

A PRELIMINARY LIST OF THE BIRDS OF SAN JOSÉ, COSTA RICA.

BY GEORGE K. CHERRIE.

THE following list will contain the birds found in the immediate vicinity of the city, and principally only such as I have taken myself and are represented in my own collection or that of the Museo Nacional.

Doubtless many more birds will yet be recorded, especially among the migrants, and even among the resident birds, because at a very little greater distance from the city many varieties are found that are not given in the list. At the most, I think the area covered does not exceed a radius of two miles.

The city of San José is located at 9 degrees 56 minutes North Latitude, and 84 degrees 8 minutes West Longitude, at an altitude of about 1135 metres. On the north the city is bounded by the River Torres, and on the south by the River Maria Alguilar.

The seasons are well marked, the rainy season commencing in the latter part of May and lasting until the latter part of November.

About the city the country is rather level, and there is comparatively little timber or brush wood; this being found along the sides of the river. There is considerable open pasture-land, and the remainder of the ground is occupied almost exclusively by coffee plantations. Many of these coffee plantations have jocote, aguacote, anona, and other fruit trees planted here and there. These fruit trees are very productive of bird life, the absence or presence, the appearance and disappearance of many species depending on the supply of fruit.

Bird life generally is far more abundant during the rainy season than during the dry season. At the end of the latter season vegetation is parched and dry. There are no fruits and insect life is not abundant. The breeding season commences with the awakening into life of the insect world and the bursting forth into fruit and flower at the beginning of the rainy season. This is speaking generally, as I believe some few species may be found nesting every month in the year.

Perhaps the greatest number of varieties are found moulting during July, August and September, but, as in the case of nest-

ing, some are moulting at all times and at all seasons. The North American migrants are usually in good plumage, although young birds in immature plumage seem to predominate in point of numbers.

Quite a variety of the North American species that are tolerably common at the time of their arrival from the north, disappear from the vicinity of the city at the close of the rainy season, and at the time of their departure on their return journey north, are only found at lower altitudes where food of all kinds is more abundant.

Of the 162 species included in the San José fauna 89 are North American. Since the publication of my list of North American birds at San José, Costa Rica (Auk, Vol. VII, p. 331), I have added the following:— *Dendroica cerulea*, *Falco columbarius*, *Urubitinga anthracina*, *Myiodynastes luteiventris*.

The entire fauna is composed of 29 Nearctic species, 60 Neogean; 30 autochthonous (of the 39 autochthonous species, 4 are peculiar to Costa Rica), and 34 Neotropical.

The nomenclature and classification here followed is that of Zéledon's list of Costa Rican birds (Anales del Museo Nacional de Costa Rica, Vol. I, 1887).

The list contains some notes on habits and nidification, and also descriptions of the plumage of young birds.

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1. *Catharus melpomene*. The Central American Thrush-Robin, known here under the native name of 'Ingiicito,' little Englishman, is quite common about the city, but owing to its very shy and retiring disposition, it is known to many by its song only. The song is heard occasionally throughout the entire year, but at its best, and almost continuously during the months of February, March and April.—just before and at the beginning of the breeding season. To pour forth their melody they usually choose a seat at the side of and well toward the top of one of the thick hedge fences surrounding the fields. There, with head thrown well back and wings drooping they will trill for hours, if not disturbed, but at the first approach of danger the singer is gone, —down through the hedge and away on the other side, where in a short time he will be heard as joyously as ever.

After the nesting season has well begun they are less often seen and seldom heard. Often when collecting I have heard a slight rustling of leaves at my side, when if I stopped and stooped down and examined closely the hedge row, I would probably see an 'Ingiicito' perched within a few inches of the ground, sitting perfectly quiet watching me, or it would flit quietly and quickly from that point out of sight, all the time keeping well concealed from view.

They feed I believe entirely on the ground, scratching among the dead leaves for beetles, grubs, etc.

Nesting commences the latter part of April and lasts until the latter part of July, and even as late as August 20 I noted one feeding a young Cowbird (*Calothrus robustus*), — the Cowbird apparently full grown and considerably larger than its foster mother.

I have only had opportunity to examine two nests and sets of eggs, although from the fact that I have secured many young birds just from the nest I am sure they breed quite abundantly. Both sets of eggs were taken April 28, 1889. The first (No. 553, Geo. K. Cherrie Collection) was placed about six feet from the ground, in a coffee tree that stood some 18 feet from the river bank. It was constructed of green moss, evidently taken from some very damp place, a few large twigs, decaying half rotten leaves from the river bottom, and a little soft dry grass. It was lined with rootlets. The nest although not well concealed by leaves was not readily noticeable owing to the green moss used in the construction.

The nest contained two eggs, but one was unfortunately broken. The remaining egg is slightly glossy, pea green in color, speckled all over, very densely at the larger end, with cinnamon. It measured .92 × .67.

The second nest (No. 544, Geo. K. Cherrie Collection) was situated in low bushes on the river bank, about three feet from the ground, admirably hidden by leaves. It is hardly as large as No. 553; there are fewer rotten leaves, less green moss, and more soft dry grass used in the construction. It has the same sort of lining of rootlets.

The eggs, two in number, are ovate in form, ground color pea-green, thickly speckled with spots varying from pale cinnamon to Prout's brown. The eggs measure .92 × .68, and .92 × .68.

The female while sitting on the eggs will allow no one to approach very near before leaving the nest, finally slipping off into the brush and out of sight without uttering a note.

In the 'Biología Central-Americana' the eggs are stated to be "white thickly marked with rufous red," — decidedly different from the eggs I have taken.

Below I will give a description of two young birds brought to the Museum, July 30, 1890, birds evidently just about ready to leave the nest. I endeavored to keep the birds alive but they died the next morning. They may be described as follows: Above dusky dark brown, darkest on the head, where there are no markings, and lightest on the rump where there is a decided cinnamon shading; feathers of back and scapulars with apical, tawny olive shaft streaks; middle and lesser wing-coverts marked the same way, but terminal spots larger; primaries dusky faintly edged with raw umber. Greater coverts and secondaries broadly margined on outer webs with a light mare-brown. Below, throat and upper breast spotted, the tips of the feathers all being dusky, then crossed by a broad buffy whitish band, the bases of all the feathers dusky; sides similar but darker; belly soiled buffy whitish; undertail coverts ochraceous (at this age

reaching to the end of the tail). Eye dark, bill black, yellowish at the cactus only; legs and feet yellowish; front of tarsus and tops of the toes shaded with dusky.

2. *Turdus fuscescens*.

3. *Turdus ustulatus swainsonii*.—No notes have been added on these two species since the publication of the author's list of North American birds at San José. (See Auk, VII, p. . .)

4. *Merula grayi*.—Gray's Thrush, or the 'Vigüirro' of the Costa Ricans, is one of the most abundant resident birds about the city. It breeds abundantly, the nesting season commencing about April 1, and lasting until nearly the middle of August. I have secured young birds from the nest as early as June 1. Two or three broods seem to be reared each season. Just previous to the beginning of and during the early weeks of the nesting season the Vigüirro is in full song. With the exception of this short period it has seemed to me to be rather a quiet bird, although gregarious in its habits. During the rainy season the chief food is the fruit of the species of wild figs (*Ficus*), and while they are frequently found in considerable numbers in these trees they are not noisy, and often my first intimation of their presence has been on hearing their sudden precipitous flight through the leaves and out of the tree. At such times they utter a sharp, rather disagreeable note.

A Mr. Echandi tells me that one he has in a cage frequently sings late at night, especially if disturbed or if the mosquitoes are very troublesome.

At all seasons Gray's Thrush is much sought after as a game bird, consequently they are decidedly shy.

The nest and eggs of this species vary considerably as will be shown by the description of three nests and sets of eggs in the author's collection. No. 1579, San José, June 24, 1890; three slightly incubated eggs. The eggs are a pale glaucous green, speckled and spotted all over with shades of brown between burnt umber and pale chestnut. On the larger end the ground color is almost entirely concealed. The larger spots are almost all irregular in form but present an approach to an ellipse. The eggs are ovate slightly elongated, and measure as follows:—1.22 X .80; 1.20 X .81; and 1.20 X .78.

No. 1580, San José, July 1, 1890; two eggs and nest. The nest was placed in a small tree, about ten feet from the ground. It is composed outwardly of half rotten grass stems and leaves mixed with mud; the lining is rather coarse rootlets. Outside it measures 5.50 by 4.50 by 3 deep; inside 3.25 by 3.75 by 1.75 deep.

The eggs are rather under average size and one is much smaller than the other. The larger is ovate and the smaller short ovate. In the larger incubation had somewhat advanced while the smaller was perfectly fresh. The ground color is glaucous green; the markings consist of small dots of several shades of brown, pale chestnut predominating. The dots are aggregated mostly about the larger end, but the ground color is no where concealed.

