscivora*, see Oberholser, Auk, XVIII. 1901. p. 193.

²Ridgway, Proc. Biol. Soc. Wash. XVIII. 1905. 207.

Eye dark brown; bill black, pale at base of mandible; feet slate grey.

EMPIDONAX LAWRENCEI Allen.

Empidonax lawrencei Allen, Bull. Am. Mus. Nat. Hist. II. 1889. p. 150
(Type, *Ochthoeca flaviventris* Lawrence, "South America"—locality unknown).

Empidonax pileatus Berlepsch & Hartert p. 50 (Suapure, Caura River).

Not observed by the writer, but Klages secured a specimen on the Caura River at Suapure (see above) and the species has been also recorded from Cumana and Caripe.

MYIOCHANES BRACHYTARSUS (Sclater).

Empidonax brachytarsus Scl., Ibis, I. 1859. p. 441.

Horizopus brachytarsus depressirostris (Ridgw.) ? [*sic*]; Berlepsch & Hartert, p. 50 (Altagracia, Orinoco River, Venezuela).

A female taken at Altagracia, December 16, 1897, was sent to the Tring Museum, but the writer has not since observed the species on the Orinoco. In Trinidad it is not uncommon.

MYIARCHUS TYRANNULUS TYRANNULUS (P. L. S. Müller).

Muscicapa tyrannulus Müll., Natursyst. Supplement, 1776. p. 169
(Cayenne).

Myiarchus tyrannulus Berlepsch & Hartert, p. 51.

Common at Las Barranças and from Ciudad Bolivar up to and beyond Caicara.

Adults have the eye seal brown; bill black; feet blackish slate. The nesting season at Bolivar begins early in April.

A male bird was flushed from a nest containing three fresh eggs April 8th. The nest was situated in a large cavity of a fence post, about 1.47 m. from the ground. The cavity was about 35.5 cm. deep, open from above, and half way down one side the eggs were easily seen at the bottom of the nest. The nesting material consisted chiefly of cow hair with one or two bits of cloth and many pieces of cast off snake skin scattered through the body of the nest and about its upper edge. A few feathers formed a nest-lining, a half-dozen bright green parrot scapulars adhering to a piece of skin being most conspicuous.

The eggs closely resemble eggs of the Crested Flycatcher of the eastern United States. They are pale creamy buff in color, marked with longitudinal lines, dashes and irregular blotches of bay brown overlying similar markings of purplish drab. They are ovate in form and measure 24.8 x 17; 23.8 x 16.7 and 24 x 17 mm.

A second nest containing three fresh eggs was found April 12th. This nest was in a hole in the centre of an old rotten stump, about 91.5 cm. from the ground, the cavity being open from above. The nesting material was in every way similar to that described above. The eggs are similar in color but with the markings more thickly spread over the surface and consisting of narrower lines, scratches and dashes of color. The measurements are 24 x 17.5; 24.7 x 17.9 and 24.2 x 17.7 mm. respectively.

A male in juvenal plumage, taken at Caicara May 6th, is very similar to the adult, differing only in that the upper parts are more brownish and less olive, and that the wing-coverts and secondaries are broadly edged and tipped with pale russet instead of brownish buff.

MYIARCHUS FEROX VENEZUELENSIS Lawrence.

Myiarchus venezuelensis Lawr., Proc. Acad. Nat. Sci. Phila., 1865. p. 38.

Myiarchus ferox venezuelensis Berlepsch & Hartert, p. 51.

Much less common than the preceding species.

Adult birds have the eye seal brown; bill black; feet blackish slate.

I have compared specimens from Ciudad Bolivar and Caicara with Lawrence's type of *venezuelensis* and find them closely similar.

MYIARCHUS TUBERCULIFER TUBERCULIFER (Lafresnaye & D'Orbigny).

Tyrannus tuberculifer Lafresnaye & D'Orbigny, Syn. Av. i, in Mag. Zool., 1837, cl. ii, p. 43 (Guarayos, East Bolivia).

Myiarchus coaliei Ridgway, Proc. U. S. Nat. Mus. IX. 1886. p. 520 ("Orinoco").

Myiarchus tricolor Berlepsch & Hartert, p. 51 (Quiribana de Caicara, Nericagua, Orinoco River).

Rare; seen only in vicinity of Caicara and Quiribana de Caicara and on the upper Orinoco at Nericagua.

Eye seal brown; bill black; feet slate black.

EMPIDONOMUS VARIUS (Vieillot).

Muscicapa varia Vieill., Nouv. Dict. XXI. 1818. pp. 458, 459.

Empidonomus varius Berlepsch & Hartert, p. 51.

Not uncommon in the denser clumps of timber bordering shallow streams on the savannas and also frequenting the borders of the heavy timber growth along the Orinoco.

Immature birds differ from the adults in not having the tips of the primaries abruptly attenuated, nor have they the yellow crown patch. A male in *juvencal plumage* (taken at Caicara, May 1st) has the entire top of the head covered with rather short blackish feathers narrowly margined with ferruginous; the back is brownish black with ferruginous edges to the feathers; wings and tail brownish black, the rectrices broadly margined on both webs with ferruginous; primaries, lesser and median coverts narrowly margined with buffy rufous, greater coverts and inner primaries margined with white. That the yellow crown patch is not assumed until after the second moult is indicated by an immature female, taken at Caicara June 19th, that is just assuming the adult plumage.

The crown is pale dusky brownish sprinkled with a few black feathers with bright yellow bases. The edges of the back feathers and wing-coverts, as in the case of the immature male, are rufous. The abdomen is a pale sulphur yellow, very much brighter in color than in any of the adults before me.

The food of this Flycatcher consists largely of berries and other small fruits.

TYRANNUS DOMINICENSIS (Gmelin).

Lanius tyrannus B. dominicensis Gm., Syst. Nat. I. 1788. p. 302.

Tyrannus dominicensis Berlepsch & Hartert, p. 52.

Observed in the immediate vicinity of the river only and noted as not uncommon from the delta region up as far as Ciudad Bolivar. Occasionally specimens were noted as far up as the mouth of the Apure River.

This species was nesting at Agua Salada de Ciudad Bolivar, in April. The nest is similar in construction to that of *T. melancholicus*.

TYRANNUS MELANCHOLICUS SATRAPA (Cabanis & Heine).

Laphyctes satrapa Cab. & Hein., Mus. Hein., II. 1859. p. 77.

Tyrannus melancholicus Berlepsch & Hartert, p. 52.

Common in the thinly wooded savanna districts; resembling in its pugnacious habits our northern Kingbird.

Adults have the eye seal brown; bill black; feet blackish.

The nesting season in the neighborhood of Caicara begins at the end of March and continues into May. The nests are open structures loosely put together, rather bulky and consisting of twigs, roots and grasses without other lining material. Frequently the eggs can be seen through the nest walls. Ordinarily the nests are from 1.5 m. to 3.5 m. from the ground placed near the end of the long horizontal limbs of the scrub oak.

A set of three fresh eggs collected at Caicara May 7th was at the extreme top of a scrub oak (*Chaparo*), about 4.57 m. from the ground. A little lower down in the same tree and not 1.83 m. distant was a nest of the Blue Tanager, *Thraupis cana*. The eggs are between an ovate and a short ovate in form and measure 23.5×17.5 ; 24×17.5 ; 22.5×17.25 mm. In color they vary from whitish to very pale vinaceous buff. The markings chiefly about the larger end consist of irregular spots and blotches of dark chestnut overlying some of hazel brown and others yet deeper of lavender.

MUSCIVORA TYRANNUS (Linnaeus).

Muscicapa tyrannus L., Syst. Nat. ed. 12. I. 1766. p. 325.

Milvulus tyrannus Berlepsch, Ibis, 1884, p. 435 (Angostura); Berlepsch & Hartert, p. 52 (Ciudad Bolivar and Altagracia, Orinoco, Venezuela).

Native name *Tijireta*. The Fork-tail Flycatcher was very abundant about Ciudad Bolivar during the early part of April, equally common at Caicara during the last of April and the first half of May. At that time they were associated in large flocks, and, rising in company, their long tail-feathers fluttering gracefully, presented a most animated picture.

After the middle of May and up to the first of November this Flycatcher is much less commonly seen in the vicinity of the two places mentioned. It inhabits the sparsely wooded savanna where it seems to secure much of its insect food from among the tall grasses. In such a locality when undisturbed, single birds will be seen to flutter up from the ground, two or three feet, in pursuit of some flying insect, and again drop back into the grass.

PIPRIDAE—THE MANIKINS.

The writer has observed and collected seven species in the immediate valley of the Orinoco. Six of the seven species are included in Berlepsch and Hartert's paper, together with two additional species received by the Tring Museum from points on the Caura River.

Eleven species of manikins are included in the present list.

With one exception the species observed by me were seen only at points on the Upper Orinoco,—that is, not below the falls of Atures. The exception was an example of *Pipra aureola* collected in the delta region at Las Barrancas.

KEY TO THE SPECIES AND SUBSPECIES OF GENERA OF PIPRIDAE.

- a. Size large; wing more than 95 mm. *Laniocera*¹ *hypopyrrha*.
 a'. Size smaller; wing less than 95 mm.
 b. Tail short, the outstretched feet reaching to or beyond its end.
 c. Breast without dark striations.
 d. Breast white, uniform with throat on which the feathers are elongated. *Manacus manacus interior*.
 d'. Breast not white.
 e. Back blue. *Chiroxiphia pareola*.
 e'. Back not blue.
 f. General color above and below olivaceous (for both sexes).
 g. Outermost rectrix much narrowed and shortened; and with a large bright yellow vertical crown patch. *Tyranneutes*² *virescens*.³
 g'. Outermost rectrix not abnormal and crown patch absent or represented by a few concealed pale yellow spots on anterior part of crown. *Tyranneutes stolzmanni*.
 f'. General color not olivaceous.
 g. Throat, breast and belly black.
 h. Crown white. *Pipra pipra pipra*.
 h'. Crown bright orange yellow. *Pipra erythrocephala erythrocephala*.
 g'. Breast crimson, shading into orange chrome on upper throat. *Pipra aureola aureola*.
 c'. Breast striated. *Machaeropterus pyrocephalus*.
 b'. Tail longer; outstretched feet not reaching to end of tail.
 c. Shafts of outer tail-feathers elongated, thread-like at tip. *Cirrhopipra filicauda*.
 c'. Shafts of outer tail-feathers not lengthened.
 d. Upper throat white in sharp contrast with chestnut of lower throat and breast. *Heterocercus flavivertex*.
 d'. Upper throat not white, not in sharp contrast with color of lower throat and breast.
 e. With a yellow crown patch. *Neopelma igniceps*.⁴
 e'. No crown patch, general color above brownish olive.
 f. Head not tinged with rufous. *Scotothorus turdinus olivaceus*.
 f'. Head strongly tinged with rufous. *Scotothorus turdinus amazonum*.

CIRRHIPIPRA FILICAUDA (Spix).

Pipra filicauda Spix. Av. Bras. II, 1829, p. 5. Pl. 8, figs. 1, 2.

Cirrhopipra filicauda Berlepsch & Hartert, p. 52.

Not observed in going up the river until in the region of the second falls, where, about Maipures, it was abundant.

¹I follow Mr. Ridgway in placing *Laniocera* with the *Pipridae*, notwithstanding its general resemblance to *Lathria* and *Lipaugus*, for the tarsus is certainly exaspidean.

²*Tyranneutes* Sclater and Salvin, *Ibis* 1881, p. 269.

³Reported from British Guiana—Bartica Grove, Camacusa River and Carimang.

⁴Ex. Brit. Guiana.

In life the eye is cream color; maxilla black, mandible plumbeous; feet heliotrope purple.

PIPRA ERYTHROCEPHALA ERYTHROCEPHALA (Linnaeus).

[*Parus*] *erythrocephalus* L., Syst. Nat. ed. 10. I. 1758. p. 191.

Pipra erythrocephala Berlepsch & Hartert, p. 53; Hellmayr, Ibis, 1906. p. 20.

In ascending the river this species was first met with near the mouth of the river Meta, at a point called Somborge, while from the falls of Atures, as far up as I worked, it was abundant.

It is recorded by Berlepsch and Hartert from various points on the Caura River, and Hellmayr includes Guanoco, Orinoco Delta in the habitat.

Adults in life have the eye creamy white; bill pearl white; feet pearl grey.

PIPRA PIPRA PIPRA (Linnaeus.)

[*Parus*] *pipra* L., Syst. Nat. ed. 10. I. 1758. p. 190.

Pipra leucocilla Berlepsch & Hartert, p. 53; Hellmayr, Ibis, 1906, p. 23.

Not observed by the writer on the Orinoco proper, but included in Berlepsch and Hartert's paper, the Tring Museum having received specimens from Suapure, La Pricion and Nicare on the Caura River.

PIPRA AUREOLA AUREOLA (Linnaeus).

[*Parus*] *aureola* L., Syst. Nat. ed. 10. I. 1758. p. 191.

Pipra aureola Hellmayr, Ibis. 1906. p. 6 (Guanoco, Orinoco Delta).

A single specimen of this species, an adult female, was collected at Las Barrancas in the delta region July 31, 1907. It was not observed at other points visited by the writer. It had been previously recorded, however, from Guanoco, also in the Orinoco Delta.

TYRANNEUTES STOLZMANNI (Hellmayr).

Pipra stolzmanni Hellm., Ibis, 1906. p. 44. (Type ex Marabitanas, Rio Negro)—Nericagua, Orinoco; Suapure, Caura Riv.

Pipra virescens (nec. Pelz.); Berlepsch & Hartert, p. 53.

Collected on the upper Orinoco, at Nericagua, by the writer. Reported also from points on the Caura by Berlepsch and Hartert.

MANACUS MANACUS INTERIOR Chapman.

Manacus manacus interior Chapman, Bull. A. M. Nat. Hist. XXXIII; 1914; p. 624-625. (Type ex Villavicencio, Colombia.)—Maripa (Caura Riv.).

Chiomachaeris manacus Berlepsch & Hartert, p. 53.

A young male taken December 24th, 1898, at Maipures, at the second falls on the river is the only record I have for this species. The American Museum contains a series from Maripa, on the Caura.

MACHAEROPTERUS PYROCEPHALUS (Sclater).

Pipra pyrocephala Scl., Rev. Zool. 1852. p. 9.

Machaeropterus pyrocephalus Berlepsch & Hartert, p. 54.

Not observed on the Orinoco. Berlepsch and Hartert report specimens from La Pricion on the Caura River.

SCOTOTHORUS TURDINUS AMAZONUM (Sclater).

Heteropelma amazonum Sclater, P. Z. S. 1860. p. 466 (Chamicuros).

Scotothorus amazonum Berlepsch & Hartert, p. 54 (Nericagua, Münduapo, Orinoco River).

Scotothorus turdinus amazonum Hellmayr, Novit. Zool., XVII, 1910, p. 310.

Seen only in the thick forest on the upper river at Münduapo and Nericagua.

SCOTOTHORUS TURDINUS OLIVACEUS Ridgway.

Scotothorus olivaceus Ridgway, Proc. Biol. Soc., Wash., XIX. 1906. p. 118 (Type, Rio Mato, near its mouth, on the Caura River, Venezuela, in collection Am. Mus.).

Scotothorus wallacei Berlepsch & Hartert, p. 54 (Nicare and La Pricion, Caura River, Venezuela).

Scotothorus amazonum wallacii Hellmayr, Novit. Zool., XIII. 1906, pp. 363-4. (Caura River, Venezuela).

S[cotothorus] t[urdinus] olivaceus Hellmayr, Novit. Zool., XVII., 1910, p. 31.

Not noted on the Orinoco proper, but reported by Berlepsch and Hartert from the Caura River.

HETEROCERCUS FLAVIVERTEX Pelzeln.

Heterocercus flavivertex Pelz., Orn. Bras., 1870. pp. 125, 186; Berlepsch & Hartert, p. 54.

H[eterocercus] angosturæ Berlepsch & Leverkühn *Ornis*. VI.: 1890: 19 (Orinoco).

Common about Perico and at Maipures, not noted elsewhere.

LANIOCERA HYPOPYRRHA (Vieillot).

Ampelis hypopyrrha Vieillot, *Nouv. Dict.* VIII. 1817. p. 164.

Laniocera hypopyrrha Berlepsch & Hartert, p. 57.

This species was noted only once, a male having been taken at Nericagua April 5, 1899. Berlepsch and Hartert also record specimens from Suapure, La Pricion and La Union on the Caura River.

COTINGIDAE—COTINGAS, TITYRAS, ATILAS, BECARDS, ETC.

Fourteen species are included in the present paper. Only eleven of that number however were observed or collected by the writer on the Orinoco proper, the other three species were included in the Berlepsch and Hartert paper and came from points on the Caura River, but as pointed out in my remarks under Tyrannidae, there are a number of species included under that heading having structural characters that indicate their nearer relationship to the Cotingidae.

KEY TO THE SPECIES AND SUBSPECIES OF GENERA OF COTINGIDAE.

- a. Tarsus pycnaspidean¹ or, essentially, taxaspidean.²
- b. The plantar space on posterior side of tarsus broken up into numerous small irregular scutella.
 - c. Rectal bristles strongly developed.
 - d. Upper part of tarsus feathered in front..... *Lathria cinerea*.
 - d'. Upper part of tarsus naked..... *Pyroderus orenocensis*.
 - c'. Rectal bristles weak or obsolete.
 - d. Wing not more than 125 mm.
 - d'. Wing more than 125 mm.
 - f. A naked space about the eye and along the sides of the neck. *Gymnoderus foetidus*.
 - f'. Loral region and sides of neck feathered.
 - g. With a conspicuous crest on pileum..... *Cephalopterus ornatus*.
 - g'. Pileum not crested..... *Querula purpurata*.
 - b'. The plantar space on each side of posterior half of tarsus with a continuous row of rather large scutella.
 - c. Tail about as long as wing, and all the primary quills normal in both sexes..... *Xenopsaris albinucha*.
 - c'. Tail much shorter than the wing, and the next to the outermost primary in adult male much shortened and with an acuminate tip.
 - d. Width of bill at base not greater than the depth at the same point. *Platyptaris minor*.
 - d'. Width of bill at base much greater than the depth at base.
 - e. Wing more than 95 mm.
 - e'. Wing less than 95 mm..... *Eralor inquisitor erythrogenys*.
 - f. Rectrices rather broadly tipped with white, buffy or rufous.
 - g. Above dark grey, middle of back varied with black (male). *Pachyrhamphus atricapillus*.
 - g'. Above black or dull or greyish olive.
 - h. Rectrices white tipped (males)..... *Pachyrhamphus polychropterus niger*.
 - h'. Rectrices tipped with buff or rufous (females).

¹"The broad plantar space on posterior side of tarsus broken up into numerous small irregular or roundish scutella or granules." Ridgway, *Bull.* 50 U. S. N. M. pt. IV. 1907. 328.

²"The broad plantar space occupied by two or, rarely three, series of smaller, quadrate, rectangular, or hexagonal scutella" Ridgway (*l. c.*)

- i.* Above dull olive with head more or less rufescent... *Pachyrhamphus marginalus.*
i'. Head uniform with back (not rufescent)..... *Pachyrhamphus polychropterus niger.*
f. Rectrices not broadly tipped with white, buff or rufous.
g. Pileum black, blackish or grey, sharply contrasting with general color of the upper parts.
h. Above grey, with or without slight olive wash (male) *Pachyrhamphus cinereus.*
h'. Above tawny olive..... *Pachyrhamphus marcidus.*
g'. Pileum cinnamon rufous nearly uniform with back (female).. *Pachyrhamphus cinereus.*
a'. Tarsus neither pycnaspidean nor essentially taxaspidean.
b. Upper posterior portion of tarsus (near heel joint) conspicuously serrate, and basal phalanx only of middle toe adherent, for most of its length, to the outer toe..... *Lipaugus immundus.*
b'. Upper posterior portion of tarsus *not* conspicuously serrate, and the middle and outer toes adherent for more than the length of the basal phalanx of the middle toe..... *Attila wighti.*¹

TITYRA CAYANA (Linnaeus).

Lanius cayanus L., Syst. Nat. ed. 12. I. 1766. p. 137.

Tityra cayana Berlepsch & Hartert, p. 55.

Not common. In ascending the Orinoco this species was noted at various points from Caicara to above the second falls at Maipures, on the upper river. A female collected at Caicara July 3, 1907, was evidently nesting as the ovaries were active.

ERATOR INQUISITOR ERYTHROGENYS (Selby).

Psaris erythrogenys Selby, Zool. Journ., II. 1826. p. 483.

Tityra inquisitor erythrogenys Hellmayr, Novit. Zool. XIII. 1906. pp. 327-8 (Rio Catañapo, Perico, Maipures, Orinoco River, Venezuela).

Tityra erythrogenys Berlepsch & Hartert, p. 55 (Perico, Rio Catañapo, Maipures, Orinoco River).

On my first expedition this species was not observed below the Falls of Atures, but on the last two expeditions it was not uncommon about Caicara.

Eye seal brown; bill, maxilla black with slate grey basal cutting edges, mandible slate grey; feet dusky slate.

PLATYPSARIS MINOR (Lesson).

Querula minor Less., Tr. d'Orn. I. 1831. p. 363.

Hadrostomus minor Berlepsch & Hartert, p. 56 (Suapure, Caura River, Venezuela).

This species was included in the Berlepsch and Hartert paper, the Tring Museum having received a specimen from the Caura River. It was not seen by me on the Orinoco proper.

The American Museum collection contains specimens from the Caura, received from Klages.

¹As far as I know this species (the type of which came from Trinidad) has not been taken at any point along the Orinoco, but future collecting will probably discover it there.

PACHYRHAMPHUS CINEREUS (Boddaert).

Pipra cinerea Bodd., Tab. Pl. Enl. 1783. p. 43.

Pachyrhamphus cinereus Berlepsch & Hartert, p. 56.

Eye dark seal brown; bill plumbeous, in the male with the tip of the maxilla black, in the female, tip of maxilla and ridge of culmen black; feet plumbeous.

PACHYRHAMPHUS MARCIDUS Cherrie.

Pachyrhamphus marcidus Cherrie, Sci. Bull. Bklyn. Inst. Mus. I. 1909. p. 389 (Type ♀, Las Barrancas, delta region, Orinoco River, Venezuela).

Only two specimens secured, both from the same locality, one day apart.

PACHYRHAMPHUS POLYCHROPTERUS NIGER (Spix).

Pachyrhynchus niger Spix, Av. Bras. II. 1825. 1829. p. 33, Pl. 45, fig. 1.

Pachyrhamphus niger Berlepsch & Hartert, p. 56 (Ciudad Bolivar, Altagracia, Caicara, Perico and Maipures River, Orinoco; Suapure and La Pricion, Caura River, Venezuela).

Not uncommon in the low thick underbrush bordering heavy timber on one hand and open savanna on the other. Found all along the river from the delta region at Las Barrancas at least as far as San Fernando de Atabopo above the falls.

The food consists apparently of about equal parts of insects and small fruits.

In the male the eye is seal brown; bill plumbeous black at tip; feet slate grey; female, eye seal brown; bill above black, mandible whitish at base, slate grey at the tip; feet slate grey.

Considerable individual variation exists in the amount of greyish mottling on the under surface, two out of four adult males having narrow ill-defined greyish shaft streaks on the chin and throat. A specimen from Trinidad has the general under surface lighter grey, but with less distinct mottling. A specimen from Cayenne is nearly uniform sooty black with very faintly indicated greyish mottling on the belly. The amount of grey on the rump is also extremely variable, in some examples scarce a trace being visible, the rump being nearly uniform black like the back.

PACHYRHAMPHUS MARGINATUS (Lichtenstein).

Todus marginatus Lichtenstein, Verz. Doubl. Berliner Mus., p. 51 (1823—Bahia).

Pachyrhamphus atricapillus Berlepsch & Hartert, p. 56 (Munduapo, Orinoco River, Suapure and La Pricion, Caura River, Venezuela).

A single specimen taken at Munduapo February 27, 1899.

Eye seal brown; bill plumbeous with the tip (only) of maxilla black; feet plumbeous.

XENOPSARIS ALBINUCHA (Burmeister).

Pachyrhamphus albinucha Burm., P. Z. S. 1868. p. 635 (Rio de La Plata, near Buenos Ayres).

Xenopsaris albinucha Ridgway, Proc. U. S. Nat. Mus. XIV. 1891. p. 479; Berlepsch & Hartert, p. 36.

Not uncommon along the middle Orinoco from Ciudad Bolivar up as far, at least, as Caicara.

Dr. Burmeister following his original description of this species (*l. c.*) states that it "lives in the sedges of the shores of the Rio de La Plata." Along the Orinoco I found it to be an inhabitant of the sparsely wooded savanna regions. In habits it is much like *Pachyrhamphus*, certain species of which it also closely, if superficially, resembles; and one having observed members of that genus, and the present species, in the field, could not wonder at its having been associated with *Pachyrhamphus* by its describer. Also, Mr. Ridgway (*l. c.*) was certainly correct in describing the genus *Xenopsaris* as pertaining to the family *Cotingidae*.

Berlepsch and Hartert following Dr. Cabanis and Dr. Sclater associate *X. albinucha* with the *Tyrannidae* "in the neighborhood of *Cnipolegus*," but as pointed out by Ridgway¹ the tarsus is *not* exaspidean. It may be of interest to record my observations on the characters of the tarsal covering as seen in fresh specimens of *Xenopsaris* and of *Cnipolegus*. In *Xenopsaris* the acrotarsium covers the anterior half only. The outer posterior half is covered by a series of scutella that merge, at the upper end, into the papillae covering the heel, and at the lower end into the papillae covered area just above the hallux. On the back of the tarsus are three rows of small irregularly quadrangle scutella, those making up the row on the inner side being smallest (papillae like);

¹Birds of North and Middle America IV. 1907. pp. 776-7

and between the inner row and the edge of the acrotarsium there is a narrow strip of non-scutellate membrane.

The outer toe is longer than the inner one, without claw it reaches to the middle of the subterminal phalanx of the middle toe; inner toe, without claw, reaches to just beyond the base of the subterminal phalanx of the middle toe. Entire basal phalanx of middle toe united to outer toe, and about one-fourth its length to the inner toe.

In *Knipolegus* the acrotarsium extends entirely across the outside and around on to the back of the tarsus, except at the upper end where the posterior outer half is occupied by three irregularly quadrate scutella. On the inside the acrotarsium extends about half way across at the upper end and almost completely across at the lower end. (In dried skins the two edges of the acrotarsium usually meet!) The heel is covered with roundish papillae, but the remaining integument between the edges of the acrotarsium is non-scutellate.

The outer and middle toes are united at the base for the length of the basal phalanx of the outer toe. The inner and middle toes are cleft almost to the base.

LATHRIA CINEREA (Vieillot).

Ampelis cinerea Vieill., Nouv. Dict. VIII. 1817. p. 162.

Lathria cinerea Berlepsch & Hartert, p. 57.

Native name *Pajaro minero*. Not observed until above the second falls at Munduapo and Nericagua, where it was abundant, inhabiting the dense forest where it frequents the lower branches of the larger trees.

I shall always remember with pleasure what a thrill of expectancy shot through me when I first heard the clear ringing call of this bird. I was in the dark thick *gomales* forest (rubber trees) following an Indian trail when I was startled by a loud metallic whistle that seemed to come from directly over my head, high up in the tree tops; in a moment I heard it off to my right, then to my left; first on this side, then on that. Then other clarion calls came from the dense forest all about me, some near, others only faintly heard in the distance. The almost death-like stillness that seemed to pervade the twilight quietude of the forest had suddenly been broken and the air reverberated with high-pitched, long-drawn whistling calls. It was a new call to me, one that sent the blood coursing with expectancy. I stepped cautiously forward peering intently into the thick canopy of leaves far above me. The calls were most tantalizing and my

neck ached with the strain of gazing upward when my eye caught a glimpse of a good-sized, dark-colored bird alighting on a bare branch only about 3 meters from the ground and about 9 meters from where I stood. For an instant I forgot the enticing whistles and gave my attention to this quiet dweller of the forest. As I looked the body stiffened and its owner sat up sharply erect, the bill opened and the mystery of those notes that had so thrilled me and brought every sense into unison was solved. This modestly dressed piper was the master ventriloquist.

LIPAUGUS IMMUNDUS Sclater & Salvin.

Lipaugus immundus Scl. & Salv., Nomencl. Av. Neotr., 1773. pp. 57, 159.

Lipaugus simplex immundus Berlepsch & Hartert, p. 57 (Nericagua and Perico, Orinoco River, Suapure and La Pricion, Caura River).

Rare. This species, on my first expedition, was observed and collected at Perico and Nericagua only. Berlepsch and Hartert record Tring Museum examples from La Pricion and Suapure on the Caura River, and in 1907 the writer observed and collected specimens at La Cascabel on the San Feliz River near its junction with the Cuchivero River.

Eye bay brown; bill black; feet slate color.

A male collected at La Cascabel, May 26, 1907, has a distinct narrow greyish collar extending completely around the neck.

ATTILA UROPYGIALIS (Cabanis).

Dasycephala uropygialis Cab. in Schomb. Reise Brit. Guiana, III. 1848. p. 686.

Attila uropygialis Berlepsch & Hartert, p. 58.

This species was not observed on the Orinoco proper, but specimens were sent to the Tring Museum from Suapure and La Pricion on the Caura River.

QUERULA PURPURATA (P. L. S. Müller).

Muscicapa purpurata Müll., Natursyst. Supplement, 1776. p. 169.

Querula purpurata Berlepsch & Hartert, p. 58.

Not seen by the writer but collected by both André and Klages on the Caura River and recorded in the Berlepsch and Hartert paper.

PYRODERUS SCUTATUS ORENOCENSIS (Lafresnaye).

Coracina orenocensis Lafresnaye, Rev. Zool. 1846, p. 277 ("Orenoque").

Pyroderus [scutatus orenocensis] Chapman, Bull. Am. Mus. Nat. Hist. XXXIII: 1914: p. 631 (Altigracia, Orinoco Riv.).

The recording by Chapman of a specimen collected by M. A. Carriker at Altigracia on the Orinoco confirms Lafresnaye's type locality "Orenoque."

CEPHALOPTERUS ORNATUS Geoffroy.

Cephalopterus ornatus Geoffr., Ann. d. Mus. Paris XIII. 1809. p. 238, Pl. 17; Berlepsch & Hartert, p. 58.

After passing the mouth of the river Meta, on my way up the Orinoco, this species was occasionally observed, and specimens were collected at Samborge and Nericagua. They are both difficult to see, and difficult to get, from their habit of keeping to the very tops of the high forest trees.

Adults have the eye pearl grey; bill black above, plumbeous below; feet slate grey.

GYMNODERUS FOETIDUS (Linnaeus).

Gracula foetida L., Syst. Nat. ed. 12. I. 1766. p. 164.

Gymnoderus foetidus Berlepsch & Hartert, p. 58.

Native name *Pavita*. This, like the preceding species, is rarely seen as it keeps to the thick foliage of the tree tops. It was not met with below the mouth of the Meta.

RUPICOLIDAE—THE COCK OF THE ROCK.

RUPICOLA RUPICOLA (Linnaeus).

Pipra rupicola L., Syst. Nat. ed. 12. I. 1766. p. 338.

Rupicola rupicola Berlepsch & Hartert, p. 58.

Although no specimens were collected this species was frequently observed about the Maipures rapids on the Orinoco.

FURNARIIDAE—THE OVENBIRDS.

Accepting Mr. Ridgway's characterization of the family of the ovenbirds¹. I find it represented in the Orinoco region by seven genera in which are included fourteen species and subspecies.

Members of this family are remarkable for the very unusual character and variety of their nests.

¹Birds of North and Middle America V:1911: p. 157.

I believe all the species found in our region are permanent residents there. Several of the forest frequenting species such as those that pertain to the genera *Philydor*, *Xenops*, and *Automolus* are commonly found in the small flocks of birds (made up of many unrelated forms) that wander aimlessly about the forests and that are so characteristic of bird life in the tropics.

KEY TO THE GENERA, SPECIES AND SUBSPECIES OF FURNARIIDAE.

- a. Maxilla with tip not at all decurved; mandible strongly recurved terminally..... *Xenops genibarbis*.
- a'. Maxilla with tip more or less decurved and mandible not recurved terminally.
- b. Nostrils decidedly operculate, opening a narrow longitudinal slit.
- c. Breast streaked, the feathers with buffy shaft streaks.
- d. Tail short, slightly rounded; outstretched feet reaching to end of tail..... *Microxenoops milleri*.
- d'. Tail long, graduated; outstretched feet falling far short of end of tail..... *Thripophaga cherriei*.
- c'. Breast feathers *without* buffy shaft streaks.
- d. A distinct, yellow, yellowish, black or blackish chin spot.
- e. Breast hazel brown—chin and upper throat blackish..... *Synallaxis rutilans*.
- e'. Breast not hazel.
- f. Crown chestnut brown, in sharp contrast with remaining upper parts..... *Siphornis hyposticta*.
- f'. Crown practically uniform in color with back.
- g. Primary quills with distal half (more or less) of inner webs blackish, the line between that and the rufous basal portion being abruptly transverse..... *Synallaxis cinnamomea*.
- g'. The blackish color of the distal part of the inner webs of the primaries extends well toward the base of the quills along the shaft, the line between the blackish tips and rufous base extending diagonally across the web of the feathers... *Synallaxis gujanensis*.
- d'. Chin spot (if present) neither yellowish nor blackish.
- e. General color of upper parts bright hazel brown (pileum darker)..... *Synallaxis vulpina alopecias*.
- e'. General color of upper parts buffy-brown, or olive-brown with rufous wash.
- f. Tail brown, nearly uniform with back..... *Synallaxis albescens albigularis*.
- f'. Tail nearly walnut brown, *not* uniform with back..... *Synallaxis gujanensis gujanensis*.
- b'. Nostrils not operculate (opening not slitlike), rounded, opening upward.
- c. General color of under parts bright raw sienna..... *Philydor pyrrhodes*.
- c'. General color of under parts buffy-brown, olive buff, or dusky tawny olive.
- d. Feathers of crown (slightly elongated) and occiput chestnut, very distinct from the rusty raw-umber of the back..... *Philydor rufipileus conso-brinus*.
- d'. Feathers of crown and occiput nearly concolor with back, not chestnut.
- e. A well defined buffy-yellow superciliary stripe extending from the bill to the occiput; throat reed yellow..... *Philydor ruficaudatus*.
- e'. No superciliary stripe, or, if present, not well developed, and throat not reed yellow.
- f. General color of under-parts tawny olive brown, paler in the centre; chin and upper throat pinkish buff..... *Automolus turdinus*.
- f'. General color of under-parts without tawny shade; chin, throat and middle of breast cartridge buff (Ridgway's); sides dusky olive-brown..... *Automolus infuscatus cervicalis*.

SYNALLAXIS ALBESCENS ALBIGULARIS Sclater.

Synallaxis albigularis ScL., P. Z. S. 1858. p. 63.

Synallaxis albescens albigularis Berlepsch & Hartert, p. 59.

Noted from the delta region at Las Barrancas up as far as the mouth of the Apure River.

An immature bird collected at Las Barrancas, August 1, 1907, is nearly uniform bistre brown above, the wings and tail dusky brownish edged with the color of the back; below, the throat and belly are pale buff washed with ochraceous. Sides of upper breast brownish olive almost meeting across the breast; under tail-coverts, sides and flanks buffy olive; under wing-coverts ochraceous buff. In life the eye was sepia brown; bill above black, below dusky grey; feet dusky pea green.

The White-throated Spine-tails frequent the almost impenetrable thickets of thorny bushes, vines and stunted trees that spring up in areas which have been cleared for cultivation and later abandoned, and also in localities where the soil seems so poor as to be unable to support anything besides thorny bushes.

In habits they remind one somewhat of the wrens. Their flight is weak and when disturbed they only fly a few feet at a time, from one thicket to another, rarely if ever mounting into the tree tops.

The breeding season is evidently a long one, as at Caicara I have found nests with fresh eggs the first of May and again in the middle of August. The nests are extraordinary structures from 40 to 50 cm. in length, composed of dry, usually thorny twigs, from 5 to 15 cm. in length, skillfully woven into an upright cylindrical shaped mass with a long tubular entrance to the nest cavity, which occupies the lower half of the cylinder. They are sometimes built within from 3.5 to 15 cm. of the ground among the thorns of low bushes, the foliage of which completely hides the nest. Again, I have found them 1.22 m. from the ground, above the tops of the surrounding bushes, not in any way concealed, the body of the nest resting in the forks of a low tree and the entrance tube supported along the top of one of the limbs. The twigs at the top of the body of the nest are laid longitudinally so as to form a sort of thatched roof over all. The eggs are a uniform pale greenish in color; and three constitute a full set.

