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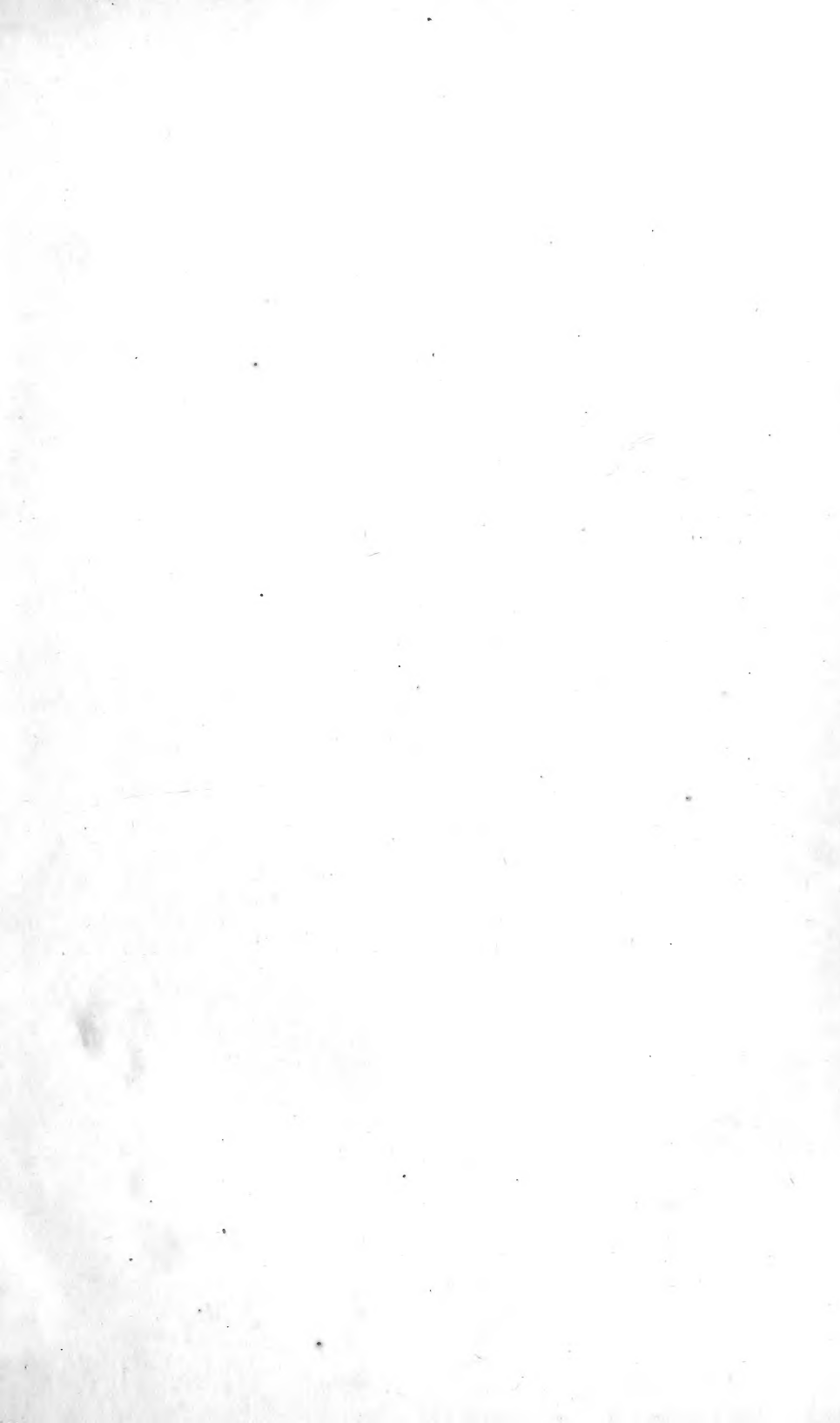
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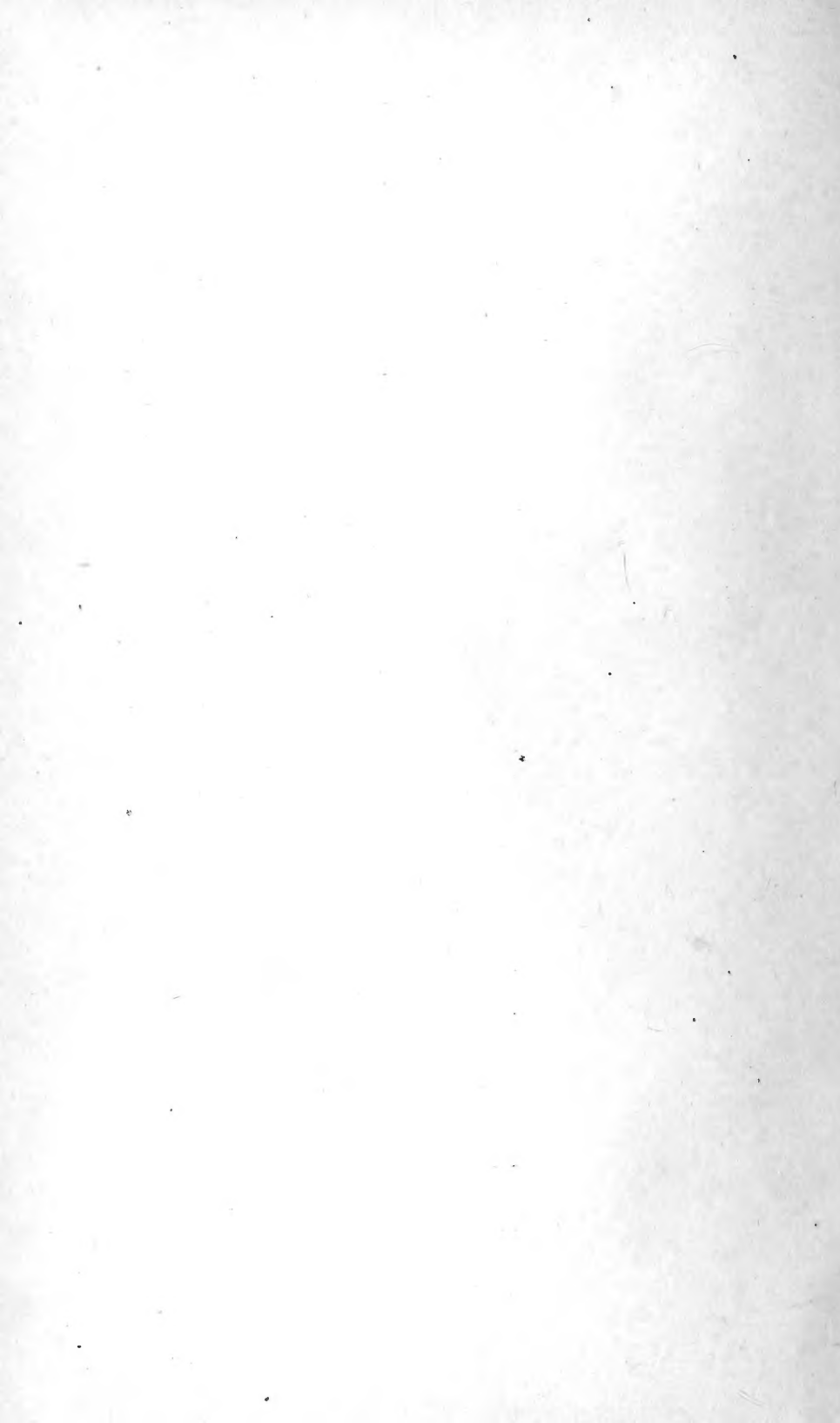
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PROCEEDINGS