No. 1581, San José, June 25, 1890; two eggs and nest. The nest was

about five feet from the ground, in a shrub growing by the river bank, and was constructed externally entirely of rootlets and dry grass stems, only a very little mud being mixed with them. The measurements taken from the nest are: 5.50 by 4.25 deep outside. Inside 3.25 by 3.175 deep.

The two eggs measure 1.12×82 and 1.13×85 . On the last the spots of brown are larger and more scattered, showing more of the pale glaucous green brown. On the first the spots are smaller and thicker, the ground color darker and about the larger end almost completely hidden.

5. *Thryophilus modestus*. — Of the two Wrens found in San José, the 'Chinchirigüí' is by far the most common and decidedly the noisiest, inhabiting the hedge rows where their noisy, suspicious chatter and restless motions are sure to attract the attention of the passer by, although a glimpse will be seen here and there of the bird. The song is loud, clear and piercing. The common name is derived from a supposed imitation of the notes of the song. It is pronounced *chee-che-ree-góe*, with a strong accent on the last syllable. These notes are repeated over and over very rapidly. There seems to be no particular time or place for singing; they are always ready.

The nesting season lasts from early April to late in August. I have taken young birds just from the nest by May 5, and as late as August 25. I have searched diligently for the nest of this species, but thus far have not succeeded in finding one.

Young birds just beginning to fly are intermediate in coloration between adult *T. zelandoi* and *T. modestus*. Above, brownish slate like *zelandoi*, but having a shading of amber brown instead of olive. Below breast and belly white; sides, flanks and crissum ochraceous buff. In the adult bird the eye is chestnut; in the young, slate gray; feet and tarsi plumbeous. As the bird grows older, the ochraceous deepens and extends forward much farther than in the adult bird, even encroaching on the sides of the breast; centre of the breast and belly ochraceous buff.

The parent birds and young remain in company until the young are fully grown. I have frequently come upon these family parties and secured them all. The two old birds will make a great noise and try in every way to attract attention. But the young crouch close to their perch and will scarcely stir even when one is within three or four feet of them, searching for them.

6. *Troglodytes intermedius*. — The Central American House Wren, or 'Zotere' of the natives, while not nearly as common or as noisy as the last is better known, not being so shy, besides having a habit of nesting in small boxes prepared for them in the manner of the common House Wren, *T. aidon*. Its habits in general are very like those of the House Wren, seeming, however, to prefer being close to the ground at all times. The song, however, is not apparently as strong as in that species.

Nesting begins in the latter part of January or early in February, as I have taken young birds fully grown by February 15, and birds just from the nest as late as June 25. While I have not taken any eggs myself I have noted the birds constructing their nests in deserted Woodpecker holes and

other convenient places, usually from three to eight feet from the ground. On June 16, 1889, I observed a pair carrying nesting material into the brain cavity of an ox skull. The skull was in the branches of a small tree about four feet from the ground, the Wren entered at the foramen magnum. At another time I observed a pair nesting in a hole in the ground in the bank of a small creek.

A nest and set of three eggs collected by Señor Don Anastasio Alfaro (No. 30, Museo Nacional, El Arroyo Allejuela, May 20, 1889) was placed in the walls of that gentleman's house. The nest was constructed similarly to a nest of *T. audou.* there being first a great bulk of rather coarse dry twigs; inside of this a lining of soft grass stems and horse hair, finished with soft chicken feathers and three pieces of cast off snake skin. The eggs are short-ovate, pinkish white in color thickly speckled with bright chocolate brown, the speckling thickest near the larger end. The eggs measure $.65 \times .52$; $.65 \times .52$, and $.63 \times .52$. Señor Alfaro states that this bird was employed fifteen days in building the nest and depositing the three eggs. The bird was very confiding and would perch at the mouth of the nest and sing, while he (Alfaro) was standing within a yard of the nest.

A second nest and eggs taken by Señor Alfaro (No. 33, Museo Nacional, Tambor Alejuela, May 20, 1888) contained five eggs, one of which was broken. This nest, like the last, is lined with soft feathers and a few bits of cast off snake skin. Señor Alfaro assures me that he has examined many nests of this species and that all contain bits of snake skin,—rather a peculiar feature.

The eggs are pinkish white, thickly speckled with bright chocolate. In three of them the distribution of the spots is pretty uniform, while in the other they are aggregated in a band about the larger end, so as to conceal the ground color. They are short ovate and measure $.70 \times .54$; $.72 \times .53$; $.68 \times .53$, and $.69 \times .53$.

In a series of 22 examples of this species now before me, representing different ages and seasons, I find considerable variation in color.

Male (No. 37), above reddish brown (sepia), a little brighter on rump and upper tail-coverts, very obscurely banded with darker. Wings and tail dusky, banded with black and the color of the back, the black bands being the narrower. Upper tail-coverts distinctly banded with black. Feathers of the rump with concealed subterminal black bands preceded by a white spot. An obscure line over the eye, lores, and a ring about the eye a brownish buff. Auriculars buff, edged with the color of the back. Below, throat and middle of the belly brownish buff; throat paler. Sides Isabella color; flanks darker, indistinctly barred with dusky; crissum and under tail-coverts buffish white barred with blackish.

Female (No. 351), darker above than the male. The concealed subterminal black bands and white spots on the feathers of the rump are almost obsolete. The light bands on the wing are not nearly as dark as the back. Below similar to the male.

Young birds are much darker. A young male (No. 645, Geo. K. Cherric Collection) is dark bistre brown, wings and tail dusky blackish. The obsolete banding with black on the back is more apparent. The bands on

the upper tail-coverts are entirely obsolete and the brown bands on the wings are much paler than the color of the back. Wing-coverts distinctly banded with black. Concealed markings of rump feathers almost obsolete. Below slightly darker than adult with wavy lines across the throat, breast, and belly, produced by a very narrow terminal band to the feathers. Flanks and crissum dark [sable] color without bands. Female similar.

As the birds grow older the wavy lines below grow fainter. The crissum becomes lighter and is banded with dusky. The dark banding on the wing-coverts grows fainter while that on the upper tail-coverts becomes distinct.

No. 4577 and No. 4579 have the flanks very distinctly barred with dusky, the brown bands on the wings are much paler than the brown of the back, and are but little wider than the black bands. The wing-coverts are distinctly barred.

Below I present a table of measurements of the specimens in the collection of the Museo Nacional, together with four from my own private collection.

MEASUREMENTS OF *T. INTERMEDIUS*.

No. de Mus. Soc.	Collector's No.	Collector.	Locality.	When Collected.	Measurements.					
					Wing.	Tail.	Total Length.	Exposed Culmen.	Bill from Nostril.	Tarsus.
4194		A. Alfaro,	San José,	Nov. 31/87	2.25	1.90	1.40	.49	.37	.74
4491			Naranjo de Cortezo,	June 1/89	1.97	1.60	1.45	.47	.37	.72
4735		G. K. Cherric,	San José,	Feb. 21/89	1.68	1.45	1.40	.49	.37	.68
4739		"	"	Feb. 21/89	1.65	1.52	1.48	.49	.37	.72
4779		A. Alfaro,	Alajuela,	July 8/89	2.11	1.73	1.51	.51	.37	.71
4851		"	"	July 25/89	2.03	1.73	1.48	.51	.39	.73
4951		"	"	July 21/89	1.94	1.62	1.44	.52	.40	.70
4951		"	"	July 21/89	1.98	1.68	1.48	.51	.41	.70
4275	544	C. P. Underwood,	San José,	Dec. 14/89	1.87	1.52	1.51	.50	.38	.65
4576	534	"	"	Dec. 4/89	2.00	1.55	1.55	.50	.41	.70
4577	528	"	"	Dec. 21/89	2.13	1.71	1.55	.51	.40	.72
4578	685	"	Juan Vinas,	May 4/90	1.96	1.75	1.49	.41	.34	.68
4579	664	"	"	May 1/90	2.08	1.77	1.43	.50	.41	.71
4580	695	"	"	May 1/90	1.95	1.59	1.41	.50	.38	.69
4581	684	"	"	May 3/90	2.00	1.70	1.45	.48	.40	.74
4931		A. Alfaro,	Matucán,	Oct. 1/89	1.99	1.43	1.40	.50	.36	.68
4921		"	San José,	June 15/90	2.00	1.73	1.47	.49	.38	.69
5188		G. K. Cherric,	"	Sept. 10/90	1.92	1.69	1.50	.49	.38	.72
	645	"	"	June 7/89	1.92	1.48	1.40	.44	.32	.71
	668	"	"	June 11/89	1.88	1.73	1.48	.43	.32	.70
	727	"	La Sabana,							
			Alajuela,	July 15/89	1.99	1.62	1.47	.50	.40	.72
			San José,	Aug. 3/89	1.94	1.65	1.45	.50	.37	.70

7. *Mniotilta varia*.—The first arrival this year was a young male on August 20, the same date as the first arrival in 1882; the second was noted September 3.