A nest, and three fresh eggs taken at Caicara May 9th, was built only about 15 cm. above the ground in a low dwarfed tree, whose branches bristled with short, thin and exceedingly sharp thorns. It was completely concealed from above and on the sides by foliage. The nest is constructed entirely of small, dry, and for the most part thorny sticks, from 5 to 12 cm. in length. But, in spite of the thorns, and the consequent irregular shape of the twigs employed, they are laid together and interwoven with such skill that only very small

interstices are to be observed, and considerable force was required to make an opening through the nest walls in order to remove the eggs. This nest, bristling with thorns, and built of strongly interwoven twigs, together with its peculiar shape, would seem to offer an ideal concealment and safe retreat for the eggs and the parent bird during incubation and later for the helpless young. The eggs are a pale greenish in color, ovate in form and measure 19.8 x 12.2; 20.2 x 15.5 and 20.5 x 15.5 mm.

A second nest taken on the same date was similar in general shape and in the materials employed in construction, but was some 40 cm. from the ground in the forks of a low tree. It was not, however, in any degree concealed by foliage; and the entrance tube was almost at right angles to the body of the nest, its position doubtless being determined by the supporting limb, while the entrance tube in the example described above entered at an angle of about 45° to the body of the nest. This nest contained three eggs with incubation well advanced. The eggs are uniform in color with the ones above described but are more of a short ovate in form. They measure 19 x 15.2; 19.3 x 15.5 and 18 x 15.5 mm.

SYNALLAXIS CINNAMOMEA (Gmelin).

Certhia cinnamomea Gm., Syst. Nat. I. 1788. p. 480.

Synallaxis cinnamomea Berlepsch & Hartert, p. 59.

Found abundantly at Ciudad Bolivar and at various points on the San Feliz River near its junction with the Cuchivero River (and in 1897 very common at Altagracia, half way between Bolivar and Caicara), but rarely met with at Caicara. It inhabits the thickets and low bushes bordering streams and ponds.

Eye in different examples, varying from a hazel brown to a pale hair brown; bill, plumbeous above, pale below; feet, from a slate to a plumbeous grey.

A nest containing two fresh eggs, together with the parent bird, was collected at Las Guacas on the San Feliz River May 31, 1907. The nest, similar in structure and similarly located to nests of *S. a. albigularis*, was about 60 cm. from the ground in the centre of a thorny bush. The eggs, a pale greenish or bluish green in color, are ovate in form and measure 19.25 x 14.35 mm. and 19.25 x 14.5 mm, respectively.

Beebe obtained specimens at Guanoco in the delta region.

SYNALLAXIS GUJANENSIS GUJANENSIS (Gmelin).

Motacilla gujanensis Gm., Syst. Nat. I. 1788. p. 988.

Synallaxis guianensis Berlepsch & Hartert, p. 59.

This species was not observed on my earlier expeditions, but in July, 1907, two adult males were collected at Las Barrancas in the delta region.

In the American Museum there is an adult female collected by Klages at La Union on the Caura River, Sept. 26, 1901.

Eye dusky brown; bill above black, below slate grey; feet grey.

The Tring Museum received specimens from La Pricion on the Caura River.

SYNALLAXIS RUTILANS Temminck.

Synallaxis rutilans Temm., Pl. Col. 1823. p. 227; Berlepsch & Hartert, p. 60.

Seen only on the upper river above the falls of Maipures, at Nericagua. Klages and André both collected specimens on the Caura River (Suapure, La Pricion, Nicare and La Union) that were sent to the Tring Museum. There are two females in the American Museum collected by Klages at Suapure on the Caura River, one in September, the other in February.

SIPTORNIS VULPINA ALOPECIAS (Pelzeln).

Synallaxis alopecias Pelz., Sitz. Akad. Wien, XXXIV. 1859. p. 101.

Synallaxis vulpina alopecias Berlepsch & Hartert, p. 59.

Common at Ciudad Bolivar and at all points visited along the Orinoco up to and beyond the falls of Maipures. It frequents the thickets bordering streams and ponds.

Adults have the eye vandyke brown; bill dark brown above, lilac grey below; feet sage green.

A nest and two fresh eggs were collected at Caicara July 2, 1907. One egg of the set was accidentally crushed, the remaining egg is pure, dull white, ovate in form and measures 20 x 15.5 mm. Three weeks prior to the collecting of the eggs and nest a pair of Fox-red Spine-tails were observed hovering about what appeared to be a mass of drift grass that had lodged between the forks at the top of a slender

sapling, and that at that time was some 2.13 m. above the surface of the water. (The sapling stood in a flooded area and at that level of the water was perhaps one hundred meters from the river shore.) Masses, similar to that at which the Spine-tails were working, are common all along the river and represent in many cases veritable accumulations of drift but quite as often they are doubtless the old nests of such species as *Pitangus sulphuratus rufipennis*, *Myiozetetes cayanensis rufipennis* or *M. texensis columbianus* that have been submerged during the flood season, and impregnated with the fine sediment from the surrounding water. After the waters recede, the mud filled masses of drift become tenanted with many forms of insect life and soon develop into a favorite hunting ground for various species of insect feeding birds that gradually tear them to pieces, often piercing them with tunnels in their search for insect prey. It was such a torn and ragged bit of drift that the Spine-tails laid claim to it as their own special property. The interior was hollowed out and enlarged, and finally one of the entrances that had formed a part of a tunnel through the nest was closed, some dry soft leaves and wood-fiber were taken in as a foundation for an inner nest lining of grey lichens—the nest was completed but outwardly still looked a mere bunch of drift.

While the form of this nest, the materials employed in its general structure and the site chosen all differ widely from the nests of other species of spine-tails that I had opportunity to examine (such as that described under *Synallaxis albescens albigularis*) there remains, in the use of grey lichens as the inner lining of the nest, a characteristic common to all. Is this use of grey lichens in lining the nest cavity an hereditary custom descended from a distant common ancestor?

Two eggs of the Venezuelan Cowbird (*Molothrus bonariensis venezuelensis*) were found in the nest with those of the Spine-tails.

SIPTORNIS HYPOSTICTA (Pelzeln).

Synallaxis hyposticta Pelz., Sitz: Akad. Wien, 1859. p. 102.

Siptornis hyposticta Berlepsch & Hartert, p. 60.

Noted only on the upper river at Munduapo and Nericagua. Specimens were also taken at La Pricion on the Caura River by Klages.

In the American Museum collection there is a single specimen from La Union on the Caura River, an adult male, collected October 23rd.

THRIPOPHAGA CHERRIE¹ Berlepsch & Hartert.

Thripophaga cherriei Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 60
(Capuano, Orinoco River).

The male and female specimens on which this species is based were collected Feb. 5, 1899, at a small Piaroa Indian settlement called Capuano on the opposite side of the Orinoco and about twenty-five miles above the mouth of the river Vichado. The species had not been observed on subsequent expeditions.

H. von Berlepsch further says:—

"This new species, which we have great pleasure to name after its discoverer, Mr. G. K. Cherrie, seems to be quite distinct from any species described hitherto. In its uniform upper surface it resembles somewhat *Th. fusciceps* Scl. from Bolivia; but it is a much smaller bird, and has a dark orange-rufous mark on the upper part of the throat wanting in that species.

"The upper parts of the body in the new species are of a dark olivaceous brown with a rufescent tinge, which is not observable on the pileum, this being of a paler olivaceous brown. The under parts of the body are of a much clearer olivaceous brown with a fulvescent tinge. The lower throat, the upper breast and the sides of the head show a narrow and sharp creamy buff stripe in the middle of each feather, which is widening a little to the tip of the feather. The large mark on the upper throat is of a dark orange rufous color. The upper surface of the wings is of a dark but vivid rufous brown. The tail, with the upper tail-coverts, is of a bright chestnut. The under wing-coverts are cinnamon, and the inner margins of the remiges are fulvous brown. The upper mandible and the legs are dusky brown, the under mandible is yellowish.

"Capuano: ♂ adult in much worn plumage, ♀ 5. ii., '99.

"Iris wood-brown; feet sage-green; bill above dusky smoke-grey, below pale grey."

¹As I believe, the type (an adult female), and a male taken at the same time, are still the only specimens in existence in museums, I reproduce herewith the original description:—

"*Thripophaga cherriei*, sp. nov. (Pl. XII, f. 2).

"*Thr.* corpore supra obscure rufescente olivaceo-brunneo, absque striis vel maculis, pileo pallidior magis olivaceo, corpore subtus cum capitis lateribus clariore fulvescente olivaceo brunneo, collo inferiore, pectore capitisque lateribus striis angustis definitis fulvescenti-albis instructis, macula magna in gula superiore intense aurantio-rufa, alis extus obscure castaneo-brunneis, cauda tectricibusque supracaudalibus obscure castaneis, tectricibus subalaribus cinnamomeis remigibus intus fulvo-brunneo marginatis; maxilla pedibusque corneis, mandibula flavescente.

♂ al. 67, caud. 68, culm. 14½, tars. 19 mm.

♀ " 66, " 65, " 14½, " 18½ mm.

"Habitat: circum Capuano, Rio Orinoco.

"Typus: in Mus. H. von Berlepsch (♂ 5. ii. '99)."

"(Nos. 11834, 11835, Cherrie coll.).

"The *female* is like the *male*, save that the back is slightly more rufous, and the longitudinal marks on the chest are more fulvescent. It is also a little smaller."

AUTOMOLUS TURDINUS (Pelzeln).

Anabates turdinus Pelz., Sitz. Wien, 1859. p. 110 (Brazil).

Automolus turdinus Berlepsch & Hartert, p. 61.

Seen only at Munduapo. Two males taken in February.

AUTOMOLUS INFUSCATUS CERVICALIS (Sclater).

Philydor cervicalis Sclater, P. Z. S., 1889. p. 33. (Bartica Grove, Camacusa, British Guiana).

Automolus sclateri Berlepsch & Hartert, p. 61 (Nericagua, Orinoco River, La Pricion, La Union and Nicare, Caura River, Venez.).

Automolus infuscatus cervicalis Scl.; Hellmayr, Novit. Zool. XIII. 1906. p. 335. Caura River and Orinoco River, Venezuela; British Guiana.

Observed only on the upper Orinoco. Male and female (adults) taken at Nericagua during March. Berlepsch and Hartert record specimens from La Pricion, La Union and Nicare on the Caura River.

Three specimens, two males and a female, collected by Klages at La Union on the Caura River, are in the American Museum. These specimens have the crown of the head slightly rufescent in contrast with the olive brown back which serves at a glance to distinguish them from a specimen from the upper Amazon—a true *A. infuscatus*.

PHILYDOR PYRRHODES (Cabanis).

Anabates pyrrhodes Cab. in Schomb., Reise Brit. Guiana, III. 1848. p. 689.

Philydor pyrrhodes Berlepsch & Hartert, p. 62.

Not uncommon on the upper river at Munduapo and Nericagua. Not observed elsewhere.

PHILYDOR RUFICAUDATUS (d'Orb & Lafr).

Anabates ruficaudatus Lafresnaye et d'Orbigny Syn. Av. II: 1838: p. 15 (Bolivia).

In the American Museum collection there is a specimen from the foot of Mt. Duida, collected by Miller & Iglseder.

PHILYDOR RUFIPILEATUS CONSOBRINUS Sclater.

Philydor consobrinus Scl. P. Z. S. 1870. p. 323 (Bogota).

Philydor consobrinus rufipileatus Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 61.

Philydor rufipileatus consobrinus Hellmayr Verh. Zool.—bot. Ges. Wien. LIII. 1903. p. 220 (River Caura, Venez.).

Recorded from the Caura River by Berlepsch and Hartert and by Hellmayr. Not observed on the Orinoco proper.

XENOPS GENIBARBIS Illiger.

Xenops genibarb Ill., Prodr. Orn. 1811. p. 213; Berlepsch & Hartert, p. 62.

Not noted until after passing above the falls of Atures; common from that point onward. Specimens were collected at Munduapo, Nericagua and Maipures.

Berlepsch and Hartert record specimens from La Union, Nicare and Suapure on the Caura River.

MICROXENOPS MILLERI (Chapman).

Microxenops milleri Chapman, Bull. Am. Mus. Nat. Hist. XXXIII: 1914: 196 (Foot of Mt. Duida, Upper Orinoco, Venez.).
Type in collection of American Museum.

DENDROCOLAPTIDAE—THE WOODHEWERS.

Twenty-six species and subspecies were included in the Berlepsch and Hartert paper, twenty-three of which number were collected by the writer on the Orinoco proper and three received by the Tring Museum from points on the Caura River.

As was to be expected, as with the Furnariidae, the greatest number of species and of individuals was found in the heavily forested regions above the cataracts of Atures and Maipures.

KEY TO THE GENERA, SPECIES AND SUBSPECIES OF DENDROCOLOPTIDAE.

- a. Nostrils narrow and elongated with a distinct operculum.
- b. Tips of rectrices strongly decurved.
- c. Bill wedge-shaped, tip of maxilla flattened (horizontally).
- d. Throat pale ochraceous-orange; brown of back less intense approaching Dresden-brown *Glyphorhynchus cuneatus cuneatus*.
- d'. Throat dark ochraceous-orange; brown of back more intense approaching Brussels-brown *Glyphorhynchus cuneatus castelnaudi*.
- c'. Bill slender, not wedge-shaped, tip of maxilla pointed *Sittasomus amazonus*.

- b'*. Tips of rectrices very slightly or not at all decurved.
- c*. Lores and chin buffy gray, general color of under parts a dark Isabella color (Ridgway's Color Standards), wing usually more than 100 mm. *Dendrocincla olivacea phaeochroa*.
- c'*. Lores dusky gray, chin whitish, general color of under parts brownish olive, wing usually less than 100 mm. *Dendrocincla merula*.
- a'*. Nostrils rounded, operculum indistinct or absent.
- b*. Bill very long and slender and much curved *Campylorhamphus trochilirostris*.
- b'*. Bill not unusually long, slender or much curved.
- c*. Back *not* marked with pale or buffy shaft lines or stripes (at least not indicated on more than anterior part of mantle and then in combination with a whitish bill).
- d*. Top of head *not* marked with shaft lines or spots *Xiphocolaptes major*.
- d'*. Top of head distinctly marked with shaft lines or spots.
- e*. Feathers of back marked with indistinct transverse dusky bars *Dendrocolaptes certhia*.
- e'*. Feathers of back without any indication of transverse bars.
- f*. Large, total length *more* than 25 cm.; wing *more* than 120 mm. *Nasica longirostris*.
- f'*. Smaller, total length *less* than 25 cm.; wing *less* than 120 mm.
- g*. Crown marked with narrow, pale, buffy shaft streaks *Dendroplex picus picus*.
- g'*. Crown marked with broadly guttate buffy shaft spots *Dendroplex picirostris*.
- c'*. Back distinctly marked with buffy shaft lines or stripes, bill blackish.
- d*. Under parts, including under tail-coverts, with distinct, well defined, pale, buffy streaks *Picolaptes albolineatus*.
- d'*. Streaks on under parts, *if* extending to crissum and under tail-coverts, *then not* distinct or well defined.
- e*. Feathers of chin and upper throat narrowly edged with dusky or blackish.
- f*. Distance from nostrils to tip of bill greater than length of tarsus.
- g*. Chin and upper throat whitish or pale buffy, cutting edge of maxilla distinctly decurved at the tip *Xiphorhynchus jardinei*.
- g'*. Chin and upper throat ochraceous buff, cutting edge of maxilla nearly straight *Xiphorhynchus pardalotus*.
- f'*. Distance from nostrils to tip of bill *not* greater than length of tarsus. *Xiphorhynchus obsoletus notatus*.
- e'*. Feathers of chin and upper throat *not* edged with dusky or blackish.
- f*. Under tail coverts strongly washed with rufous *Xiphorhynchus guttatus guttatoides*.
- f'*. Under tail coverts uniform with abdomen, faintly, or not at all washed with rufous. *Xiphorhynchus susurrans*.

SITTASOMUS AMAZONUS Lafresnaye.

Sittasomus amazonus Lafr., Rev. Zool. 1850. p. 509, 590; Berlepsch & Hartert, p. 62.

Sittasomus sylviellus amazonus Hellmayr, Novit. Zool. XVII: 1911: p. 323 (Caura, Venezuela).

Not observed by the writer, but Berlepsch and Hartert record it from Suapure on the Caura River.

GLYPHORHYNCHUS CUNEATUS CUNEATUS (Lichtenstein).

Dendrocolaptes cuneatus Licht., Abh. Kön. Akad. Wiss. Berl. 1820. p. 204, Pl. 2, fig. 2.

Glyphorhynchus cuneatus Berlepsch & Hartert, p. 62.

Common at the falls of Maipures and beyond. Specimens were collected at Maipures, Nericagua, Munduapo and Capuano. Berlepsch and Hartert record specimens from Suapure, La Pricion and Nicare on the Caura River.

GLYPHORHYNCHUS CUNEATUS CASTELNAUDI Des Murs.

Glyphorhynchus castelnaudi Des Murs, Voy. Casteln. Ois. 1855: p. 47 (Santa Maria, Peru).

Chapman (*MS*) has identified four examples from the foot of Mt. Duida (upper Orinoco) as pertaining to this race.

XIPHORHYNCHUS GUTTATUS SORORIA (Berlepsch & Hartert).

Dendroornis rostripallens sororia Berlepsch & Hartert, Novit. Zool. IX. 1902. 63 (Type, Maipures, Orinoco River).

D[endroornis] guttata sororia Hellmayr, Novit. Zool. XIV: 1907: 59 (Orinoco and Caura rivers).

This new form of Woodhewer was first observed at Quiribana de Caicara, where two specimens were taken in April, 1898; but it was rarely seen until beyond the falls of Atures, beyond which point it was abundant. In habits it did not seem to differ from its congeners, being strictly a bird of the thick forest. Specimens were collected at Quiribana de Caicara, Bichaco, Perico, Maipures and Munduapo, also one is included by Berlepsch and Hartert from Suapure on the Caura River.

In the American Museum collection are two specimens taken by Klages on the Caura River; a male at Maripa, January 24th and a female at La Union, September 26th.

XIPHORHYNCHUS GUTTATUS GUTTATOIDES (Lafresnaye).

Nasica guttatoides Lafresnaye Rev. et Mag. Zool. 1850: 387 (Lorette, Peru).

Dendroornis rostripallens sororia Berlepsch & Hartert, Novit. Zool. IX: 1902: 63 (in part—Nericagua, Orinoco).

Dendroornis guttata guttatoides Hellmayr, Novit. Zool. XIV: 1907: 59 (Nericagua; crit.).

The American Museum collection contains specimens from the foot of Mt. Duida.

XIPHORHYNCHUS SUSURRANS SUSURRANS (Jard.).

Dendrocolaptes susurrans Jardine, Ann. Mag. Nat. Hist. XIX. 1847. p. 81.

Dendroornis susurrans jardinei Hellmayr, Novit. Zool. XIII. 1906. p. 30 (Orinoco delta, Guanoco).

Beebe collected two specimens at Guanoco, in the delta region, that are inseparable from the Brooklyn Museum series of *X. susurrans susurrans* from Carenage, Trinidad. The characters cited by Hellmayr in his Birds of Trinidad as distinguishing the birds of the Orinoco delta from those of Trinidad, do not seem to be constant, one of Beebe's specimens having the throat as whitish (not buff) as any example from Trinidad. Beebe's other specimen showing considerable buff on throat and remaining light spots on under parts is readily matched by Trinidad specimens.

This species was not observed by the writer.

XIPHORHYNCHUS LINEATOCAPILLUS (Berl. & Lever.).

Dendroornis lineatocapilla Berlepsch and Leverkuhn, Ornith., 1890: p. 24 (Type ex Angostura, Orinoco).

I have not seen examples of this species.

XIPHORHYNCHUS PARDALOTUS (Vieillot).

Dendrocopus pardalotus Vieill., Nouv. Dict. XXVI. 1818. p. 117.

Dendroornis pardalotus Berlepsch & Hartert, p. 64.

Rare, seen only on the upper river where three specimens were taken during March and April at Nericagua.

Berlepsch and Hartert report specimens collected at Suapure and at La Pricion on the Caura River.

The American Museum collection contains specimens from La Union and Suapure on the Caura River that agree with Brit. Guiana specimens. There are also examples from the foot of Duida (Miller Col.).

XIPHORHYNCHUS OBSOLETUS NOTATUS (Eyton).

Picolaptes notatus Eyton, Contr. Ornith. 1852. p. 26 (Rio Negro, apud Berl. & Hart.).

Dendroornis obsoleta notata Berlepsch & Hartert, p. 64.

Rare on the lower Orinoco from Altagracia and Caicara up as far as the first falls, but common from the vicinity of Maipures onward. On the 1907 expedition, observed and collected on the San Feliz River near its junction with the Cuchivero River, and included in the Berlepsch and Hartert paper from Suapure and La Pricion on the Caura River.

In the American Museum are Caura River specimens collected by Klages at Suapure and the mouth of the Malo River.

Eye seal brown; bill above dusky fawn color, below ecru drab; feet olive greenish or greenish gray.

DENDROPLEX PICUS PICUS (Gmelin).

Oriolus picus Gm., Syst. Nat. I. 1788. p. 384.

Dendroplex picus Berlepsch & Hartert, p. 65.

Three taken at Ciudad Bolivar, two females April 13th, male, April 14th.

On my previous expedition not observed until I had reached Perico in the neighborhood of the falls of Atures.

DENDROPLEX PICIROSTRIS (Lafresnaye).

Dendrocolaptes picirostris Lafr., Rev. Zool. 1847. p. 76.

Dendroplex picirostris Berlepsch & Hartert, p. 65.

Not uncommon in the heavily timbered areas bordering the river. Observed and collected at Ciudad Bolivar, Altigracia and Caicara. Specimens display a considerable variation in color, especially on the under parts, where the throat in a female, taken April 29th, is a deep buff; in the male, taken May 8th (both collected at Caicara), it is a pale cream color. All display a reddish brown wash on the belly, very prominent in the male taken June 3rd and faintly indicated in the one taken May 8th.

A set of three fresh eggs, together with the male parent bird, was taken May 8th. The eggs are white, without gloss and between an elliptical oval and an oval in form and measure 27.2 x 20.2; 25.5 x 19.6 and 26.5 x 20.2 mm. The nest was at the bottom of the hollow centre of an old stump, about 40 cm. down. No nesting material had been carried in.

A second set of two eggs was taken with the parent bird (female) May 11th. One of these eggs is elliptical ovate and the other ovate in form. They measure 28.3 x 19.6 and 27.5 x 20.5 mm. This nest was at the bottom of a natural hollow in a tree trunk about 1.25 metres from the ground. Bits of rather thick bark from 15 to 50 mm. across had been carried in to fill up the lower part of the cavity which communicated with a hollow at the foot of the tree. The eggs were about 40 cm. down from the opening and I obtained them by digging out the bottom of the nest! June 3rd I noted that the lower part of the hole in this tree had again been filled with bits of bark.

On going a little nearer, a Woodhewer of this species, a male, flew from the opening and examination revealed three fresh eggs at the bottom of the cavity. These eggs are slightly smaller than the two preceding sets, short ovate in form, and measure 24.4 x 19; 23.6 x 19 and 23 x 19 mm.

XIPHOCOLAPTES ORENOCENSIS Berlepsch & Hartert.

Xiphocolaptes orenocensis Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 65.¹

Four specimens of this interesting new species were taken, three at Munduapo and one at Nericagua. No others were seen.

PICOLAPTES ALBOLINEATUS (Lafresnaye).

Dendrocolaptes albolineatus Lafr., Rev. Zool. 1846. p. 208.

Picolaptes albolineatus Berlepsch & Hartert, p. 66.

This species is not common but found all along the lower and middle stretches of the river as far as the mouth of the Apure River.

Eye seal brown; maxilla blackish at base, ecru drab at tip, mandible pale grey; feet dusky pea green.

A female taken at Ciudad Bolivar April 15th had a nearly developed egg in the oviduct.

NASICA LONGIROSTRIS (Vieillot).

Dendrocopus longirostris Vieill., Nouv. Dict. XXVI. 1818. p. 117.

Nasica longirostris Berlepsch & Hartert, p. 66.

Not uncommon on the upper river at the first falls and beyond.

CAMPYLORHAMPHUS TROCHILIROSTRIS (Lichtenstein).

Dendrocolaptes trochilirostris Licht., Abh. Kön. Akad. Wiss. Berl. 1820. p. 207. Pl. 3.

¹For the benefit of those who may not have access to the Novitates Zoologicae, I reproduce the original description and observations on this species.

"*Xiphocolaptes orenocensis* sp. nov.

"X. corpore supra obscure olivaceo rufo-brunneo, pileo nigrescente, pilei nuhaeque plumis lineis angustis fulvo-albis scapalibus instructis; gula rufescenti alba, corpore inferiore relique capitisque lateribus fulvescenti rufo-brunneis, colli inferioris pectoris ventrisque superioris capitisque laterum plumis stria mediana fulvo-alba signatis, abdominis medii plumis maculis pogonio utroque tribus nigris (fasciis instar) praeditis, alis caudaque obscure castaneis, rostro albo-corneo.

"*Habitat*: in vic. locorum Nericagua et Munduapo dictorum. Orinoco.

"*Typus*: in Mus. Tring ♂ Nericagua, no. 12484 (Cherrie coll.) * * * This quite distinct new species has a very long and powerful bill, agreeing in form nearly with that of *X. major*, while in its coloration it resembles most *X. promeropirhynchus*, differing, however, in its darker back, and the more rufous brown, less olivaceous tint of the lower parts of the body, as well as in the much darker chestnut of its tail and wings.

"(*X. emigrans* of Central America is smaller, and is easily distinguished by the much lighter tail, while the color of the upper surface is not so very different.)"

Xiphorhynchus trochilirostris Berlepsch & Hartert, p. 67.

Rare. Observed only in the belt of heavy forest bordering the river. Specimens taken at Altagracia, Caicara and Quiribana de Caicara. Eye dark sepia brown; bill hazel brown; feet olive green.

DENDROCINCLA MERULA (Lichtenstein).

Dendrocolaptes merula Licht., Abh. Kön. Akad. Wiss. Berl. 1820. p. 208.

Dendrocinclla merula Berlepsch & Hartert, p. 67; Oberholser, Proc. Ac. Nat. Sci. Phila. LVI; 1904; p. 456 (Suapure).

Rare, observed and collected at Munduapo and Nericagua on the upper river. In the American Museum collection are specimens taken at Suapure on the Caura River by Klages. Berlepsch and Hartert also record it from Suapure and as well as from Nicare on the Caura River.

DENDROCINCLA MERULOIDES PHAEOCHROA Berlepsch & Hartert.

Dendrocinda [*sic*] *phaeochroa* Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 67 (*Type*, ♂ Munduapo, Orinoco River).

Dendrocinclla olivacea phaeochroa Oberholser, Proc. Acad. Nat. Sci. Phila. LVI. 1904. p. 458 (Suapure, La Union, Caura River, Venezuela).

D[*endrocinclla*] *meruloides phaeochroa* Hellm. P. Z. S. Pt. IV: 1911: p. 1156.

This species is closely related to *D. merula* but while the other is rare this is the common *Dendrocinclla* of the region. Observed only on the upper river.

As there are probably many who do not have access to Berlepsch and Hartert's paper, I have thought it might be worth while to reproduce their original description and remarks on this species which are given below¹.

"*Dendrocinda phaeochroa* sp. nov.

"*D. D. meruloides* (Lafr.) dictae affinis, sed paulo major et corpore supra subtusque obscure olivaceo-brunneo, minus rufescente tincto, necnon gula sordide albescente (nec gula collo concolore) distinguenda.

"♂ al. 108, 109; caud. 94; culm. 29; tars. 24½ mm.

"♀ al. 106, 107, 108; caud. 86, 86½, 87; culm. 28¾; tars 24½ mm.

"Typus: ♂, Munduapo 10. II., '99 (no. 11895 Cherrie coll.)

"Hab. Ad flumina Orinoco et Caura dicta.

"This new species differs from *D. meruloides* from Venezuela (Cumana, San Esteban, etc.), in its less reddish, darker and more olivaceous brown color, its distinctly whitish upper throat and slightly larger dimensions. It differs from *D. merula*, which occurs in the same localities, by its larger bill with a brownish, less blackish upper maxilla, more olivaceous, less rufous upper wing-coverts, lighter color above and below, less contrasting, less chestnut-rufous under tail-coverts, and paler under wing-coverts and lining of the quills.

"It is most interesting to find *D. merula* and *D. phaeochroa* in the same localities. Hartert hesitated for some time to recognize them as two species, but he is now, together with Berlepsch, fully convinced of the correctness of their differentiation."

DENDROCOLAPTES CERTHIA (Boddaert).

Picus certhia Bödd., Tabl. Pl. Enl. 1783. p. 38.

Dendrocolaptes certhia Berlepsch & Hartert, p. 68.

Common on the upper river. Observed from near the mouth of the Meta River up as far as specimens were collected at Malaben, Nericagua and Munduapo.

Berlepsch and Hartert record specimens collected at Suapure, Nicare and La Pricion on the Caura River.

FORMICARIIDAE—ANT-THRUSHES.

Berlepsch and Hartert's paper listed forty-two species and subspecies as representatives of sixteen genera. Of that number, the writer collected twenty-eight species and subspecies pertaining to fourteen genera, on the Orinoco proper.

Fifty-six species and subspecies are included in the present list, and there is no doubt that a good many more will be added to the list as soon as careful collecting will have been done throughout the entire region.

As was to have been expected, since the Ant-thrushes are chiefly birds of the thick forest, members of this family were not found abundantly either as species or as individuals, until after we had penetrated to the heavily forested regions of the upper Orinoco.

In all my experience as a collector, I have learned but little regarding the nesting habits of birds of this group and regret to be able to add so little at the present time.

KEY TO GENERA, SPECIES AND SUBSPECIES OF FORMICARIIDAE.

- a. "Second phalanx of middle toe entirely free from outer toe; acrotarsium more or less distinctly scutellate (at least on inner side)."¹
- b. Posterior edge of planta tarsi rounded (not booted) *Rhopoterpeteroquata torquata*.
- b'. Posterior side of planta tarsi with a sharp edge.
- c. "Nostrils oval or rounded and without operculum (or if present not well developed) or other adjacent soft membrane."²
- d. Conspicuously barred above and below.
- e. Crown and occiput uniform black or hazel brown (no white bases to crown or occiput feathers) *Cymbilaimus lineatus lineatus*.
- e'. Crown and occiput black, feathers with white bases ♂ *Thamnophilus doloiatus*.
- d'. Not conspicuously barred either above or below.
- e. Wing coverts without white tips or other markings (males of *T. murinus* have nearly obsolete small pale tips to wing coverts), and usually uniform with outer edges of quills.
- f. Wing more than 65 mm.
- g. Under parts white ♀ *Taraba major albicrissa*.

¹From Ridgway's "Key to the Genera of Formicariidae" Birds of N. and M. Amer. V.: 1911: p. 10.

²Ridgway l. c.

(*Cymbilaimus*, *Pygiptila*, *Hypolophus*, *Thamnophilus*, *Sclateria*,^o *Erionotus*, *Rhopochares*, *Dysithamnus*.)

^oMr. Ridgway in his "key" to the Formicariidae placed *Sclateria* tentatively in the section having the second phalanx of the middle toe partly united to the outer toe and the acrotarsium fused, but I find in the two forms examined (*S. argentata* and *S. schistacea saturata*) that the second phalanx of the middle toe is entirely free from the outer toe and the divisions of the acrotarsium are not obsolete.

- g'*. Under parts not white.
h. General color of under parts slate gray ♂ *Dysithamnus ardesiacus ardesiacus*.
h'. General color of under parts ochraceous buff (it may be clear or dusky).
i. Upper parts bright hazel brown, or olive brown.
j. Hazel brown above ♀ *Thamnophilus doliatus*.
j'. Olive brown above ♀ *Dysithamnus ardesiacus saturinus*.
i'. Upper parts slate color ♂ *Pygiptila stellaris*.
f'. Wing not more than 65 mm.
g. General color above gray (slate gray or olive gray).
h. Middle of belly pale yellowish ♂ *Dysithamnus affinis andrei*.
h'. Middle of belly pale grayish (whitish) ♂ *Thamnophilus murinus*.
g'. General color above olive or olive brown and crown and occiput tawny olive.
h. Larger, tail $\frac{3}{4}$ as long as wing or more; under parts pale buffy brownish ♀ *Thamnophilus murinus*.
h'. Smaller, tail less than $\frac{3}{4}$ as long as wing; under parts pale grayish; buffy yellowish on crissum ♀ *Dysithamnus affinis andrei*.
e'. Wing coverts with distinct white or buffy tips, or other pale wing markings.
f. General color below white (immaculate); above black ♂ *Taraba major albicrissa*.
f'. General color below not immaculate white.
g. Head all round and throat black ♂ *Hypolophus canadensis trinitatis*.
g'. Sides of head and throat not black.
h. General color of under parts a uniform gray (in shade varying from pale neutral gray to slate gray).
i. Tertiials and inner secondaries edged or tipped, or both, with white or pale gray.
j. Crown and occiput black.
k. Primary coverts narrowly tipped with white *Erionotus naevius naevius*.
k'. Primary coverts not tipped with white *Erionotus insignis*.¹
j'. Crown and occiput slate gray or gray mixed with hazel brown (♂ im) ♂ and ♂ im. *Erionotus cinereiceps*.
i'. Tertiials and inner secondaries not tipped and edged (on outer webs) with white or pale grayish.
j. Nearly uniform slate grayish above, no black on crown, wing-coverts with very small whitish apical spots ♂ *Thamnophilus murinus*.
j'. Crown and nape black (and more or less black on the interscapulars) ♂ *Pygiptila stellaris*.
h'. General color of under parts not uniform grayish.
i. Chin, throat, and upper breast bright tawny ochraceous ♀ *Thamnophilus amazonicus*.
i'. Under parts in general a uniform pale buff or tawny ochraceous; or striated with white on a gray ground, or buffy brownish on a grayish white ground.
j. Tail cinnamon brown.
k. White tip to tail-feathers confined to inner web except on two outermost rectrices (outer face of posterior half of tarsus with more or less oval scutes not closely joined to one another) ♀ or ♂ (im) *Erionotus insignis*.
k'. White tips to rectrices larger and not confined to inner webs of quills (outer face of posterior half of tarsus with nearly quadrangular scutes uniting with those from the opposite side in a sharp ridge) ♀ *Erionotus naevius naevius*.
j'. Tail black or blackish brown.
k. With an occipital crest; crown and occiput chestnut, sharply different in color from back... ♀ *Hypolophus canadensis trinitatis*.
k'. No occipital crest, and color of crown and occiput not different from back.
l. Slate gray (deep neutral gray) or slate black above.
m. Smaller, wing less than 75 mm.; upper parts deep neutral gray ♂ *Sclateria argentata*.
m'. Larger, wing more than 75 mm.; upper parts slate black ♂ *Sclateria schistacea caurensis*.
l'. General color above rufescent brown or mummy brown.

¹I do not know of any records in the immediate Orinoco valley, but there is a good series from Cristobal Colon, Paria Peninsula (American Museum Collection), and as the type comes from British Guiana the species is probably found in intermediate localities.