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PROCEEDINGS
OF THE
NEW ENGLAND ZOÖLOGICAL CLUB

DESCRIPTIONS OF SIX NEW BUTTERFLIES FROM
BOLIVIA.

BY A. G. WEEKS, JR.

Ceratinia acceptabilis sp. nov.

Habitat : Coroico, Bolivia. Expanse : 2.45 inches.

Head black with a white dot behind each eye. The eyes are encircled by a fine white thread. Antennae black with bright yellow club. Thorax, above, black; beneath, black with two transverse yellow lines. Abdomen, above, black; beneath, light yellow. Legs black.

Fore wing, above, nearly all transparent with a blackish tinge. The transparent portion shows a mother-of-pearl lustre in some lights, as do all species of this genus. The costa and hind margin are bordered with black for one sixteenth inch, somewhat broader at apex. The inner marginal area, up to lower submedian nervule, is entirely black. The outer portion of discoidal space and the portion of interspaces adjoining it, down to lower submedian nervule, are transparent, but tinged with yellow instead of with black as the balance of the transparent portion is, giving the appearance of a broad yellow band crossing the wing. This band is scarcely perceptible on direct examination, but by turning the insect at an angle, it shows prominently. The nervures and nervules are black. The black of the nervule crossing the end of discoidal space suffuses slightly at its central portion, causing it to appear as a prominent feature of the wing. Along the inner edge of the black hind marginal border is a series of very prominent interspacial white spots, running from costa, close to apex, down to the lower submedian nervule.

Upper side of hind wing has a broad hind marginal border of black one quarter inch wide. This extends from upper angle area to the lower submedian nervule, and then dwindles abruptly to a point at anal angle. In its

centre, downward from costa, is a series of five interspacial white spots, a continuance of the line of white spots of fore wing. The central portion of the wing is transparent with a yellow tinge, the portion touching hind marginal black area being transparent with a blackish tinge. The nervures and nervules of this transparent area are bright yellow at its centre, turning to black outward. The anal angle and inner marginal areas are bright tawny up to the lower submedian nervule. This bright tawny area is the prominent feature of the coloring of the upper surface.