In a series of 25 Black-and-white Warblers before me, almost all are birds of the year. There is not one in fully adult plumage and many are decidedly buffy on crissum and sides.

8. *Protonotaria citrea*.—No fall migrants were noted.

9. *Helminthophila peregrina*.—Recorded the first this fall, October 20. In a series of 15 Tennessee Warblers, taken from the beginning of September to the beginning of March, there is not one that is not more or less strongly tinged with greenish yellow, very different from the breeding bird found in the United States.

10. *Helminthophila chrysoptera*.—The first noted this year, a female, taken October 2, is a rather abnormal bird, being as brightly colored as any spring male. Birds taken here have usually more or less olive green shading on the back.

11. *Helmintherus vermivorus*.—November 23, 1889, I took a fine male specimen, the first and only Worm-eating Warbler I have taken in Costa Rica.

12. *Dendroica virens*.—The Black-throated Green Warbler, may, I think, be considered as rather a rare bird in Costa Rica, there being only three Costa Rican examples in the Museo Nacional. These three, although the sex is not indicated on the labels, are evidently females, having the throat yellow and the black of the breast with whitish tips to the feathers. I have not myself met with this bird.

13. *Dendroica coronata*.—There are only two Yellow-rumped Warblers in the Museum collection. A male taken Feb. 15, 1889, is similar to an adult female from the vicinity of Washington, D. C., but has a triangular ashy blue patch with black streaks in the centre of the back. There are a few black feathers in the nuchals, and a few scattered in the sides of the crown. Below the yellow of the sides of the breast is very pale. The white throat is tinged with light buffy brownish. There are only a few black feathers in the breast (these are tipped with white), and a few with black shaft streaks.

14. *Dendroica Blackburnia*.—First arrivals were noted August 17, 1889, and the second August 20, from which time they were common until the first of October, when they were very abundant and remained so until the 7th, when all disappeared. The first arrivals were nearly a month earlier than in the fall of 1889.

In a series of 30 Blackburnian Warblers taken chiefly in the vicinity of San José there is not one in adult plumage. Perhaps the brightest bird in the collection is a female, taken by the author October 3, 1890, with throat and breast rich cadmium orange, but the white wing-patch is replaced by the two wing-bars of the young bird, and there is considerable grayish brown in the upper plumage. While there are a few males and females like the one described above, the bulk are very much paler, ranging from the bright cadmium orange to a pale yellowish buff on the throat and the breast, with the crown patch almost obsolete, the back and streaks on the sides dusky brownish.

15. *Dendroica pennsylvanica*.—In a series of 40 Chestnut-sided War-

blers now before me, 11 show the chestnut stripe on the sides; in 6 of these, however, it is only faintly indicated. One of the 40 has the yellow crown of the adult; all have the wing-bands strongly tinged with sulphur yellow, and almost all are bright olive green above.

The first arrival for the fall of 1890 was September 21.

16. *Dendroica aestiva*.—I have before me 32 males and 15 female Yellow Warblers, including specimens from both the Atlantic and Pacific sides of the country, but the majority are from the vicinity of San José. I believe all are true *aestiva*, although the difference between birds from the extremes of the series is very great. Eight of the 32 males have the chest and sides more or less streaked with chestnut. From a bird thickly marked with rather broad reddish chestnut streaks there is a gradual variation, the streaks becoming fewer, narrower, and lighter until just discernible. The yellow of the under parts also grows appreciably paler; only 4 of the 18 show faint chestnut streaking on the back. Above yellowish olive green; some of those that are brighter colored below have the crown more or less ochraceous orange, but this color gradually darkens into the yellowish olive green of the back. In the remaining 14 males, those in which the chestnut streaks are almost entirely obsolete, the yellow of the underparts grows fainter and varies from gamboge yellow to clear straw yellow. Above there is no sign of streaks and the yellowish color gradually disappears giving place to dusky grayish, until the last which I would describe as dusky grayish olive green.

The 15 female examples show the same variations as noted in the males, only the brightest female is not as bright as the brightest male, and at the other end of the series they are duller above and somewhat paler below.

The first arrivals the present year were noted August 24

(To be continued.)

THE SCOTERS (*OIDEZIA AMERICANA*, *O. DEGLANDI* AND *O. PERSPICILLATA*) IN NEW ENGLAND.

BY GEORGE H. MACKAY.

My experience on the coast of New England has shown that observations covering a series of years are necessary in order to arrive at any important conclusions respecting the habits and movements of the water birds during their passage along this

Sept. 23.—I saw three more, but think they were the ones seen yesterday.

Sept. 29. I saw and shot two.

Oct. 2.—I saw two and shot them.

All these late birds, I think, had been living on the Island of Nantucket since the Sept. 11 landing. The summer of 1889 has been unusually wet and very cool.

1890.—Some fifteen Eskimo Curlew are reported to have been seen this season: none have been killed to my knowledge; I have not seen any. Some birds passed Tuckerneck and Nantucket on Sept. 18, a few of which remained over night; all gone next day.

1891. Aug. 20.—Thirteen were seen, they remained during the next day and then departed.

Sept. 1. I saw one.

Sept. 7.—Three birds shot on Tuckerneck Island.

Sept. 13.—Two seen, one shot.

Sept. 15.—Two shot from a flock of Hudsonian Curlew.

Sept. 17. Flock of thirteen seen. Up to Oct. 1 the birds above enumerated as being shot or seen compose the entire number killed or noted on the Islands of Nantucket and Tuckerneck for this year.

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BY GEORGE K. CHERRILL.

(Continued from Vol. VIII, p. 279.)

17. *Deodroica cærulea*. I have seen the Cerulean Warbler only four times in Costa Rica. The first was a young male taken Aug. 24, 1890, in company with a lot of *D. aestiva* and *D. blackburnii*. The other three were also young birds and were taken as follows: male Sept. 12, female Oct. 7, and female Oct. 24, 1890.

18. *Deodroica dominica*. Oct. 4, 1890, I saw a handsome male in the central park. It is the only example I have seen in Costa Rica.

19. *Seiurus noveboracensis*. A series of twenty examples were taken between the middle of September and the last of May.

20. *Seiurus aurocapillus*.—I have taken but one at San José, and only three in Costa Rica.

21. *Seiurus motacilla*. Rare.

22. *Oporornis formosa*. I took a single female Oct. 7, 1890.

23. *Geothlypis trichas*.—In three years' collecting only five have been taken. These evidently belong to the eastern North American form.

24. *Geothlypis philadelphia*.—Not uncommon from the middle of September until the first of April.
25. *Geothlypis naccillivrayi*. There are only three specimens in the Museum collection.
26. *Geothlypis caninucha icterotis*.—Abundant resident about San José. Breeding commences the latter part of May. See further Proc. U. S. Nat. Mus., Vol. XIV, p. 326.
27. *Icteria virens*. All specimens taken are in fully adult plumage.
28. *Sylvania pusilla pileolata*.—Adult and young birds are taken in about equal proportions.
29. *Sylvania canadensis*. Of fourteen specimens collected about the city only one proved to be a male; that one was in immature plumage. The females also are duller than spring examples from the North.
30. *Basileuterus delatrei*.—One of the most abundant resident birds in the vicinity of San José. Breeding commences the last of May. I think only one brood is reared each year. A nest brought with two fresh eggs and the dead female to the Museum, June 6, 1890, is constructed of dry grass and fine rootlets, lined with horse hairs. Outside it measures 2.50 inches deep by 4.50 in. diameter, inside 2.10 deep by 1.87 diameter. It was placed on the ground at the foot of a tree in a large coffee plantation. The eggs are white, thickly speckled, especially about the larger end, with cinnamon-rufous. They are oval in shape, and measure .75 × .57 and .77 × .55 inch.
31. *Setophaga ruticilla*.—Males in adult plumage are seldom seen about the city. At lower altitudes adults seem quite as common as young.
32. *Progne chalybea*.—A resident species about San José, but most abundant during the breeding season from May to the last of July. A favorite nesting site is in the hoods of the arc electric street lamps. The young do not differ from the adult bird except in having softer plumage.
33. *Chelidon erythrogaster*.—Abundant from September until March. Birds in perfect plumage are rarely seen. In 1890 the first arrivals were noted Aug. 27.
34. *Atticora cyanoleuca montana*.—A common resident. Breeds in the roofs of the houses. The young birds begin appearing about the first of July. They differ from the adult in being washed with pinkish-buff below, including the under tail-coverts, while above the metallic lustre of the feathers is not so bright. In some examples the throat and belly are white and the breast is crossed by a buff band.
- The male of a pair that had their nest in the roof of the Museum was accidentally killed before the eggs hatched. The female did not desert her post, and when the eggs were hatched attended to the wants of the young alone.
35. *Stelgidopteryx serripennis*.—Common resident. Breeds abundantly.
36. *Vireo olivaceus*.—Not at all common anywhere or at any time in Costa Rica.
37. *Vireo flavoviridis*. I cannot add anything to my notes on this species published in this journal, Vol. VII, p. 329.