- m.* Larger, wing more than 75 mm.; top of head slate gray in sharp contrast with color of back ♀ *Sclateria schistacea caurensis*.
- m'.* Smaller, wing less than 75 mm. and top of head uniform with back ♀ *Sclateria argentata*.
- c.* "Nostrils more or less narrow and longitudinal, more or less distinctly operculate, or if broadly oval or roundish the remainder of nasal fossae occupied by membranous integument."¹ (*Myrmotherula*, *Myrmopagis*, *Microrhopias*, *Herpsilochmus*, *Ramphocaeris*, *Cercomacra*, *Thamnomanes*, *Myrmoborus*, *Hypocnemis*, *Hapalocercus*, *Myrmeciza*, *Myrmoderus*, *Formicarius*).
- d.* Bill long and slender, as long as head *Ramphocaeris melanurus trinitatis*.
- d'.* Bill not unusually long and slender, *not* as long as head.
- e.* Outstretched feet reaching little if any beyond the tips of the under tail coverts *Thamnomanes glaucus*.
- e'.* Outstretched feet reaching much beyond the end of the under tail coverts.
- f.* A restricted, sharply defined, buff colored area at the base of the inner webs of the wing-quills.
- g.* Entire top of head, forehead, crown and occiput rufous (the crown feathers tipped only with rufous) *Formicarius ruficeps*,
Formicarius colma colma.
- g'.* Wide frontal band black, crown and occiput rufous
- f'.* No restricted, sharply defined buff colored area at base of inner webs of wing-quills.
- g.* Distance from tips of under tail-coverts to tip of tail not greater (usually less) than length of bill, *and* lower back *not* marked with rounded white or buffy spots.
- h.* Sides of face, lores and auriculars black.
- i.* With broad frontal and superciliary stripe, white in males, rufous in females (no concealed white dorsal spot) *Myrmoborus leucophrys leucophrys*.
- i'.* No frontal band and superciliaries narrow (a concealed white dorsal spot) *Myrmoborus myotherina myotherina*.
- h'.* Sides of face not black.
- i.* Tertiaries and secondaries with cinnamon buff tips *Myrmotherula guttata*.
- i'.* No cinnamon buff tips to tertiaries or inner secondaries.
- j.* General color of under parts gray and throat practically uniform with breast.
- k.* Slate gray below ♂ *Myrmotherula cinereiventris cinereiventris*,
♂ *Myrmotherula cinereiventris pallida*.
- k'.* Light neutral gray below
- j'.* General color of under parts (gray) in sharp contrast with black or white throat; *or* with head and back conspicuously striated.
- k.* Breast gray.
- l.* A white shoulder patch.
- m.* Tail-feathers narrowly tipped with white. ♂ *Myrmotherula longipennis*,
♂ *Myrmopagis schisticolor*.
- m'.* Tail not white tipped *Myrmoborus melanopogon*.
- l'.* No white shoulder patch
- k'.* Breast not gray; *and* head and back striated.
- l.* General color of under parts yellow (pale or lemon); and bill much more than one-half as long as tail *Myrmotherula pygmaea*.
- l'.* General color of under parts white or buffy, and bill little if any more than one-half the length of the tail.
- m.* Both maxilla and mandible black (females as well as males striated with black on underparts) *Myrmotherula cherriei*.
- m'.* Mandible pale, maxilla black, females not strongly striated with black below *Myrmotherula surinamensis surinamensis*.
- g'.* Distance from tips of under tail-coverts to tip of tail greater than length of bill; *or* lower back marked with rounded white or buffy spots.
- h.* Back more or less striated.
- i.* Gray or grayish white below *Herpsilochmus sticturus sticturus*.
- i'.* Throat and breast yellow or pale yellow.
- j.* Smaller, breast not (or less) distinctly squamate *Hypocnemis flavescens humilis*,
Hypocnemis flavescens flavescens.
- j'.* Larger, breast more distinctly squamate

¹Ridgway l. c. p. 12.

- h'*. Back not striated (no pale markings).
i. Greater and middle wing-coverts more or less conspicuously tipped, edged, or spotted with white, buff, or black.
j. None of the rectrices tipped or marked with white.
k. Lateral toes with claws not reaching to base of claw of middle toe.
l. Wing coverts with small white or whitish apical spots.....
l'. Wing coverts with subapical black spots..... *Myrmoderas atrothorax.*
k'. Lateral toes with claws reaching to or beyond the base of the claw of the middle toe. *Myrmeciza boucardi grisei-pectus.*
l. Feathers of chin and throat black, at least basally..... *♂ ad Myrmopagis haematonota haematonota.*
l'. Feathers of chin and throat not black, even at base.
m. Middle of back dusky gray, not greatly different from remaining upper parts..... *♂ Myrmeciza schiacea.*
m'. Middle of back rufous, quite different from remaining upper parts.
n. Throat ochraceous buff, remaining lower parts tawny olive..... *♀ Myrmopagis haematonota haematonota.*
n'. Throat pale (whitish), remaining lower parts gray or brownish gray..... *Terenura spodioptila.*
j'. Some or all of the rectrices tipped or edged with white (in *C. tyrannina* the white tips to tail-feathers are almost obsolete).
k. General color of under-parts yellow or yellowish. *Herpsilochmus frater.*
k'. General color of under-parts black, gray or pale buffy.
l. A concealed white dorsal spot.
m. General color, above and below, black.... *♂ Cercomacra nigricans.*
m'. General color, above and below, gray.
n. Shoulder patch white..... *♂ Cercomacra tyrannina.*
n'. Shoulder patch slate gray like wing-coverts (pale markings on wing-coverts almost obsolete)..... *♂ Cercomacra cinerascens.*
l'. No concealed white dorsal spot.
m. Back black or slate black..... *Myrmoherula melaena.*
m'. Back smoke gray or cinnamon brown.
n. Upper-parts cinnamon brown..... *Microrhopias orenocensis.*
n'. Upper-parts smoke gray..... *Microrhopias cano-fumosus.*
i. Greater and middle wing-coverts unmarked (some males of *Cercomacra cinerascens* have obsolete pale markings on coverts).
j. General color above and below slate gray..... *Cercomacra cinerascens.*
j'. General color above and below not gray.
k. Dorsal concealed spot white..... *♀ Cercomacra tyrannina.*
k'. No concealed dorsal spot.
l. With hazel crown patch..... *Hapalocercus meloryphus.*
l'. No crown patch.
m. Above grayish olive..... *♀ Myrmopagis axillaris.*
m'. Above raw umber..... *♀ Myrmopagis melaena.*
♀ Myrmopagis schisticolor interior.
a. "Second phalanx of middle toe partly united to outer toe; acrotarsium fused (booted)"¹ (*Pithys, Hylophylax, Anoplops*).
b. Back marked either with rounded buff or white spots or narrow white, or buffy, apical bands to the feathers.
c. Markings on back rounded—white or buffy.
d. Back markings white..... *Hylophylax punctulata.*
d'. Back markings cinnamon buff..... *Hylophylax naevia naevia.*
c'. Back markings in the shape of narrow apical, white or cinnamon buff, bands to the feathers.
d. Apical margins to back feathers white.
e. Entire under parts including throat dark gray..... *♂ Hylophylax poecilnota poecilnota.*
♀ Hylophylax poecilnota lepidonota.
e'. Under parts ochraceous buff brightening to rufous on the throat and darkening to buffy brown on the flanks..... *♀ Hylophylax poecilnota lepidonota.*
d'. Apical margins of back feathers cinnamon buff, (forehead, sides of head and chin ferruginous, remaining under parts gray)..... *♀ Hylophylax poecilnota poecilnota.*

¹Ridgway, Birds N. & M. America, V: 1911: p. 16.

b'. Back without pale markings.

c. Under parts bright chestnut (ad. ♂ chin, upper throat, lores, forehead and frontal crest white; immature with whole head and throat black with faint brownish wash)

Pithys albifrons.

c'. Middle of breast ochraceous buff, sides and flanks Dresden brown (chin, upper throat, and malar region rufous)

Anoplops rufigula palidus.

CYMBILAIMUS LINEATUS LINEATUS (Leach).

Lanius lineatus Leach, Zool. Misc. I. 1815. p. 20. Pl. 6.

Cymbilanius lineatus Berlepsch & Hartert, p. 68 (La Pricion, Nicare, Suapure, Caura River, Venezuela).

Not observed by the writer on the Orinoco proper, but collected at various points on the Caura River by Klages and by André.

The American Museum collection contains specimens from Suapure and La Union on the Caura River. Collected by Klages.

TARABA MAJOR ALBICRISSA (Ridgway).

Thamnophilus albicrissus Ridgw., Proc. U. S. N. M. XIV. 1891. p. 481.

Thamnophilus major albicrissus Berlepsch & Hartert, p. 68.

Not common, but observed all along the river from Las Barrancas in the delta region, below Ciudad Bolivar to the upper river.

Eye madder-brown; bill blackish, slate at base of mandible; feet plumbeous.

THAMNOPHILUS LUNULATUS (Lesson).

Lanius lunulatus Less., Traité d'Orn. p. 375. Pl. 45. fig. 2.

Thamnophilus lunulatus Berlepsch & Hartert, p. 68.

Recorded by Berlepsch and Hartert from Suapure on the Caura River.

THAMNOPHILUS POLIONOTUS Pelzeln.

Thamnophilus polionotus Pelz., Zur. Orn. Bras. II. 1868. p. 147.

Thamnophilus sp. inc. Berlepsch & Hartert, p. 69 (La Pricion and Nicare, Caura River, Venez.).

Thamnophilus polionotus Hellmayr. Novit. Zool. XIII. 1906. pp. 338-339 (La Pricion and Nicare, Caura River, Venez.).

Not observed on the Orinoco but recorded from its tributary, the Caura, from La Pricion and from Nicare.

Mr. Hellmayr (*l. c.*) gives a good account of this species compared with allied forms.

THAMNOPHILUS CINEREONIGER Pelzeln.

Thamnophilus cinereoniger Pelz., Zur. Orn. Bras. 1870. pp. 76, 143; Berlepsch & Hartert, p. 69.

First observed at Altagracia where it was rare, and not noted as common until I had gone beyond the second falls at Maipures.

THAMNOPHILUS MURINUS Scater & Salvin.

Thamnophilus murinus Scl. & Salv., P. Z. S. 1867. p. 756; Berlepsch & Hartert, p. 69.

Not observed on the Orinoco proper but recorded from its tributary the Caura River from Suapure, La Pricion and La Union.

ERIONOTUS NAEVIUS NAEVIUS (Gmelin).

Lanius naevius Gm., Syst. Nat. I. 1788. p. 308.

Thamnophilus naevius Berlepsch & Hartert, p. 69.

Found along the middle river from Altagracia as far as I extended my collecting on the upper river. Common above the falls. Also recorded by Berlepsch and Hartert from La Pricion, La Union and Suapure on the Caura River.

ERIONOTUS CINEREICEPS (Pelzeln).

Thamnophilus cinereiceps Pelz., Zur. Orn. Bras. 1870. pp. 77, 145; Berlepsch & Hartert, p. 70.

Not seen below the neighborhood of the falls of Atures. Common from that point beyond.

In the American Museum collection are specimens from Boca de Sina, Rio Cunucunuma, upper Orinoco.

HYPOLOPHUS CANADENSIS TRINITATIS (Ridgway).

Thamnophilus trinitatis Ridgw., Proc. U. S. N. M. XIV. 1891. p. 481.

Thamnophilus canadensis trinitatis Berlepsch & Hartert, p. 70 (in part).

This form of *H. canadensis* seems to be found throughout the delta region of the Orinoco, and all specimens that I have seen from points on the Caura River (there is a fair series in the American Museum, collected by Klages at Maripa and Mato River), and four specimens collected by the writer on the San Feliz River near its entrance into the Cuchivero River, are typical *trinitatis*.

While the characters separating *H. c. canadensis* and *H. c. trinitatis* are not great, nevertheless they seem to me sufficiently constant for one to be justified in recognizing *trinitatis* as a subspecific form. In a series of sixteen females from Trinidad, the Caura River, middle and lower Orinoco regions, not one has the crown as light as in two specimens from Cayenne. In the Cayenne birds the crown is almost clear russet, while in the others the average is nearer a chestnut. The under parts of specimens (females) from Trinidad, Caura River and Orinoco delta, average decidedly more buffy, or better perhaps buffy clay color, the wash of the color extending over the entire under parts including the centre of the abdomen.

Birds from the middle Orinoco, from Ciudad Bolivar, and beyond, are intermediate in general color between the Cayenne birds and those from Trinidad, the Orinoco delta, and Caura River points, being as a series, at once distinguishable by their paler coloring both above and below. This pale coloring is perhaps more marked in the females, but is very evident in the males also when compared as a series. So characteristic does this paler form seem of the middle Orinoco region that I would designate it as

HYPOLOPHUS CANADENSIS INTERMEDIUS subsp. nov.¹

The nesting season on the middle Orinoco is evidently a long one, as I have found young birds in the nest in June, and fresh eggs in September. The nest is a thin walled, rather loosely, though neatly woven cup, suspended between the forks of a horizontal twig. Nesting sites are similar to those of our Red-eyed Vireo. Two eggs collected September 4, 1898, at Santa Barbara (near the mouth of the river Carcupaparo, or sometimes called the Sinaruco) were "short ovate in form, glossy white, covered with frequent red-brown spots, in color and measured 21 x 16 and 20.5 x 16 mm²."

A male in juvenal plumage, that cannot have been long out of the nest, taken at Caicara, June 15, 1907, closely resembles the adult female above and below, but there are no mesial blackish streaks on the breast.

Another example, a male in transitional plumage from the juvenal stage to that of the adult, is similar below to the adult female, and above differs from the adult only in having the crown parti-colored, a few

¹Type in collection of Brooklyn Institute Museum No. 3674, ♂ ad Caicara, Orinoco River, Venez., May 9, 1905 (No. 13669, Cherrie collection).

• ²Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 70.

of the chestnut feathers of the immature being scattered among the new black ones of the adult plumage.

THAMNOPHILUS DOLIATUS DOLIATUS (Linnaeus).

Lanius doliatus L., Syst. Nat. ed. 12 I. 1766. p. 138.

A male and female taken at Ciudad Bolivar, April 14th and April 8th, respectively, are referable to typical *doliatus*. Specimens from Las Barrancas are also referable to the typical form which ordinarily is distinguished at a glance from the common Orinoco form by the general darker color, narrower white and broader black bars in the male and deeper rufous in the female. However, there are occasional specimens from the lower Orinoco and delta regions that are somewhat intermediate in character and can be referred to one or the other only arbitrarily.

THAMNOPHILUS DOLIATUS FRATERCULUS Berlepsch & Hartert.

Thamnophilus doliatus fraterculus Berlepsch & Hartert, p. 70.

Abundant, both at Ciudad Bolivar and at Caicara.

Eye straw yellow; bill black above, plumbeous below; feet plumbeous.

The white bars on the under parts are very noticeably wider than in examples of *T. doliatus doliatus*, making the under parts generally much lighter. A nest containing two young was found June 30. It was located in a clump of open timber, very near a much frequented path. The nest was placed like that of *Vireosylva olivacea* between the forks near the end of a small branch about one metre from the ground. The bowl of the nest was as large as that of an American Robin. Grass stems and rootlets were the only materials used.

A nest without eggs taken at Caicara July 4, 1898, by Mrs. Cherrie, was situated in a small sapling that stood in an open glade of the forest. This nest was about one metre from the ground suspended between the horizontal forks of a slender twig and measured 10 cm. outside diameter by 7 cm. inside; 5.5 cm. in depth outside, by 4 cm. inside. Fine dry grass and long narrow strips of some soft inner bark is employed for the outside while there is an inner lining of horse-hair-like vegetable fibres. The whole is so loosely woven that eggs could be easily seen through the nest walls.

A second nest containing two young, taken at Caicara by the writer June 21, 1907, was in a region covered with dense thickets, having only a few large trees scattered here and there. The nest was suspended

between horizontal forks of a limb of a tree known as *Caña-fistola*; it was about 1.52 m. from the ground and just above a thicket of thorny vines that would have effectually protected it from most predatory animals. In the materials employed, and in shape it is similar to the nest described above and just as loosely and openly woven. The greatest diameter of the nest cavity is just below the edge which is contracted on the two sides by the branches of the fork and at the outer edge, between the forks, by the drawing in of the nest wall, a condition which would have prevented the eggs being thrown out had the branch swayed about a great deal.

Of the two young taken with this nest, a male and a female, the latter was considerably the larger and must have been a couple of days the older. Ordinarily where there is any decided difference in the plumages of adults, the young in juvenal plumage will bear a greater resemblance to the female than to the male. In the specimens before me the pattern of coloration is that of the male in both the male and the female. The general color above is tawny ochraceous, inclined to russet on the crown, rather broadly barred with blackish or dusky black; in short, they differ from the adult male chiefly in the lack of a lengthened crest and in the replacing of the white by ochraceous. Below, they are a pale ochraceous buff, that fades into almost pure white on the abdomen, narrowly barred with dusky on the breast and sides, darkest on the upper breast, faintly showing on the flanks and entirely absent on the abdomen.

PYGIPTILA STELLARIS (Spix).

Thamnophilus stellaris Spix, Av. Bras. II. 1825. p. 27, Pl. 36, fig. 2.

Pygiptila maculipennis Berlepsch & Hartert, p. 71 (Munduapo, Nericagua, Orinoco River), in part.

Pygiptila stellaris Hellmayr, Novit. Zool. XII. 1906. p. 367.

Noted only on the upper river, above the second falls, where it was not uncommon at Munduapo and Nericagua. Berlepsch and Hartert also record it from La Union and La Pricion on the Caura River.

There are two specimens in the American Museum collection collected by Klages at La Union on the Caura River, Venezuela, that I am unable to identify with certainty. They may or may not belong to the same species; I am, however, strongly of the opinion that they represent distinct forms. They have both been marked as males by the collector, in one case, however, with a question. Below I give a brief description of each of the specimens.

No. 76025 American Museum Collection (♂ ? La Union, Caura Riv. Venez. S. M. Klages leg.).

Thamnophilus sp. ?

♂ ? La Union, Caura River, Venez. 18 Oct. 1901. Leg. S. M. Klages (No. 76025 Am. Mus. Nat. Hist. Coll.).

Entire upper parts grey (almost slate). A concealed white spot in centre of back. Outer webs of primaries dark russet or raw umber, wing coverts narrowly tipped and edged with same color. General color of under parts a pale cinnamon brownish or buff, much clearer and paler on the throat and clearer brown (a wood brown) on the under tail coverts, sides and flanks grey with brownish buff wash. Inner edges of wing quills cinnamon, under wing coverts brighter, more ochraceous.

W. 77 T. 40 B. 18 T.s 20

Thamnophilus sp. ?

♂ La Union, Caura River, Venez. 27 Sept. 1901. Leg. S. M. Klages (76020 Am. Mus. Coll.).

Above, crown and middle of back slate grey, large concealed white patch in centre of back; wings black, outer webs of quills largely or entirely uniform slate grey, primary coverts black with small white terminal spots; greater, median and lesser coverts also blackish with white terminal spots. The outer webs of the greater coverts are largely slate grey. Tail slate grey. Below cinereous. Inner edges of some of the wing quills faintly rufous.

W. 81 T. 46 B. 20 Ts. 20.

DYSITHAMNUS ARDESIACUS SATURNINUS (Pelzeln).

Thamnophilus saturninus Pelz., Orn. Bras. p. 147. 1869. (Borba).

Dysithamnus ardesiacus Scl. & Salv. P. Z. S.: 1867: p. 756 (Rio Napo); Berlepsch & Hartert, p. 71 (Munduapo, Nericagua, Orinoco River).

Dysithamnus ardesiacus saturninus Hellmayr, Verh. Zool.-bot. Ges. Wien. LIII. 1903. p. 216 (Caura River).

Not seen by the writer along the Orinoco but recorded by Berlepsch and Hartert from various points on the Caura River.

In the American Museum collection are two specimens collected by Klages at Suapure on the Caura River, and one collected by André at Nicare.

DYSITHAMNUS AFFINIS ANDREI Hellmayr.

Dysithamnus affinis andrei Hellmayr, Novit. Zool. XIII. 1906. 31 (Type, ♀ ad ex Caparo, Trinidad).

Mr. C. William Beebe obtained a specimen at Guanoco in the Orinoco delta, which compared with examples from Trinidad, showed itself to be the island form.

THAMNOMANES GLAUCUS Cabanis.

Thamnomanes glaucus Cab., Wiegner-Arch. 1847. p. 230. Pl. 3; Berlepsch & Hartert, p. 71 (Munduapo, Nericagua, Bichaco, Orinoco River; Suapure, La Pricion, Nicare and La Union, Caura River, Venez.).

T[hamnomanes] c[aesius] glaucus Hellmayr, Novit. Zool. XIII. 1906. p. 368 (Orinoco region; Munduapo, Caura River).

T[hamnomanes] caesius glaucus Hellmayr, Novit. Zool. XIV. 1907. p. 65. (Munduapo and Bichaco, Orinoco River, Venez.).

Common on the upper Orinoco but not observed below the falls of Maipures.

In the American Museum is a series collected by Klages at La Union and Suapure on the Caura River.

I prefer to consider this as a distinct species and not as a race of *T. caesius* (Licht.) the large concealed white dorsal patch at once distinguishing it from *caesius caesius* and the two races *hoffmannsi* and *persimilis* of that species. Also I believe *T. caesius schistogynus* Hellmayr should be accorded specific rank, the much greater development of the rictal bristles (not mentioned by its describer) and the very differently colored female distinguishing it at once from other *Thamnomanes*.

MYRMOPAGIS SCHISTOCOLOR INTERIOR Chapman.

Myrmopagis schistocolor interior Chapman Bull. A. M. N. H. XXXIII: 1914: p. 614 (Type ex Buena Vista, above Villavicencio, Eastern Andes, Colombia) Suapure and Mato Riv.; Foot Mt. Duida, Orinoco Riv.

Mr. Chapman in discussing the races of *schistocolor* states that the specimens from the Upper Orinoco and from Caura river points are intergrades between *s. sanctae-martae* and *s. interior*. The upper Orinoco birds probably represent an undescribed form.

MYRMOPAGIS¹ AXILLARIS (Vieillot).

Myrmothera axillaris Vieill., Nouv. Dict. XII. 1817. p. 113.

Myrmotherula axillaris Berlepsch & Hartert, p. 73.

Not observed on the Orinoco proper, but recorded by Berlepsch and Hartert from Suapure, Nicare and La Pricion on the Caura.

MYRMOPAGIS MELAENA (Sclater).

Myrmotherula cherriei Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 72

Myrmotherula melaena Berlepsch & Hartert, p. 74.

M[yrnopagis] melaena Ridgway Birds N. & M. Amer. V: 1911: p. 67
Crit.

Common along the upper river from the neighborhood of the first falls. This species was found breeding at Maipures in January, and the nest and eggs then collected have been described by Berlepsch and Hartert (*l. c.*), but as my observations made in the field are somewhat fuller, I reproduce the following notes from my journal.

The nest was situated about 2.13 m. above the ground in the midst of a thick tangle of overhanging bamboo branches, the bamboo thicket forming the undergrowth in the high, dense forest which borders the river in that region. The outer walls of the nest were composed of old and broken bamboo leaves, that were very loosely held together, and that served admirably to conceal the nest which was suspended by black thread-like vegetable fibres between the forks of a delicate twig of bamboo. The nest lining consisted of fine, thread-like vegetable fibres or rootlets.

The eggs are elliptical-ovate in form. When fresh the ground color was a delicate pinkish white, which after blowing became a dead white. They are dotted and covered with criss-cross, fine, short lines of heliotrope purple. The markings are heaviest at the point of greatest diameter and almost entirely absent about the smaller end.

The nest was discovered two days before it was collected and on each visit the male parent bird was found brooding, and sat so closely that I could approach and almost put my hand on him before he would desert his post. When he would finally flush, it was to slip quietly away and conceal himself in the surrounding thicket. On one occasion I waited for over an hour for his return but was disappointed, and finally the female came slipping noiselessly along toward

¹Ridgway, Proc. Biol. Soc. Wash. XXII. 1909. p. 69.

the nest, passing very near to me and pausing long enough to give me a quizzical look before reaching the nest and settling down on the eggs.

MYRMOTHERULA CHERRIEI Berlepsch & Hartert.

Myrmotherula cherriei Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 72
(Type, Perico, Orinoco River, Venez.).

The type of this species now in the Tring Museum was collected by the writer at Perico, just below the falls of Atures. The species was common there and also about Maipures, but was not noted elsewhere.

MYRMOTHERULA SURINAMENSIS SURINAMENSIS (Gmelin).

Sitta surinamensis Gm., Syst. Nat. I. 1788. p. 444.

Myrmotherula surinamensis Berlepsch & Hartert, p. 73.

M[yrmotherula] s[surinamensis] surinamensis Hellm. P. Z. S. Part IV: 1911; 1159 (Caura River Valley).

Only one specimen of this species was collected at Munduapo beyond the region where *M. cherriei* was abundant, owing to the fact that I confounded it with the preceding species.

The Tring Museum received specimens from Caura River points, collected by Klages and by André.

In the American Museum collection are specimens from La Union, Mato River and Maripa on the Caura River, collected by Klages.

MYRMOTHERULA PYGMAEA (Gmelin).

Muscicapa pygmaea Gm., Syst. Nat. I. 1788. p. 933.

Myrmotherula pygmaea Berlepsch & Hartert, p. 73.

Recorded by Berlepsch and Hartert from La Pricion, Caura River.

MYRMOTHERULA GUTTATA (Vieillot).

Myrmothera guttata Vieill., Gal. Ois. I. 1825. p. 251. Pl. 155.

Myrmotherula guttata Berlepsch & Hartert, p. 73.

Not observed on the Orinoco proper but recorded from La Union and La Pricion on the Caura River.

MYRMOTHERULA HAEMATONOTA (Sclater).

Formicivora haematonota Sclater, P. Z. S., 1857, p. 48.

Myrmotherula pyrrhonota Scl. & Salv. Nomencl. Av. Neotr. 1873. pp. 72, 160; Berlepsch & Hartert, p. 73.

Myrmotherula haematonota Hellmayr Novit. Zool. XIV: 1907: 71, 72 (Orinoco & Caura).

Abundant on the upper Orinoco, above the second falls.

Not observed elsewhere. Also recorded from Suapure, Nicare and La Pricion on the Caura River.

In the American Museum collection are specimens collected by Klages on the Caura River at Suapure and La Union during September and October.

MYRMOTHERULA LONGIPENNIS Pelzeln.

Myrmotherula longipennis Pelz., Zur. Orn. Bras. II. 1868. pp. 82, 153; Berlepsch & Hartert, p. 74.

Recorded from Suapure, Nicare, La Union and La Pricion on the Caura River, but not observed along the Orinoco.

MYRMOTHERULA CINEREIVENTRIS CINEREIVENTRIS Sclater & Salvin.

Myrmotherula cinereiventris Scl. & Salv., P. Z. S. 1867 p. 756 (Cayenne).

Specimen of *M. cinereiventris* in the American Museum collection from points in the Caura region (La Union, and Mato River) belong to the typical race and are conspicuously darker than is the Upper Orinoco race.

MYRMOTHERULA CINEREIVENTRIS PALLIDA Berlepsch & Hartert.

Myrmotherula cinereiventris pallida Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 74. (Type, Nericagua, Orinoco River, Venez.).

The writer collected the type of this subspecies at Nericagua on the upper Orinoco beyond the falls of Maipures, a short distance above the mouth of the Vicada River. The subspecies was abundant all along the Orinoco from near the mouth of the Meta River as far as I ascended. Specimens in the American Museum collection from the foot of Mount Duida belong to this race.

HERPSILOCHMUS RUFIMARGINATUS FRATER Sclater & Salvin.

Herpsilochmus frater Scl. & Salv., P. Z. S. 1880. p. 159.

Herpsilochmus rufimarginatus frater Berlepsch & Hartert, p. 75.

Not observed on the Orinoco, but recorded from Suapure on the Caura River. In the American Museum collection is an adult male from that point.

HERPSILOCHMUS STICTURUS STICTURUS Salvin.

Herpsilochmus sticturus Salvin, Ibis 1885. p. 424 (Bartica Grove, British Guiana).

In the American Museum collection is a specimen from Boca de Sina, Cunucunuma River, Upper Orinoco.

HERPSILOCHMUS STICTURUS NIGRESCENS Todd.

Herpsilochmus sticturus nigrescens Todd, Proc. Biol. Soc. Wash. XXVIII. 1915, 80 (Type ex Maripa, Rio Caura, Venez.).

I have not seen this race, that is said to differ from *s. sticturus* in having a greater admixture of black above and "under parts much darker, more grayish, the throat and breast indistinctly striped with dusky grayish and white."

MICRORHOPIAS CANO-FUMOSUS (Cherrie).

Formicivora cano-fumosus Cherrie, Sci. Bull. Bklyn. Inst. Mus. I. 1909, p. 387. (Type, ♂, ex Las Barrancas, Delta reg., Orinoco River, Venez.).

Observed and taken only in the type locality, where three males and three females were collected between July 30th and August 2nd.

MICRORHOPIAS¹ ORENOCENSIS (Hellmayr).

Formicivora orenocensis Hellmayr, Bull. Br. Orn. Cl. XIV. 1904. 54 (Type, ♂ ad: ex. Altigracia, Orinoco River, Venez.)

Formicivora intermedia Berlepsch & Hartert, p. 75.

Abundant along the Middle Orinoco from Ciudad Bolivar to Caicara. Keeps chiefly to the low thickets in heavily timbered regions.

Eye seal brown; bill above black, below slate color; feet slate color.

¹*Microrhopias rufa*.

Myiothera rufa Wied, Beitr. Naturg. Bras., iii., p. 1095, 1831, (Bahia).

Formicivora rufatra Sclater, Cat. Birds Brit. Mus. XV. 1890. p. 251 (Orinoco?) Recorded from the Orinoco, with a query by Sclater.

In the American Museum collection are specimens from points on the Caura River, which agree exactly with Ciudad Bolivar and Caicara specimens.

HAPALOCERCUS MELORYPHUS (Wied).

Euscarthmus meloryphus Wied, Beitr. Naturg. Bras. III. 1831. p. 947.
Hapalocercus meloryphus Berlepsch & Hartert, p. 40.

Rare. Only once met with by the writer, an adult female having been collected at Ciudad Bolivar April 8, 1905.

Eye seal brown; bill above black, below pale; feet grey.

The specimen secured was discovered perched low down on the limb of a tree at the edge of a small clump of trees and bushes on the savanna. In actions the bird was decidedly flycatcher-like; but the scutellation of the tarsus¹ is very like that of *Formicivora* and I am following Mr. Ridgway² in including it with the *Formicariidae*.

Berlepsch and Hartert record a single specimen collected by Klages that was taken at Ciudad Bolivar.

The outer and middle toes are united at the base for the length of the basal phalanx of the outer toe, and about one-half the length of the basal phalanx of the middle toe. Outer toe with claw slightly longer than the middle toe without claw; without claw reaching to about the middle of the subterminal phalanx of the middle toe.

TERENURA SPODIOPTILA Sclater & Salvin.

Terenura spodioptila Scl. & Salv., Ibis, 1881. p. 270. Pl. 9. fig. 1; Berlepsch & Hartert, p. 75.

Not observed on the Orinoco, but recorded from Suapure on the Caura River.

CERCOMACRA CINERASCENS (Sclater).

Formicivora cinerascens Sclater, P. Z. S. 1857 p. 131 (Rio Napo).

Cercomacra napensis Scl., P. Z. S., 1868. p. 572 (Rio Napo); Berlepsch & Hartert, p. 75.

Cercomacra cinerascens, Hellmayr Novit. Zool. XII: 1905: 287 (habitat and crit.).

¹The following observations were made as a result of an examination of a fresh tarsus; the acrotarsium covers somewhat more than the anterior half of the tarsus. On the plantar tarsi is a double row of elongated irregularly quadrate scutella extending from the heel to the toes; but from the point of the heel for a short distance down the double series is separated by a median row of small scutella. There is also a narrow non scutellate area along the inside face between the edges of the acrotarsium and the scutella covering the planta and a similar area on the outside at the upper end.

²Birds of North and Middle America. IV. 1907. 339.

Taken by the writer on the upper river at Munduapo, but not noted elsewhere. It is also recorded from points on the Caura River.

CERCOMACRA TYRANNINA TYRANNINA (Sclater).

Pyriglena tyrannina Scl., P. Z. S. 1855. p. 90.

Cercomacra tyrannina Berlepsch & Hartert, p. 76.

Cercomacra tyrannina tyrannina, Ridgw. Bds. N. and M. Amer., V: 1911: 93 (Points on Orinoco and Caura rivers).

Abundant on the upper river from just below the falls of Atures as far as I ascended. Not noted elsewhere by me, but recorded by Berlepsch and Hartert from various points on the Caura River.

CERCOMACRA NIGRICANS Sclater.

Cercomacra nigricans Scl. P. Z. S. 1858. p. 245; Berlepsch & Hartert, p. 76.

Noted as abundant in the delta region at Las Barrancas but much less common along the middle stretches of the river up as far as the mouth of the Apure. Orinoco birds seem to be identical with American Museum specimens from the Caura River, Colombia, Santa Marta and from Panama.

SCLATERIA ARGENTATA (Des Murs).

Herpsilochmus argentatus Des Murs, Voy. Casteln, Ois. (1855). p. 53. fig. 2.

Sclateria argentata Oberholser, Proc. Phil. Acad. LI. 1899. p. 210; Hellmayr, Novit. Zool. XIV. 1907. p. 375 (Maipures, Orinoco).

Heterocnemis argentata Berlepsch & Hartert, Novit. Zool. IX. 1902, p. 76 (part) (Maipures, Orinoco River).

Rare, met with at Maipures, only, during December. Specimens collected at La Union on the Caura River by André were also included under *H. argentata* by Berlepsch and Hartert, but have since been separated as a subspecific form of *S. schistacea* by Mr. Hellmayr.

SCLATERIA SCHISTACEA CAURENSIS Hellmayr.

Sclateria schistacea caurensis Hellmayr, Bull. Brit. Orn. Club. XIX. 1906. p. 9 (Type, ♂ ad. ex. Caura River, Venez.).

Heterocnemis argentata Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 76 (part)

S[clateria] s[chistacea] caurensis Hellmayr, Novit. Zool. XIV. 1907.
p. 376.

Not observed on the Orinoco proper.

MYRMECIZA LONGIPES GRISEIPECTUS Berlepsch & Hartert.

Myrmeciza longipes griseipectus Berlepsch & Hartert, Novit. Zool. IX.
1902. p. 76. (Type, ♂ ad. Caicara, Orinoco River, Venez. in
Museum Tring; Caicara, Perico and Munduapo, River Orinoco and
Suapure and La Pricion, Caura River.

M[yrmeciza] l[ongipes] griseipectus Hellmayr, Novit. Zool. XIII. 1906.
p. 33.

Eye bright chestnut; bill black; feet pinkish white.

This species was not noted below Caicara, but was observed on the upper river as far as I extended my explorations. It inhabits the thick forest, and while not rare it is more often heard than seen. It has a high flute-like whistle that is very difficult to trace. Birds may be very near, concealed in the thick underbrush, but as they walk rapidly away from one, the call notes seem to come from half a dozen different directions. I have never seen them anywhere except on the ground where they walk and run easily and gracefully over the fallen leaves, and when flushed fly but a short distance and again drop to the ground.

In the American Museum collection is a series collected by Klages at Suapure and Maripa on the Caura River.

MYRMECIZA SCHISTACEA Todd.

Myrmeciza schistacea Todd, Proc. Biol. Soc. Wash. XXVI: 1913: 172
(Type ex El Llagual, Caura district Venezuela).

I have not seen this species.

MYRMODERAS ATROTHORAX (Boddaert).

Formicarius atrothorax Bodd., Tabl. Pl. Enl. 1783. p. 44.

Myrmeciza atrothorax Berlepsch & Hartert, p. 77.

Myrmeciza atrothorax atrothorax Hellmayr, Verh. Zool. Bot. Ges. Wien,
LIII. 1903. p. 214.

Myrmoderus atrothorax Ridgw. Proc. Biol. Soc. Wash. XXII: 1907: 70.

Rare; seen by the writer on the upper Orinoco only at Munduapo. It is also recorded by Berlepsch and Hartert, from La Pricion, Nicare and La Union on the Caura River.

HYPOCNEMIS FLAVESCENS FLAVESCENS Sclater.

Hypocnemis flavescens Scl. P. Z. S. 1864 p. 609 (Marabitanas, Rio Negro, Brazil).

In the American Museum collection is a series from the neighborhood of the foot of Mt. Duida and Boca de Sina, Rio Cunucunuma (Upper Orinoco) that probably represent typical *flavescens flavescens*.

I am not at all sure that the Caura River form is sufficiently distinct to warrant separation but as pointed out by Mr. Todd the breast seems less distinctly squamate and apparently there is a slight difference in size, *f. humilis* being the smaller.

HYPOCNEMIS FLAVESCENS HUMILIS Todd.

Hypocnemis flavescens humilis Todd, Proc. Biol. Soc. Wash, XXVI: 1913: 172 (La Lajita, Caura, Venezuela).

Hypocnemis flavescens Berlepsch & Hartert, p. 77.

Not observed on the Orinoco proper, but recorded from Nicare, Suapure, La Lajita and La Pricion on the Caura River.

HYLOPHYLAX POECILONOTA POECILONOTA (Cabanis).

Hypocnemis poecilonota Cab., Weigm. Arch. 1847. p. 213. Pl. 4, fig. 2; Berlepsch & Hartert, p. 78.

Hypocnemis poecilonota poecilonota Hellmayr, Novit. Zool. XIII. 1906. p. 371 (Munduapo and Nericagua, Orinoco River, Suapure, Nicare, La Union and La Pricion, Caura River).

Hylophylax poecilonota Ridgway, Birds of N. & M. Am. V: p. 128.

Common about Munduapo and Nericagua. Also recorded by Berlepsch and Hartert, and by Hellmayr from points on the Caura River. In the American Museum there is a specimen from Suapure.

HYLOPHYLAX POECILONOTA LEPIDONOTA (Sclater & Salvin).

Hypocnemis lepidonota Scl. & Salv. P. Z. S. 1880 p. 160 Sarayaçu, E. Ecuador.

Miller and Iglseeder, collecting for the American Museum, at the foot of Mount Duida secured a series of specimens that I have referred to this race. The males, however, are paler below, light neutral gray (Ridgway's Color Standards), than are two other specimens. one from La Murelia, Caqueta, Colombia, and one from Zamora, Province de Loja, Ecuador, that are deep neutral gray. Two females are also lighter

in color than females from La Murelia with a greater suffusion of buffy on the under parts and more rufous or hazel above, particularly on the crown and occiput.

HYLOPHYLAX PUNCTULATA (Des Murs).

Rhopothera punctulata Des Murs, Voy. Casteln., Ois. p. 53.

Hypocnemis punctulata Hellmayr, Novit. Zool. XIV. 1907. p. 377 (La Pricion, Caura River, Venez.).

There is a pair in the American Museum collection from La Union, Caura Riv.

HYLOPHYLAX NAEVIA CONSOBRINA Todd.

Pipra naevia Gm., Syst. Nat. I. 1788. p. 1003.

Hypocnemis naevia Berlepsch & Hartert, p. 79.

H[ylophylax] naevia Ridgway. Birds of N. & M. Amer. V: p. 128.

Hylophylax consobrina Todd, Proc. Biol. Soc. Wash. XXVI: 1913: 172 (Rio Mocho, Rio Caura, Venezuela).

Not observed on the Orinoco, but recorded from La Pricion on the Caura River by Berlepsch and Hartert.

Miller and Iglseider collected a pair of birds at the foot of Mount Duida, Upper Orinoco (American Museum collection) that probably belongs to this race. I have however only a single example (from "Napo") that may be referred to *naevia naevia* for comparison. The differences are not marked, but perhaps sufficient to constitute a good race. The abdomen, flanks and under tail-coverts are pale buffy instead of dark ochraceous buff. The buffy spots on the mantle are also larger.

MYRMOBORUS LEUCOPHRYS (Tschudi).

Pithys leucophrys Tsch. in Weign. Arch. 1844. p. 18 (Peru, "Fluss Tullumayo").

Myrmoborus leucophrys Cab. et Hein. Mus. Hein. II: (1859): 9.

Hypocnemis leucophrys Berlepsch & Hartert, p. 78.

Common on the upper river above the falls of Maipures, also recorded from points on the Caura River by Berlepsch and Hartert.

MYRMOBORUS MYIOTHERINA MYIOTHERINA (Spix).

Thamnophilus myiotherinus Spix, Av. Bras. II. 1825. p. 30, Pl. 42, fig. 1.

Myrmoborus myiotherinus Cab. et Hein. Mus. Hein. ii (1859): 9.

Hypocnemis myiotherina Berlepsch & Hartert, p. 78.

Hypocnemis myiotherina myiotherina Hellmayr, *Novit. Zool.* XIV. 1907.
p. 20.

Not noted on the Orinoco but recorded from its tributary the Caura, from La Pricion and Nicare.

MYRMOBORUS MELANOPOGON (Slater).

Hypocnemis melanopogon Scl., *P. Z. S.* 1857. p. 130; Berlepsch & Hartert, p. 78; Hellmayr, *Novit. Zool.* XIV: 1907: 381. (Orinoco River and Caura River localities).

Not noted as common at any point, but observed all the way from Altagracia to above the falls. Also recorded by Berlepsch and Hartert from points on the Caura River, and in 1907 I found this species common along the San Feliz River near its junction with the Cuchivero River.

PITHYS ALBIFRONS (Linnaeus).

Pipra albifrons Linn., *Syst. Nat.* ed. 12. I. 1766. p. 339.

Pithys albifrons Berlepsch & Hartert, p. 79.

Rare, seen only on the upper river at Munduapo and Nericagua. Usually in company with other species of Ant-Thrushes and Wood-hewers following in the wake of the foraging ants.

Berlepsch and Hartert also record specimens from Suapure and Nicare on the Caura River.

ANOPLOPS RUFIGULA PALIDUS Cherrie.

Anoplops rufigula palidus Cherrie, *Sci. Bull. Bklyn. Inst. Mus.* 1909.
p. 390 (Type, ♂ ex Suapure, Caura River, Venez.).

Similar to *A. rufigula rufigula* from Cayenne, but smaller and much less deeply colored above, being olive brownish with a slight rufous wash, while Cayenne birds are a deep rich umber brown with olive wash. The type specimen measures: wing 74 mm.; tail 47 mm.

RHOPOTERPE TORQUATA TORQUATA (Boddaert).

Formicarius torquatus Boddaert, *Tabl. Pl. Enl.* 1783. p. 43 (ex Dubenton *Pl. enl.* 700. Fig. 1.) (Type, ex Cayenne apud Berlepsch.)

There are two specimens in the American Museum collection secured by Klages at Suapure on the Caura River: ♂ September 11, 1901; ♀ February 8, 1901.

Not before recorded from the Orinoco region.

RAMPHOCAENUS MELANURUS TRINITATIS Lesson.

Ramphocaenus trinitatis Lesson, Rev. Zool. 1839. p. 42.

Ramphocaenus melanurus Berlepsch & Hartert, p. 79.

Rare on the Orinoco; two collected at Munduapo in February and one at Nericagua in April. Berlepsch and Hartert record it from the Caura River, and in the American Museum collection are specimens taken by S. M. Klages at Suapure and at Maripa on that river.

FORMICARIUS COLMA COLMA Boddaert.

Formicarius colma Bodd., Tabl. Pl. Enl. 1783. p. 44.

Formicarius nigrifrons Berlepsch & Hartert, p. 80.

Rare, two taken at Nericagua during March and April. A nest of this species, from which the parent was flushed, was found at Nericagua in March, 1899. It was a natural cavity in a tree trunk, about 5 metres from the ground. The cavity was about 40 cm. in depth and about 15 cm. in diameter. The bottom was lined with rootlets and dry grasses. The two eggs were pure white.

Recorded also from points on the Caura River by Berlepsch and Hartert.

In the American Museum collection are four specimens, one from El Llagual, and three from La Union, Caura River. These skins, three of which are labelled as females, indicate that the adult female is exactly similar to the adult males, i. e., without any white on chin or throat¹. One of the examples before me has the extreme upper throat and chin white and the throat flecked with white; another has a small chin spot only white, while the third is without any white.

An examination of Mr. Ridgway's type of *F. nigrifrons glaucopectus*² from British Guiana with the other examples of the same from the American Museum collection, compared with the Caura River specimens, indicates that *glaucopectus* is a well marked subspecies distinguished by the great extension of sooty blackish down over the chest and even onto the sides.

FORMICARIUS RUFICEPS (Spix).

Myiothera ruficeps Spix, Av. Bras. i. p. 72, pl. 72 fig. I, (1824).

A single specimen in the American Museum collection, taken by Klages at La Union, Caura River, Venez., evidently belongs to this

¹Hellmayr, Novit. Zool. XII. 1905. 292, believed the throat of adult female to be white "sharply defined against the sooty grey breast."

²Proc. U. S. N. M. XVI. 1893. p. 673.

species. The specimen is a male and was taken September 26, 1901. The throat and anterior part of the malar region is ochraceous buff, but with many of the feathers tipped with blackish.

CONOPOPHAGIDAE—THE GNATEATERS.

Only a single species of those pertaining to this family has been recorded from the Orinoco region.

CORYTHOPIS TORQUATA ANTHOIDES (Pucheran).

Muscicapa anthoides Pucheran (ex Cuvier), Arch. du Mus. Par. VII (1855), p. 334.

Corythopsis anthoides Berlepsch & Hartert, p. 80.

Rare; one specimen taken at Nericagua. There is a single specimen in the American Museum (Klages collection) from La Union on the Caura River—a female collected September 26, 1901.

TROCHILIDAE—THE HUMMINGBIRDS.

I was disappointed in the number of species of hummingbirds met with on the Orinoco River. Only twenty-eight were included in Berlepsch and Hartert's paper, twenty-two of which number were collected on the Orinoco proper by the writer, the remaining six were from the Caura River collected by Klages or André.

While the number of species secured was a disappointment, it is perhaps not remarkable when considered in connection with the fact that we devoted the greater part of our time to the more or less open savanna regions bordering the middle stretches of the Orinoco—a region of low altitude, characterized by great stretches of open or sparsely wooded savannas, and little variety in the vegetation.

GLAUCIS HIRSUTA HIRSUTA (Gmelin).

Trochilus hirsutus Gm., Syst. Nat. I. 1788. p. 490.

Glaucis hirsuta Berlepsch & Hartert, p. 80.

One taken at Munduapo.

PHOETHORNIS AFFINIS AFFINIS Pelzeln¹.

Phaetornis affinis Pelz., Sitz. Akad. Wien, XX. 1856. p. 157.

Phaëthornis superciliosus Berlepsch & Hartert, p. 80.

Common on the upper river at Munduapo and Nericagua.

¹See Hellmayr's remarks regarding the use of this name: Novit. Zool. XIII. 1906. p. 374.

PHOETHORNIS HISPIDUS (Gould).

Trochilus hispidus Gould, P. Z. S. 1846. p. 90.

Phaëthornis hispidus Berlepsch & Hartert, p. 81.

Common in the same general region as *P. affinis affinis*.

PHOETHORNIS AUGUSTI (Bourcier).

Trochilus augusti Bourc., Ann. Soc. Agric. Lyon, X. 1847. p. 623.

Phaëthornis augusti Berlepsch & Hartert, p. 81.

Seen only at Caicara where two specimens were taken.

PHOETHORNIS RUPURUMII RUPURUMII Boucard.

Phaëthornis Rupurumii Boucard, The Humming Bird, II. 1892. p. 1.

Berlepsch & Hartert, p. 81.

Colors of fresh birds are: eye seal brown; maxilla black, mandible lemon yellow, black at tip; feet dusky.

This species is found all along the middle and upper Orinoco and is not uncommon in the low, often almost impenetrable, thickets near the borders of deep forest areas. They keep close to the ground, and their color harmonizes so closely with stems of the vines and the branches of the undergrowth about them that they are rarely seen. I have sat for a half hour at a time hearing their oft-repeated squeaky hissing notes all about me, frequently within a very few feet of me, and have failed to see one of the performers.

PHOETHORNIS RUBER EPISCOPUS Gould¹.

Phaethornis episcopus Gould, P. Z. S. 1857. p. 14.

Phaëthornis ruber Berlepsch & Hartert, p. 82.

Phaethornis caurensis Simon et Delmas, *Ornis*, XI. 1901. p. 208 (Caura River, Venez.).

Common at Munduapo and at Nericagua.

CAMPYLOPTERUS LARGIPENNIS (Boddaert).

Trochilus largipennis Bodd., Tabl. Pl. Enl. 1783. p. 41.

Campylopterus largipennis Berlepsch & Hartert, p. 82.

Abundant at Nericagua. Not seen elsewhere.

¹See Hellmayr's notes on the races of *P. ruber*: *Novit. Zool.* XIV. 1907. p. 375.

FLORISUGA MELLIVORA MELLIVORA (Linnaeus).

Trochilus mellivorus L., Syst. Nat. ed. 10. I. 1758. p. 121.

Florisuga mellivora Berlepsch & Hartert, p. 82.

Not observed at Bolivar and rare at Caicara where an adult male and an adult female were taken May 8th. Abundant on the upper river.

Eye seal; bill black; feet dusky blackish.

AGYRTRIA ALBIVENTRIS (Lesson).

Ornismya albiventris Less., Hist. Nat. Ois.-Mouches, 1829. pp. XXXIV, 209. Pl. 76.

Agyrtria albiventris Berlepsch & Hartert, p. 83.

This is the most abundant species of Hummingbird found along the Orinoco up as far as the falls in the river. It is a bird of the open savanna regions.

Eye dark seal brown; bill dusky reddish with blackish tip; feet dusky.

I have found nests every month from May to November, and in localities as varied as the months—from a point out toward the extreme tip of a limb of a tree 20 metres up, to the forks of a slender shrub not more than 50 cm. above the ground. A nest before me is a neat, trim, little cup-shaped affair, built of the soft silky bits of native cotton adorned, on the outside, with scattered pieces of greenish gray lichens. It measures 4 cm. diameter by 2.8 cm. in depth outside, and 2.7 cm. diameter by about 1.8 cm. in depth inside. It was located about 1.6 m. from the ground near the tip of a large horizontal limb of a mango tree, at a point where a tiny twig branches from the main stem, the angles between the two forming the foundation for the nest. The egg (one of the set broken) is elliptical-oval in form and measures 13.2 x 8.8 mm.

AGYRTRIA FIMBRIATA (Gmelin).

Trochilus fimbriatus Gmelin, Syst. Nat. I: 1788: p. 493 (Cayenne).

Agyrtria fimbriata Stone, Proc. Ac. Nat. Sci. Phil. 1913: p. 201 (Boca Uracoa, and Buelta Trieste, River Manimo; Caño Corosal).

Reported from the delta country by Stone.

AGYRTRIA MILLERI (Bourcier).

Trochilus milleri Bourc., P. Z. S. 1847. p. 43.

Agyrtria milleri Berlepsch & Hartert, p. 83.

The distribution along the Orinoco seems to be about the same as with *albiventris* but it is much less common.

AGYRTRIA CHIONOPECTUS CHIONOPECTUS (Gould).

Thaumantias chionopectus Gould, Monogr. Trochili. V: (1859): pl. 293 (Trinidad); Stone, Proc. Ac. Nat. Sci. Phil. 1913: p. 201 (Guinipa Village; Pedernales).

Stone records specimens from the delta. It is replaced from the mouth of the Caura and beyond by the allied race *whitelyi*.

AGYRTRIA CHIONOPECTUS WHITELYI (Boucard).

Uranomitra whitelyi Boucard, The Humming Bird, III. 1893. p. 8.

Agyrtria chionopectus whitelyi Berlepsch & Hartert, p. 84.

This species was reported from the Caura River by Berlepsch and Hartert, having been collected by both André and Klages. In May, 1907, the writer found it abundant along the San Feliz River near its union with the Cuchivero River. Either this or typical *chionopectus* will be very likely found in the Orinoco Delta.

SAUCEROTTIA CUPREICAUDA (Salvin & Godman).

Amazilia cupreicauda Salv. & Godm., Ibis, 1884. p. 452.

Saucerottia cupreicauda Berlepsch & Hartert, p. 84.

Berlepsch and Hartert record specimens from "Mountains west of Suapure," collected by Klages. Not observed by the writer.

SAUCEROTTIA ERYTHRONOTOS CAURENSIS Berlepsch & Hartert.

Saucerottia erythronotos caurensis Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 84. (Type in Museum Tring, ♂, Suapure, Caura River, Venez.).

The writer did not obtain specimens of this Hummingbird, but examples were sent to the Tring Museum from Ciudad Bolivar, and the type locality by S. M. Klages.

HYLOCHARIS SAPPHIRINA (Gmelin).

Trochilus sapphirinus Gm., Syst. Nat. I. 1788. p. 496.

Hylocharis sapphirina Berlepsch & Hartert, p. 84.

Seen only on the upper river at Nericagua, where it was abundant.

HYLOCHARIS CYANUS VIRIDIVENTRIS Berlepsch.

Hylocharis cyanea viridiventris Berl., Ibis, 1880. p. 113.

Hylocharis cyanus viridiventris Berlepsch & Hartert, p. 85.

Three taken at Nericagua during April, 1899; not observed at other points along the Orinoco proper.

Recorded by Berlepsch and Hartert from Suapure and from La Pricion on the Caura River.

CHLORESTES COERULEUS (Vieillot).

Trochilus coeruleus Vieill., Nouv. Dict. VII. 1871. p. 361.

Chlorestes coeruleus Berlepsch & Hartert, p. 85.

Common from Altagracia to Munduapo on the upper river; also recorded from Caura River points by Berlepsch and Hartert.

Eye seal brown; maxilla and tips of mandible black, basal four-fifths of mandible flesh color; feet dusky.

CHLOROSTILBON CARIBAEUS NANUS Berlepsch & Hartert.

Chlorostilbon caribaeus nanus Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 86 (Type, ex Caicara River, Orinoco, Venezuela).

Abundant at Caicara, where the writer collected the type specimen (adult male No. 10157 Coll. Geo. K. and Stella M. Cherrie, Caicara, Venez. Feb. 19, 1898), now in the Tring Museum (*l. c.*). This species was not observed anywhere beyond the falls of Atures.

Eye dusky; bill and feet black.

THALURANIA TSCHUDII Gould.

Thalurania tschudii Gould, P. Z. S. 1860. p. 312; Berlepsch & Hartert, p. 86.

Common on the upper river at Munduapo and Nericagua. Not observed elsewhere:

THALURANIA REFULGENS Gould.

Thaluranía refulgens Gould, P. Z. S. 1852: p. 9; Stone, Proc. Ac. Nat. Sci. Phil. 1913: p. 201. (Manimo Riv., Isla de Morocatico).
Recorded by Stone from the delta country.

THALURANIA FURCATA FISSILIS Berlepsch & Hartert.

Thaluranía furcata fissilis Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 87 (Type, Caura River, Suapure, Venezuela).

This species was described from specimens collected on the Caura River. It has not been observed on the Orinoco proper.

Recorded by Berlepsch and Hartert from "Parima Mountains" (Caura River region) collected by Klages. On my first expedition this species was not observed, but in 1905 and in 1907, it was noted as not uncommon about Caicara during the month of May.

Eye dark; bill black; feet dusky.

ANTHRACOTHORAX NIGRICOLLIS (Vieillot).

Trochilus nigricollis Vieill., Nouv. Dict. VII. p. 349.

Lampornis nigricollis Berlepsch & Hartert, p. 87.

Common from the mouth of the river Meta up as far as I extended my explorations.

ANTHRACOTHORAX GRAMINEUS (Gmelin).

Trochilus gramineus Gmelin, Syst. Nat., I: 1788: p. 488.

Anthracothorax gramineus Stone, Proc. Ac. Nat. Sci. Phil. 1913: p. 201 (Pedernales).

Recorded by Stone from the delta.

CHRYSOLAMPIS ELATUS (Linnaeus).

Trochilus mosquitus L., Syst. Nat. ed. 12. i 1766. p. 192.

Chrysolampis mosquitus Berlepsch & Hartert, p. 87.

Common along the middle stretches of the river from Ciudad Bolivar up as far as the mouth of the Meta. Recorded by Berlepsch and Hartert from Suapure, Temblador and La Pricion, on the Caura River.

HELIOTHRYX AURITA (Gmelin).

Trochilus auritus Gm., Syst. Nat. I. 1788. p. 493.

Heliothrix aurita Berlepsch & Hartert, p. 88.

Rare. One specimen taken at Maipures. Berlepsch and Hartert record specimens collected by both Klages and André at points on the Caura River.

ANTHOSCENUS LONGIROSTRIS LONGIROSTRIS (Audeb & Vieillot).

Trochilus longirostris Aud. & Vieill., Ois. Dor. I. 1802. p. 128, Pl. 59.

Floricola longirostris Berlepsch & Hartert, p. 88.

Rare. One specimen taken at Maipures; also recorded by Berlepsch and Hartert from Suapure and La Pricion on the Caura River.

CALLIPHLOX AMETHYSTINA (Gmelin).

Trochilus amethystinus Gm., Syst. Nat. I. 1788. p. 406.

Calliphlox amethystina Berlepsch & Hartert, p. 88.

Not observed on my first expedition to the Orinoco, but not uncommon at Caicara, both in 1905 and 1907. The specimens secured were feeding about the flowers of low bushes just along a path at the edge of the dark forest.

Eye dusky; bill and feet blackish.

Recorded by Berlepsch and Hartert from Suapure on the Caura River.

CATHARMA ORTHURA (Lesson).

Ornismya orthura Lesson, Hist. Nat. Troch., p. 85, 88 t. 28, 29 (1832).

On my first expedition to the Orinoco this species was not observed, but in 1905, and in 1907, during May and June, it was not uncommon about Caicara. The females collected do not have the red apical spots on the throat feathers. On the other hand each feather of the throat has the tip green, similar in shade to the back, and narrowly edged with buff. The forward parts of the cheeks are white, and the dusky spots below the eye blend into the dusky greenish feathers of the lower throat forming an ill-defined band across the lower throat. The outer rectrices are tipped with cinnamon.

LOPHORNIS ORNATUS (Boddaert)

Trochilus ornatus Bodd., Tabl. Pl. Enl. 1783. p. 39.

Lophornis ornatus Berlepsch & Hartert, p. 88.

Not uncommon at Caicara. Three males and one female were taken during June, 1907. One only taken on my first expedition.

Eye dark seal; bill black; feet blackish.

POLEMISTRIA VERREAUXI KLAGESI (Berlepsch & Hartert).

Lophornis verreauxi klagesi Berlepsch & Hartert, Novit. Zool. X. 1902. p. 89. (Type, ex Suapure, Caura River, Venezuela).

Not observed on the Orinoco proper, but recorded by Berlepsch and Hartert from Suapure and from La Pricion on the Caura River.

DISCOSURA LONGICAUDA (Gmelin).

Trochilus longicaudus Gm., Syst. Nat. I. 1788. p. 498.

Discosura longicauda Berlepsch & Hartert, p. 89.

A single female was taken at Nericagua in April, 1899. Not observed elsewhere.

CAPRIMULGIDAE—GOATSUCKERS, NIGHTHAWKS AND WHIP-POOR-WILLS.

Five species are included in the Berlepsch and Hartert paper, each of which is abundant throughout the region.

THERMOCHALCIS¹ CAYENNENSIS INSULARIS (Richmond).

Caprimulgus cayennensis Gm., Syst. Nat. I. 1788. p. 1031.

Stenopsis cayennensis Berlepsch & Hartert, p. 89.

Stenopsis cayennensis insularis Richmond, Proc. Biol. Soc. Wash. XV: 1902: 159 (Curaçao).

S[tenopsis] c[ayennensis] insularis Ridgway, Birds N. & M. Am. VI: 1914: 501 (Rio Caura, Venez.).

Stenopsis cayennensis monticola Chapman, Bull. A. M. N. H. XXXIII: 1914: 173. (Maripa, Rio Caura, Ven.)

Common in the neighborhood of Altagracia, Caicara and Quiribana de Caicara. During the day time they frequent the thickets that border the heavily wooded areas, where they may be seen resting on the ground (usually) or on low horizontal branches.

A nest with two fresh eggs was found at Caicara, May 8, 1905. The nest was a slight hollow in the bare ground of an open field. The eggs are elliptical-ovate in form and measure 17.6 x 24.6 and 17.5 x 23.7

¹Richmond Proc. Biol. Soc. Wash. XXVIII: 1915: 180.

mm. They are a pale vinaceous buff, with two sets of markings, one superimposed above the other. The inner markings are a pale lavender greyish, the outer set ferruginous. In one of the eggs the markings are scattered over the entire surface and consist of irregular lines and dashes. In the other egg the markings are grouped chiefly about the larger end and consist of irregular dots, spots and blotches.

NYCTIDROMUS ALBICOLLIS ALBICOLLIS (Gmelin).

Caprimulgus albicollis Gm., Syst. Nat. I. 1788. p. 1030.

Nyctidromus albicollis Berlepsch & Hartert, p. 90.

Native name *Aguita Camino*. Common.

Eye seal brown; bill black; feet dusky.

These birds frequent the more thinly wooded districts or the edges of thick forest region during the daytime, resting on the ground among the fallen leaves, where their colors blend with that of the dead leaves. I have never observed this species perched anywhere except on the ground. At night they come out in the open savannas, and are frequently seen about the doorways of the houses as well as out in the country districts.

About Caicara fresh eggs are found from early in March until the end of May. There is no nest built and the two eggs are often deposited in the most open, and what would seem dangerous, situations, on the bare ground. Two eggs found on the 9th of March were near the edge of thick forest bordering the river and almost directly in a path much used by cattle, pigs, and other animals. The eggs lay on a spot of bare ground about 8 cm. in diameter surrounded on all sides by dead leaves. Incubation was far advanced and only one egg was preserved. It is a pale vinaceous buff in color marked all over with irregular spots and blotches of vinaceous brown; ovate in form and measures 28.5 x 21 mm.

The male parent bird and a set of two fresh eggs were collected May 5th. The bird, when flushed, feigned a broken wing to draw my attention from the eggs. One of these eggs is elliptical-ovate and the other between an elliptical-ovate and an ovate in shape. The markings are in two shades of color, those of a dark vinaceous overlying others of pale vinaceous brown. They measure 28.5 x 21.3 and 28.4 x 20.5 mm.

NYCTIPOLUS NIGRESCENS (Cab.).

Caprimulgus nigrescens Cabanis in Schomburgk Reisen. Brit. Guiana III: (1848): 710 (Brit. Guiana): Hellmayr, Novit. Zool. XVII: 1910: 381 (Caura, Venezuela).

Nyctipolus nigrescens Ridgway, Proc. Biol. Soc. Wash. XXV: 1912: p. 198.

There are three specimens in the American Museum collection from the Caura River; two from La Union and one from Suapure.

CHORDEILES ACUTIPENNIS ACUTIPENNIS (Boddaert).

Caprimulgus acutipennis Bodd., Tabl. Pl. Enl. 1783. p. 46.

Chordeiles acutipennis Berlepsch & Hartert, p. 90.

Not uncommon. Taken at Altagracia, Quiribana de Caicara and at Maipures.

A nest of this species was found at Raton Island about midway between Maipures and the mouth of the Vichada River. The nest, or better, nesting site, was a mere slight hollow near the centre of one of the enormous flat-topped granite boulders that are so common along the Orinoco. The colors of the sitting bird blended almost perfectly into the colors of the surroundings and I would not have discovered her had I not flushed her by almost putting my foot upon her. The color of the eggs was also decidedly protective. The eggs were taken February 1st and were entirely fresh. They are nearly elliptical-oval in form, being scarcely noticeably smaller at one end than at the other. The ground color is a pale vinaceous buff and over the entire surface are thickly scattered small, faint, ill-defined markings of greyish underlying others of pale raw umber. They measure 24.75 x 19.25 and 25 x 19.25 mm.

NANNOCHORDEILES PUSILLUS SEPTENTRIONALIS Hellm.

Chordeiles pusillus Gould, P. Z. S. 1861. p. 182.

Nannochordeiles pusillus Berlepsch & Hartert, p. 90.

N[annochordeiles] pusillus septentrionalis Hellm., Novit. Zool. XV: 1908: p. 78 (Type ex Maipures).

Observed at Maipures only, where two specimens were collected on my first expedition, one in December, the other in January.

NYCTIPROGNE LEUCOPYGIA (Spix).

Caprimulgus leucopygus Spix, Av. Bras. II. 1823. p. 3. Pl. 3.

Nyctiprogne leucopygia Berlepsch & Hartert, p. 90.

Eye blackish; feet dusky slate.

This species was in the Delta Region about Las Barrancas, also at Ciudad Bolivar and at Caicara. During the day time these birds conceal themselves in the dense thickets bordering ponds and streams, where they may be found perched on horizontal branches from 30 to 100 cm. from the ground. They perch crossways of the branch, and not infrequently I have seen from two to eight or ten huddled close beside one another all facing in the same direction.

PODAGER NACUNDA (Vieillot).

Caprimulgus nacunda Vieill., Nouv. Dict. x. p. 240 (1817).

Two taken at San Mateo de Caicara; male May 19th and female May 25th.

Eye dark; bill blackish; feet dusky grey.

On my previous visits to the Orinoco this species was observed on two occasions but no specimens were collected. It seems to keep entirely to the open savanna not even seeking the protection and concealment of thickets when at rest during the day.

In my rather long experience as a collector I have met with very few birds as difficult to make up into good skins as the present species.

MICROPODIDÆ—THE SWIFTS.

Only three species were included in the Berlepsch and Hartert paper, two of which number were collected on the Orinoco proper and the third recorded from Suapure on the Caura River. Additional collecting will almost certainly add to this number.

CLAUDIA SQUAMATA (Cassin).

Cypselus squamatus Cass., Proc. Acad. Nat. Sci. Phila. VI. 1853. p. 369.

Claudia squamata Berlepsch & Hartert, p. 91.

This species was abundant about Altagracia and at Caicara where they were frequently observed coursing over the savannas during the afternoon, when the sun was hottest. They were noted in parties of from twenty to fifty.

CHAETURA SPINICAUDA (Temminck).

Cypselus spinicaudus Temm., Tabl. Méth. in Pl. Col. I. 1839. p. 57.*Chaetura spinicauda* Berlepsch & Hartert, p. 91.

Not observed on the Orinoco by the writer, but recorded by Berlepsch and Hartert from Suapure on the Caura River.

CHAETURA ANDREI Berlepsch & Hartert.

Chaetura andrei Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 91 (Type, ♂, ex Caicara, Orinoco River, Venezuela. Cherrie Coll. No. 10534.)

I arrived at Altigracia the first of November, but no specimens of this swift were observed until the 2nd of February following; after that date they were seen but owing to their habit of flying high up, specimens were secured with the greatest difficulty. Noted as not uncommon at Caicara during March and April.

PICIDAE—THE WOODPECKERS.

Berlepsch and Hartert's paper includes seventeen species, fifteen of which number were observed and collected by the writer on the Orinoco proper, the other two species included in that list came from points on the Caura River.

KEY TO GENERA, SPECIES AND SUBSPECIES OF PICIDAE.

- a. Tail-feathers stiff and pointed.
- b. Middle of belly bright red or reddish.
 - c. Back barred black and white.
 - d. Rump and upper tail-coverts white, not barred..... *Centurus subelegans.*
 - d'. Rump and upper tail-coverts white, barred like back..... *Centurus terricolor.*
 - c'. Back black, not barred.
 - d. With a white superciliary stripe and yellow nuchal band..... *Tripsurus cruentatus.*
 - d'. Without superciliary stripe or yellow nuchal band..... *Tripsurus rubrifrons.*
- b'. Middle of belly not red or reddish.
 - c. Under-parts barred or spotted with black or blackish.
 - d. Chin, throat and sides of head yellow. (In males a short, red malar streak)..... *Chloronerpes flavigula.*
 - d'. Chin, throat and sides of head not uniform yellow.
 - e. Under-parts spotted with black..... *Chrysophilus punctigula punctipectus.*
 - c'. Under-parts barred with black.
 - f. General color of upper-parts black.
 - g. Outer hind toe longer than outer front toe (centre of back largely white)..... *Scapanus melanoleucos.*
 - g. Outer hind toe not longer than outer front toe (centre of back black and speculars white)..... *Ceophloeus lineatus.*
 - f'. General color of upper-parts olive or yellowish green.
 - g. Wing-quills barred with buffy or white on inner webs.
 - h. Wing-coverts with buffy or white spots.
 - i. Upper back slightly tinged with reddish..... *Veniliornis passerinus.*
 - i'. Back golden olive without reddish tinge..... *Veniliornis cassini.*
 - h'. Wing-coverts without spots but with yellowish shaft lines showing through the reddish tips (obsolete in some)..... *Veniliornis orenocensis.*
 - g'. Wing-quills not barred on inner webs..... *Chloronerpes rubiginosus.*¹

¹Has been recorded from points in the state of Bermudez, Venezuela and from Brit. Guiana.

- c'. Under-parts not barred or spotted with black.
- d. General color above and below yellowish buff..... *Crocomorphus flavus.*
- d'. General color above not yellowish buff.
 - e. Back black.
 - f. Basal half or more of primaries (except the two outermost) hazel brown..... *Scapanus trachelopyrus.*
 - f'. Outer webs of primaries black (or at least with broad black edges)..... *Scapanus rubricollis.*
 - e'. Back chestnut brown.
 - f. General color of under parts brown, darker than back.
 - g. Crest dark chestnut, darker than back..... *Celeus fumana.*
 - g. Crest tawny or cinnamon brown..... *Celeus elegans hellmayri.*
 - f'. Lower throat and breast black, remaining under parts dark buff..... *Cerchneipicus torquatus.*
- a'. Tail-feathers soft (*Picumnus*).
 - b. Under-parts barred with black.
 - c. Feathers of crown tipped with red or yellow.
 - d. Feathers of crown tipped with red..... ♂ *Picumnus undulatus.*
 - d'. Feathers of crown tipped with yellow..... ♀ *Picumnus stellae.*
 - c'. Feathers of crown with white or pale yellowish tips..... ♀ *Picumnus undulatus.*
Picumnus leucogaster.
 - b'. Under-parts not barred.....

CHLORONERPES FLAVIGULA (Boddaert).

Picus flavigula Bodd., Tabl. Pl. Enl. 1783. p. 49.

Chloronerpes flavigula Berlepsch & Hartert, p. 91.

Observed only in the heavily wooded region, beyond the falls of Atures. Miller and Iglseider collected a specimen at the Foot of Mount Duida (Am. Mus. Collection).

CHRYSOPTILUS PUNCTIGULA PUNCTIPECTUS Cabanis & Heine.

Chrysoptilus punctipectus Cab. & Hein., Mus. Hein. IV. 1863. p. 163.

Chrysoptilus punctigulus guttatus Berlepsch & Hartert, p. 92.

Common from Ciudad Bolivar to the mouth of the Apure. Found more commonly in the scattering clumps of trees on the savannas than in the heavy timber along the river.

Eye seal brown; bill blackish slate; feet olive green.

CENTURUS SUBELEGANS SUBELEGANS Bonaparte.

Centurus subelegans Bonaparte, P. Z. S. 1837: p. 109 ("Mexico"-Venezuela, see Bonaparte Consp. Av. i: 1850: 119).

Common at Ciudad Bolivar and at Caicara. Like the preceding species this is rarely met with in heavily wooded districts.

Eye mummy brown; bill black; feet dusky slate.

CENTURUS TERRICOLOR Berlepsch.

Centurus terricolor Berl., Ibis, 1880. p. 130.

Melanerpes terricolor Berlepsch & Hartert, p. 92.

Berlepsch and Hartert include all the specimens of *Centurus* that I sent to the Tring Museum as *terricolor*, but the specimens secured on

later expeditions have all been *subelegans*! None have been seen having the rump and upper tail-coverts barred—the distinguishing character of *terricolor*. I am inclined to agree with Richmond¹ that *terricolor* of Berlepsch is the same as *subelegans* of Bonaparte.

TRIPSURUS CRUENTATUS (Boddaert).

Picus cruentatus Bodd., Tabl. Pl. Enl. 1783. p. 43.

Melanerpes cruentatus Berlepsch & Hartert, p. 92.

Rare. Two collected at Munduapo in February (Berl. & Hart. l. c.).

Eye lemon yellow, eye-lids black, bare skin about eyes straw yellow; bill slate black; feet plumbeous pea green.

TRIPSURUS RUBRIFRONS (Spix).

Picus rubrifrons Spix, Av. Bras. I: (1824): p. 61 (“in sylvis Parae”).

Melanerpes cruentatus Berl. & Hart., Novit. Zool. IX: 1902: 92 in part (Suapure).

T[ripsurus] rubrifrons Ridgway, Birds of N. & M. America VI: 1914: 118.

In the Berlepsch and Hartert paper, birds from Suapure (Caura River) are entered as *cruentatus*. There are, however, in the American Museum collections, six Caura River specimens (one male from Suapure and four females and one male from La Union) that are certainly *rubrifrons*. The Suapure male shows a distinct, although imperfect, postocular superciliary stripe; it is entirely absent in the four females and male from La Union: and none of the specimens show a trace of the conspicuous yellow nuchal band of *cruentatus*.

VENILIORNIS CASSINI (Malherbe).

Mesopicus cassini Malh., Picidae, II. 1862. p. 55. Pl. 68, figs. 2, 3.

Veniliornis cassini Berlepsch & Hartert, p. 93.

Not observed on the Orinoco proper but recorded by Berlepsch and Hartert from Suapure and from La Pricion on the Caura River.

VENILIORNIS ORENOCENSIS Berlepsch & Hartert.

Veniliornis orenocensis Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 93.

(*Type*, ex “regione fluminis Orinoco”); I would substitute Munduapo, Orinoco River.

¹P.U.S.N.M. XVIII: 1895: p. 667.

Although Berlepsch and Hartert give the habitat of this species as covering the region from Angostura (Ciudad Bolivar) to Munduapo, inclusive, it was not observed below the falls of Atures by the writer, its place being taken on the middle stretches of the river—between the mouth of the Meta River and Ciudad Bolivar—by the following species.

Eye vandyke brown; bill above black, below slate grey; feet olive plumbeous.

In the American Museum are two specimens from Boca de Sina, Cunucunuma River, Upper Orinoco.

VENILIORNIS PASSERINUS (Linnaeus).

Picus passerinus L., Syst. Nat. ed. 12. I. 1766. p. 174.

Veniliornis passerinus Berlepsch & Hartert, p. 93 (in part).

Common from Ciudad Bolivar to Caicara and beyond as far as the mouth of the Meta.

Eye dark sepia brown; bill black; feet plumbeous olive.

CELEUS ELEGANS HELLMAYRI Berlepsch.