38. *Vireo philadelphicus*.—The earliest arrival I have noted was on Oct. 21, 1890.

39. *Vireo flavifrons*.—The first arrival in 1890 was noted on Oct. 4. This and the preceding species are rare birds about San José.

40. *Cyclorhis flavipectus subflavescens*.—Common. A sweet and tireless singer for about five months in the year, from February to July, during the breeding season, usually concealing itself amid the dense foliage at the top and middle of the low trees bordering the fields, where, out of sight of prying eyes, it pours forth melody loud and clear.

41. *Arborelhina cyanea*.

42. *Arborelhina lucida*. These two species of Blue Creepers are only transient visitors in the neighborhood of San José, appearing only in September and lingering until December. They are most abundant during October, feeding together in small flocks in the 'jocote' trees, (*Spondias edulis*). It is only during the time this plumlike fruit is ripening that the birds are found.

The males of the two species are known under the name 'Rey de Picudos', while the females are only 'Picudos'.

43. *Euphonia*.—Although I have only taken five of the ten Costa Rican species of *Euphonia* in the vicinity of San José, three of the other forms are frequently to be seen for sale in the market, and I have thought it might not be out of place to present not only a list of all the Costa Rican species but also a key by which the different species may be known. Below is the key and following it are my notes on the different species. I might here add that I have never seen examples of either *E. guthriei* or *E. laniventeris*.

Key to the Species of Euphonia found in Costa Rica.

- a. Size relatively small, wing not more than 2.25 inches, usually less.
- b. Outer tail-feathers only faintly (if at all) marked with white on inner webs, and under tail-coverts not whitish.
- c. Crissum chestnut. *gouldi*.
- c'. Crissum yellowish. *luticapilla*.
- b'. Outer tail-feathers distinctly marked with white on inner webs, or under tail-coverts whitish.
- c. Middle of belly and crissum white or whitish. *minuta*.
- c'. Middle of belly and crissum yellow or yellowish. *affinis*.
- a'. Size relatively large, wing more than 2.25 inches.
- b. Crissum and under tail-coverts grayish or white with darker base. *anna*.
- b'. Under tail-coverts not grayish or white.
- c. Middle of belly white and outer tail-feathers marked with white on inner webs (occupying the terminal third in adult males, sometimes rather faintly indicated in females or young).

- d.* Bill moderate. *hirundinacea.*
d. Bill much thickened. *gutho.*
e. Middle of belly not white, and outer tail-feathers not always with white marks on the inner webs (never present in *elegantissima* or females of other species?).
d. Adult birds with crown blue and forehead chestnut; *young* without obvious chestnut on forehead and only faint indications of blue on crown. *elegantissima.*
d. Crown not blue.
e. Males with shining blue-black throat. Females, forehead chestnut and middle of belly tawny ochraceous. *gracilis.*
e. Males, throat and entire under parts yellow. Females without tawny ochraceous on belly or chestnut forehead. *lanirostris.*

43. *Euphonia elegantissima.*—In the immediate vicinity of San José I have taken only a single example, but a short distance out they are a not uncommon resident.

An abnormally colored adult female in the Museum collection has the upper parts and sides of head dusky greenish olive-gray; the top of head, forehead, chin and throat are normal, the rest of the lower parts are bluish gray, whitish in middle of belly.

Euphonia affinis.—I have never taken examples here in the wild state, but they are frequently brought to the San José market.

Euphonia annae.—Not taken at San José, but frequently seen in cages.

44. *Euphonia luteicapilla.*—A rather rare bird about San José.

Young males are indistinguishable from the females. As the bird grows older the characters of the male begin to show themselves in black in the loreal region and a yellowish shading on the forehead and sides of the crown. Then a few scattering black feathers appear in the throat, and lastly the breast begins to assume an orange tint. Fully adult plumage is not attained, I think, until the second year.

45. *Euphonia gracilis.*—I took an adult male Dec. 30, 1890. The bird was in full song, and the plumage showed no signs of having been in a cage. However, the home of this species is on the southwest Pacific coast. For further observations on this species see Proc. U. S. Nat. Mus., Vol. XIV, p. 530.

46. *Euphonia hirundinacea.*—A rare bird about San José, but of rather wide distribution in the country, chiefly on the Pacific side from the coast to an altitude of about 7000 feet. They are frequently seen in cages at San José. Young males resemble females. The transition to adult plumage seems to be accomplished very slowly.

Sr. Don Anastasio Alfaro who has had frequent opportunities for observing the nesting of this bird gives me the following interesting note. The nest is constructed in a hole in the ground, frequently the bank of some stream or by the roadside where the grading of the road has left

banks suitable for the excavations which are always some distance from any habitation, the bird being quite shy. Señor Alfaro is not entirely sure whether the *Euphonia* makes its own excavations or uses deserted holes of the Rough-winged Swallow (*Melospiza serripennis*). The hole ordinarily is about a foot in depth. The nest proper consists of a few small twigs lined with soft dry grass. The eggs are ovate in form; white, thickly speckled in a ring about the larger end with light walnut brown and over this some larger spots of seal brown. In two of the five eggs before me, collected May 4, 1888, the walnut-brown color covers uniformly the entire larger end of the eggs and there are seal-brown spots above this. In two of the remaining three eggs there is a distinct band about the larger end. In the last egg the band is broken, the white ground color being quite apparent. The five eggs measure as follows: .69X.59; .70X.48; .71X.51; .72X.50 and .73X.51 inch.

47. *Euphonia minuta*.—Not uncommon about San José, especially during the latter part of the rainy season from September until November.

48. *Tanagra cana*.—A very abundant resident. Gregarious. Feeding chiefly on fruits. Usually a rather silent bird, and if it has any song I have never heard it. Breeds abundantly, but while I have taken many young I have not been fortunate enough to secure a set of eggs. The young differ from the adult only in softer, duller plumage.

49. *Piranga leucoptera*.—A rare resident species.

50. *Piranga rubra*.—Met with sparingly from the beginning of October first noted in the fall of 1890 on Oct. 7 until about January 16; this is about San José. Down near the coasts they are not uncommon until as late as the second week in March.

In a series of forty-three birds there are only seven males in adult plumage; the remainder are females and young males, many of the latter in mixed plumage.

51. *Piranga bidentata*.—A resident, but not common. Young males resemble the adult female, and I am inclined to think that the adult male plumage is not assumed until the beginning of the second year. Birds in mixed plumage are taken only in the spring during the breeding season, while young males in the dress of the female are met with for fully nine months of the year.

52. *Buarremon gutturalis*.—Resident, but except at the beginning of the breeding season (the first of May) very shy and retiring in its habits. Feeding chiefly on the ground, at the first approach of danger they dart into the hedgerows at the sides of the lanes and are out of sight. If the bird has any song I do not remember having heard it.

This species breeds abundantly about San José. It is often compelled to act as foster parent to the Bronzed Cowbird (*Colothrus robustus*), its nests seeming to be especially attractive to this bird. The first nest I found of this species was on May 12, 1889. On that date it contained three eggs. On the 17th there were four eggs in the nest and one on the outer rim, the last two eggs being those of the Cowbird. The eggs of *B. gutturalis* are ovate in form; before being blown they appeared perfectly

white; after the contents were removed they had a very pale bluish shade. The eggs of the Cowbird are larger and much darker, varying between pale blue and pea-green. Incubation in the eggs of *B. gutturalis* was far advanced, one of the eggs being broken in removing the contents. The two remaining eggs measure .67 X .90 and .64 X .88 inch. The Cowbird eggs were perfectly fresh; they measured .75 X .94 and .73 X .86. The larger is ovate in form, and the smaller rounded ovate. The nest was placed in an upright fork of a small coffee tree, about seven feet from the ground, and was not well concealed. Outwardly it is constructed of coarse, dry grass stems, and it is lined with a little soft, fine, dry grass. It measures: outside diameter 4.75, depth 2.50 inches; inside diameter 2.50, depth 1.75 inches. I almost placed my hand on the female before she left the nest. She made no fuss, flying quietly into the low bushes near by and disappearing.

A second nest was taken June 2, 1889, containing five eggs, three of the Cowbird. The eggs of *B. gutturalis* were fresh; one of the Cowbird eggs was much incubated, the other two fresh. The *B. gutturalis* eggs measure .90 X .65 and .91 X .65; one is marked with a few small specks of chestnut. The nest measures 2.75 inches in inside diameter by 1.75 in depth; outside diameter, 7.00 X 5.00, depth 4.00 inches. It is rather large and bulky and was built in the tops of some bushes where it was not well supported. The outside consists of rough dry grass stems; within this are smaller plant fibres and grass blades and a lining of very fine, dry grass and horse-hairs.

A third nest, taken June 11, 1889, contained three fresh eggs. The nest was rather peculiarly situated, being placed about four feet from the ground, against the trunk of a large tree, in the hollow formed by the branching of a parasitic plant that clung to the bark, and was most excellently concealed by leaves, and by far the neatest and most compact nest of the species I have seen. The three eggs measure .67 X .91, .65 X .89, and .66 X .90 inch. A week before, in the bushes only a few feet from this nest, I took an abandoned nest containing one Cowbird's egg.

I took the last nest in 1889 on June 26. It contained two eggs of *B. gutturalis* and one of the Cowbird; all were fresh. The eggs of *B. gutturalis*, as usual, were white before being blown, and a very pale bluish after the contents had been removed. The eggs are ovate, measuring .93 X .68 and .96 X .68 inch. The Cowbird's egg measures .93 X .73 inch, and in shape is a short ovate. The nest is roughly constructed, the materials used being much coarser than usual. Measurements: outside diameters 5.50 X 6.00, depth 2.75 inches; inside diameter 2.38, depth 1.50 inches. The bird was not once seen nor heard. June 22 I shot a female with a half-formed egg in the oviduct. After this date all the specimens I secured indicated, by the ovaries, that the nesting season was passed. At this same time the birds became very shy, usually keeping themselves hidden in the low, tangled hedges.

Young birds have a slightly olive shading on the back. The white crown stripe is only indicated by a few grayish white feathers. The throat

is a paler yellow than in the adult. The breast and abdomen are washed with yellowish olive, and the feathers of the breast have dusky blackish shaft-lines.

53. *Saltator magnoides*.—This bird is widely distributed throughout Costa Rica; it is found on both coasts and up to an elevation of 6000 feet. It is resident at San José, where for about five months in the year it is one of the most pleasing songsters of the early morning. Young birds are not as bright olive above as the adult; the superciliary stripe is only faintly indicated and of a pale yellowish color. There is a narrow ashy whitish stripe on chin and upper throat; the sides of throat and breast are dusky blackish. The cinereous of the belly is variegated with blackish and on the crissum the feathers are faintly barred with pale yellowish olive and dusky.

54. *Saltator grandis*.—This is much more abundant about San José than the preceding species, but is not found at as low an altitude. In the series of forty specimens in the museum collection none were taken lower than 3000 feet, and none above 7000 feet. As is the case with its congener, *S. grandis* has a loud, clear, and very pleasing song that is to be heard almost every morning for half the year. Both the male and female sing.

The nesting season commences about the first of May, for I have taken fully fledged young by the middle of June. A nest taken May 10, 1889, was placed about twelve feet from the ground between some upright forks of a small tree at the side of a lane. It was rather loosely constructed of dry grass and other plant stems. The outside was quite tough in appearance with many straggling pieces. The nest measures inside: diameter 2.75, depth 1.75 inches; outside diameter 6.00, depth 4.00 inches. The nest contained two slightly incubated eggs. They are light Nile-blue in color, marked, chiefly in a ring about the larger end, with spots and irregular lines and scratches of black. The eggs measure 1.97×.75 and 1.64×.75 inch. The female, as soon as one approached the nest, would glide quietly away, and not return until all danger had passed. I did not once see the male near the nest.

Young birds are rich olive-green above. The superciliary stripe, spot on lower eyelid, bend of wing and under wing-coverts are pale yellow; chin and throat pale yellowish white; upper breast and sides olive-green; lower part of breast and belly olive, much suffused with buffy; crissum and under tail-coverts as in the adult.

55. *Habia ludoviciana*.—Rare. I have never seen a specimen taken here in the plumage of the adult male.

56. *Sporophila moreleti*. Common resident. This species, I believe, is never found on the Atlantic side of the mountains, but on the Pacific side down to the coast. Although it breeds abundantly about San José I have not found either the nest or eggs. This species is prized very highly as a cage bird, the song being low and sweet, and not without variations.

57. *Volatinia splendens*.—Common resident. Not found on the Atlantic side of the mountainous interior.

(To be continued.)

The first extensive wanderings of the Evening Grosbeaks, as far as we know, appear to have occurred in 1871, when they extended south into Illinois and east into Ontario. In 1879 they were found in localities as far apart as Charles City, Iowa, and Grand Rapids, Michigan. In the winter of 1886-87 they were reported from Nebraska, Iowa, Illinois, Kentucky, Indiana, Michigan, Wisconsin, New York, and Ontario. That year they appear to have been most common in the States of Iowa, Indiana and Illinois, and the area of eastern North America covered was the greatest known up to that time, but this was very much exceeded by the wide distribution of the species in the winter of 1889-90, when, although they do not appear to have been as numerous in some localities as in the last preceding dispersal, they reached nearly to the Atlantic coast at several localities. It will be noted, however, that we lack information concerning their movements that winter west of the Mississippi. Now that the number of observers is sufficient to note the movements of these birds with reasonable accuracy, it seems probable that much more may be learned of their winter range. In conclusion I beg to express my appreciation of the kindness of Dr. C. Hart Merriam, in affording me valuable assistance in preparing this paper.

A PRELIMINARY LIST OF THE BIRDS OF SAN JOSÉ, COSTA RICA.

BY GEORGE R. CHERRIE.

(Continued from p. 27.)

58. *Euethia pusilla*.—Common resident. Found on both Atlantic and Pacific sides of the Cordillera, but not lower than 2000 feet altitude. The preceding and the present species are frequently kept in cages; the song is short, without variation, yet rather pleasant.

59. *Passerina cyanea*.—Rarely met with about San José, and then only immature birds during the months of October and November. Adult birds are tolerably common in the low country on both coasts until as late as the twentieth of March.

65. *Zonotrichia capensis costaricensis*.^{*} Annual or resident. Four or five broods are reared each year. The breeding season commences early in April and continues until the last of August. Ordinarily the nest is placed on or near the ground, in some low bush or shrub. Much individual taste is displayed in the locality selected and in the materials used in construction. Often one may find a nest at the very doorway of his house in the middle of the city, or again in the fields far from any habitation, while his owner is equally happy in either place and always full of song. Of the half dozen nests before me, the three that were built in bushes, from one to three feet above the ground, are quite bulky, constructed outwardly of dry grass stems and rootlets, inwardly of fine soft grass. Two of the nests have a scanty lining of horse-hairs, while the third is well lined with soft, white, chicken feathers. The nests that were built on the ground are much more compactly built, there is less of the rough, bulky exterior, while the layer of soft, fine grass is much thicker. Two of the nests are without the lining of horse-hairs or feathers. One is lined with green feathers of the Yellow-headed Parrot (*Toucana acropalliatay*). The average inside measurements are 1.50 inches in depth by 2.00 in diameter. A nest taken in San José, June 30, 1890, presents some peculiarities, the owner having appropriated to itself the old nest of a *Merula grayi*, only adding a lining of soft, dry grass, and this chiefly at the upper edge so as to contract the rim, and then an inner lining of a few horse-hairs. It measures 2.25 inches in diameter by 2.00 deep. The nest of the Thrush had measured 4 inches in diameter inside. The outside measurements of the entire nest are 6.50 inches in diameter by 3.00 deep. When first taken the structure was very pretty, being completely covered with bright green moss.

The eggs are a rather pale greenish green, speckled with walnut brown, the spots thickest about the larger end. Some eggs are blotched with walnut brown in a band about the larger end; such have very few specks about the smaller end. The average measurements of a dozen eggs are .77 X .34 inch.

This Sparrow is found abundantly up to an elevation of about 7000 feet and down to within a thousand feet of the coast level. It is distinctly a bird of the open country.

66. *Spiza americana*.—Rare about San José. Arrives about Sept. 27, and is not seen after April 20. Birds in young plumage greatly predominate.

67. *Pyrgisoma cubanisi*.—Common resident, frequenting the hedgerows in the outskirts of the city. It is seldom seen far from the ground, usually scratching about among the dry leaves. Several broods are reared each year. Young birds just able to fly are taken as early as June 6, and as late as November 10. A nest of this species taken June 5, 1889, was found on the ground in a slight hollow at the foot of a few stalks of sugar cane. It was composed chiefly of dead and rotting grass stems.

* Also, Bull. A. M. N. H., Vol. III, p. 374.

lined with fine rootlets and a few horse-hairs. It measures inside 2.75 inches in diameter by 1.50 in depth. The nest contained two fresh eggs, white with a faint bluish tinge, thinly speckled with cinnamon except at the larger end where the spots are more of a chestnut, larger, and crowded together, forming a distinct band. The eggs are elliptical ovate and measure .91 X .64 and .90 X .66 inch.