Celeus elegans hellmayri Berlepsch, Novit. Zool. XV: 1908: 272 (Brit. Guiana; Venezuela).

Celeus elegans reichenbachi Hellmayr, Novit. Zool. XIII: 1906: p. 40 (Guanoco, Orinoco Delta, Venezuela).

There is a specimen, an adult female, in the American Museum collection, that was taken by Klages at La Union, Caura River, Oct. 7, 1901.

The absence of pale shaft-streaks or spots on the feathers of the back and upper wing-coverts (as pointed out by Hellmayr) serves to distinguish this race from *elegans elegans* and *elegans leotaudi*.

CELEUS JUMANA (Spix).

Picus jumana Spix, Av. Bras. I. 1824. p. 57. Pl. 47, figs. 1 ♂, 2 ♀.

Celeus jumana Berlepsch & Hartert, p. 94.

Common on the upper river from Perico onwards, as far as I collected.

CELEUS GRAMMICUS (Malherbe).

Picus grammicus Malh., Mem. Soc. Roy. Liège, 1845. p. 69.

Celeus grammicus Berlepsch & Hartert, p. 94.

Not common. Taken only at Munduapo and Nericagua.

CERCHNEIPICUS TORQUATUS (Boddaert).

Picus torquatus Bodd., Tabl. Pl. Enl. 1783. p. 52.

Cerchneipicus torquatus Berlepsch & Hartert, p. 94.

Not observed by the writer. Recorded by Berlepsch and Hartert from Suapure and from La Pricion on the Caura River, and there are two specimens from La Union in the American Museum collection.

CROCOMORPHUS FLAVUS (Müll.).

Picus flavus Müll., Syst. Nat. Supplement, 1776. p. 91.

Crocomorphus flavus Berlepsch & Hartert, p. 94.

Not observed below Altagracia but collected there, at Caicara, and up as far as the falls of Maipures.

Eye carmine red; bill chrome yellow shading into sulphur yellow at the base of the mandible; feet dark pea green.

This species I did not see in the sparsely wooded savanna districts. It kept to the heavier forests along the Orinoco. The call notes of this woodpecker are somewhat like those of our Great-crested Flycatcher—not what one expects from a woodpecker. They are usually seen in pairs or family parties of two adults and three or four immature birds. Specimens that I have collected have had the feet invariably covered with a mass of small black ants (dead) held by some sticky substance, and the birds themselves have a strong odor of formic acid.

SCAPANEUS RUBRICOLLIS (Boddaert).

Picus rubricollis Bodd., Tabl. Pl. Enl. 1783. p. 37.

Campephilus rubricollis Berlepsch & Hartert, p. 95.

Rare, seen only in the heavily wooded region above the falls. Two specimens were collected at Munduapo.

Eye light lemon yellow; bill pale horn color, ridge of culmen dusky and base of mandible shaded with greenish; feet dark sage green.

SCAPANEUS MELANOLEUCOS (Gmelin).

Picus melanoleucos Gm., Syst. Nat. I. 1788. p. 462.

Campephilus melanoleucus Berlepsch & Hartert, p. 95.

Native name *Carpintero Soldado*. Not rare, but very wary and somewhat difficult to collect. Keeps to heavily timbered districts. Noted and specimens collected at Ciudad Bolivar, but rarely below the mouth of the Apure. Seen on the upper river as far as I extended my explorations.

CEOPHLOEUS LINEATUS (Linnaeus).

Picus lineatus L., Syst. Nat. ed. 12, 1766. p. 174.

Ceophloeus lineatus Berlepsch & Hartert, p. 95.

This, like the preceding species, is known as *Carpintero Soldado*. Not uncommon on the middle Orinoco from some distance below Ciudad Bolivar to the falls of Atures.

Eye straw yellow; bill dusky slate above, whitish below; feet plumbeous.

PICUMNUS LEUCOGASTER Pelzeln.

Picumnus leucogaster Pelz., Orn. Bras. 1869. pp. 241, 335; Berlepsch & Hartert, p. 95.

Not common. This is the only species of *Picumnus* seen on the middle Orinoco. Specimens were collected at Altagracia and Caicara.

PICUMNUS UNDULATUS Hargitt.

Picumnus undulatus Hargitt, Ibis 1889. p. 354; Berlepsch & Hartert, p. 95.

Rare on the Orinoco where two specimens only were collected by the writer on the upper river, one at Perico in September and the other at Nericagua in March.

Not uncommon on the Caura River, as Berlepsch and Hartert record specimens from La Union, Suapure, La Pricion and Nicare.

PICUMNUS STELLAE¹ Berlepsch & Hartert.

Picumnus stellae Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 96 (Type, ♀ ex Maipures, Orinoco River).

This was the common form of *Picumnus* on the upper river. It was not observed below the falls of Atures.

Eye seal brown; bill black, basal half of mandible slate grey; feet plumbeous.

CUCULIDAE—THE CUCKOOS.

Berlepsch and Hartert include ten species in their list. Nine of the ten were collected on the Orinoco proper by the writer, and one (*Piaya melanogastra*), noted only from its tributary, the Caura River.

¹This species was named after Mrs. Cherrie, who accompanied me on the first Orinoco expedition, sharing the hardships and pleasures of camp life,—ignoring the former and adding much to the latter.

I am now able to add to the list *C. euleri*—very distinct from *C. americanus*, but sometimes confused with that species.

The species of *Piaya* and of *Crotophaga* and *Tapera naevia* are, I believe, resident in all localities where found, while the species of *Coccyzus* are transient, or at best, not permanent residents in the Orinoco region and are known collectively as *Crecienteros*, a vernacular name alluding to the fact that they appear at the season of the annual rise of the Orinoco.

KEY TO THE GENERA, SPECIES AND SUBSPECIES OF CUCULIDAE.

- a. Maxilla very deep, much compressed; general color of plumage above and below black.
- b. Sides of maxilla smooth with neither longitudinal grooves nor ridges *Crotophaga ani*.
- b'. Sides of maxilla ridged or grooved longitudinally.
- c. Larger, wing more than 17 cm.; upper parts of body glossed with iridescent steel blue. *Crotophaga major*.
- c'. Smaller, wing less than 17 cm.; body glossed with iridescent purplish. *Crotophaga sulcirostris*.
- a'. Maxilla not abnormally deep and compressed, and general color of plumage not black.
- b. General color of upper-parts red-brown.
- c. Top of head grey, in sharp contrast with red-brown back *Piaya melanogastra*.
- c'. Head not grey, nearly uniform with back.
- d. Smaller, total length less than 30 cm. *Piaya rutila orinocensis*.
- d'. Larger, total length more than 30 cm.
- e. Outer webs of second and third pairs of rectrices largely rufous (except for the blackish subapical band, about 25 mm. in width) *Piaya cayana insulana*.
- e'. Outer webs of second and third pairs of rectrices not rufous.
- f. Tail-feathers underneath nearly uniform blackish, with little or no trace of rusty shading, and blackish subterminal band almost obsolete. *Piaya cayana cayana*.
- f'. Tail underneath blackish but with a distinct rusty shading, and narrow subapical band about 10 mm. in width. *Piaya cayana columbiana*.
- b'. General color of upper-parts not red-brown.
- c. Very large, tail more than 20 cm.; none of the rectrices white tipped.
- d. Chin and upper throat dusky brownish, merging into black on lower throat; breast and belly dusky mouse-gray *Neomorphus nigrogularis*.
- d'. Chin and upper throat smoke-gray, followed by a band across the lower throat and neck where the feathers have black tips (narrow anteriorly but occupying half or more of feather posteriorly); breast and belly drab gray; under tail-coverts dusky brown *Neomorphus rufipennis*.
- c'. Smaller, tail less than 20 cm.; rectrices (except intermediae) white tipped.
- d. Crested; upper-parts more or less streaked with blackish *Tapera naevia*.
- d'. Not crested, and upper-parts not streaked.
- e. Chin and throat hazel brown, in sharp contrast with remaining lower parts *Micrococcyx pumilus*.
- e'. Color of chin and throat not in sharp contrast with remaining lower parts.
- f. Mandible black; lower parts strongly suffused with buff. *Coccyzus melacoryphus*.
- f'. Mandible yellowish or orange with blackish tip; under parts not strongly buff.
- g. Much rufous on both outer and inner webs of inner primaries *Coccyzus americanus*.
- g'. Without rufous on wing quills *Coccyzus euleri*.

COCYZUS AMERICANUS (Linnaeus).

Cuculus americanus L., Syst. Nat. ed. 10. 1758. p. III.

Coccyzus americanus Berlepsch & Hartert, p. 96.

Two of the cuckoos sent to the Tring Museum were identified by Messrs. Berlepsch and Hartert, as *C. americanus*; one, a female, was

collected at Altigracia in November, and a male was taken at Nericaqua, on the upper river, in April.

COCYZUS EULERI Cabanis.

Coccyzus euleri Cabanis, Journ. f. Orn. 1873. p. 73. (ex Cantagallo).

Two specimens were taken, both females, that differed slightly in the colors of the bill, eye-lids, etc. The first, collected at Ciudad Bolivar, April 15, 1905 (No. 13443 Geo. K. Cherrie Coll.) had the eye seal brown, eye-lids lemon yellow; bill above black with basal cutting edges olive yellow, mandible chrome yellow with blackish tip; feet dusky slate grey.

The second collected at Caicara, June 10, 1905 (No. 13856 Geo. K. Cherrie Coll.) had the eye seal brown, eye-lids blackish; maxilla, and extreme tip of mandible black, with basal cutting edges of maxilla, to a line bordering the lower edge of the nostrils and extending nearly one-half way to the tip, and mandible orange-buff; feet dusky slate grey.

The ovaries of the latter bird were much enlarged, indicating the near approach of the breeding season. My attention was drawn to this bird by hearing the familiar "rain crow's" note. It is in what I believe to be full nuptial plumage—a delicate pearl grey on breast, sides and flanks, shading to an almost silvery white on the belly.

C. euleri is at once distinguished from *C. americanus* by the entire absence of rufous on both the outer and inner webs of the wing quills and the darker general color above. This species has not been previously recorded from Venezuela.

COCYZUS MELACORYPHUS Vieillot.

Coccyzus melacoryphus Vieill., Nouv. Diet. VIII. 1817. p. 271; Berlepsch & Hartert, p. 97.

On my first expedition this species was observed only once, a single specimen having been collected at Quiribana de Caicara April 28, 1898. It was not seen in 1905, but in 1907 two were collected at Caicara in June; and at Las Barrancas (in the Delta region) it was common during July.

One of the specimens collected at Las Barrancas seems somewhat abnormally colored, or may possibly represent another race. Below, it is exactly similar to typical examples of *C. melacoryphus*; above, the back is also similar, but the wings are decidedly different, the quills being dull rufous brownish on both webs, except the tips

which are dusky. The primary-coverts are also strongly dull rufous brownish as are also the outer webs and tips of the greater wing-coverts. The pattern of coloration is similar to that of the wings of the yellow-billed cuckoo (*C. americanus*). It is possible this rufous shading is characteristic of immature birds.

MICROCOCYX PUMILUS (Strickland).

Coccyzus pumilus Strickl., Contrib. Orn. 1852. p. 28. Pl. 82; Berlepsch & Hartert, p. 97.

In the American Museum collection is a specimen collected by Klages at Maripa on the Caura. The forehead, crown and occiput are gull gray; the mantle and lower back mouse gray; the two colors blending insensibly into one another at the base of the occiput. The wings and tail are browner; the primaries blackish, especially toward the tip; the ends of the rectrices are black, narrowly tipped with white; sides of head, chin and throat hazel brown; breast and belly pale buffy; flanks, thighs and under wing- and tail-coverts buff; under surface of tail gray, the inner webs of the rectrices buff basally. Wing 103; tail 105; bill 17 mm.

Rare. An adult male was taken, on my first expedition, at Quiribana de Caicara, April 29, 1905, and a second adult male at Caicara, May 2, 1905.

Eye carmine, eye-lids carmine; bill black; feet slate gray.

PIAYA MELANOASTRA (Vieillot):

Cuculus melanogaster Vieill., Nouv. Dict. VIII. 1817. p. 236.

Piaya melanogastra Berlepsch & Hartert, p. 97.

Not observed by the writer on the Orinoco proper, but included in Berlepsch and Hartert's list based on a single specimen collected by Klages at Suapure on the Caura River. There is now a specimen in the American Museum collection taken at the foot of Mt. Duida.

PIAYA CAYANA CAYANA Linnaeus.

Cuculus cayanus L., Syst. Nat. ed. 12. 1766. p. 170.

Piaya cayana guianensis Berlepsch, Ibis. 1884. p. 435. (Angostura); Berlepsch & Hartert, p. 97, part (Suapure and La Pricion, Caura River, Venez.); Hellmayr, Novit. Zool. XIII. 1906. p. 43.

Piaya cayana cayana Hellmayr, Novit. Zool. XIV. 1907. p. 35; Stone, Proc. Phila. Acad. Sci. LX. 1908. pp. 497-8 (Suapure).

A study of the specimens in this museum from the Orinoco

region, together with those in the collection of the American Museum, convinces me that there are only two ways in which they can be treated logically. Either all must be lumped together under a single name (possibly *P. c. columbiana*); or, three or four distinct races must be recognized as inhabiting that region.

I have adopted the latter course—my conclusions, therefore, being quite at variance with those of the two authors¹ who have most recently studied the *P. cayana* group.

The native name of the birds of this group is *Piscua*. They frequent the less heavily wooded districts.

Birds from the Caura River (American Museum collection), a single example from the San Feliz River near its junction with the Cuchivero River, and British Guiana specimens are readily separable from the middle Orinoco birds by the darker ash grey of the breast and more sooty blackish or greyish of the under tail-coverts. Also the tail-feathers underneath are uniformly blackish with little or no trace of rusty shading, and the subterminal bar practically obsolete. Above, these birds are uniformly darker, more inclined to bay—with less ferruginous.

PIAYA CAYANA COLUMBIANA (Cabanis).

Pyrrhonorax columbianus Cabanis, Journ. f. Orn. 1862. p. 70 (Cartagena).

Piaya cayana guianensis Berlepsch & Hartert, p. 97, part. (Points on the Orinoco; Altigracia, Caicara, Ciudad Bolivar); Hellmayr, *ib.* XIII. 1907. p. 44. (Orinoco points.)

Piaya cayana cayana Hellmayr, Novit. Zool. XIV. 1907. p. 35 (Orinoco valley).

The birds from the middle Orinoco region—from Ciudad Bolivar (where *P. c. cayana* is also found) up at least as far as the mouth of the Meta River—seem to me referable to this race.

While closely related to typical *cayana*, they average much lighter in color, as pointed out in my remarks under that race; and the rusty shading of the under side of the tail-feathers seems to afford a ready means of separating the two races.

Eye dark lake red, bare skin about eye carmine; bill citron yellow distally shading to an apple green at base; feet plumbeous.

¹Hellmayr, Novit. Zool. XIII. 1906. pp. 43-4; *ib.* XIV. 1907. 35. Stone <A Review of the Genus *Piaya* Lesson>. Proc. Phila. Acad. Sci. LX. 1908 (published January, 1909). pp. 492-501.

The specimens in the American Museum collection from Boca de Sina, Cunucunuma River (Upper Orinoco) differ from examples from the middle Orinoco in the almost total absence of the rusty shading of the under side of the tail-feathers, as in *c. cayana*, but their much darker, more intense bay (with a distinct purplish sheen in certain lights) rather than chestnut seems to separate them from that race. It is possible these birds are representatives of the race (*c. venezuelensis*) described by Cory (Orn. Series Field Mus. Pub. 1; May, 1913; p. 284). I feel that a series from the Upper Orinoco would show the birds from that region to be a distinct race.

PIAYA CAYANA INSULANA Hellmayr.

Piaya cayana insulana Hellmayr, Novit. Zool. XIII. 1906. p. 43 (Type, ex Chaguaramas, Trinidad).

Hitherto this race has been known from Trinidad only, but specimens collected at Las Barrancas (delta region) and compared with Trinidad examples show them to be identical.

Birds of this race are closely related to those from the middle Orinoco, but are brighter and lighter cinnamon-rufous, or ferruginous above (very much paler than Guiana birds); and as pointed out by their describer, they have the outer webs of the second and third rectrix entirely rufous, except for the blackish subapical band. The sub-terminal black bars on the rectrices are broader and more sharply defined than in Guiana or Orinoco birds, averaging 25 mm. while in the birds of the middle Orinoco the average does not exceed 10 mm.

A pair were observed carrying nesting material August 1st.

PIAYA RUTILA ORINOCENSIS Cherrie.

Piaya rutila orinocensis Cherrie, Bul. Am. Mus. Nat. Hist. XXXV, 1916, p. 393.

Piaya rutila Berlepsch & Hartert, p. 97.

Not common, but noted at Las Barrancas (Delta region), Ciudad Bolivar, Altagracia and up as far as Maipures.

Eye vermilion red; bill sulphur yellow; feet dusky plumbeous olive.

TAPERA NAEVIA (Linnaeus).

Cuculus naevius L., Syst. Nat. ed. 12. 1776. p. 170.

Diplopterus naevius Berlepsch & Hartert, p. 98.

Not common. Native name *Pavita*. While nowhere common

this species was observed everywhere from Las Barrancas and Ciudad Bolivar as far as I worked on the upper river.

Adult female, eye clay color; bill, ridge of culmen clove brown, cutting edge of maxilla cinnamon brown, mandible brown.

NEOMORPHUS RUFIPENNIS (Gray).

Cultrides rufipennis Gray, P. Z. S. 1849: p. 63. pl. 10 (Guiana).

Two specimens from the Caura River are in the American Museum Collection.

NEOMORPHUS NIGROGULARIS Chapman.

Neomorphus nigrogularis Chapman, Bull. Am. Nat. Hist. XXXIII: 1914: p. 194 (Foot of Mt. Duida, Venezuela).

Type in the collection of the American Museum.

CROTOPHAGA ANI Linnaeus.

Crotophaga ani L., Syst. Nat. ed. 10. 1758. p. 105; Berlepsch, Ibis, 1884. p. 435 (Angostura); Berlepsch & Hartert, p. 98.

Native name *Tio Louis*. Common along the middle stretches of the river from Ciudad Bolivar and Caicara beyond the falls of Maipures as far as I extended my explorations.

Eye seal brown; bill and feet black.

CROTOPHAGA SULCIROSTRIS Swainson.

Crotophaga sulcirostris Swainson, Philos. Mag. New & Unit. Ser. I: (1827): 440 (Mexico); Berlepsch & Hartert, p. 98.

The three species of *Crotophaga* seem to be found throughout the Orinoco region. Of the two smaller forms *C. ani* is the more abundant. I did not observe *sulcirostris* above the falls, but Miller collected a specimen for the American Museum at Maipures.

CROTOPHAGA MAJOR Gmelin.

Crotophaga major Gm., Syst. Nat. ed. 10. 1788. p. 363; Berlepsch & Hartert, p. 98.

Native name *Hervidor Oriquelo*. Not observed below Ciudad Bolivar, but noted at almost all points visited beyond. This species frequents the tangled thickets and densely wooded areas that cover or border swamps, ponds or water courses. Like other members of the genus they are social, going about in small flocks of from six or eight to twenty or thirty.

The native name *Hervidor* is derived from the Spanish verb *hervir*—to boil—doubtless in allusion to the peculiar vocal performance which certainly is much like the sound of bubbling, boiling water.

These cuckoos are occasionally seen in a state of semi-domestication about the native houses.

CAPITONIDAE—THE BARBETS OR THICKHEADS.

Two races of a single species are known from the Orinoco region.

CAPITO AURATUS INTERMEDIUS Berlepsch & Hartert.

Capito auratus intermedius Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 98. (*Type*, ex Nericagua, upper Orinoco, Venez.).

Only two specimens, a male and a female, were collected on my first expedition, at Nericagua, on the upper Orinoco.

There is a series in the American Museum collection from Boca de Sina, Cunucunuma River (upper Orinoco), that doubtless should be referred to this race. They show, however, a considerable orange wash on the lower breast and abdomen, a character supposed to be distinctive of *a. aurantiicinctus*, and are scarcely to be distinguished from a couple or Caura River specimens. I am consequently doubtful if *intermedius* is a valid race.

CAPITO AURATUS AURANTIICINCTUS Dalmas.

Capito aurantiicinctus Dalmas, Bull. Soc. Zool. France. 1900. p. 178 ("Dans le bassin de la rivière Caura").

Capito auratus aurantiicinctus Berlepsch & Hartert, p. 99.

In the Am. Museum collection are two specimens from La Union (Caura River). One shows a considerable amount of the orange color on the middle of the breast that is supposed to be distinctive of the race.

First described and recorded from the Caura River by Dalmas. Berlepsch and Hartert record a specimen collected by André at Nicare on the same river.

RAMPHASTIDAE—THE TOUCANS.

Nine species are embraced in the Berlepsch and Hartert paper, but only five were collected by the writer on the Orinoco proper, the remaining four having been collected by either Klages or André at points on the Caura River. None were seen until I arrived in the heavily forested regions beyond the falls of Maipures.

The name *Piapoco* is applied to the toucans of the region collectively.

KEY TO THE GENERA, SPECIES AND SUBSPECIES OF RHAMPHASTIDÆ.

- a. Nostrils opening behind the casque (*Ramphastos*).
- b. Upper tail-coverts lemon yellow, general color of bill reddish *Ramphastos monilis*.
- b'. Upper tail-coverts red (scarlet) or orange or in combination; general color of bill blackish.
- c. Upper tail-coverts uniform scarlet *Ramphastos vitellinus*.
- c'. Upper tail-coverts not uniform scarlet.
- d. Throat white, blending into yellow, varying in shade from lemon to orange, followed by a scarlet band, the scarlet extending centrally back onto the breast *Ramphastos osculans*.
- d'. Throat and neck white or white with lemon yellow tinge on neck.
- e. Smaller, bill less than 17 cm. Throat only slightly if at all tinged with lemon yellow *Ramphastos culminatus*.
- e'. Larger, bill more than 17 cm. Throat strongly tinged with lemon yellow *Ramphastos cuvieri inca*.
- a'. Nostrils rounded, opening upward at the edge of the casque. The culminal ridge extending back beyond the nostrils (*Pteroglossus*.)
- b. No band across the breast (sexes different) *Pteroglossus viridis*.
- b'. Breast banded (sexes alike).
- c. Throat chestnut *Pteroglossus flaviventris*.
- c'. Throat black.
- d. With two black bands beneath *Pteroglossus pluricinctus*.
- d'. A single scarlet band across lower breast; maxilla with a broad black culminal stripe (at base occupying entire space between nostrils); thighs reddish green. *Pteroglossus aracari roraimae*

RAMPHASTOS CUVIERI INCA Gould.

Ramphastos inca Gould, P. Z. S. 1846. p. 68.

Ramphastos cuvieri inca Berlepsch & Hartert, p. 99.

One specimen secured at Munduapo on the first expedition and recorded by Berlepsch and Hartert.

RAMPHASTOS MONILIS MÜLLER.

Ramphastos monilis P. L. S. Müller, Natursyst. Suppl. (1776): p. 83 (Cayenne).

Ramphastos haematorhynchus Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 99. (Type, ex La Pricion, Caura River, Venez.).

Recorded by Berlepsch & Hartert from points on the Caura River only. Not seen on the Orinoco.

RAMPHASTOS OSCULANS Gould.

Ramphastos osculans Gould, P. Z. S. 1835. p. 156; Berlepsch & Hartert, p. 100.

Only one specimen collected, taken at Munduapo February 10, 1899, not seen on subsequent expeditions.

Eye seal brown, bare skin about eye turquoise blue; bill, with a narrow band at the extreme base deep black; culmen and tips of maxilla and mandible and the upper third of a sub-basal band sulphur yellow, lower two-thirds of sub-basal band azure blue, body of both maxilla and mandible black; feet glaucous blue.

RAMPHASTOS VITELLINUS Lichtenstein.

Ramphastos vitellinus Licht., Doubl. Verz. 1823. p. 7; Berlepsch & Hartert, p. 101.

Not taken by the writer, but recorded from Suapure, La Pricion on the Caura River by Berlepsch and Hartert.

RAMPHASTOS CULMINATUS Gould.

Ramphastos culminatus Gould, P. Z. S. 1833. p. 70; Berlepsch & Hartert, p. 101.

More often seen than either *cuvieri inca* or *osculans*. Five specimens were collected on my first expedition at Munduapo and at Nericagua.

The iris is bicolored, having an inner ring of seal brown and an outer zone of greenish grey; bare skin about eye turquoise blue; bill with a narrow band at the extreme base deep black, succeeded by a much broader band, which on the mandible and one-fourth of the maxilla is azure blue, the remainder, as also the culmen and tips of both maxilla and mandible, is sulphur yellow, body of the bill, maxilla and mandible black; feet glaucous blue.

PTEROGLOSSUS PLURICINCTUS Gould.

Pteroglossus pluricinctus Gould, P. Z. S. 1835. p. 157; Berlepsch & Hartert, p. 101.

Four specimens taken at Munduapo during February. Eye straw yellow, bare skin about eye paris green; bill with a narrow band at the extreme base of maxilla and mandible ochre yellow, remainder of mandible black, maxilla with a basal band, including a long acute triangular area along its basal cutting edge and the culmen black, tip pinkish vinaceous, body of the maxilla bicolor, the basal part being ochre yellow, the anterior part a soiled yellowish white, the two shades blending gradually into one another in the centre; feet dusky oil green, bare skin on sides of tarsi plumbeous.

PTEROGLOSSUS FLAVIROSTRIS FLAVIROSTRIS Fraser.

Pteroglossus flavirostris Fraser, P. Z. S. 1840. p. 61; Berlepsch & Hartert, p. 101.

Probably the most common of the species of toucan seen on the Orinoco.

Bare skin about the eye, on side of face, bicolored, a band immediately surrounding the eye slate black and the remaining outer portion dark maroon purple; bill, maxilla very pale primrose yellow with a series of black spots along the cutting edges of the basal part, together with a small elongated black patch also on the cutting edge near the tip, mandible very pale primrose yellow with an elongated ochraceous patch near the centre of the cutting edge; feet dark sage green.

PTEROGLOSSUS VIRIDIS (Linnaeus).

Ramphastos viridis L., Syst. Nat. ed. 12. 1766. p. 150.

Pteroglossus viridis Berlepsch & Hartert, p. 101.

Not noted on the Orinoco. Recorded by Berlepsch and Hartert from Suapure and from La Union on the Caura River.

PTEROGLOSSUS ARACARI RORAIMAE Bradbourne & Chubb.

Pteroglossus aracari atricollis Berlepsch & Hartert, p. 102.

Pteroglossus roraimae Bradbourne and Chubb, Ann. & Mag. Nat. Hist. 1912: p. 261 (Guiana, Roraima); Stone, Proc. Ac. Nat. Sci. Phil. 1913: p. 199 (Guinipa River: Rio Vagre).

Not observed on the Orinoco. Berlepsch and Hartert record only a single specimen collected by Klages at Suapure. Stone records it as abundant on the Guinipa and Vagre Rivers.

There is a specimen of *Pteroglossus* in the Am. Museum collection, from Sacupano, Orinoco Delta, that differs from examples from Cristobal Colon (Paria Peninsula), in that the thighs and under tail-coverts are largely dusky greenish without reddish wash, whereas in typical *roraimae* those parts are lighter, more dusky sulphur yellowish with a reddish wash.

BUCCONIDAE —THE PUFF-BIRDS.

Six of the seven species included in Berlepsch and Hartert's paper were collected on the Orinoco proper.

KEY TO GENERA, SPECIES AND SUBSPECIES OF BUCCONIDAE.

- a. One or more black bands across the breast.
- b. Two distinct black bands across the breast *Hypnelus bicinctus*.
- b'. One distinct black band across the breast.
- c. Head and back without transverse blackish bars.
- d. Middle of belly white, unmarked.
- e. No white collar on hindneck *Notharchus tectus tectus*.
- e'. A broad white collar on hindneck *Notharchus hyperhynchus dysoni*.
- d'. Middle of belly and breast buffy, thickly barred with narrow blackish lines *Argicus macrodactylus chapmani*.

- c'*. Head and back thickly barred with black lines. *Bucco capensis*.
a'. Without black bands across breast although the throat and breast may be blackish.
b. Throat chestnut or hazel brown.
c. Feathers of breast and sides with broad terminal black spots or bands. *Nystactes tamatia tamatia*.
c'. Feathers of breast and sides without terminal black spots or bands. *Nonnula duidae*.
b'. Throat slate gray or black.
c. Bill black; rump white. *Chelidoptera tenebrosa*.
c'. Bill red; rump slate gray like back. *Monasa nigra*.

BUCCO CAPENSIS Linnaeus.

Bucco capensis L., Syst. Nat. ed. 12. 1766. p. 168; Berlepsch & Hartert, p. 102.

This species was met with on my first expedition, only a single specimen, an adult female collected at the Mataben Rapids,¹ February 2, 1899.

NOTHARCHUS HYPERRHYNCHUS DYSONI (Sclater).

Bucco dysoni Sclater, P. Z. S. 1885: p. 193 (Honduras); Stone, Proc. Ac. Nat. Sci. Phil. 1913: p. 199 (Manimo River).

Notharchus hyperrhynchus dysoni Ridgway, Birds N. & M. Am. VI: 1911: 376.

Stone records this species from the delta region.

NOTHARCHUS TECTUS TECTUS (Boddaert).

Bucco tectus Bodd., Tabl. Pl. Enl. 1783. p. 43; Berlepsch & Hartert, p. 102.

B[ucco] t[ectus] tectus Hellm., P. Z. S. Part IV. 1911, 1195 (Caura River).

Not observed on the Orinoco. Berlepsch and Hartert record specimens collected by Klages at Suapure and at La Pricion on the Caura River.

ARGICUS MACRODACTYLUS CAURENSIS Cherrie.

Argicus macrodactylus caurensis Cherrie, Bul. Am. Mus. Nat. Hist., XXXV. 1916, p. 389.

Bucco macrodactylus Berlepsch & Hartert, p. 102.

Rare. One taken, an adult male, at Maipures, December 21, 1898: The eye is liver brown; bill black; feet smoke grey.

NYSTACTES TAMATIA TAMATIA (Gmelin).

Bucco tamatia Gm., Syst. Nat. I. 1788. p. 405; Berlepsch & Hartert, p. 102.

¹The Mataben Rapids are above the falls of Maipures, between that point and the mouth of the Vichada River.

Bucco tamatia tamatia Hellmayr, Novit. Zool. XVII: 1910; 391 (Maipures).

Rare; two were taken at Maipures, one in December and one in January. The American Museum has an example collected at the same place in April.

Eye walnut brown; bill black; feet olive plumbeous.

HYPNELUS BICINCTUS (Gould).

Tamatia bicinctus Gould, P. Z. S. 1836. p. 80.

Bucco bicinctus Berlepsch, Ibis, 1884. p. 435 (Angostura); Berlepsch & Hartert, p. 102.

Adult male: eye straw yellow; bill black; feet plumbeous olive.

Common. Found most commonly in the thinly wooded savanna regions.

The nesting habits of this species are somewhat extraordinary. The nest is excavated by the parent bird, in one of the large nests of the common termite (the white ant of the region) which form so conspicuous an object in many of the forest trees. The entrance is usually placed at about the middle on one side of the termite nest; the excavation then passes backward and upward for nearly the entire diameter of the termite dwelling, and is terminated with a slightly enlarged spherical chamber about 15 cm. in diameter. The entrance tunnel is about 8 cm. in diameter. No nesting material is carried in and the eggs are deposited on the debris at the bottom of the nest cavity.

A nest found at Caicara May 6th contained a single fresh egg. The parent bird remained in the nest cavity until I had cut and hacked at the termite nest (which by the way is exceedingly tough and hard) for some time. She must have been covered with the termites for they swarmed out everywhere over the nest in countless numbers, and the question uppermost in my mind was: How were the birds able to make their excavation in the face of the hoards of creeping biting termites? The egg is white, slightly glossy, short ovate in shape, and measures 24.6 x 20 mm.

In the American Museum collection are three examples from Maripa on the Caura River.

NONNULA DUIDAE Chapman.

Nonnula duidae Chapman, Bull. Am. Mus. Nat. Hist. XXXIII: 1914: 195 (Foot Mt. Duida, Venez.).

The type is in the collection of the American Museum.

MONASA NIGRA (Müller).

Cuculus niger Müll., Syst. Nat. Supplement, 1776. p. 90.

Monasa nigra Berlepsch & Hartert, p. 103.

Native name *Pico de Lacre*. Not observed on the lower Orinoco, but common from near the mouth of the Meta and beyond. Also common on the San Feliz River, near its junction with the Cuchivero River and recorded by Berlepsch and Hartert from points on the Caura River.

In fresh birds the eye is bay brown; bill poppy red; feet slate grey.

Birds of this species will frequently sit on low branches five or six feet from the ground, stupidly watching one until they can be almost taken in the hand. They were only observed in heavily timbered districts.

A female shot at Nericagua March 27th had an egg in the oviduct that would soon have been deposited. It was pure white in color.

A nest, with young nearly able to shift for themselves, was found at La Cascabel on the San Feliz River, near its union with the Cuchivero River, on the 27th day of May, 1907. The nest proper was at the bottom of an excavation 1.5 m. in depth. It was situated in a belt of heavy timber, on level ground, bordering the San Feliz River. The excavation (whether made by the puff-bird, or not, I am unable to say)¹ descended at an angle of about 45° from the horizontal and was about 7.6 cm. in diameter.

Over the entrance had been heaped a pile of rotten coarse dead twigs, as large as a half bushel measure, and having a rounded tunnel running along the ground from one edge to the entrance of the ground excavation. This pile of sticks forming a barrier to the real nest entrance was unquestionably of recent construction.

The nest was discovered by hearing the cries of the young issuing from what seemed only a pile of brush.

Birds in juvenal plumage resemble the adults except that the white patch on the bend of the wing is lacking, and the bill is a dusky dirty white.

CHELIDOPTERA TENEBROSA TENEBROSA (Pallas).

Cuculus tenebrosus Pallas, Neue Nord. Beytr. III. 1782. p. 2.

Chelidoptera tenebrosa Berlepsch & Hartert, p. 103.

Eye seal brown; bill black; feet slate color.

¹There was no loose dirt about the entrance to indicate that the cavity was of recent excavation.

Not uncommon. Frequents open glades in forest regions or the less heavily wooded districts bordering open savannas.

The nesting season continues from February to June. The nest is an excavation made by the birds themselves, sometimes in the bank of a stream, after the manner of our Bank Swallow, and again in level ground.

A nest containing two slightly incubated eggs found at Munduapo River, Orinoco, on March 2nd, 1899 (No. 12155 Coll. Geo. K. and Stella M. Cherrie) was situated in the gently sloping bank of the river about ten meters back from the water's edge and about two meters above its surface. The excavation went straight back from the entrance to the nest proper, sloping downward at an angle of 30° with the horizontal, and for a distance of 150 cm. from the entrance. The nest chamber was merely a slight enlargement of the end of the tunnel. There was no nesting material and the eggs lay on the bare sand. The bottom of the nest was 75 cm. from the surface. The parent bird was seen to come from the nest, and during my excavating of the two slightly glossy pure white eggs she remained sitting within easy range on the topmost branch of a tree on the shore. Not a note (that I heard) did she utter or show any special interest in the locality.

A nest containing two eggs, with incubation far advanced was found at Caicara, May 6, 1905. The excavation for this nest was made in nearly level ground at the edge of the open savanna. The burrow extended straight backward and downward at an angle of about 30° with the surface. The nest chamber was about one meter from the entrance and 30 cm. below the surface. A small quantity of short bits of dead grass had been taken in as a nest lining. One of the eggs is short ovate in form, the other ovate. They measured 24×19 and 26×19.5 cm.

A rather remarkable thing about these nests, as in that of *Monasa nigra*, is that the dirt that is excavated is not seen about the mouth of the entrance tunnel.

Near Caicara, on the 8th of May, 1907, I found two nests each with two young birds. Judging from the young found in these two nests, and from those found in other nests examined, I believe that ordinarily one of the two young is born several days before the other. At birth the young are slate black in color, they are entirely naked (without a trace of natal down) and the eyes do not open until about the third or fourth day. When about half grown or a little less, the pin feathers

of the juvenal plumage appear. This plumage is similar to the adult plumage. At about the same time that the pin-feathers begin to appear, the young commence to creep out to the entrance to their burrows, where they sprawl in the sun and await the visits of the parents with food. If alarmed, they will scuttle backwards into the burrow, never turning around to dive in head foremost.

The bottom of the cavities, in nests containing half grown young, are alive with maggots working in the excrement and cast off parts of the insect food—chiefly small beetles—brought to the young.