Young birds differ decidedly from the adult, and may be described as follows: (♂ juv., no. 4977, M. N. de C. R., San José, June 6, 1890, Geo. K. Cherric). Above, bistre brown with olive shading; less olive and deeper brown on crown and occiput; most of the feathers with a blackish bar across the tip, giving the back a somewhat mottled appearance. Wing-coverts olive brown, the greater series tipped with tawny olive, forming a distinct band. Remiges dusky. Forehead and auriculars black. Cheeks and loreal region whitish, mottled with dusky. Throat whitish, faintly speckled with dusky tips to the feathers. Breast and sides dusky wood-brown, becoming paler and more buffy on belly and crissum. Breast and belly with distinct dusky stripes. The adult plumage is attained by the first moult, which goes on comparatively slowly, requiring about three months for its completion. The plumage of the young has almost entirely disappeared below, before the moult commences on the back.

I have not noted the species below an altitude of 2800 feet, nor above 3000 feet.

63. *Pyrgisoma leucotis*.—Rare about San José, but common enough at a slightly lower altitude. Its habits are similar to those of *P. cabanisi*. The nest and eggs I have not met with, but several broods of young are reared each year, birds just from the nest being found from June until November. I think birds do not attain the completely adult plumage until the second year, differing, however, only in having a dusky olive brown head, instead of black, and the upper back more ashy. Young birds are very much browner above and are faintly mottled with blackish tips to many of the feathers. The throat is blackish, breast dusky olive mottled with dusky, belly olive yellowish, crissum and flanks rufous.

64. *Spinus mexicanus*.—Tolerably common resident.

65. *Eucorystes wagleri*.—Scidom met with about San José. I think that only one brood of young is reared each year. Young birds are uniform black above with a slight gloss, rump brownish. The crown and occiput and sides of head are like the back, but there is a broad pale yellowish supraloral stripe extending to just back of the eye; in some examples the yellowish color meets in a band across the forehead. Throat, breast, belly and thighs dusky blackish with faint brownish shade; crissum tawny.

66. *Amblycercus holosericeus*.—Not common in the vicinity of the city. Common on both the Atlantic and Pacific slopes down as far as the coast, and I have taken examples at an altitude of over 6000 feet. The young do not differ from the adult.

67. *Icterus spurius*.—Migrants arrive as early as July 31, and linger until as late as March 12. Birds in young plumage predominate.

68. *Icterus galbula*.—Not nearly as common as the preceding species, appearing much later in the season, not having been noted earlier than October 5. In the spring I have seen birds as late as March 16.

69. *Callothrus robustus*.—Common resident, but much more abundant during the dry season. Are gregarious, associating in large flocks. For description of the eggs see page 26 of the present volume.

70. *Sturnella magna mexicana*.—Common resident.

71. *Psittorhinus mexicanus*.—Common resident. Somewhat gregarious. The plumage of the young does not differ from that of the adult. Only one brood is reared each year. As far as my observations have gone they are not found below an altitude of 2500 feet nor above 4500.

72. *Xiphorhynchus pusillus*.—Accidental visitor in the vicinity of San José. A single specimen was taken August 26, 1891.

73. *Thamnophilus doliatus*.—I shot a single straggler from the coast region November 23, 1890. Found only on the Pacific side of the country.

74. *Sayornis aquatica*.—Tolerably common resident. I have not seen either nest or eggs, but breeding evidently commences early in February. A female taken February 16, 1890, had the oviduct enlarged.

75. *Todirostrum cinereum*.—Tolerably common resident. For notes on the nidification see this journal, Vol. VIII, p. 233.

76. *Tyranniscus parvus*.—Oct. 13, 1889, a single female was taken near the city, — the only example I have seen at this altitude.

77. *Elainea pagana subpagana*. Abundant resident. I have already described the nesting habits of this species (see this journal, Vol. VIII, p. 235).

78. *Legatus albicollis*.—Rare. Two specimens have been taken in the vicinity of San José, both males, the first, July 29, 1889, and the second June 7, 1891. Dr. Don Francisco Castro secured a female and two young at San Sebastian a few miles south of San José. They were taken July 14, 1891. The young birds are darker above than the adult. The crown is almost black and without indication of the concealed spot of sulphur yellow. The superciliary stripe and band across the nape are much broader and tinged with buff. The greater and median coverts are rather broadly tipped with vinaceous cinnamon, the lesser coverts, feathers of the rump, upper tail-coverts, and rectrices (except the outer pair) are edged and tipped with brown, more of a chestnut hue. Below, much paler, straw yellow, and with the dusky striations confined to the breast; sides and flanks almost immaculate.

79. *Myiozetetes texensis*.—Tolerably common. For notes on nesting habits see this journal, Vol. VIII, p. 235. Young birds do not differ from the adults.

80. *Pitangus derbianus*.—Rare about San José.

81. *Myiodynastes luteiventris*.—Rare visitor in the neighborhood of San José.

82. *Myiodynastes aodax*.—Rare resident.

83. *Megarhynchus pitangua*.—Tolerably common. Somewhat gregarious, or perhaps it is only the members of single families that appear to remain together for some months after the end of the breeding season. Señor Alfaro secured a nest at Abijuela, May 18, 1888. Incubation was far advanced. The eggs are white, blotched and speckled with sea brown; only two were found with the nest; they measure $.91 \times .72$ and $1.05 \times .76$ inch. The nest is very roughly constructed of strips from banana leaves, a few twigs, and plant fibres, without any lining.

84. *Empidonax flaviventris*.—Somewhat rare at San José and only noted during the months of September and October. The earliest arrival Sept. 3, and the latest record Oct. 27. Tolerably common lower down on both coasts where it is found until as late as May 13.

85. *Empidonax acadicus*.—Tolerably common from about September 17 until May 11. They are found on both coasts and up to an altitude of about 6000 feet.

86. *Contopus virens*.—Tolerably common from about August 20 until April 29.

87. *Contopus richardsoni*.—Typical examples arrive later and disappear earlier than birds of the preceding species.

88. *Contopus borealis*.—Never common, but seen occasionally from October 2 until May 7.

89. *Contopus brachytarsus*.—A rare bird in Costa Rica. There are only three examples in the collection of the Museo Nacional; two were taken at San José, one October 2 and the other August 27.

90. *Myiarchus crinitus*.—Very rare transient visitor at San José, but fairly common on both coasts during the winter season in the north.

91. *Myiarchus lawrencei nigricapillus*.—Common resident.

92. *Tyrannus melancholicus satrapa*.—Abundant resident. Breeding commences the latter part of June and continues throughout August. Young birds resemble the adults, lacking only the concealed crown patch.

93. *Milvulus tyrannus*.—Resident, but much more abundant at some seasons than at others;—that is, immediately after the breeding season (from the latter part of April until the first of July) they become quite common about the suburbs of the city, and remain so until the middle of December.

(To be continued.)

A PRELIMINARY LIST OF THE BIRDS OF SAN JOSÉ, COSTA RICA.

BY GEORGE K. CHERRIE.

(Continued from p. 251.)

94. *Milvulus tyrannus*.—At a slightly lower altitude it nests abundantly. A nest with three fresh eggs taken by Don Anastasio Alfaro at Tachon, Abajuela, May 2, 1884, was placed in a small tree, about ten feet from the ground. The parent bird left the nest only very reluctantly and not until almost within the grasp of the collector. The nest is constructed of a mixture of small dry grass and weed stems and soft dry grass rather compactly woven together, with a lining of a few fine rootlets. It measures outside 3 inches in diameter by 2½ deep, inside 2½ in diameter by 2½ deep. The eggs are white, sparsely spotted and blotched, chiefly about the larger end, with chestnut of slightly varying shades. In form the eggs are ovate, and they measure .66 × .88, .65 × .88, and .63 × .83 inch.

95. *Tityra personata*.—From time to time found about San José, its presence or absence being due to the ripening of certain fruits. My observations have been that the bird feeds chiefly on fruits. The species is found on both coasts, and in the interior up to an altitude of 6000 feet.

Young males resemble the females.

My observations are at variance with those of Mr. Salmon, in regard to the color of the egg being white, as given by Salvin and Godman in their 'Biología Central-Americana.' March 24, 1892, I found a nest of this species at Terraba (southwestern Costa Rica), containing one egg; the bird was shot and a second egg badly broken removed from the oviduct. In these the ground color is a dark pinkish buff; the ground color is almost completely hidden by irregular markings, lines, and blotches, of chestnut brown, these blotches darkest and most abundant about the larger end. The eggs measure 1.16 × .83 inch. The nest was probably a deserted Woodpecker hole, and was situated about six feet from the ground in an old stump. The bottom of the nest was about ten inches below the opening. It was without any lining whatever. However, I saw a second pair of birds carrying nesting material into a hole in another tree.

96. *Chirotophia linearis*.—A rare straggler at San José. Tolerably common on the Pacific slope clear to the coast. Young birds resemble the adult female.