The two nests referred to above, as found on the 8th of May, were both situated on (or in) the practically level sandy soil of the open savanna. In each, the excavation was in an almost straight line back from the entrance, descending at an angle of about 30° with the horizontal. In one case the entrance tunnel was 200 cm. long and the nest cavity 50 cm. from the surface, in the other the entrance tunnel was 135 cm. long and the nest cavity 35 cm. from the surface.

GALBULIDAE—THE JACAMARS.

Berlepsch and Hartert's paper records five species only, two of which were met with on the Orinoco proper, the other three being recorded from Caura River points. An additional species from the upper Orinoco is now recorded.

I believe that without exception the members of this family are resident wherever found.

KEY TO GENERA, SPECIES AND SUBSPECIES OF GALBULIDAE.

- | | |
|--|---------------------------------|
| <i>a.</i> General color above green-iridescent. | |
| <i>b.</i> Bill wholly black. | |
| <i>c.</i> Under surface of tail rufous..... | <i>Galbula ruficauda.</i> |
| <i>c'.</i> Under surface of tail not rufous. | |
| <i>d.</i> A broad iridescent green band across the breast..... | <i>Galbula galbula.</i> |
| <i>d'.</i> Without a green band across breast..... | <i>Jacamerops aureus.</i> |
| <i>b'.</i> Mandible and base of maxilla yellowish horn color; tip of maxilla blackish..... | <i>Psilopornis albirostris.</i> |
| <i>a'.</i> General color above blackish or brownish. | |
| <i>b.</i> Throat white; tail long and much graduated..... | <i>Urogalba dea.</i> |
| <i>b'.</i> Throat brownish; tail not graduated..... | <i>Brachygalba lugubris.</i> |

UROGALBA DEA (Linn.).

Alcedo dea Linn., Syst. Nat. (1758): p. 116 (Surinam).

In the American Museum are two specimens collected by Miller at Boca de Sina, Cunucunuma River, Upper Orinoco. This species has not before been recorded from the Orinoco.

GALBULA GALBULA (Linnaeus).

Alcedo galbula L., Syst. Nat. ed. 12. 1766. p. 182.

Galbula galbula Berlepsch & Hartert, p. 103.

Not observed by the writer below the falls of Atures but common there, and beyond, where it replaces *G. ruficauda* of the middle Orinoco.

Eye seal brown; bill black; feet olive buff.

GALBULA RUFICAUDA Cuvier.

Galbula ruficauda Cuv., Règn. Anim. I. 1817 p. 420; Berlepsch & Hartert, p. 103.

The native name of this and the species preceding is *Barranquero*. Common, found most abundantly near the borders of heavily timbered regions throughout the territory of the middle Orinoco.

This species nests in holes in the ground usually in the banks of streams. The excavation ordinarily slants slightly upward and is from 25 to 100 cm. in depth. No nesting material is taken into the burrows. From two to four dull white eggs are laid.

Eye dark seal brown; bill black; feet olive yellow, claws black.

PSILOPORNIS ALBIROSTRIS Latham.

Galbula albirostris Lath., Ind. Orn. I. 1790. p. 245; Berlepsch & Hartert, p. 104.

Not observed on the Orinoco. Recorded by Berlepsch and Hartert from La Pricion, La Union and Nicare on the Caura River.

BRACHYGALBA LUGUBRIS (Swainson).

Galbula lugubris Swains., Anim. in Menag. 1838. p. 329.

Brachygalba lugubris Berlepsch & Hartert, p. 104.

Not seen on the Orinoco. Recorded from Nicare and from La Pricion on the Caura River.

JACAMEROPS AUREUS (P. L. S. Müller).

Alcedo aurea Müll., Syst. Nat. Supplement, 1776. p. 94.

Jacamerops aureus Berlepsch & Hartert, p. 104.

Berlepsch and Hartert record two specimens taken by Klages at Suapure on the Caura River.

ALCEDINIDÆ—THE KINGFISHERS.

Five species are included in Berlepsch and Hartert's paper, all of which were observed on the Orinoco by the writer. These, like the Jacamars, frequent the same general localities throughout the year.

The native names *Matraquero* and *Martin Pescador* are applied indifferently to any and all kingfishers found in the Orinoco region.

KEY TO THE GENERA, SPECIES AND SUBSPECIES OF ALCEDINIDÆ.

- | | | |
|-----|--|--|
| a. | Breast and sides, including flanks, chestnut. | |
| b. | Middle of belly and crissum white (the smallest of the American kingfishers)..... | <i>Chloroceryle aenea aenea.</i> |
| b'. | Center of breast and crissum chestnut, nearly uniform with sides. | |
| c. | Very large, wing more than 14 cm; back slate blue, not iridescent. . . | <i>Megaceryle torquata torquata.</i> |
| c'. | Much smaller, wing less than 14 cm; back dark green, iridescent. . . | <i>Chloroceryle inda.</i> |
| a'. | Sides and flanks not chestnut but with a broad chestnut band across the breast in the males. | |
| c. | Inner webs of tail-feathers spotted with white. | <i>Chloroceryle amazona.</i> |
| c'. | Inner webs of tail-feathers white for basal half or more. | <i>Chloroceryle americana americana.</i> |

CHLOROCERYLE INDA (Linnaeus).

Alcedo inda L., Syst. Nat. ed. 12. 1766. p. 179.

Ceryle inda Berlepsch & Hartert, p. 104.

Observed at various points on the Orinoco above the mouth of the Apure River. It is recorded from points on the Caura River by Berlepsch and Hartert.

CHLOROCERYLE AENEA AENEA Pallas.

Alcedo (aenea) Pallas, in Vroeg's Cat. Ois., Adumbr., 1764, I, no. 54 (Surinam).

Ceryle superciliosa Berlepsch & Hartert, p. 104.

Common all along the river; also recorded from points on the Caura River.

Eye seal brown; bill blackish; feet dusky.

MEGACERYLE TORQUATA TORQUATA (Linnaeus).

Alcedo torquata L., Syst. Nat. ed. 12. 1766. p. 180.

Ceryle torquata Berlepsch, Ibis, 1884. p. 435 (Rio Apure); Berlepsch & Hartert, p. 104.

Not observed at Bolivar. Common at Caicara and farther up the river, as far as the first falls, at least.

Eye dark seal brown; bill black, slate color at base of mandible and at basal angle of maxilla; feet dusky plumbeous olive.

In the neighborhood of Caicara there were several barrancas (ravines) whose steep sides afforded nesting places for these kingfishers. At such points they were found most frequently associating in little colonies of four or five pairs. But at a point on the main river (the Orinoco) some eight miles above Caicara, there is a high sand bank facing the river. At this point there is a colony of about one hundred and fifty pairs of these birds. The nest cavity is from one to three metres back from the face of the bluff; the tunnel runs horizontally straight back and is from 8 to 12 cm. in diameter. The breeding season lasts from June to August.

CHLOROCERYLE AMAZONA (Latham).

Alcedo amazona Lath., Ind. Orn. I. 1790. p. 257.

Ceryle americana Berlepsch & Hartert, p. 105.

Eye dark seal brown; bill and feet black.

Not uncommon. Noted at all points visited on the Orinoco and recorded from the Caura.

CHLOROCERYLE AMERICANA AMERICANA (Gmelin).

Alcedo americana Gm., Syst. Nat. I. 1788. p. 451.

Ceryle americana Berlepsch & Hartert, p. 105.

Eye dark seal brown; bill black; feet dusky blackish.

Common at all points visited.

MOMOTIDAE—THE MOTMOTS.

There are only two species known to me from our region. Both were collected on the upper Orinoco beyond the second falls, and were not observed below that point.

MOMOTUS MOMOTA (Linnaeus).

Ramphastos momota, L., Syst. Nat. ed. 12. 1766. p. 152.

Momotus momota Berlepsch & Hartert, p. 105.

Eye vermilion; bill black, smoke grey at base of mandible; feet dark smoke grey.

Rare. One specimen taken on the upper river at Nericagua. Probably not uncommon on the Caura River, as it was collected by both André and Klages, and recorded by Berlepsch and Hartert from Suapure, Nicare and La Pricion.

MOMOTUS IGNOBILIS (Berlepsch).

Momotus brasiliensis ignobilis Berl., Journ. f. Orn. 1889. p. 306.

Momotus ignobilis Berlepsch & Hartert, p. 106.

Rare. An immature male was shot at Mataban above the falls of Maipures.

Eye vermilion; bill black, smoke grey at base of mandible; feet dark smoke grey.

TROGONIDAE—THE TROGONS.

The Trogons are but poorly represented in the Orinoco region, two species only having been observed.

TROGON VIOLACEUS VIOLACEUS Gmelin.

Trogon violaceus Gm., Syst. Nat. I. 1788. p. 404; Berlepsch & Hartert, p. 106.

A single-specimen identified by Berlepsch and Hartert (*l. c.*) was collected at Munduapo February 23, 1899.

Eye seal brown; bill above blackish, mandible and cutting edges of maxilla slate grey; feet slate color.

TROGON STRIGILATUS STRIGILATUS Linnaeus.

Trogon strigilatus L. Syst. Nat. ed. 12. 1766. p. 167.

Trogon viridis Berlepsch & Hartert, p. 106.

This species is not uncommon on the upper Orinoco from the falls of Atures onward, and is met with, although rarely, on the middle stretches of the river down as far, at least, as the mouth of the Caura River.

In fresh specimens the eye is seal brown, eye-lids blue-grey; bill whitish horn color; feet slate grey.

PSITTACIDAE—THE MACAWS, PARROTS, PARAQUETS, ETC.

The Berlepsch and Hartert paper listed seventeen species, twelve of which number were observed and collected on the Orinoco proper by the writer. The remaining five were recorded from points on the Caura River, where André and Klages both made collections. Three additional species are included in the present paper.

KEY TO THE GENERA, SPECIES AND SUBSPECIES OF PSITTACIDÆ.

- a. Forehead and more or less of the sides of face naked. *Gypopsitta vulturina.*
- a'. Forehead feathered.
- b. Lores and region about eye almost entirely naked (feathers if present arranged in narrow lines):
- c. Cheeks (at base of mandible) naked.
- d. Lines of feathers extending from the lores below the eyes across the face.
- e. Bill black.
- f. General color of under parts green. *Ara severa.*
- f'. General color of under parts yellow. *Ara ararauna.*
- e'. Maxilla white (except black triangle at base of cutting edge); general color of body red. *Ara chloroptera.*
- d'. Without lines of feathers extending across the face. *Ara macao.*
- c'. Cheeks feathered. *Diopsittaca hahnii.*
- b'. Loral region at least partly feathered.
- c. Tail long and much graduated (the central pair of rectrices always longest).
- d. Breast with transverse bars or scale-like appearance.
- e. Primary coverts red with yellowish tips. *Pyrrhura melanura.*
- e'. Primary coverts blue like the primaries. *Pyrrhura picta picta.*
- d'. Breast without transverse bars or scale-like appearance.
- e. Inner webs of tail feathers (except intermediae) reddish, and under parts uniform green. *Aratinga haemorrhoa.*
- e'. Inner webs of tail feathers not reddish.
- f. Under parts not uniform. Lower breast and belly washed with orange ochraceous. *Aratinga chrysophrys.*
- f'. Under parts uniform green (no orange wash). *Aratinga leucophthalmus.*
- c'. Tail not long and much graduated.
- d. Tips of tail-feathers sharply tapering, not rounded.
- e. Nostrils opening in the middle of a naked cere, bill slightly compressed at base.
- f. Primary coverts orange red. *Brotogeris chrysopterus.*
- f'. Primary coverts blue or bluish edged with green.
- g. Head black. *Eucinetus caica.*
- g'. Head green (paler than back). *Brotogeris devillei.*
- e'. Nostrils opening at the base of the cere and bill slightly expanded (not compressed) at base.
- f. Axillaries and under wing coverts green, not blue or purple.
- g. Inner webs of quills underneath greenish; feet pale brownish. ♀ *Psittacula guianensis viridissima.*
- g'. Inner webs of quills underneath with tinge of bluish green; feet dusky brownish. ♀ *Psittacula modesta modesta.*
- f'. Axillaries and under wing coverts not all green.
- g. Rump deep blue. ♂ *Psittacula modesta modesta.*
- g'. Rump bright green (brighter than back). ♂ *Psittacula guianensis viridissima.*
- d'. Tips of tail-feathers rounded.
- e. General color of under-parts from throat to crissum green.
- f. Wing with a red or orange red speculum.
- g. No red color on the tail, no yellow on the head. *Amazona inornata.*
- g'. Tail partly red or orange, especially at base.
- h. Head partly blue, pileum tinged with blue and lores blue. *Amazona amazonica.*
- h'. Head without any blue, crown yellow, lores whitish. *Amazona ochrocephala.*
- f'. Without red or orange red speculum; forehead red, lower back and rump red. *Amazona bodini.*
- e'. General color of under-parts including throat not green.
- f. Throat blue or yellow.
- g. Entire head, throat and breast blue. *Pionus menstruus.*
- g'. Entire top of head black, throat yellow. *Pionites melanocephala.*
- f'. Throat and general color of under-parts reddish purple. *Pionus fuscus.*

ARA MACAO (Linnaeus).

Psittacus macao L., Syst. Nat. ed. 10. 1758. p. 96.

Ara macao Berlepsch & Hartert, p. 107.

Native name *Guacamayo*. Not uncommon, but very wary.

Eye straw-yellow; bill above horny white with tip slate and angle at base black, below black, bare skin about head dead flesh white; feet slate blackish.

This species was observed at all points visited from the delta region up, as far as I extended my explorations. Like most, if not all, of the species belonging to this family, its presence in any particular locality depends largely on the ripening of the fruits on which it feeds.

ARA CHILOROPTERA G. R. Gray.¹

Ara chloroptera G. R. Gray, *List Psit. Brit. Mus.* (1859) p. 26.

Native name *Carapaico*. Less frequently seen than the preceding species. An adult male and an adult female were taken at Caicara May 23, 1905, and others taken in 1907. Like the preceding species they usually go in pairs. Not noted on my first expedition to the Orinoco.

ARA ARARAUNA (Linnaeus).

Psittacus Ararauna Linnaeus, *Syst. Nat.*, ed 10; 1758: p. 96 (Brazil).

Ara ararauna Stone, *Proc. Ac. Nat. Sci. Phil.* 1913: p. 196 (Guinipa).

Recorded from Guinipa Village by Stone.

ARA SEVERA (Linnaeus).

Psittacus severus L., *Syst. Nat.* ed. 10. 1758. p. 97.

Ara severa Berlepsch & Hartert, p. 107.

Native name *Maracano*. During the season for ripe mangoes about Caicara, from April to June, this species is abundant, associated in small flocks of from five or six to twenty individuals. At this season they are extremely fat and many are shot for food by the natives.

Eye chrome yellow, bare skin about eye chalk white; bill black; feet blackish slate.

DIOPSITTACA HAHNI (Souancé).

Psittacara hahni Souancé, *Rev. Zool.* 1856. p. 58.

Ara hahni Berlepsch & Hartert, p. 107.

Diopsittaca hahni Ridgway, *Proc. Biol. Coc. Wash.* XXV: 1912: p. 99.

Not observed on the Orinoco. Recorded by Berlepsch and Hartert from Suapure on the Caura River.

¹Why should not this be *Ara brasiliensis* Brisson, *Orn.* IV. 1760. p. 184. pl. XIX f. 1.

ARATINGA LEUCOPHTHALMUS (P. L. S. Müller).

Psittacus leucophthalmus P. L. S. Müller, Syst. Nat., Suppl. 1776: p. 75 (Guiana).

Aratinga leucophthalmus Stone, Proc. Ac. Nat. Sci. Phil. 1913: p. 196 (Buelte Triste, Manimo Riv.).

Recorded from the delta country by Stone.

ARATINGA HAEMORRHOA Spix.

Aratinge haemorrhoea Spix, Av. Bras. I. 1824. p. 29. Pl. xiii.

Conurus haemorrhous Berlepsch & Hartert, p. 107.

Abundant about Ciudad Bolivar during April, less common at Caicara. Flocks of from two to thirty or forty were frequenting trees of ripe mangoes.

Eye and eye-lid orange yellow, bare skin about eye yellowish white; maxilla vinaceous cinnamon, slaty at the extreme tip, mandible slate color; feet buffy yellow. There is considerable variation in the color of the bill; in some it is vinaceous cinnamon above with the extreme tip and mandible blackish slate; in others the mandible is whitish horn color, slaty at the tip. Many of these, as in the preceding case, are killed for food.

ARATINGA CHRYSOPHRYS (Swainson).

Conurus chrysophrys Swainson, Two Cent. and a Quart. of Birds (in Anim. in Menag. pt. III: 1838: p. 320, No. 120) (Guiana).

Conurus aeruginosus Berlepsch & Hartert, p. 107.

Native name *Cara-Sucia*. Common.

Eye yellow, bill grey, feet slate grey.

This species associates in large flocks, except for a short time during the breeding season. It is the most abundant parrot found along the Orinoco. Tame, very often seen about the native houses.

Chapman (MS.) has pointed out that the proper name for this bird is as given above.

PYRRHURA MELANURA (Spix).

Aratinga melanurus Spix, Av. Bras. I: (1824) p. 36.

Miller collected a series at Boca de Sina, Cunucunuma River (Upper Orinoco) now in the American Museum collection.

PYRRHURA PICTA PICTA (P. L. S. Müller).

Psittacus pictus Müll., Syst. Nat. Supplement, 1776. p. 75.

Pyrrhura picta Berlepsch & Hartert, p. 108.

Pyrrhura picta picta Hellmayr Novit. Zool. XIV: 1907: 37 (Caura River).

Not noted by the writer, but Klages collected specimens at Suapure and at La Pricion that are recorded by Berlepsch and Hartert and there is a fine series in the American Museum collection from La Union, Caura River.

PSITTACULA MODESTA MODESTA Cabanis.

Psittacula modesta Cab., in Schomb. Reis. Guian. iii. p. 727, 1848 (Brit. Guiana).

Psittacula sclateri Berlepsch & Hartert, p. 108.

Not noted on the Orinoco. Berlepsch and Hartert record a specimen collected by André at La Union on the Caura River.

PSITTACULA GUIANENSIS VIRIDISSIMA Lafresnaye.

Psittacula viridissima Lafresnaye, Rev. Zool. 1848. p. 172 (Caracas).

Psittacula guianensis Berlepsch & Hartert, Novit. Zool. IX. 1902. p. 108.

P. guianensis viridissima Hellmayr, Novit. Zool. XIV. 1907. p. 88 (Orinoco points—Altagracia, Ciudad Bolivar).

Native name *Españolito*. Common, usually associating in flocks of from ten to forty or fifty birds.

Eye dark raw umber; bill greyish white; feet whitish.

A nest of this species was found at Quiribana de Caicara, April 26, 1898. It was at the bottom of a hollow in an old stump, about four metres from the ground. The eggs were about 60 cm. down from opening to the nest cavity. No nesting materials had been used and the eggs rested on the bits of decayed wood at the bottom. The nest had contained seven eggs but two had already hatched and all were at the point of hatching. Both parent birds were seen, but flew away and did not return near the nest until long after I had left the nest tree.

BROTOGERIS CHRYSOPTERUS (Linn.).

Psittacus chrysopterus Linn., Syst. Nat. I: 1766: p. 149.

Two specimens from La Union, Caura River in American Museum collection.

BROTOGERIS DEVILLEI Salvadori.

Brotogerys devillei Salvad., Cat. Birds, Brit. Mus. XX. 1891. p. 259; Berlepsch & Hartert, p. 109.

In the region about the falls of Maipures and beyond, this was a common species. Not noted, however, below the rapids.

AMAZONA INORNATA (Salvadori).

Chrysotis inornata Salvad., Cat. Birds Brit. Mus. XX. 1891. p. 281.

Amazona inornata Berlepsch & Hartert, p. 109.

Native name *Sarambo*. Not common and only observed in the neighborhood of Munduapo on the upper river.

The colors taken from fresh birds are: eye orange yellow, bare skin around the eye pale greyish white; bill, above dusky slate along ridge of culmen and for the apical one-third, angle at rictus and base dusky wax yellow, below dusky yellowish grey, skin above the nostrils black; feet plumbeous pea green.

Berlepsch and Hartert record also specimens collected by André at Nicare on the Caura River.

AMAZONA OCHROCEPHALA (Gmelin).

Psittacus ochrocephalus Gm. Syst. Nat. I. 1788. p. 339.

Amazona ochrocephala Berlepsch & Hartert, p. 109.

Common. Native name *Loro Real*.

Iris orange chrome, with an inner ring of dark buff; bill blackish, horny white toward the base; feet dusky slate color.

This is the species most sought after as a cage bird (although almost never caged) by the natives, and there is scarcely a house in the country districts where one or more is not to be seen. Except during the breeding season, parrots of this species associate in large flocks (often two or three hundred birds together), which seem to be made up of pairs of adult birds which keep close to one another, and of immature birds not yet mated. The nesting season begins at the end of March and continues to the end of May.

AMAZONA BODINI (Finsch).

Chrysotis bodini Finsch, P. Z. S. 1873. p. 569. Pl. 49.

Amazona bodini Berlepsch & Hartert, p. 109.

Native name *Tagua* or *Loro goro colorado*. During my first expedition on the Orinoco I found this species abundant along the middle stretches of the river, especially about Altagracia and Caicara. None were seen on the two more recent trips.

Eye orange chrome; bill dusky; feet slate grey.

A great many parrots of this and the preceding species, both of which congregate in great flocks, are killed for their flesh. Except during the breeding season, they are very fat and make a most acceptable addition to one's bill of fare.

The status of this species prior to the series I secured in 1897 and 1898, was in doubt.

AMAZONA AMAZONICA (Linnaeus).

Psittacus amazonicus L., Syst. Nat. ed. 12. 1766. p. 147.

Amazona amazonica Berlepsch & Hartert, p. 110.

Native name *Cotorra*. Rare, one specimen taken at Quiribana de Caicara in April, 1898.

Eye orange yellow; maxilla blackish, mandible yellowish horn color with dusky tip; feet dusky olive plumbeous.

PIONUS FUSCUS (P. L. S. Müller).

Psittacus fuscus Müll., Syst. Nat. Supplement, 1776. p. 78.

Pionus fuscus Berlepsch & Hartert, p. 110.

Not observed on the Orinoco. Berlepsch and Hartert record a specimen that was collected by Klages in the "Mountains west of Suapure" (Caura River).

The American Museum contains a specimen from El Llagual (Caura).

PIONUS MENSTRUUS (Linnaeus).

Psittacus menstruus L., Syst. Nat. ed. 12. 1766. p. 148.

Pionus menstruus Berlepsch & Hartert, p. 110.

Native name *Catañito*. Not uncommon. Observed only on the upper river.

Three young were taken on the 13th of March. The nest was a hole in a tree, a natural cavity, about 6.10 m. from the ground. The cavity was about 60 cm. deep, and no lining or nesting material of any kind had been taken in. The oldest of the three young had the body nearly as large as that of the parent, but almost naked. Judging by the size of the three young, there must have been at least four or five days between the hatching of the oldest and of the youngest.

Adults in life have the eye seal brown, bare skin about eye bluish

slate color; bill blackish above with reddish spot near the basal cutting edge, mandible dusky horn color; feet dusky olive greyish.

Recorded also from Suapure and from 'Nicare on the Caura River by Berlepsch and Hartert.

PIONITES MELANOCEPHALA (Linnaeus).

Psittacus melanocephalus L., Syst. Nat. ed. 12. 1766. p. 149.

Pionites melanocephala Berlepsch & Hartert, p. 110.

Native name *Calzoncito*. Not common. Observed only on the upper river, about Munduapo and Nericagua.

Eye orange yellow; bill slate color; feet dusky blackish slate.

Collected on the Caura River, also by both André and Klages (Berlepsch and Hartert).

EUCINETUS CAICA (Latham).

Psittacus caicus Latham, Ind. Orn. i: (1790): p. 128 ("Cayana").

The American Museum collection contains two specimens from La Union, Caura River.

GYPOPSITTA VULTURINA (Kuhl).

Psittacus vulturinus Kuhl, Consp. Psitt. 1820. p. 62.

Gypopsitta vulturina Berlepsch & Hartert, p. 110.

Not observed on the Orinoco.

Berlepsch and Hartert record specimens from Suapure and from La Pricion on the Caura.

CATHARTIDAE—THE AMERICAN VULTURES.

Berlepsch and Hartert list only a single species sent by the writer from Caicara. Field work and a study of the larger series of specimens in this museum, together with material from the American Museum of Natural History and from the U. S. National Museum, has convinced the writer that there are at least two, and possibly a third species of *Cathartes* found along the shores of the Orinoco. I have not had access, however, to sufficient authentic material,—material with reliable data,—to work out the relationship to my own satisfaction. I brought back with me eleven specimens, representing two quite distinct and well marked species, both of which are resident in the region under consideration and are distinguished by the native Venezuelans who call them respectively *Zamuro Oripopo de Cabeza Colorado* and *Zamuro*

Oripopo de Cabeza Amarilla. Of these, the one having the "*Cabeza Colorado*" (red head) is much the more common and is probably the *Ænops pernigra* of Sharpe (Cat. Birds Brit. Mus. I, 1874, p. 26). The synonymy of the South American vultures of the genus *Cathartes* is in some confusion and while I have neither the specimens nor the necessary library facilities to elucidate the tangle, I hope by the descriptions and careful field notes that follow to make at least two of the species found in northern South America recognizable. Mr. E. W. Nelson did most excellent service determining the status of *C. burrovianus*¹ and by so doing eliminating it from the South American vultures, at least from those found on the Orinoco where there is a race which it resembles in size but not in other characters.

In life the two forms found on the Orinoco are distinguishable at a glance, one appearing much larger and heavier than the other, although the wing and tail measurements are practically the same, as will be noted in the tables of measurements given under the species, and the head in the case of the larger appearing pink or reddish, while that of the smaller is decidedly yellow.

CATHARTES PERNIGRA (Sharpe).

Ænops pernigra Sharpe, Cat. Birds Brit. Mus. I. 1874. p. 26.

Cathartes aura pernigra Berlepsch, Ibis. 1884. p. 437 (Angostura).

Cathartes burrovianus Berlepsch & Hartert, Novit. Zool. IX. 1902. p. III (in part).

Native name *Zamuro Oripopo de Cabeza Colorado*.

This, the commoner of the two *Cathartes* seen on the Orinoco, was observed at every point visited from Barrancas in the Delta region to above the falls of Atures and Maipures. Occasionally one or two vultures of this species will be seen feeding on some carcass in company with a crowd of Black Vultures. They are seen only in pairs or singly, and I do not remember ever having seen one perched on the roof of a house, as is the custom with the Black Vultures.

My field notes for an adult male of this species, (No. 10486 Cherrie Collection) taken at Caicara River, Orinoco, March 14, 1898, notes written while the bird was perfectly fresh, and before being skinned, are as follows:

Eye golden brown; bill horn white; bare skin on head and neck pansy

¹Proc. Biol. Soc. Wash. XVIII. 1905. pp. 122-125.

purple, except occiput and back of neck which are primrose yellow, the line between the two colors being abrupt and sharply drawn; feet pansy purple.

There is some slight variation in the shade and intensity of coloring but the above represents the average coloring of the head in this species. There is no appreciable difference in coloring between the male and the female and the table of measurements indicates that they are about equal in size. The plumage is black, in freshly moulted specimens strongly washed with purplish (or steel blue) and greenish bronze, the former predominating. As the feathers grow old they bleach to a brownish shade, lightest along the edges and at tip, but the light colored edges of the feathers never become prominent as in the Turkey Vulture (*C. aura septentrionalis*). Below, on breast and belly, the bronzy greenish sheen is more pronounced. The color of the shafts of the primaries below is white or yellowish white; above it varies from a seal brown to the yellowish white of old ivory, depending entirely on the age of the feather, freshly moulted quills being seal brown. The skin of the head and neck is mostly smooth, being transversely wrinkled on the nape and upper part of back of neck only. The feathering does not ascend further on the back of the neck than it does on the sides—there is no ruff. On the lores there is a patch of short bristly black hairs, four or five springing from each papilla, a few about the auricular orifice and on the side of the face below the eye, while they are sparsely scattered over the throat and under side of the neck. In cabinet skins the tips of the wings rarely reach to the end of the tail. Following is a list of specimens examined, with measurements:

				W	T	Ts
131946	U. S. N. M.	Mashapee Br. Guiana,	Apr., 1892,	495	270	60
131947	"	Araby " "	June, 1891,	495	270	60
♀ 5204 ¹	B. I. M.	Agua Salada de Bolivar, Venez.	Apr., 1907, G. K. Cherrie	14411	520	270 62
♀ 5212	"	Caicara, River Orinoco, Venez.	July, 1907, G. K. Cherrie	15047	510	260 61
♀ 5210	"	Caicara, River Orinoco, Venez.	June, 1907, G. K. Cherrie	15075	495	260 58
♀ 5209	"	Caicara, River Orinoco, Venez.	June, 1907, G. K. Cherrie	14942	495	265 60
♀ 3751	"	Caicara, River Orinoco, Venez.	June, 1905, G. K. Cherrie	13794	495	280 60

¹Crown patch, nape and back of neck cream yellow.

♀	5208	B. I. M.	Caicara, River Orinoco, Venez.	June, 1907, G. K. Cherrie	14921	490	260	59
♀	5206 ¹	"	Caicara, River Orinoco, Venez.	Apr., 1907, G. K. Cherrie	14559	493	265	60
♂	5205	"	Caicara, River Orinoco, Venez.	Apr., 1907, G. K. Cherrie	14539	495	260	60
♂	5211	"	Caicara, River Orinoco, Venez.	June, 1907, G. K. Cherrie	15000	490	268	60

CATHARTES URUBITINGA Pelzeln.

Cathartes urubitinga Pelz., Sitz. Akad. Wien. XLIV. p. 7 (1861, ex Natt. M. S.); Berlepsch, Ibis. 1884. p. 437 (Angostura).

Cathartes burrovianus Berlepsch & Hartert, Novit. Zool. IX. 1902. p. III (in part).

This, the *Zamuro Oripopo de Cabeza Amarilla* of the Venezuelans along the Orinoco, is much less common than *C. pernigra*. Its habits so far as I have observed are identical with those of the preceding species and the Turkey Vulture of the United States. Below Altgracia on the Orinoco, no specimens were secured and the species was not observed; but Berlepsch (*l. c.*) has recorded a specimen from Ciudad Bolivar ("Angostura") and a specimen from the U. S. National Museum collection, collected at Georgetown, British Guiana, indicates that its distribution includes the hot coast region as well as the interior savanna districts.

The accompanying sketch of the head of the adult female taken at Caicara, River Orinoco, Venezuela, August 9, 1898, (No. 11099 Cherrie Collection²), reproduced from my field notes, will serve to indicate the distribution of color on the head better than any mere written description. The sketch of the head of an adult male (No. 14666 Cherrie Collection) taken at Caicara, May 6, 1907, is also reproduced from my field notes and shows a somewhat different pattern of coloration, but whether the difference shown would be constant in a series I am unable to say.

The plumage is blackish above, heavily washed with purplish steel blue and a dark greenish bronze, more or less iridescent—the greenish bronze shading predominating; below, the general color

¹In old, much worn plumage, the difference in color between the quills freshly moulted and those old and much worn is very striking. The cream-colored crown patch and nape so prominent in other examples is very pale.

²Specimen sent to the Rothschild Museum, Tring, England.

On his departure for South America, Mr. Cherrie left no sketches with the galley proof, so the bulletin must go to press without them.—*Ed.*

effect is brownish black, but when looked at closely there is seen to be a strong wash of dusky greenish bronze over all. There is no ruff about the neck; the bare part of which is much shorter than in *pernigra* or *aura*, and the feathering extends well up on the back almost to the nape. The character most distinctive about the head is probably the fleshy caruncles sparsely scattered along the sides of the neck and (at least in adults) across the nape. In skins of this species which I have examined, the tips of the folded wings extend beyond the tip of the tail while in *C. pernigra* the tips of the wings rarely reach to the end of the tail. Pelzeln's description of this vulture is full and clear and requires no modification except in regard to the color of the shafts of the primaries which are said to be white both above and below ("scapis remigum primariorum supra et subtus albis"); I have found the color of the upper side of the shafts of the primaries to depend entirely on the age of the feather. Freshly moulted primaries have the shaft dark rich seal brown in color, but with exposure this color rapidly fades to an ivory white; in the same way the webs of the primaries become more bronzy brown in hue, the steel blue or purplish sheen of the freshly moulted feathers rapidly fading. The under sides of the shafts of the primaries are white in every stage, but in some of the older quills they become a dirty yellowish white. Only four specimens were available for comparison, the measurements of which are given below.

				W	T	Ts
♂	3750	B. I. M.	San Mateo de Caicara, River Orinoco, Venez.	May, 1905, G. K. Cherrie	480	228 58
♂	5207	"	Caicara, River Orinoco, Venez.	May, 1907, G. K. Cherrie	464	218 58
♀	131945	U. S. N. M.	Georgetown, British Guiana,	July, 1891,	474	235 56
	34984	"	Brazil,	Natterer	470	230 56

GYPAGUS PAPA (Linnaeus).

Vultur papa Linn., Syst. Nat., I, p. 86, 1758 (Brazil).

Native name *Rey de Zamuro*. Noted everywhere along the Orinoco and while not common, it could not be classed as rare. Specimens were collected at Caicara.

CATHARISTA URUBU BRASILIENSIS (Bonaparte).

Cathartes brasiliensis Bonap., Consp. Av. I, 1850, p. 59.

Cathartes atratus Berlepsch, Ibis 1884; p. 438 (Angostura).

Native name *Zamuro*. Abundant everywhere, especially about the towns and villages, where, walking about the streets and perched on the house tops, they are characteristic of every landscape.

FALCONIDAE—THE HAWKS.

Eighteen of the twenty-one species recorded in the Berlepsch and Hartert paper were collected by the writer on the Orinoco. The other three species were recorded from points on the Caura River.

POLYBORUS CHERIWAY (Jacquin).

Falco cheriway Jacq., Beitr. 1784. p. 17. Pl. 4.

Polyborus auduboni Berlepsch, Ibis, 1884. p. 437 (Angostura).

Polyborus cheriway Berlepsch & Hartert, p. III.

Native name *Caricari*. Common. There is much variation in the color of the skin on the sides of the head, of the feet and of the bill. An adult female taken at Altagracia, January 31, had the iris cinnamon; bill plumbeous whitish at the tip; bare skin about face pinkish white; feet whitish. A male, taken at Caicara July 4th, had the eye cinnamon; bill plumbeous whitish along the cutting edges; bare skin on face and cere grayish white; feet grayish.

Birds of this species are usually seen in pairs. In company with black vultures, they occasionally feed on carrion, but more frequently they are seen hunting through the grass on the savannas, where they capture small lizards and many insects. I have been told by natives that many snakes are killed and eaten by these birds. They show much intelligence in searching the sandy beaches for eggs of the common river turtle. I have seen on many occasions a pair apparently following on the trail left by a female turtle as she crawled up over the beach in search of a spot where she might deposit her eggs. The birds would often stop and scratch and probe about in the sand with the bill and not infrequently their search was awarded by finding the coveted eggs. Again I have seen a pair stationed by a nest from which young turtles were just emerging to fall victims to the greed of the Caracara. Also I have observed them hanging about a nest of the crocodile where young crocodiles were angrily flopping themselves free from the confining shell and snapping viciously at anything and everything in sight. That the Caracara actually feeds on the young crocodile I cannot say, but that he is present for any disinterested purpose is extremely doubtful.

In the neighborhood of Caicara the Caracara nests in May. The nest is placed in low Guaramal—scrub oak—trees that are found in clusters dotting the savannas.

IBYCTER ATER (Vieillot).

Daptrius ater Vieill., Analyse, 1816. pp. 22, 68.

Ibycter ater Berlepsch & Hartert, p. 111.

Not observed by the writer, but Beebe collected a specimen at Guanoco in the Orinoco delta.

Berlepsch and Hartert record specimens from Temblador and from Nicare (Caura River).

IBYCTER AMERICANUS (Boddaert).

Falco americanus Bodd., Tabl. Pl. Enl. 1783. p. 25.

Ibycter americanus Berlepsch & Hartert, p. 112.

Not uncommon about the rapids of Atures, and at Maipures.

Colors from fresh birds are: eye carmine; bill straw yellow; cere, bare loreal region and sides of lower jaw back as far as the rictus, plumbeous; bare skin around eye, cheeks and throat vermilion; feet vermilion.

MILVAGO CHIMACHIMA (Vieillot).

Polyborus chimachima Vieill., Nouv. Dict. V. 1816. p. 259.

Milvago chimachima Berlepsch, Ibis. 1884. p. 437 (Angostura); Berlepsch & Hartert, p. 112.

Native name "*Chiriquari*" (Chee-ree-quá-ree) or *Garapatera*. Not uncommon. An examination of the stomachs of several indicated that this species feeds largely on beetles and other insects, but is not averse to a diet of small fish (!) and large ticks such as infest cattle are greedily eaten. This hawk is not infrequently seen perched on the backs of cattle.

There is considerable variation in the colors of the fleshy parts about the head, due to age, sex and season. In nuptial plumage the colors seem to be: eye dark mummy brown; bare skin about eye chrome yellow, blending into a sulphur yellow at base of maxilla and mandible; bill very pale blue; feet pea green.

ACCIPITER BICOLOR BICOLOR (Vieillot).

Sparvius bicolor Vieill., Nouv. Dict. X. 1817. p. 325.

Cooperastur bicolor Berlepsch & Hartert, p. 112.

Accipiter bicolor bicolor Hellmayr, Novit. Zool. XIII. 1906. p. 382 (Caicara, Orinoco River).

Not common. Noted at Altagracia, Caicara and Quirbana de Caicara in the thinly wooded savanna regions back from the river. Hawks of this species were usually seen hunting in pairs.

Colors from fresh birds are (adult male taken August 11, 1898): eye orange; bare skin immediately surrounding eye chrome yellow; bill black, slate color at base of mandible; cere, lores and remaining bare skin on sides of face greenish sulphur yellow; feet yellowish olive yellow.

ACCIPITER TINUS (Latham).

Falco tinus Lath., Ind. Orn. I. 1790. p. 50.

Accipiter tinus Berlepsch & Hartert, p. 114 (La Pricion, Caura River).

Not observed on the Orinoco. Berlepsch and Hartert record an immature female collected by André at La Pricion on the Caura River.

RUPORNIS MAGNIROSTRIS (Gmelin).

Falco magnirostris Gm., Syst. Nat. I. 1788. p. 282.

Asturina magnirostris Berlepsch, Ibis. 1884. p. 436 (Riv. Apures).

Rupornis magnirostris Berlepsch & Hartert, p. 112.

While this is the most abundant of the hawks along the middle Orinoco, I did not learn of any vernacular name other than the generic term *Gavilan* (hawk).

Eye deep chrome yellow; bare skin about eye, lemon yellow; bill black, an olive slate color at base; cere orange; feet deep chrome yellow.

A nest with set of two eggs was found at Caicara, May 10th, 1907. The nest was located in the top of a *Chaparo* tree near the border of a large tract of heavy timber. It was in the extreme top of the tree about 6.10 m. from the ground, a bulky structure built up of coarse dry sticks placed between upright forks. Across the top it measured 45.7 cm. in diameter and the depth was 35.5 cm. There was only a slight hollow at the centre of the top where a lining of dry leaves formed a bed for the two eggs. Incubation was far advanced. One egg was accidentally broken in getting down from the tree, the other egg is almost oval in shape and measures 37.5 x 43.5 mm. In color it is white, irregularly blotched with pale ferruginous brownish.

The parent birds were both seen but were wary and did not approach within range.

PARABUTEO UNICINCTUS (Temminck).

Falco uncinctus Temm., Pl. Col. I, pl. 313, 1824 ("Bresil").

Antenor uncinctus Berlepsch, Ibis 1884: p. 436 (Angostura).

Berlepsch (*l. c.*) has recorded a specimen from Angostura (Ciudad Bolivar).

URUBITINGA URUBITINGA (Gmelin).

Falco urubitinga Gm., Syst. Nat. I. 1788. p. 265.

Urubitinga zonura Berlepsch, Ibis 1884. p. 436 (Angostura).

Urubitinga urubitinga Berlepsch & Hartert, p. 113.

Eye seal brown; bill black, slate color at base; cere and at corners of the mouth chrome yellow; lores and bare skin about eye sulphur yellow; feet chrome yellow.

Common, noted at all points visited along the river. On two occasions I caught birds of this species feeding on eggs of the Hoatzin (*Opisthocomus hoazin*).

URUBITINGA ANTHRACINA (Nitzsch).

Falco anthracina Nitzsch, Syst. Pteryl. 1840: p. 83 (Mexico).

Urubitinga anthracina Stone, Proc. Ac. Nat. Sci. Phil. 1913: p. 195, (La Pedrita, Rio Uracoa).

Stone records it from the delta country.

HETEROSPIZIAS MERIDIONALIS (Latham).

Falco meridionalis Lath., Ind. Orn. I. 1790. p. 36.

Heterospizias meridionalis Berlepsch & Hartert, p. 113.

Native name *Pita Venado*. Not uncommon in thinly wooded savanna regions.

Eye golden brown; bill black, blackish at base; cere chrome yellow; feet chrome yellow.

This species is thoroughly detested by the hunter who may be bent on bagging venison, for his game is very frequently startled by the alarm notes of this hawk, which perched on the topmost branch of some tall tree is sure to note the skulking form of the hunter and instantly sound an alarm understood by all the woods people.

TACHYTRIORCHIS ALBICAUDATUS EXIGUUS Chapman.

Tachytriorchis albicaudatus exiguus Chapman, Bull. Am. Nat. Hist.

XXXIV: 1915: 637 (Type ex Barrigon, Rio Meta, Colombia).

Chapman records a specimen from Maripa, Venezuela.

BUSARELLUS NIGRICOLLIS (Latham).

Falco nigricollis Lath., Ind. Orn. I. 1790. p. 35.

Busarellus nigricollis Berlepsch & Hartert, p. 113.

Native name *Gavilán Colorado*. Common along the wooded banks of streams and ponds throughout the middle Orinoco region.

Eye seal brown; bill black, blackish slate at base; cere blackish slate; corners of the mouth plumbeous; feet greyish white.

BUTEOGALLUS AEQUINOCTIALIS (Gmelin).

Falco aequinoctialis Gmelin, Syst. Nat., I: 1788: 265 (Cayenne).

Buteogallus aequinoctialis Stone, Proc. Ac. Nat. Sci. Phil. 1913: p. 195 (Pedernales).

Recorded from the delta region by Stone.

ASTURINA NITIDA (Latham).

Falco nitida Lath., Ind. Orn. I. 1790. p. 41.

Asturina nitida Berlepsch & Hartert, p. 113.

Rare, not met with on either my first or second expedition, but a fine adult male was collected at Caicara on April 30, 1907.

Eye vandyke brown; bill black, slate at base of mandible; cere and bare skin about gape chrome yellow; feet chrome yellow; claws black.

Berlepsch and Hartert recorded a single specimen from Suapure on the Caura River.

MICRASTUR BRACHYPTERUS (Temminck).

Falco brachypterus Temm., Rec. Pl. col. tab. 116, 141 (1822).

Micrastur semitorquatus Berlepsch & Hartert, p. 113.

Not common. In 1898 two specimens were taken at Caicara, an adult male in April and an immature female in July. In July, 1907, an adult female was collected at the same point. The stomach in each case contained remains of small lizards.

Colors from fresh birds; eye seal brown; bill black, base of mandible yellowish oil green; feet deep chrome yellow, with an olive wash, especially on the toes.

CIRCUS BUFFONI (Gmelin).

Falco Buffoni Gmelin, Syst. Nat. I: 1788: p. 277 (Cayenne).

Circus buffoni Stone, Proc. Ac. Nat. Sci. Phil. 1913: 194. (La Pedrita, Rio Uraoa).

Recorded from the delta region by Stone.

GERANOSPIZIAS CAERULESCENS (Vieillot).

Sparvius caerulescens Vieill., Nouv. Dict. X. 1817. p. 318.

Geranospizias caerulescens Berlepsch & Hartert, p. 114.

Twice observed at Altagracia; once at Capuchin (nearly opposite the mouth of the Apure River), and once at Caicara. The colors of an immature female taken at Altagracia, November 15, 1897, were: eye chocolate brown with a light outer ring; bill black; cere black; feet bright cadmium orange, claws black. Adult female, Capuchin, August 21, 1898, eye carmine; bill black plumbeous at base of mandible; cere black; feet scarlet vermilion. Colors of the adult male exactly like those in the adult female.

SPIZAETUS ORNATUS (Daudin).

Falco ornatus Daud., Traité d'Orn. II. 1800. p. 77.

Spizaëtus ornatus Berlepsch & Hartert, p. 114.

Rare. One was seen on the upper river at Nericagua where it was found in the dense forest bordering the river. The specimen was not at all shy and was finally shot from a dead limb not over fifteen feet from the ground. It proved to be an adult male. The colors from the fresh bird were: eye chrome yellow; bill black, slate grey at base of mandible; lores bluish grey; cere canary yellow; feet bright creamy yellow.

HERPETOTHERES CACHINNANS FULVESCENS Chapman.

Herpetotheres cachinnans fulvescens Chapman, Bull. Am. Mus. Nat. Hist. XXXIV: 1915: (Type. ex Alto Bonito Antioquia, Colombia).

Herpetotheres cachinnans Stone, Proc. Ac. Nat. Sci. Phil. 1913: p. 195 (Pedernales) Orinoco delta.

Chapman records a specimen from the Orinoco delta.

ELANUS LEUCURUS (Vieillot).

Milvus leucurus Vieillot, N. Dict. d'Hist. Nat. XX: 1818: p. 563 (Paraguay).

Elanus leucurus Stone, Proc. Ac. Nat. Sci. Phil., 1913: p. 196 (La Pedrita, Rio Uracoa).

Stone records specimens from the delta region.

LEPTODON UNCINATUS (Temminck).

Falco uncinatus Temm., Pl. Col., 103-105, 1824 (Rio Janeiro).

Rare. Not taken on my first expedition to the Orinoco, but in 1905 an immature female was taken at Caicara June 15th. In 1907

an adult male was taken at the same point in June and a female in July, and a second female (immature) was taken at Las Barrancas in August. In every case the crop was examined and found to be full of the bodies of snails from which the shells had been removed.

Iris primrose yellow; maxilla black, mandible greenish sulphur yellow with distal half of cutting edge slate color; cere parrot green; feet deep chrome yellow.

LEPTODON CAYENNENSIS (Gmelin).

Falco cayennensis Gm., Syst. Nat. I. 1788. p. 263.

Leptodon cayennensis Berlepsch & Hartert, p. 114.

Rare. A single female of this species was taken at Caicara, February 23, 1898, on my first expedition to the Orinoco.

Eye gallstone yellow; bill black; cere deep chrome yellow; feet deep chrome yellow.

ROSTRHAMUS SOCIABILIS (Vieillot).

Herpetotheres sociabilis Vieillot, N. Dict. d'Hist. Nat., XVIII: 1817: 318 (Corrientes and Rio de la Plata).

Rostrhamus sociabilis Stone, Proc. Ac. Nat. Sci. Phil. 1913: p. 195 (Caño Corosal).

The Everglade Kite was observed as far as Ciudad Bolivar. Stone records it from the delta region.

GAMPSONYX SWAINSONI Vigors.

Gampsonyx swainsoni Vig., Zool. Journ. II. 1825. p. 69; Berlepsch & Hartert, p. 114.

Native name *Gavilan primito*. Not uncommon.

This and the succeeding species live in the thinly wooded savanna regions of the middle Orinoco and were not observed beyond the falls of Atures. Specimens were collected at Agua de Salada, Ciudad Bolivar, Altagracia, Caicara and Quiribana de Caicara. They feed chiefly on insects, such as locusts, small lizards, etc., but parts of small birds were found in the stomach of two of those examined.

Eye chestnut; bill black; cere (very inconspicuous) blackish; feet chrome yellow, claws black.

A nest containing two downy young and one egg (pipped) together with the female parent was collected at Agua Salada de

Ciudad Bolivar, April 7, 1907. The nest was about 4.57 m. from the ground at the extreme tip of a horizontal branch of a scrub oak (*Chaparo*) in a thinly wooded savanna region. It was not concealed by foliage either from above or from below. My first impression on seeing the nest was that it was a slightly overgrown nest of a mockingbird (*Mimus*). It is composed entirely of small dry twigs loosely laid together. Outside it measures 12 cm. deep by 20 cm. in diameter across the top. The saucer-shaped nest cavity is 5 cm. deep in the centre, being unusually deep for the nest of a hawk. The outer edges of the nest and the ground beneath it were white with excrement from the incubating birds. The mother bird sat very close and did not leave the nest until I had rapped the tree vigorously.

The single egg which I succeeded in saving, is nearly elliptical, being very slightly smaller at one end than at the other. It is a glossless white, marked about the smaller end with large irregular blotches of chestnut brown. It measures 29.5 x 24.25 mm.

The juvenal plumage (downy young) is white below; above pale vinaceous cinnamon, the wings being darkest and the neck and head palest; there is a small dusty spot above the eye and the loreal region is dusky blackish.

CERCHNEIS SPARVERIUS ISABELLINUS (Swainson).

Falco isabellinus Swains., Anim. in Menag. 1838. p. 281.

Cerchneis sparverius isabellinus Berlepsch, Ibis. 1884. p. 437 (Angostura).

Tinnunculus sparverius isabellinus Berlepsch & Hartert, p. 114.

Not uncommon. Observed at all points visited from Las Barrancas in the delta region up as far as the falls of Maipures.

Eye seal brown; bill black at tip, plumbeous at base; cere orange yellow; feet orange yellow, claws black.

FALCO FUSCO-CAERULESCENS Vieillot.

Falco fusco-caerulescens Vieill., Nouv. Dict. XI. 1817. p. 90.

Hypotriorchis femoralis Berlepsch, Ibis, 1884. p. 437 (Angostura).

Hypotriorchis fuscocaerulescens Berlepsch & Hartert, p. 115.

Not common. Not observed beyond the mouth of the Apure River. Pairs hunt together, apparently aiding one another in the capture of smaller birds. I have seen this species feeding on *Campy-*

Iorhynchus, *Gallinago* and *Thamnophilus*, and have found the stomachs of other specimens full of beetles and other insects; while one examined contained parts of small fish, and another the hair and bones of some small mammal.

A considerable variation was observed in the color of the soft parts. A female taken at Caicara July 4, 1898, had the eye dark seal brown; skin about eye cinereous; bill plumbeous at base, blackish at tip; cere pale pea green; feet Naples yellow. Another female, taken on the same date, had a light seal brown eye; bill blackish at tip changing through slate color to greenish grey at base; cere and skin about eye chrome yellow; feet deep chrome yellow.

FALCO RUFIGULARIS (Daudin).

Falco rufigularis Daud., *Traité d'Orn.* II. 1800. p. 131.

Hypotriorchis rufigularis Berlepsch & Hartert, p. 115.

Rare. Four specimens, two pairs, were taken in the vicinity of the falls of Atures on my first expedition, and an adult male was taken at Caicara, July 4, 1907. In the stomach of the last were found the remains of a Ground Dove, *Chaemophelia*. Berlepsch and Hartert record a specimen from Suapure on the Caura River. Not seen elsewhere.

Eye seal brown; bill slate black, greenish plumbeous at base of mandible; feet chrome yellow, claws black.

FALCO COLUMBARIUS Linnaeus.

Falco columbarius L., *Syst. Nat.* ed. 10. 1758. p. 90.

Hypotriorchis columbarius Berlepsch & Hartert, p. 115.

Two Pigeon Hawks were seen and collected in 1898, an immature female at Altagracia in January, and an adult male at Caicara in March. The stomach of the latter contained parts of a swallow, *Diplochelidon melanoleuca*.

PANDION HALIAËTUS CAROLINENSIS (Gmelin).

Falco carolinensis Gm., *Syst. Nat.* I. 1788. p. 263.

Pandion haliaëtus carolinensis Berlepsch & Hartert, p. 115.

The American Osprey is occasionally seen along the Orinoco as far up the river as I explored. A fine adult male was taken at Caicara, March 10, 1898.

STRIGIDAE—THE BARN OWLS.

TYTO PERLATA Lichtenstein.

Strix perlata Licht., Verz. Doubl. p. 59, 1823.

Strix flammea pratincola Berlepsch, Ibis. 1884. p. 435 (Rio Apure).

In 1884 Berlepsch recorded a specimen from "Rio Apure." Not observed by the writer.

BUBONIDAE—THE HORNED OWLS AND THEIR ALLIES.

Only three species are included in the Berlepsch and Hartert paper. Two additional species are added in the present list¹.

SPEOTYTO CUNICULARIA BRACHYPTERA Richmond.

Speotyto brachyptera Richm., Proc. U. S. N. M. XVIII. 1896. p. 663.

Speotyto cunicularia brachyptera Berlepsch & Hartert, p. 116.

Not common, but found everywhere throughout the savanna region.

Eye lemon yellow; bill olive yellow; feet dusky olive.

OTUS CHOLIBUS (Vieillot).

Strix choliba Vieill., Nouv. Dict. VII. 1819. p. 39.

Pisorhina choliba (?subsp.) Berlepsch & Hartert, p. 116.

Not common, but noted at all points visited along the Orinoco.

Eye lemon yellow; bill greyish horn color; feet dusky brownish.

A nest of this species containing a single fresh egg was found at Quiribana de Caicara, April 6, 1898. The nest was a natural hollow in a limb of a scrub oak, about one metre and a half from the ground. No nesting material had been taken into the nest cavity. A second nest similarly placed was found at Agua Salada de Ciudad Bolivar, April 18, 1907. This nest contained a single egg which was taken together with the female parent bird. The egg is white, short ovate in form and measures 35 x 29.5 mm.

RHINOPTYNX CLAMATOR (Vieillot).

Bubo clamator Vieillot, Ois. de l'America Sept. p. 52. Pl. 20. 1807.

This species was noted at various points along the middle Ori-

¹While no specimens were obtained, I feel that a third additional species should be added. Several times at Las Barrancas an owl was observed that I identified as *Pulsatrix perspicillata*.

noco, but only one specimen was collected, an adult male taken at Agua Salada de Ciudad Bolivar, April 10, 1907.

Eye vandyke brown; bill black; feet dusky slate color, claws black.

BUBO VIRGINIANUS SCOTINUS Oberholser.

Bubo virginianus scotinus Oberholser, Sci. Bull. Mus. Bklyn. Inst. I. 1908. p. 371 (Type, ex Caicara, Orinoco River).

Only one specimen. The species was observed at Ciudad Bolivar, Caicara and at Perico.

GLAUCIDIUM BRASILIANUM PHALAENOIDES (Daudin).

Strix phalaenoides Daud., Traité d'Orn. II. 1800. p. 206.

Glaucidium brasilianum phalaenoides Berlepsch & Hartert, p. 116.

Native name *Mochuelo*. Rare. A single specimen of this species was taken at Perico, near the falls of Atures, September 21, 1898.

GLAUCIDIUM JARDINEI (Bonaparte).

Phalaenopsis jardinii Bonap., Compt. Rend., XLI, 1855. p. 654 (Andes of Quito).

Glaucidium jardinii Berlepsch, Ibis 1884. p. 436 (Angostura).

Berlepsch (*l. c.*) has recorded a specimen "in the brown phase" from Angostura (Ciudad Bolivar), Orinoco River.

COLUMBIDAE—THE PIGEONS.

Eleven species were observed on the Orinoco. The majority, at least, are resident wherever found, although the number of individuals of a given species may vary greatly with the season. This is especially true of those forms which feed largely on fruits.

The larger species are much sought after as game birds and while they may be very abundant, they are so exceedingly wary that only the most skillful of hunters succeed in getting a good bag in a day's hunting.

As far as my observations went, none of the species nest in colonies.

Contrary to the rule that pigeons lay two eggs, *Columba rufina* was ascertained to deposit a single egg as a normal clutch.

COLUMBA SPECIOSA Gmelin.

Columba speciosa Gm., Syst. Nat. I. 1788. p. 78; Berlepsch & Hartert, p. 116.

Observed at Maipures, only, during December and January,

where it was not uncommon. The presence of this species in any locality seems to be governed largely, if not entirely, by the ripening of the fruits on which they feed.

Fresh birds have the eye Indian purple, eye-lids burnt carmine; bill poppy-red with the distal one-fourth pearl white; feet heliotrope purple.

Berlepsch and Hartert record a specimen collected by Klages at Suapure on the Caura River.

COLUMBA PURPUREOTINCTA Ridgway.

Columba purpureotincta Ridgw., Proc. U. S. N. M., X., p. 594 note, 1887; Berlepsch & Hartert, p. 117.

Common in the savanna regions about Maipures, on the upper river during December. Not observed below the falls of Atures.

Eye heliotrope purple, eye-lids burnt carmine; bill black; feet dark rose-purple.

COLUMBA RUFINA Temminck & Knip.

Columba rufina Temm. & Knip, Fig. I. 1808-11. p. 59. Pl. 24; Berlepsch & Hartert, p. 117.

Native name *Turca*. Common on the upper Orinoco as well as along the middle stretches of the river. This species feeds almost exclusively on fruits; it is chiefly arboreal, frequenting the less heavily wooded regions and borders of the dense forest, and is, excepting during the nesting season, gregarious.

Eye rose red; bill black; feet rose red, claws dusky.

Nests of this species were found in *Moriche* palms and the tangled thickets that grow in and about marshy places, also in the scrub-oaks scattered over the savannas. The nest is a very slight platform of dead twigs located at from two to five metres from the ground. Only one egg is laid. An egg with incubation well advanced, taken at Caicara, June 5th, is white, elliptical ovate in form and measures 39.3 x 26 mm.

ZENAIDA RUFICAUDA ROBINSONI Ridgway.

Zenaida vinaceorufa Ridgw., Proc. U. S. N. M. VII. 1884. p. 176.

Zenaida ruficauda vinaceorufa Berlepsch & Hartert, p. 118.

Zenaida ruficauda robinsoni Ridgway, Proc. Biol. Soc. Wash. XXVIII 1915: p. 107 (Honda, Colombia).

Common in the savanna regions on the lower Orinoco, but not seen above the first falls. This species feeds both on fruits and seeds, occasionally being seen in flocks with *C. rufina* feeding on fruits in high trees, but usually feeding on the ground in the open savanna.

There are two specimens in the American Museum collection, one from Maripa, Caura River and the other Ciudad Bolivar.

Eye dusky brown; bill black; feet dusky carmine.

A nest found at Caicara June 18, 1907, contained a single fresh egg. The nest was in a low *Moriche* palm about a metre and a half from the ground.

LEPTOTILA VERREAUXI (Bonaparte).

Leptotila verreauxi Bp., Consp. Av. II. 1864. p. 73.

Leptotila verreauxi Berlepsch & Hartert, p. 118.

Native name *Paloma pipa*; *Paloma rabo blanco*.

Common in the thickly wooded districts, more especially where there is much undergrowth, along the middle stretches of the river; not seen above the falls of Atures.

Eye orange buff, bare skin about eye china blue; bill black; feet lake red.

A nest was found at Quiribana de Caicara April 11, 1898 (No. 10704 Coll. Geo. K. and Stella M. Cherrie). The nest was a slight platform of twigs placed in a thicket about 1.75 m. from the ground. It contained one young bird, nearly ready to fly and an addled egg. The egg was a dirty yellowish white color, ovate in form and measured 28 x 20.8 mm.

This species, I believe, feeds exclusively on the ground.

LEPTOTILA RUFAXILLA RUFAXILLA (Richard & Bernard).

Columba rufaxilla Rich. & Bern., Act. Soc. Hist. Nat. Paris, I. 1792. p. 118.

Leptotila rufaxilla Berlepsch & Hartert, p. 118.

Native name *Paloma pica*.

Found on the upper and lower stretches of the river, but most abundant at and beyond the falls of Atures. It frequents the timbered areas, and feeds chiefly, if not exclusively, on the ground.

Eye olive yellow; bill black; bare skin of lores maroon purple; feet burnt carmine.

LEPTOTILA RUFAXILLA DUBUSI (Bonap.).

Leptotila dubusi Bp., Consp. Av. III: 1854: 74 (Rio Napo, Ecuador).

Leptotila rufaxilla dubusi Chapman, Bull. Am. Mus. Nat. Hist. XXXIV: 1915: p. 370 (Foot of Mt. Duida, upper Orinoco).

I have examined the single specimen (in the Am. Mus. collection), from the foot of Mt. Duida, that has been identified as above by Chapman. It is probable that this race of *rufaxilla* is not found below the great rapids of Atures in the Orinoco.

CHAEMEPHELIA PASSERINA GRANATINA Bonaparte.

Chamaepelia granatina Bp., Consp. Av. II. 1854. p. 77.

Columbigallina passerina granatina Berlepsch & Hartert, p. 48.

Native name *Potoquita*; "Carralera."

Common throughout the savanna regions. Associates in small flocks, but does not breed in colonies.

Eye rose pink; bill black at tip, Naples yellow at base; feet flesh white.

Nests usually on the ground but occasionally in low trees. A nest was found at Caicara May 20, 1905. It contained two fresh eggs. The nest, a slight affair of slender twigs and grass stems, was on the ground between the rocks on a steep hillside. The eggs are elliptical ovate in form and measure 21.5 x 16 and 23.2 x 15.7 mm.

This and the two succeeding species frequent the open savannas and are exclusively ground feeders.

CHAEMEPHELIA RUFIPENNIS RUFIPENNIS (Bonaparte).

Talpacotia rufipennis Bp., Consp. Av. II. 1854. p. 79.

Columbigallina rufipennis Berlepsch & Hartert, p. 119.

Native name *Potoquita colorado*.

Common in the savanna regions.

Adult male, eye orange yellow; bill dusky; feet pale reddish (pink). An adult female had the eye yellowish flesh color, eye-lids lemon yellow; bill black at tip, dusky orange at base; feet pale flesh white.

The nest is on or near the ground and neither the nest nor the eggs of this species are distinguishable from those of *C. p. granatina*.

A nest containing one fresh egg was found at Caicara June 14, 1905. The nest, a slight platform of dead twigs and grass stems, was placed between the stumps of dead leaf stems on the side of a small

Moriche Palm about one metre from the ground. The egg is a short elliptical ovate in form and measures 22.8 x 16.8 mm. The parent bird was shot.

CHAEMEPELIA MINUTA (Linnaeus).

Columba minuta L., Syst. Nat. ed. 12. I. 1766. p. 285.

Columbigallina minuta Berlepsch & Hartert, p. 119.

Specimens of this species taken at Ciudad Bolivar by H. Klages in April, 1898, were recorded by Berlepsch and Hartert. Not seen by the writer.

CLARAVIS PRETIOSA (Ferrari-Perez).

Peristera pretiosa Ferrari-Perez, Proc. U. S. N. M. IX. 1886. p. 175.

Claravis pretiosa Berlepsch & Hartert, p. 119.

Not noted on my first expedition. One specimen, a female, was taken at Caicara, June 14, 1905, and in 1907, it was not uncommon at Caicara.

Specimens taken on the Caura River in December, 1900, by M. André, were recorded by Berlepsch and Hartert.

Birds of this species frequent the borders of thickly wooded areas. They feed, I believe, entirely on the ground.

SCARDAFELLA SQUAMATA RIDGWAYI Robinson & Richmond.

Scardafella ridgwayi Robins. & Richm., Proc. U. S. N. M. XVIII. 1896. p. 660; Berlepsch & Hartert, p. 119.

Native name *Mariquita*. Abundant at Bolivar and Altagracia, much less common at Caicara, and not observed on the upper Orinoco.

Eye clay color; bill blackish; feet flesh color.

This species usually nests on the ground but occasionally nests are found in low trees and bushes, from 1 to 1.5 m. above the ground. I noted nests with fresh eggs from October to June.

A nest containing two eggs taken at Caicara, October 28, 1898, was placed in a thorny palm about 1.5 metres from the ground. It was more substantial and rather more cup-shaped than is usual with the pigeons. The eggs were fresh, pure white, nearly oval in form and measured 21.5 x 16.5 and 21.0 x 17.0 mm.

CRACIDAE¹—CURASSOWS, GUANS, CHACHALACAS.

MITUA TOMENTOSA (Spix).

Crax tomentosa Spix, Av. Bras. II. 1825. p. 49, Pl. 43.

Mitua tomentosa Berlepsch & Hartert, p. 120.

Native name *Pauji culo colorado*. Common along the middle stretches of the river and up as far as the falls of Atures, but replaced on the upper river by *Crax alector*.

Eye bay brown; bill pale horn color at tip, bright vinaceous basally on mandible and at centre of maxilla where the color deepens and darkens rapidly up to the base; ridge of culmen blackish; feet orange rufous.

The *Paujis* are much esteemed as game birds throughout Venezuela—or perhaps I should say as table birds, for some of the qualities esteemed by the sportsman in the game bird are lacking. It is a bird of the thick forest regions, especially of localities where there is a dense undergrowth, and when pursued seeks safety by running, rather than by flight.

A nest, containing two eggs with incubation far advanced, was found at Las Gaucas on the San Feliz River (a tributary of the Cuchivero River), June 2, 1897. The nest was about two metres from the ground, against the stem of a *Corobo* palm at a point where several of the great leaf-stems had been partially broken down and formed a sort of hollowed platform into which leaves from adjoining trees had either fallen, or been carried, and then lined with the narrow green leaflets from the palm itself.

The eggs, which are normally a lusterless, parchment-like white, are much stained (with brown varying in shade from wood brown to cinnamon) from the wet, decaying leaves on which they lay. They are ovate in form and measure 84 x 59 and 84 x 59 mm. The entire egg is thickly covered with small rounded granules, producing an almost sandpaper-like surface.

This set of eggs was collected on the 2nd of June. They were immediately packed and jolted about on the back of a pack-mule for a distance of about seventy-five miles, yet on the 8th of July two young curassows emerged from these eggs and seemed little the worse for

¹In addition to the species observed by the writer and recorded by Berlepsch & Hartert, the following have also been recorded from the Orinoco Region:

Fauxi fauxi (Linnaeus), is recorded from the river Cassiquari and from the Orinoco by Pelzeln, Orn. Bras. (1870), p. 289.

Ortalis ruficauda Jard. is recorded from the Rio Apure and the Rio Orinoco by Berlepsch, Ibis, 1884 p. 440.

the rough handling they had had. The two halves of each of the eggs were carefully put together.

Another set of two eggs found near Caicara June 16th, 1907, was incubated by a common hen for a period of twenty days, when they hatched. These eggs, the parts of which were carefully put together, measure 18 x 57 and 77 x 55 mm.

The first pair of chicks lived only eleven days. The second pair were nineteen days old and growing rapidly when, through an accident, they were killed. From the very day when they were born, they evinced a desire for a high perch at night, not seeming to have any fancy for being brooded by their foster mother.

CRAX ALECTOR Linnaeus.

Crax alector L., Syst. Nat. ed. 12. I. 1766. p. 269; Berlepsch & Hartert. p. 120.

Native name *Pauji culo blanco*. Not common. Seen only at Maipures and beyond.

PENELOPE JACUPEBA Spix.

Penelope jacupeba Spix, Av. Bras. II. 1823. p. 54; Pl. 71; Berlepsch & Hartert, p. 120.

Birds probably of this species were seen several times about Caicara, but none were taken. The species, however, was taken in February, 1901, on the Caura River by André and recorded by Berlepsch and Hartert.

ORTALIS RUFICAUDA Jardine.

Ortalis ruficauda Jard., Ann. Mag. N. H., XX, p. 374. (1847).

Ortalis ruficauda Berlepsch, Ibis 1884. p. 440 (Rio Apure).

Recorded from Orinoco Region (Rio Apure) by Berlepsch (*l. c.*).

ORTALIS MOTMOT (Linnaeus).

Phasianus motmot L., Syst. Nat. ed. 12. I. 1766. p. 271.

Ortalis motmot Berlepsch & Hartert, p. 120.

Native names *Guacharaca*, *Guacharaca cerro*. Not uncommon on the upper Orinoco and on the San Feliz River, but not observed below the falls of Atures. Berlepsch and Hartert record a specimen from La Pricion on the Caura River.

PIPILE CUMANENSIS (Jacquin).

Crax cumanensis Jacq., Beytr. 1784. p. 25.

Pipile cumanensis Berlepsch & Hartert, p. 121.

Native name *Guacharaca*. Common on the upper river from above the falls of Maipures onward.

Female (No. 11876 Cherrie Coll.)

Eye chestnut brown; bill slate black at tip and pearl blue from anterior point of nostrils and gonyes to base, where the color blends with the pale pearl grey of the bare skin on side of the face; feet bright brick red. Chin and upper throat azure blue, the color darkening to slate black on lower part of bare neck and on the wattles.

The nesting season probably begins in February as a female shot February 17, 1899, was laying, as indicated by the active condition of the ovaries.

The *Guacharacas* like the *Paujis* are much sought after by hunters.

TETRAONIDAE—PARTRIDGE, QUAIL, ETC.

ODONTOPHORUS GUJANENSIS (Gmelin).

Tetrao gujanensis Gm., Syst. Nat. I. 1788. p. 767.

Odontophorus gujanensis Berlepsch & Hartert, p. 121.

Not observed by the writer, but recorded by Berlepsch and Hartert from Suapure on the Caura River.

EUPSYCHORTYX SONNINI (Temminck).

Perdix sonnini Temm., Hist. Nat. Gén. Fig. III. 1815. p. 451.

Euppsychortyx sonnini Berlepsch & Hartert, p. 121.

Native name *Perdis*. Common everywhere throughout the savanna regions of the lower and middle Orinoco, but not observed above the falls.

OPISTHOCOMIDAE—THE HOATZIN.

OPISTHOCOMUS HOAZIN (Müller).

Phasianus hoazin Müll., Syst. Nat. Supplement, 1776. p. 125.

Opisthocomus cristatus Berlepsch, Ibis 1884. p. 440 (Angostura).

Opisthocomus hoazin Berlepsch & Hartert, p. 122.

Native names *Guacharaca de Agua*, *Chinchena*. Common along the thickly wooded banks of the Orinoco and its tributaries

from the mouth up almost to the first falls above Perico. It keeps to the tops of the low trees which overhang the water and on the buds and leaves of which it feeds. Colonies occupy the same general area during the entire year, but at the approach of the breeding season, which varies considerably in different localities along the river, the flocks break up into pairs, each pair keeping to a restricted area of the general breeding grounds.

The breeding season about Caicara lasts from early in June until mid September. In 1905 I took the first set of eggs June 11th. Freshly completed nests had been noted as early as May 25th, when I went scouting for them, but at that time they must have been from five to seven metres above the water. The nest found June 11th was between three and four metres above the water at nearly what would be high water mark. On June 18th, seven sets of eggs were collected. With the exception of one set of two, all were fresh.

In my field record for that date I made the following entry: Although Hoatzin are never hunted and very rarely disturbed in their haunts they are nevertheless decidedly shy. Sitting birds would always leave the nest when, or even before, we came in sight of the same. The parent birds never remained near the nests and by actions manifested but little concern in what was going on. Nests are apparently never placed very close together as in a heronry. I have rarely found them nearer than from twenty-five to fifty metres from one another.

Of the seven nests containing eggs found on this date, none were over 1.2 m. above the level of the water. The average was about one meter, although one was only about 45 cm. up. At the rate the river is rising the lowest of these nests would be under water before the week is over.

On June 22nd seven additional sets of eggs were collected. The nests were on an average between 1 to 1.25 m. above the water at that time, which means that they would be at the water level, or below, by the time the eggs would be hatched.

My observations indicate that the nesting season on the Orinoco is controlled to a large degree by the water level in the river. The ovaries of nearly all the Hoatzin collected near Bolivar about the middle of April indicated the approach of the breeding season. Specimens collected at Caicara early in May did not show a more active condition of the ovaries, but as I have stated above, completed nests

were found there May 25th and eggs June 11th. From the 15th to the 25th of June the laying season at Caicara was at its height and the river was rapidly nearing high water mark.

Basing my conclusions on the condition of the ovaries in the birds taken at Bolivar, early in April, I returned to that locality the first week in July, expecting to find young Hoatzin. What was my surprise to find the Bolivar birds nest building—no young; and only one set of eggs taken July 4th. The colony that I had been observing at Bolivar made their home in the thick tangle of tree tops bordering a small lake which occupies a natural basin in an extensive area of low land separated from the river by high rocky embankments. The rapidly rising waters of the Orinoco did not break over this embankment until June 20th. The Hoatzin apparently had not commenced serious nesting until after that date! Did they deliberately await the rising of the water?

The nest of the Hoatzin is a slight platform of dead twigs, loosely put together, out towards the tips of long slender branches, and frequently with but very frail support. Sometimes the nests are almost concealed by surrounding leaves, again they are placed in dead or leafless trees where surrounding foliage does not offer any concealment. If the nest is high enough the eggs usually can be seen from below through the nest walls.

The young Hoatzin is almost naked at birth and a shiny jet black, with olive wash, in color. Within a day or two their eyes are wide open and if a nest be approached without extreme caution it will be found empty. But a little quiet patience will probably reward the collector—at the end of a few minutes the young will be seen making their way from out of the water, into which they had deliberately dropped; along and over the limbs back to the nest. Their locomotion at this time is effected by the aid of the bill, the feet, and the claws that in the young are found on the end of the thumbs and index fingers.