97. *Momotus lessoni*.—Common resident. The nests are built in the ground, some bank, like the side of a stream, being selected. The entrance tunnel extends back horizontally sometimes for a distance of six feet. At about half its length there is a sharp bend inward for some six inches, then the course is again horizontal as far as the chamber occupied by the nest. The nest space is twelve or fourteen inches in diameter, being round, and about six inches high, with level floor and ceiling. A few

rather coarse dry twigs are strewn over the floor. The eggs I am not acquainted with. Mr. José C. Zeledón, to whom I am indebted for the above notes, also tells me that if one of these nests be opened at about the time the young are ready to leave the nest, it is found to be one of the dirtiest, foul smelling places that can well be imagined. The young birds occupy the centre of the nest, while all about them and especially at the sides of the opening are piles of the excrement mixed with the pellets, composed of the hard chitinous parts of beetles and other insects composing the chief food of the 'Bobos,' that are ejected from the mouth. This mass is teeming with maggots.

At the time the young leave the nest they are able to fly pretty well. They have the same colors as the adults. But the bill is much shorter, more depressed, and the edges without the serration seen in the adults. The tail is shorter than the wings and nearly square. The eye is sepia brown, not chestnut as in the old bird.

On the 8th of May, 1889, I bought four live young birds, the pin feathers not yet concealed and the eye light sepia brown. By the 25th of the same month the iris had changed to a decided chestnut shade, they were fully feathered and the tail of one of the birds measured 3.55 inches. On the 28th the birds commenced imitating the notes of the adults; their eyes had become bright chestnut. With the first utterances of the notes of the adults the peculiar jerky motions of the tail commenced. It was most amusing to watch the four birds sitting in a row together, almost motionless, only giving the tail first a jerk to this side, then to that, now up, and now down, to see it held for the space of a couple of minutes almost at right angles to the body, and then go with a whisk to the other side, the birds all the time uttering their peculiar cooing notes.

May 30, I measured the tail of one of the birds and found it to be 4.75 inches, an increase of .70 inch in five days. I fed the birds on raw meat, and about this time they began to fight vigorously for their shares. If two happened to get hold of the same piece, neither was willing to let go and each would close its eyes and hang on for dear life, both squealing as hard as they could. June 3, the serration of the bill began to show. June 16, the tails were apparently fully grown, and the birds began to tear at the webs at the points of the middle pair of feathers. By the 1st of July the tail-feathers were fully trimmed. My Bobos are often restless at night. Frequently, when at work in the museum until eleven or twelve at night, I have heard them jumping about in their cage and answering to each other's notes.

On one occasion I found the stomach of a bird I had shot filled with snails of a species having a delicate, easily crushed shell. The birds I have in confinement greedily eat earth worms. And one day when I had placed a small live Warbler in the cage, I returned in about half an hour's time and found the feet and tail of my Warbler protruding from the mouth of one of the Bobos!

98. *Ceryle cabanisi*. — Tolerably common resident. The Costaicans call them 'Correo de Agua.' I have not succeeded in finding the nest.

Young birds differ but slightly from the adult; in young males the brown band across the chest is but ill defined. The species is found on both coasts and to an altitude of 8000 feet.

99. *Chordeiles texensis*. — I have never met with the species myself. There are, however, two examples in the collection of the Museo Nacional. Both were collected at San José by Sr. Don Anastasio Alfaro, the first (a male) Nov. 6, and the second (a female) Nov. 7, 1888.

100. *Nyctidromus albicollis*. — Abundant resident, found from an altitude of about 8000 feet down to both coasts. Known here by the name 'Cuyeo.'

There are many superstitions current among the country people, regarding the Cuyeo. For example, it is a very bad omen to have the Cuyeo cross your path in the evening. And foolish indeed would be he rash enough to shoot at this agent for working untold evils; fortunate might he consider himself did he escape with no greater mishap than the breaking or twi-ting of his gun barrel! Yet in spite of all evils attributed to the bird, if one can be secured its happy possessor is overjoyed with the consciousness of holding the wherewithal to work a charm infallible to bind, with cords as true as steel, heart the most fickle, change coldest disregard into fond caressing. To work this incantation the heart is removed and dried over a slow fire until it may be crushed into a powder. The body of the bird is buried for a time sufficiently long for the soft parts to decay. Then the bones are carefully collected together, washed, dried, tied into a bundle, and carried in the pocket. All is now ready. The object of the lover's fancy is invited to a drink. A little of the powdered heart is secretly sprinkled in the liquor. Once drunk, the fires of love begin to burn!

The heart of the Cuyeo, dried, and bones of the Lechusa (Owl), carried in the pocket give one success in love affairs. But the philter that is absolutely certain in its working is composed of a powder made from the dried hearts of the Cuyeo, Lechusa, and Goriou (Hummingbird).

101. *Chastura brunneitorques*. — Resident about San José, but not common.

102. *Cypseloides niger*. — There is a single specimen in the Museo Nacional collection, taken at San José by Mr. J. C. Zeledón. There is a note on the back of the label stating that the bird was breeding.

103. *Campylopterus hemileucurus*. — Rare visitant about San José. Tolerably common at a little lower altitude.

104. *Floricola longirostris*. — I took a single specimen Sept. 16, 1891.

105. *Floricola constanti*? — A rather common resident. In the ten examples before me all have the chin blackish and the throat metallic crimson with the feathers tipped with gray. This character, according to Elliot's 'Synopsis,' belongs to *F. leucadic*, and not to *constanti*, the form supposed to be found in Costa Rica.

106. *Trochilus colubris*. — Very rare visitant at San José.

107. *Lophornis adorabilis*. — Mr. J. C. Zeledón took a single example at San José. The bird is tolerably common in the open prairie country about Barroca in southwest Costa Rica.

108. *Amazilia fuscicaudata*.—The most abundant species about San José, and indeed the most abundant species found on either coast and up to an altitude of about 6000 feet. I believe that this species is nesting in every month in the year. Nests are usually placed about fifteen feet from the ground in either orange or lemon trees. A nest before me is constructed of some soft fibre much resembling hump tow. There are a few filicous covering the outside, and an inner lining of a little native cotton. The nest, somewhat elliptical in form, measured $1\frac{1}{2}$ inches deep, by 2 inches long, and $1\frac{1}{2}$ wide. Inside $1\frac{1}{4}$ by $\frac{1}{2}$, by $\frac{1}{2}$ deep. The two eggs, white in color and elliptical-ovate in form, measure .53 X .37 inch.

109. *Amazilia sophera*.—Tolerably common resident.

110. *Chlorostilbon salvinii*.—Tolerably common resident.

111. *Chlorostilbon angustipennis*.—Resident. Not common.

112. *Crotophaga sulcirostris*.—The 'Tijó' of the Costa Ricans is one of the most abundant birds found in the country, ranging, as it does, from both coasts to an altitude of about 7000 feet.

Mr. Alford has kindly given me his manuscript notes on the nesting of this species, which I have translated from the Spanish and present below.

"The Zopiloto (so-pree-to-de-yo), also known as 'Tijó, tijó' [tés-ho] in imitation of its peculiar notes which seem to repeat the word *tijó* over and over again, is very abundant in the fields near Tambor (a little town about twenty miles northwest of San José) where along the hedgerows and in the scrubby timber, as well as on the skin of the cattle they find those insects which constitute their food. The woodticks, or garrapatos, from the legs and about the head and neck of the cattle are esteemed above all else a favorite morsel. In this locality I have collected three nests during the month of May, the first with nine eggs, the second with eleven, and the last with thirteen. Some years ago I remember seeing a nest, situated in the branches of a mango tree, that contained fourteen eggs.

"The nests that I have collected agree with the observations made by Zelená. The structure is voluminous, composed chiefly of coarse dead twigs, but presents one peculiarity not observed in any other bird, namely the nest being lined with fresh green leaves. My three specimens were all placed in low trees, and neither was found at a greater height than three metres. One had been built above an old nest of one of the larger Tyrannidae.

"It will not be without interest, I think, to insert my observations relative to one of these nests. On the 20th of May I noticed a Zopiloto with a dry stick in its bill, which was immediately carried to a point in the hedgerow where it was deposited with three others. After assuring myself that the bird was building its nest there, I retired, with the intention of returning at a more opportune moment. And when one week later I returned to the same spot, what was my surprise to see not only the nest completed and containing six eggs, but more than this: in the thorns and leaves about it were scattered seven more egg! As a consequence, if that collection was not the work of the Zopilotos collectively,

the poor owner, would have had to deposit three eggs daily! In the finding of some of the eggs scattered in the leaves was revealed one of the architect's peculiarities. A hole had been left in the centre of the nest and only recently filled with leaves whose fresh green color testified that they had been cut and placed there later than the others forming the carpeting to the bottom of this common incubator.

"The eggs were all fresh, the six occupying the nest having the characteristic rough white calcareous surface perfectly clean and without the slightest variation in color. Not so with the eggs found about the outside of the nest. Those found in contact with the leaves had taken on a dirty yellowish tinge. Those held suspended among the leaves and thorns showed various spots and lines of the lustrous blue color forming the base for the chalky external coat. The scratches had been caused by a too close contact with the thorns. In form the eggs vary from an oval to an elliptical oval; while the following dimensions taken from various eggs of the set will serve to give an approximate idea of the great variation in size: 35×25 , 32×26 , 32×23 , 30×23 , and 29×23 mm."