In a series of thirteen sets of eggs, a considerable variation in size, shape, and markings is noticeable. The general shape is ovate, varying from a rather long ovate to short ovate, and occasionally there is an approach toward the oval. (The two eggs of set No. 13898 Cherrie Collection are almost perfectly oval). The general color is a pinkish cream color, varying considerably in shade in the various sets, the markings consist of dots, spots and splashes, scat-

tered all over the surface of the eggs (but more thickly at the larger end) in two series, the outer of a reddish brown color which overlies the inner series which are of a pale lavender color. The average size of a series of 24 eggs was 32.9 x 46.2 mm.

I have found four and five eggs in a set but normally either two or three would seem to constitute a full set, and when more than three are found I suspect it is the result of two females laying in the same nest¹.

TINAMIDAE—THE TINAMOUS.

CRYPTURUS CINEREUS (Gmelin).

Tetrao cinereus Gm., Syst. Nat. I. 1788. p. 768.

Crypturus cinereus Berlepsch & Hartert, p. 122.

Observed and collected only at Maipures, where, while not uncommon, it was rarely seen, because of its exceeding wariness.

CRYPTURUS SOUI SOUI (Hermann).

Tinamus Soui Hermann, Tab. Affin. Anim. (1783) : p. 165 (Cayenne).

Tetrao pileatus Bodd., Tabl. Pl. Enl. 1783. p. 51.

Crypturus pileatus Berlepsch & Hartert, p. 122.

Native name *Poncha*. This, like the preceding species, is very wary and not often seen. I secured specimens at Nericagua only. The natives assured me that neither species of *Poncha* was found below the falls of Atures.

Berlepsch and Hartert record this species from La Pricion on the Caura River.

CRYPTURUS VARIEGATUS (Gmelin).

Tetrao variegatus Gm., Syst. Nat. I. 1788. p. 768.

Crypturus variegatus Berlepsch & Hartert, p. 122.

Recorded by Berlepsch and Hartert from La Pricion on the Caura River. Not observed by the writer.

PLATALEIDAE—THE SPOONBILLS.

AJAJA AJAJA (Linnaeus).

Platalea Ajaja Linnaeus, Syst. Nat. Ed. XII: 1766: 237.

Common in the delta region and noted as far as the mouth of the Rio Apure.

¹In the MUSEUM NEWS (Brooklyn Institute of Arts and Sciences), IV. 1909. pp. 50-53, I have published a more general and extended account of the Hoatzin.

IBIDIDAE—THE IBISES.

THERISTICUS CAUDATUS (Boddaert).

Scolopax caudatus Bodd., Tabl. Pl. Enl. 1783. p. 57.

Theristicus caudatus Berlepsch & Hartert, p. 122.

Native name *Tautaco*. Found throughout the savanna region on the lower and middle stretches of the river, but nowhere common. Feeds along the borders of ponds and marshes and in the open savannas. An adult male taken at Caicara May 4, 1905, had the colors of fleshy parts as follows: eye scarlet; bill black; bare skin about the base of the bill around the eye and on the throat black; feet geranium pink.

HARPIPRION CAYENNENSIS (Gmelin).

Tantalus cayennensis Gm., Syst. Nat. I. 1788. p. 652.

Harpiprion cayennensis Berlepsch & Hartert, p. 123.

Not common. Specimens were secured at Altagracia, Caicara, and Quiribana de Caicara, all on the middle Orinoco.

Colors in fresh birds are: eye dark Indian purple; bill pea green at tip, darkening to a bottle green at base; bare skin about eye and on chin and throat indigo blue; feet malachite green.

Berlepsch and Hartert record a specimen from Cangrejo on the Caura River.

PHIMOSUS BERLEPSCHI Hellmayr.

Phimosus berlepschi Hellmayr, Verh. Zool. bot. Ges. Wien. LIII. 1903. p. 247, ex Orinoco River, Altagracia, Caicara).

Phimosus nudifrons Berlepsch & Hartert, p. 123.

Native name *Coro-coro*. The name is also applied to *Harpiprion cayennensis*. Common along the middle stretches of the Orinoco (not noted above the falls), frequenting the banks of streams and ponds.

Eye carmine; bill, in immature, wood brown, blackish at tip; in adults, reddish liver brown; feet dark sepia brown.

CERCIBIS OXYCERCA (Spix).

Ibis oxycercus Spix, Av. Bras. II. 1825. p. 69, Pl. 87.

Cercibis oxycerca Berlepsch & Hartert, p. 124.

Native name *Taro-taro*. Common; frequenting marshy places on the open savanna and the banks of ponds and streams.

Adult male, eye vandyke brown; bare skin about eye lake red; bill hazel brown; bare skin on throat Chinese orange, feet burnt carmine.

GUARA RUBRA (Linnaeus).

Tantalus ruber L., Syst. Nat. ed. 12. I. 1766. p. 241.

Eudocimus ruber Berlepsch & Hartert, p. 124.

Native name *Coro-coro Colorado*. Abundant in the delta region, but comparatively rare along the middle Orinoco, and not observed beyond the falls.

ARDEIDAE—THE HERONS.

The Orinoco, first in the delta region, with its enormous areas of swamp and woodland, and then in the vast thinly wooded savannas that border the middle stretches of the river and its tributaries (especially the Apure) with their numberless shallow ponds and marshes heavily bordered with tangled forest growth, furnishes ideal conditions for herons and other species of similar habits, and is indeed the home of myriads of these birds.

While the number of species of herons found is not large—only thirteen—the number of individuals is probably as great or greater than that of any other group.

ARDEA COCOI Linnaeus.

Ardea cocoi L., Syst. Nat. ed. 12. I. 1766. p. 237; Berlepsch, Ibis, 1884. p. 438 (*Angostura*); Berlepsch & Hartert, p. 124.

Native name *Garza morena*. Common along the lower and middle stretches of the Orinoco and its tributaries. It is one of the characteristic birds of the Orinoco where its habit of perching high up on the branches of the tall trees on the river bank, where it is afforded an unobstructed view in all directions, makes it a conspicuous object in the landscape. Exceedingly wary, it takes flight at the approach of a canoe long ere the hunter is within range. The natives hunt them for food but for my own part I do not consider the meat a delicacy.

Adult male, eye bright straw yellow; bill rather bright Gladstone yellow, blackish slate at base of maxilla (from middle of nostrils posteriorly) and a narrow dusky streak along the basal cutting edge of the mandible; extreme base of mandible and bare skin about eye bottle green; feet black. The blackish slate and Gladstone yellow on the maxilla blend into one another very gradually.

EGRETTA CANDIDISSIMA (Gmelin).

Ardea candidissima Gm., Syst. Nat., I, 1789, p. 633.

Ardea candidissima Berlepsch, Ibis, 1884, p. 438 (Angostura).

Native names *Garza blanco pequina*; Egret; Osprey; *Garza de pluma*. Abundant, and like its larger relative *H. egretta*, more widely distributed during the rainy season than during the dry season.

HERODIAS EGRETTA (Gmelin).

Ardea egretta Gm., Syst. Nat. I. 1788, p. 629.

Herodias egretta Berlepsch & Hartert, p. 124.

Native name *Garza blanco grande*. Abundant. During the rainy season this species has the entire vast savanna region as a feeding ground and at that time is widely distributed over the open savannas; but, as the savannas become dry and parched with the advance of the dry season, the flocks of egrets are driven closer and closer together near the banks of streams and ponds in their search for suitable feeding grounds.

Eye straw yellow; bill dark chrome yellow; bare skin about base of bill and eye citron yellow; feet black.

FLORIDA CAERULEA CAERULEA (Linnaeus).

Ardea caerulea L., Syst. Nat. ed. 10. I. 1758, p. 143.

Florida caerulea Berlepsch & Hartert, p. 124.

Not common. Specimens collected only at Caicara, but noted also at Ciudad Bolivar, Altagracia and Quiribana de Caicara. Klages took a specimen at Mato River which is recorded by Berlepsch and Hartert.

AGAMIA AGAMI (Gmelin).

Ardea agami Gm., Syst. Nat. I. 1788, p. 629.

Agamia agami Berlepsch & Hartert, p. 125.

Rare. An immature male (recorded by Berlepsch and Hartert) was taken at Quiribana de Caicara, in the belt of heavy timber bordering Quiribana Creek, April 4, 1898; and an adult male, near the same point May 1, 1907. The colors on the latter bird were:

Eye ochraceous rufus; bill black above, dusky grey with greenish wash below; feet slate black anteriorly, dusky pea green posteriorly.

The colors of the immature male taken at Quiribana de Caicara

were: eye, orange ochraceous with the posterior quarter section of the iris seal brown; maxilla black, mandible dusky olive brown; feet and legs blackish slate for the anterior half and dusky sage green behind.

NYCTICORAX NYCTICORAX NAEVIUS (Boddaert).

Ardea naevia Bodd., Tabl. Pl. Enl. 1783. p. 56.

Nycticorax gardeni Berlepsch, Ibis, 1884. p. 439 (Angostura).

Nycticorax nycticorax naevius Berlepsch & Hartert, p. 125.

Common, frequenting the timbered belts bordering the Orinoco and the small streams tributary thereto.

NYCTANASSA VIOLACEA (Linnaeus).

Ardea violacea Linnaeus, Syst. Nat. Ed. X: 1758: p. 143 (Carolina).

Nyctanassa violacea Stone, Proc. Phil. Ac. Nat. Sci. 1913: p. 193 (Cörosal).

Stone has recorded a specimen from the delta region.

COCHLEARIIUS COCHLEARIIUS Linnaeus.

Cancroma cochlearia L., Syst. Nat. ed. 12. I. 1766. p. 237; Berlepsch & Hartert, p. 125.

Common about Ciudad Bolivar and up at least as far as Caicara and Quiribana de Caicara, frequenting the wooded banks of the small creeks flowing into the Orinoco.

Fresh birds have the eye dusky; maxilla black, mandible dusky sulphur yellow, blackish at tip; bare skin of chin and throat sulphur yellow; feet oil green.

PILHERODIUS PILEATUS (Boddaert).

Ardea pileata Bodd., Tabl. Pl. Enl. 1783. p. 54.

Pilherodius pileatus Berlepsch & Hartert, p. 125.

Not common. Observed at Ciudad Bolivar, Altagracia, Caicara and Quiribana de Caicara.

The colors taken from a freshly killed adult male were: eye, olive brown; bill, horny pearl grey at tip, changing gradually into plumbeous which blends gradually into the cobalt blue of the basal two-thirds of the maxilla, and abruptly into the lilac colored central part of the mandible; basal part of mandible and bare skin about face cobalt blue; feet cinereous.

SYRIGMA SIBILATRIX (Temminck).

Ardea sibilatrix Temm., Pl. Col. V. 1824. p. 27L; Berlepsch, Ibis, 1884. p. 438 (Rio Apure).

Syrigma sibilatrix Berlepsch & Hartert, p. 126.

Native name *Garza Carricia*. Not common. Adult male and female; eye pearl grey; bill rose pink, blackish at the tip; feet black. At the point of union between the blackish tip and rose pink body of the bill there is a short space of whitish fading into the two adjoining colors abruptly, while between the rose pink and azure blue of the maxilla there is a narrow band of cobalt blue into which the two adjoining colors merge abruptly.

This, the Snowy Egret, and other species of herons, are often seen about the native houses, sometimes tied with a string about one leg, but more frequently they are at liberty within the *patios*, the wing having been amputated at the wrist to prevent their flying away.

BUTORIDES STRIATA (Linnaeus).

Ardea striata L., Syst. Nat. ed. 10 I. 1758. p. 144.

Butorides cyanurus Berlepsch, Ibis, 1884. p. 439 (Angostura; Rio Apure).

Butorides striata Berlepsch & Hartert, p. 126.

Native name *Chicuaco*. Not common, or at least rarely seen. I noted it at Bolivar, and at other points on the river as far up as the falls of Atures.

Colors taken from a freshly killed adult female were: eye lemon yellow, bare skin about eye sulphur yellow; bill black above, pale dusky greenish below; lores black; feet olive green.

Two nests were found in the tree tops on a submerged island in the Orinoco near Caicara July 18, 1907. One contained two, the other three eggs. In the two eggs incubation was far advanced; in the set of three it had just begun. The nests were each slight platforms of dry sticks. The nest containing the three eggs was only about 15 cm. above the water, and, as the river was rising rapidly, would have been under water before the next morning! The other nest was about one metre above the water.

The eggs are ovate approaching elliptical in form, and pale greenish greyish Nile blue in color. The set of three measure 28 x 38; 28.25 x 38 and 28.25 x 37 mm.

TIGRISOMA LINEATUM (Boddaert).

Ardea lineata Bodd., Tabl. Pl. Enl. 1783. p. 52.

Tigrisoma brasiliense Berlepsch, Ibis, 1884. p. 439 (Rio Apure).

Tigrisoma lineatum Berlepsch & Hartert, p. 126.

Native name *Pajaro Baca*. Common, frequenting the thickly wooded banks of small streams flowing into the Orinoco. In life adults have the iris bicolored, the inner part being chrome yellow which blends rather abruptly into a walnut brown on the outer half; bill clove brown along the ridge of the culmen, merging into a mummy brown along the sides, bare skin on chin, throat and around eye sulphur yellow; bare skin at base of mandible citron yellow; gonys horny straw yellow; feet olive in front and olive green on the posterior half.

ZEBRILUS PUMILUS (Boddaert).

Ardea pumila Boddaert, Tabl. Pl. Enl. 1783: p. 54.

Rare. Not taken or seen on my first expedition to the Orinoco. The fresh colors of an adult male taken at Agua Salada de Ciudad Bolivar, April 11, 1905, were: Eye straw yellow; bill dusky above, pale yellowish horn color below; feet anteriorly olive greenish, brighter lemon yellowish posteriorly. A single specimen was seen in the thickets forming the breeding ground of the Hoatzin at Caicarita, Caicara, July 18, 1907.

PALAMEDEIDAE—THE SCREAMERS.

Only one of the species of Screamers has been noted on the Orinoco.

PALAMEDEA CORNUTA Linnaeus.

Palamedea cornuta Linnaeus, Syst. Nat., Ed. XII: 1766: p. 232 (Brazil, Guiana).

Anhima cornuta Stone, Proc. Ac. Nat. Sci. Phil., 1913: p. 194 (Manimo Riv.).

I found the Horned Screamer abundant at Las Barancas, and Stone reported it very common on the Manimo River.

PHALACROCORACIDAE—ANHINGAS, CORMORANTS, ETC.

ANHINGA ANHINGA (Linnaeus).

Plotus anhinga L., Syst. Nat. ed. 12. I. 1766. p. 218; Berlepsch & Hartert, p. 127.

Native name *Cotúa* and *Agujita*; also sometimes applied to the Cormorant, *P. vigua*. Common on the lower and middle stretches of the river but not observed above the falls.

PHALACROCORAX VIGUA (Vieillot).

Hydrocorax vigua Vieill., Nouv. Dict. VIII. 1817. p. 90.

Phalacrocorax vigua Berlepsch & Hartert, p. 127.

Native names *Cotua*, *Cotua Zamura*, *Cotua Nigro*.

Abundant all along the river, at least as far as the falls of Atures.

RALLIDAE—THE RAILS.

PORZANA ALBICOLLIS (Vieillot).

Rallus albicollis Vieill., Nouv. Dict. XXVIII. 1819. p. 561.

Porzana albicollis Berlepsch & Hartert, p. 127.

Rare. A single specimen was taken in the marsh bordering the brook at Quiribana de Caicara in April, 1898.

Colors taken from the freshly killed bird were: eye bright vandyke brown; upper half of maxilla olive green, lower half of maxilla and entire mandible apple green; feet dusky brown.

ARAMIDES CAJANEA (Müller).

Fulica cajanea Müll., Syst. Nat. Supplement, 1776. p. 119.

Aramides cayennensis Berlepsch, Ibis. 1884. p. 440 (Angostura).

Aramides cajanea Berlepsch & Hartert, p. 128.

This species was abundant in the thick tangles of vines and bushes bordering small streams and ponds, and was noted at all points visited along the Orinoco. In the early morning their loud strange call notes could be heard on every side. They are extremely wary and the gunner must be alert if he catches one as it darts across some narrow path before him. The meat is delicious.

In an adult female the eye was ochraceous rufous, eyelids scarlet; bill apple green; feet burnt carmine.

ARAMIDAE—THE LIMPKINS OR COURLANS.

ARAMUS SCOLOPACEUS (Gmelin).

Ardea scolopacea Gm., Syst. Nat. I. 1788. p. 647.

Aramus scolopaceus Berlepsch, Ibis, 1884. p. 440. (Angostura). Berlepsch & Hartert, p. 128.

Native name *Carrao*. Not common and only observed at Altagracia and Caicara, where it seemed to keep to the thickly wooded borders of the ponds adjacent to the main river.

EURYPYGIDAE—THE SUN BITTERN.

EURYPYGA HELIAS (Pallas).

Ardea helias Pall., Neue Nord. Beitr. II. 1781. p. 48, Pl. 3.

Eurypyga helias Berlepsch, Ibis, 1884. p. 440 (Angostura); Berlepsch & Hartert, p. 128.

Native name *Tigana*. Not uncommon along the thickly wooded banks of ponds and streams where it keeps on or near the ground. The *Tigana* is often seen in a semi-domesticated state in the native houses where they are esteemed for the number of spiders and insects they destroy.

PSOPHIIDAE—THE TRUMPETERS.

PSOPHIA CREPITANS Linnaeus.

Psophia crepitans L., Syst. Nat. ed. 10. I. 1758. p. 154; Berlepsch & Hartert, p. 128.

Abundant in the delta region. Noted repeatedly at Las Barrancas, and Beebe secured specimens at Guánoco. Berlepsch and Hartert record specimens collected by Klages at Suapure on the Caura River.

OEDICNEMIDAE—THE STONE PLOVERS OR THICK-KNEES.

OEDICNEMUS BISTRIATUS (Wagler).

Charadrius bistriatus Wagl., Isis, 1829. p. 648.

Oedicnemus bistriatus Berlepsch, Ibis, 1884. p. 44 (Angostura); Berlepsch & Hartert, p. 128.

Native name *Alcaraván Negro*.

Not uncommon. Found on the open savannas only. Usually seen in pairs.

Eye lemon yellow; bill black, yellowish olive buff at base of mandible; feet olive yellow.

CICONIIDAE—JABIRU; STORKS; WOOD IBIS.

EUXENURA MAGUARI (Gmelin)..

Ardea maguari Gmel., Syst. Nat., I, 1789, p. 623 (Brazil).

Although no specimens were collected this species was seen sufficiently near to make identification certain. It was noted at Las Barrancas, Altigracia, San Mateo de Caicara and at Las Guacas and La Cascabel on the San Feliz River.

JABIRU MYCTERIA (Lichtenstein).

Ciconia mycteria Licht., Abh. K. Akad. Wiss. Berlin (Phys. Kl.), for 1816-17, 1819, 163 (Brazil).

Native name *Garzon Soldado*.

Widely distributed throughout the Orinoco Region from the delta up as far, at least, as the mouth of the Meta River. Specimens were collected at Las Guacas and La Cascabel on the San Feliz River (near its union with the Cuchivero River), and it was observed at Las Barrancas, Altigracia, San Mateo de Caicara, Quiribana de Caicara and near the mouth of the Meta River.

MYCTERIA AMERICANA Linnaeus.

Mycteria americana Linn., Syst. Nat., ed. 10, I, 1758, 140.

Tantalus loculator Berlepsch, Ibis, 1884, p. 437 (Angostura).

Noted all along the Orinoco up as far as the falls of Atures.

JACANIDAE—THE JACANAS.

JACANA JACANA Linnaeus.

Parra jacana L., Syst. Nat. ed. 12, I, 1766, p. 259, part; Berlepsch, Ibis, 1884, p. 440 (Angostura); Berlepsch & Hartert, p. 129.

Native name *Gallineto de Laguna*.

Common. Frequents the banks of ponds and streams and open marshes.

Adult female: eyes slate grey; bill ochre yellow; shield maroon purple; feet dusky olive grey.

CHARADRIIDAE—PLOVERS, SANDPIPERS, ETC.

Eight species were collected on my first expedition and recorded by Berlepsch and Hartert. Twelve are included in the present list, and there is little doubt that at least as many more will be discovered when the delta region will have been carefully worked over.

HOPLOXYPTERUS CAYANUS (Latham).

Charadrius cayanus Lath., Ind. Orn. II. 1790. p. 749.

Hoploxypterus cayanus Berlepsch & Hartert, p. 129.

Native name *Alcaravancito*. Common along the shores of streams and ponds. This species does not associate in flocks and rarely more than two or three are seen together. It was noted at all points visited.

Eye seal brown, eye-lids scarlet; bill black; feet scarlet.

BELONOPTERUS CAYENNENSIS (Gmelin).

Parra cayennensis Gm., Syst. Nat. I. 1788. p. 706.

Vanellus cayennensis Berlepsch, Ibis, 1884. p. 441 (Angostura).

Belonopterus cayennensis Berlepsch & Hartert, p. 129.

Native name *Alcaravana de corbata*; *Alcaravan*.

Common on the open savannas. Usually seen in pairs. On the middle Orinoco the nesting season begins in April.

This lapwing is thoroughly detested by the native deer hunters from the habit it has of following, often for long distances, any one it may see walking about among the little clumps of trees and bushes that here and there dot the savannas, and screaming its displeasure. The deer seem to understand that cry and are instantly on the alert.

Eye red lake, eye-lids and chin lilac; bill black at tip, lilac at base; feet Indian purple.

ÆGIALITIS SEMIPALMATA (Bonaparte).

Charadrius semipalmatus Bonap., Journ. Acad. N. S. Phila., V, 1825, p. 98 (Coast of New Jersey).

Found in the delta region from October to April.

ÆGIALITIS COLLARIS (Vieillot).

Charadrius collaris Vieill., Nouv. Dict. XXVII. 1818. p. 136.

Ægialitis collaris Berlepsch & Hartert, p. 129.

A not uncommon resident species usually. Solitary or seen in pairs on the sand beaches along the river during the dry season and on the open savannas during the wet season.

Eye seal brown; bill black; feet flesh color.

HIMANTOPUS MEXICANUS (Müller).

Charadrius mexicanus Müll., Syst. Nat. Suppl., 1776, p. 117 (Mexico).

Abundant about the great marshes near Las Guacos on the San Feliz River (Terrenos dell Tigre) during May, 1907.

NUMENIUS HUDSONICUS Latham.

Numenius hudsonicus Lath., Index Orn. II, 1790, p. 712 (Hudson Bay).

This species was noted at Altigracia in November, 1897, but no specimens were secured.

HELODROMAS SOLITARIUS (Wilson).

Tringa solitaria Wils., Am. Orn. VII. 1813. p. 58, Pl. 58, fig. 3.

Helodromas solitarius Berlepsch & Hartert, p. 129.

Occasionally met with from early in August until the first of February. Observed at Las Barrancas, Agua Salada de Ciudad Bolivar, Ciudad Bolivar, Altigracia, Caicara. Berlepsch and Hartert record a specimen also from Suapure on the Caura River.

TOTANUS FLAVIPES (Gmelin).

Scolopax flavipes Gm., Syst. Nat. I. 1788. p. 659.

Totanus flavipes Berlepsch & Hartert, p. 130.

Small flocks were seen about Altigracia from the last of December until February.

TOTANUS MELANOLEUCUS (Gmelin).

Scolopax melanoleucus Gm., Syst. Nat. I. 1788. p. 659.

Totanus melanoleucus Berlepsch, Ibis, 1884. p. 441 (Angostura); Berlepsch & Hartert, p. 130.

Small flocks of Greater Yellow-legs were seen at Altigracia several times during the month of November, 1897.

ACTITIS MACULARIA (Linnaeus).

Tringa macularia L., Syst. Nat. ed. 12. I. 1766. p. 249.

Tringoides macularia Berlepsch & Hartert, p. 130.

The Spotted Sandpiper is to be seen along the Orinoco from early in September until the first of April. Berlepsch and Hartert record it also from the Caura River.

PISOBIA FUSCICOLLIS (Vieillot).

Tringa fuscicollis Vieill., Nouv. Dict. d'Hist. Nat. XXXIV, 1819, p. 461 (Paraguay).
Common at Las Guacos, San Feliz River during May, 1907.

GALLINAGO PARAGUAIAE (Vieillot).

Scolopax paraguaiae Vieill., Nouv. Dict. III. 1816. p. 356.

Gallinago paraguaiae Berlepsch & Hartert, p. 130.

Native name *Cogelas todas*. Not uncommon along the marshy borders of small streams that cross the savannas, and widely distributed over the savannas themselves during the rainy season. The species was noted at all points visited along the river.

GALLINAGO BRASILIENSIS (Swainson).

Scolopax Brasiliensis Swainson, Faun. Boreal. Am. 1831: p. 400 (Brazil).

Gallinago brasiliensis Stone, Proc. Ac. Nat. Sci. Phil. 1913: p. 192. (Orinoco delta, Caño Corosal).

Stone records specimens from Caño Corosal (Orinoco delta country).

ANATIDAE—DUCKS, GEESE, ETC.

CAIRINA MOSCHATA (L.).

Anas moschata L., Syst. Nat. ed. 10. 1758. p. 124.

Cairina moschata Berlepsch & Hartert, p. 131.

Native names *Pato real*; *Pato negro*. Common.

Eye seal brown; bill black; bare skin about face black, the caruncles at base of bill and about face black at their base, pale scarlet at their free ends; feet black.

The *Pato real* when not feeding spends much of its time in the large trees bordering streams. During the rainy season it feeds almost entirely on the open savannas but as the dry season advances it is driven more to the wooded banks of ponds and streams. It is exceedingly wary and the native hunter considers himself fortunate to bag a *pato negro*. They may be often seen completely domesticated and breeding about the native houses.

Five ducklings, an entire brood, three or four days old, were taken at Las Barrancas, San Feliz River, May 30, 1907.

DENDROCYGNA DISCOLOR Sclater & Salvin.

Dendrocygna discolor Scl. & Salv., Nomencl. Av. Neotr. 1873. pp. 129, 161; Berlepsch & Hartert, p. 131.

Native name *Güiriri*. Abundant. This and the following species, *Alopochen jubatus*, are the most common ducks found on the Orinoco.

ALOPOCHEN JUBATUS (Spix).

Anser jubatus Spix, Av. Bras. II. 1825. p. 84. Pl. 108.

Alopochen jubatus Berlepsch & Hartert, p. 131.

Native name *Carrcteró*. Abundant along the banks of the Orinoco and its tributaries.

Eye seal brown; bill black reddish at angle of commissure; feet vermilion.

This is the most abundant species of "Duck" in the Orinoco region. Like the *Pato real*, it is frequently seen in a state of semi-domestication about the native houses, but I do not know of its breeding.

The males at the beginning of the mating season—December and January—fight some terrific battles, and where a large flock is assembled, in some marshy spot near the river, the noise of battle may be heard for a long distance. The blows of the wings against one another and the constant loud guttural "honking" of the contending birds make a deafening racket. The females feed quietly, apparently not taking much interest in the fray.

This species like the Tree Duck (*D. discolor*) nests in hollow trees.

NETTION BRASILIENSE (Gmelin).

Anas brasiliensis Gm., Syst. Nat. I. 1788. p. 517.

Nettion brasiliense Berlepsch & Hartert, p. 131.

Native name *Pato Azulijo*. Not common at points visited on the Orinoco proper, but abundant about the marshes in the vicinity of Las Guacas, San Feliz River, during May, 1907.

On the Orinoco this species was noted at Bolivar, Altagracia, Caicara and Quiribana de Caicara.

LARIDAE—GULLS, TERNS, ETC.

PHAETHUSA CHLOROPODA (Vieillot).

Sterna chloropoda Vieillot, N. Dict. d'Hist. Nat. XXXII: 1818: 171 (Paraguay).

Phaethusa magnirostris Berlepsch & Hartert, p. 132.

Native name *Guanaguanare*.

Eye seal brown; bill canary yellow, lightest at the base; feet sulphur yellow.

One of the most abundant and characteristic of birds along the Orinoco. It is likely to be the first species one will see on entering the mouth of the great river, and as he proceeds towards the head-waters it will follow him, and even when he crosses through the Cassiquiare and down the Rio Negro to the Amazon.

The nesting season begins in December and lasts until February.

STERNA SUPERCILIARIS Vieillot.

Sterna superciliaris Vieill., Nouv. Dict. XXXII. 1819. p. 126; Berlepsch & Hartert, p. 132.

Native name *Tenten*. Not abundant but observed everywhere both on the lower and upper stretches of the river. Fresh birds have the eye seal brown; bill dark Naples yellow; feet dusky sulphur yellow.

RYNCHOPS NIGRA CINERASCENS (Spix).

Rhynchops cinerascens Spix; Av. Bras. II. 1825. p. 80, Pl. 102.

Rhynchops nigra cinerascens Berlepsch & Hartert, p. 132.

Native name *Gaviota*. Common all along the middle and lower stretches of the river.

LARUS ATRICILLA (Linnaeus).

Larus atricilla Linn., Syst. Nat. I, 1758, p. 136 (Bahamas).

Often seen in company with the Large-billed Tern (*Phaethusa chloropoda*) about the mouths of the Orinoco and common at almost all points along the shore of the Bay of Paria.



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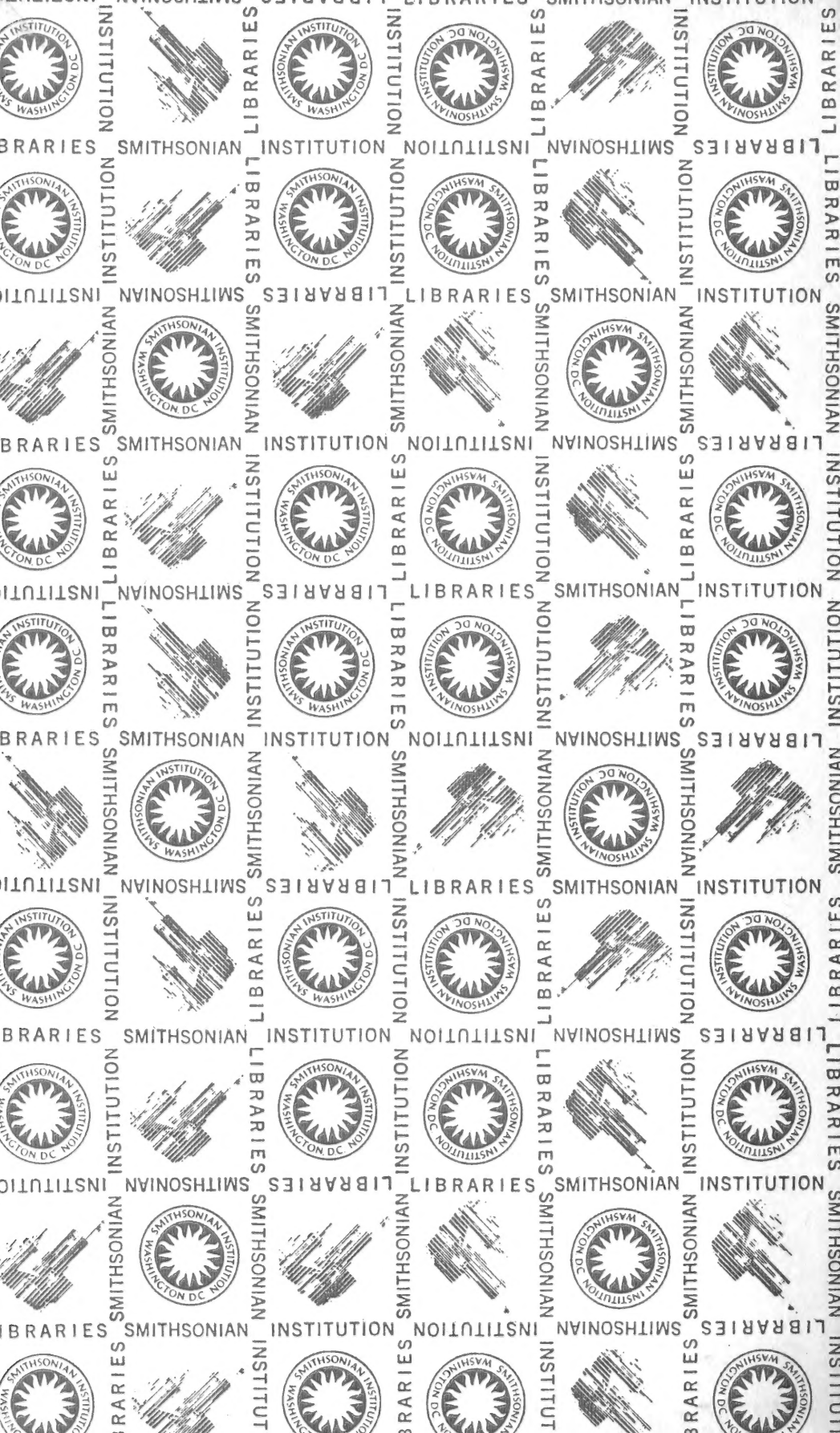
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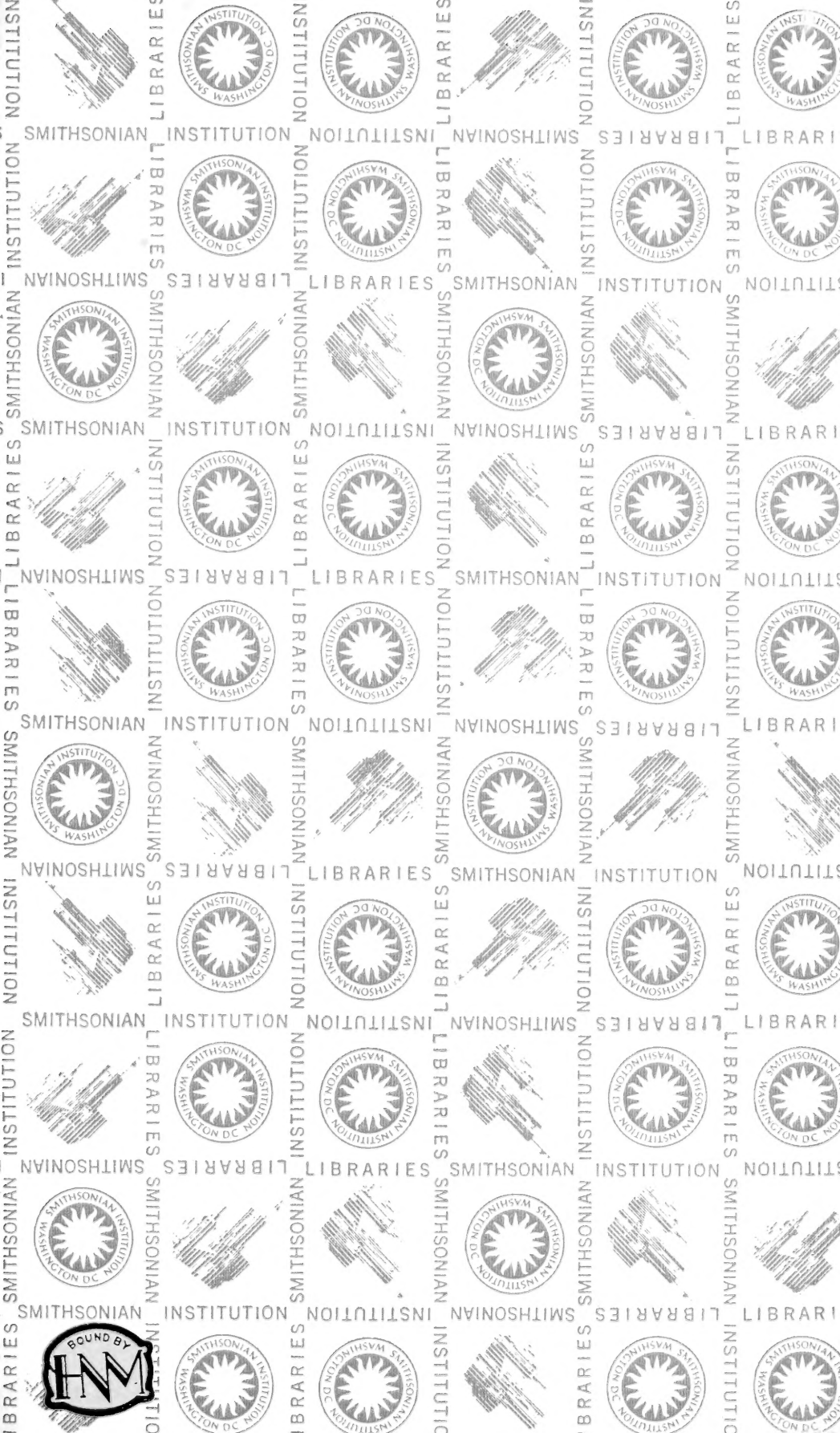
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