113. *Diplopterus navius*.—A nice straggler at San José. Tolerably common at lower altitudes and as far as the coast on the Pacific side. Young birds do not differ from the adults, young males resembling adult males, and young females resembling adult females.

114. *Piaya cayana rochleri*.—An abundant species, found on both coasts and in the interior to an altitude of about 6500 feet.

Young birds resemble the adults.

From Señor Alfaro's manuscript I take the following notes regarding this bird: "The Pajaro Ardilla [squirrel bird], like *Crotophaga sulcirostris*, according to Zeledon is insectivorous, and is found in all parts of the country. It is so arrogant and confident in its habits as to have merited the not over flattering name of 'bobo' [fool]. Its common color and long tail, together with the habit it has at times of running along the branches, gives it a certain resemblance to a squirrel that justifies the application of the more common vernacular name. Like the Zopiloto's the nest of this species is built in low trees, is very bulky, and has but little of the artistic about it.

"On the 25th of May while searching about in some scrappy timber along the banks of the Rio de Peas I found a nest of this bird. When discovered, the female was on the nest, but she immediately deserted her post, not, however, going so far that she could not watch our movements, a precaution on her part that assisted in the collecting, in order to determine the sex, after assuring myself that the nest contained eggs.

"The nest was placed about nine feet from the ground in the branches of a small tree, and was well concealed by the broad leaves of some climbing plant. In its construction there was employed nothing but half decayed leaves, making its removal and preservation impossible. The two eggs, which were fresh, are an opaque white, without markings, elliptical oval in form, and measure 33×24 and 33×24 mm."

115. *Coccyzus minor*.—Very rare about San José. Found on both

coasts. Birds from the Atlantic coast seem to be decidedly the darkest (rather a dark buff below), those from the Pacific coast considerably paler, while specimens from the interior are palest.

116. *Coccyzus americanus*.—I have taken three examples at San José, all females, on Sept. 10, Sept. 28, and Oct. 20, 1890.

117. *Coccyzus erythrophthalmus*.—I took a specimen in San José, Oct. 1, 1890. It is found, as well, on both coasts, but is very rare.

118. *Campephilus guatemalensis*.—Accidental at San José, but common on both the Atlantic and Pacific slopes down to the coast line.

119. *Dryobates jarrovi*.—I include this bird in the list with some doubts. In the collection of the Museo Nacional there is a series of sixty-six specimens, all, with the exception of four examples labeled as from San José, coming from a much higher altitude.

120. *Centurus hoffmanni*.—Tolerably common resident. Found on both coasts, and in the interior to an altitude of 6,500 feet.

May 12, 1889, I found a nest of this species about 25 feet from the ground in an old rotten snag. This nest contained two fresh eggs. May 26, 1889, I found a second nest containing three fresh eggs. This nest was only about three feet above the ground, in an old stump. It was one foot deep and the entrance opening was two inches in diameter. There was no lining. The male was on the nest when found, and was shot, but the female was not seen. The eggs are elliptical ovate in form, glossy white, and measure 1.02 X .70, 1.03 X .70, and 1.04 X .71 inch.

121. *Conurus petzli*.—Irregular visitant about San José. Most commonly met with during the months of May and August.

122. *Conurus finschi*.—Rare straggler about San José.

123. *Strix pratincola guatemalæ*.—Tolerably common resident.

124. *Syrnium virgaureum*.—Tolerably common resident. Nesting probably begins in the latter part of April, as young birds are found by the first of June.

125. *Megascops brasiliensis*.—Tolerably common resident.

126. *Megascops nudipes*.—Very rare. Usually found at a higher altitude.

127. *Lophostrix stricklandi*.—Rather rare resident.

128. *Glaucidium phalænoides*.—Tolerably common resident. This species seems to be as much awake as any other bird during the daylight. Frequently in the middle of the day I have found individuals perched in the branches of some dead tree, in the full glare of the sun, and at such times they are very alert. As soon as one appears in sight they commence their peculiar jerky motion of the tail, and usually fly before one is within range. Not infrequently I have noticed this species perched very much after the manner of a Woodpecker. Ordinarily the food consists of insects, but I shot one specimen having the stomach full of the remains of some small bird.

129. *Falco atigularis*.—A straggler at San José, and, as far as I am aware, found only on the Pacific slope. August 10, 1890, I took a young male at San José. There were the remains of a bird in the stomach.

130. *Falco columbarius*.—Dec. 4, 1890, Sr. Don Manuel Carranza brought a fine example to the museum. This is the only specimen I have seen in Costa Rica.

131. *Falco sparverius*.—In no part of the country is this Hawk resident, although on the coasts it is not absent for more than four months of the year. At San José it is met with from the first of October until the last of February. The females predominate very greatly in numbers. In the series of forty-one specimens belonging to the collection of the museum there are eight males and thirty-three females. The head of one of the males (Cartago, March, 1886) is without any sign of the rusty crown patch; the under parts are very pale, buffy, ochraceous; the spots, of a rounded form, cover the entire chest. The remaining seven specimens all show the rusty crown patch, more or less well defined. In all of these the spotting of the lower parts extends to the front of the chest, but in these the spots are linear, only varying very much in size and in number in the different specimens.

132. *Polyborus cheriway*.—Rather rare about San José. When seen, usually in company with the Black Vultures.

133. *Circus hudsonius*.—Tolerably common from the first of October until the end of February.

134. *Accipiter bicolor*.—There are three specimens in the museum collection that were taken at San José.

135. *Accipiter velox*.—There is a single specimen in the museum collection, taken at San José, Jan. 8, 1884.

136. *Spizæus ornatus*.—Occasionally met with at San José.

137. *Thrasæus harrisia*.—A. von Frantz in his list of birds of Costa Rica mentions a specimen taken near San José.

138. *Urubitinga anthracina*.—A specimen was shot just north of San José on Nov. 29, 1890.

139. *Urubitinga urubitinga ridgwayi*.—A rare straggler about San José.

140. *Bupornis rubicauda*.—Not common at San José, but from a slightly lower altitude down to the Pacific coast very common. Not found on the Atlantic side.

141. *Parabuteo unicinctus harrisi*.—There is one specimen belonging to the museum collection that was taken at San José.

142. *Buteo swainsoni*.—Seen occasionally from the first of November until February 25.

143. *Buteo latissimus*.—Noted from the last of November until the first of May.

144. *Buteo brachyurus*.—Sept. 10, 1888, Sr. Alfonso collected a fine male of this species at San José.

145. *Catharista atrata*.—Abundant resident, not only at San José, but in all parts of the country.

146. *Cathartes aura*.—Not common, and only single individuals seen, always in company with the Black Vultures.

147. *Columba adillinea*.—Rare about San José. At a slightly higher altitude abundant. Not uncommon at an altitude of 13,000 feet, at the very top of the volcano of Irazú.

148. *Engyptila verreauxi*.—Tolerably common resident.
149. *Peristera cinerea*.—Tolerably common resident.
150. *Columbigallina passerina*.—Common resident.
151. *Zenaidura macroura*.—Seems to be resident, as specimens are taken every month in the year. Not having found either the nest or young birds, I do not know whether it breeds here or not.
152. *Colinus leylandi*.—Common resident.
153. *Charadrius dominicus*.—Never common at San José, but a few are seen from October 20 until December 15.
154. *Ægialitis vocifera*.—Common at San José from about Oct. 15 until March 15.
155. *Gallinago delicata*.—Not uncommon from the first of October until February 15.
156. *Totanus solitarius*.—Tolerably common from the first of September until the first of May, and I believe there are some individuals that remain all the year.
157. *Actitis macularia*.—Common from about Sept. 1 until March 1. A few individuals remain all the year and breed.
158. *Bartramia longicauda*.—Tolerably common from about Sept. 5 until November 14.
159. *Tringa maculata*.—Arrives and disappears with the Bartramian Sandpiper.
160. *Tryngites subruficollis*.—Arrives and disappears in company with the two preceding species.
161. *Ardea egretta*.—Sometimes seen about San José toward the end of the rainy season and the beginning of the dry season, that is between November and January inclusive. At a lower altitude it is resident.
162. *Ardea herodias*.—As with the preceding species, seen occasionally from November to January.
163. *Ardea cœrulea*.—Not rare during December and January; however, only birds of the year are met with at San José.
164. *Ardea virescens*.—Tolerably common resident at San José.
165. *Nycticorax violaceus*.—Resident about San José. Adult birds, however, are seldom seen.
166. *Porzana carolina*.—Mr. J. C. Zeledon secured an example at San José in 1881.
167. *Anas discors*.—I saw a Blue-winged Teal just south of San José on Oct. 27, 1889.