The under side of both wings is the same as upper surface, except that there is a dash of yellow on the costa of hind wing, running one quarter inch upward from the base.

Taken in May, 1899. It resembles closely *C. praxilla* Hew.

Taygetis puritana sp. nov.

Habitat: Bolivia, near Coroico. Expanse: 3.00 inches.

Head, thorax, abdomen and legs, dark brown above and beneath. Antennae a shade lighter with small dark annulations at base of each joint. Club black above and beneath.

The entire upper side of both wings is dark brown. In a very strong light there is some lustre in basal areas. The hind margins have a white interspacial border, quite prominent.

Under side of fore wing light brown, much lighter than upper surface. The prominent marking is a broad band of darker shade crossing centre of wing and extending across lower wing also. The basal area is light brown. A soft dark brown line or band crosses centre of discoidal space, extending to inner margin, but nearer base after leaving discoidal space and more indistinct. The end of discoidal space is marked by a fine thread of the same color. Running from costa, one quarter inch outside from discoidal space, is a line of dark brown ending at submedian nervure. The area between this line and discoidal space is darker than ground color, being darkest at the line and shading to lighter baseward. Outside of this line is an area of brighter brown, bordered one quarter inch inside of hind margin by a jagged dark thread. Through the centre of this area, from costa to inner margin, is a series of six interspacial white dots surrounded by dark brown. The hind margin is bordered by a white thread.

The under side of hind wing is of same ground color as of fore wing, the band of fore wing being somewhat more prominent. The inner edge of this band is bordered by a dark line running from costa, one third inch from base, and ending near centre of inner margin. The line bordering outer edge ex-

tends from centre of costa to end of discoidal space, turning there toward inner margin, and ending one third inch above anal angle. The outer portion of the wing duplicates the fore wing except that the spots are only five in number and are much more prominent.

Taken in May, 1899.

Caligo gerhardi sp. nov.

Habitat: Bolivia, Cochabamba district. Expanse : 4.40 inches.

Head and collar dark fulvous. Eyes brown. Palpi and legs fulvous. Antennae dark fulvous, lighter beneath with a slight black annulation at base of each joint. Thorax dark mouse color above, fulvous beneath. Abdomen the same, but whitish on the sides.

The general ground color of the upper surface is a rich regal purple.

Costa of fore wing dark mouse color, generously covered with fulvous scales. Hind margin bordered with fulvous, a quarter inch deep at apex and lessening downward, disappearing at fourth median nervule. Within this the border is dark mouse color, three eighths of an inch wide, edged toward base with a broad jagged line of slightly lighter hue. At apex are three small white spots. The rest of the wing is regal purple, except a portion near base which is dark mouse color.

The hind wing is the same. The hind marginal space, to the third median nervule, is light grayish brown, and bordering this nervule, half an inch above anal angle, is an elongated dead yellow spot about one third of an inch long. The dark mouse-colored space near base is covered with long nearly black hairs.

The under side, owing to many irregular jagged black lines, etc., is difficult to describe.

The under side of fore wing has a broad light fulvous border, nearly half an inch wide. In the centre of this, extending from apex to lower angle, are two jagged black or brownish lines one eighth of an inch apart, bordered on outer side with a bit of fulvous a shade lighter than the ground color. The costa is mouse color, covered generously with light fulvous scales. On inner edge of the marginal border the three apical white spots appear, bordered on marginal side with a dash of rich brown, which is black, however, at upper spot. In the space below is a small oblong ocellus, having four minute white dots on a black ground and all surrounded by a line of light fulvous. In the space below this is another smaller ocellus, one sixteenth of an inch in diameter, of similar coloring. These ocelli do not show on upper side. Inside of the light fulvous border is a space of varying width, one third to one half inch, with a linear border of blackish brown, transversely crossed by a mass of ful-

vous wavy lines. This space is narrowest opposite discoidal space, broadening out toward costa and inner margin. Inside of this, and extending from costa through outer point of discoidal space, is a space of light fulvous, three eighths of an inch wide, jaggedly bordered by a darker line and dusted somewhat on inner side with silver scales. The discoidal space is crossed by a silver line about a quarter inch wide at costa and narrowing somewhat toward inner margin which it meets at right angles. This line, extending as it does across the hind wing, is the prominent feature of the lower side. In the centre of this silver band, beginning at the costa, is a black jagged thread, leaving it at the centre of the discoidal space and extending to the median nervule. The area on basal side of this silver band is dark fulvous with one black thread running down from costa, and, when midway, turning toward the silver band. The lower interspaces are suffused with black toward the base. The outer portion of discoidal space contains two oblong black-edged figures and another below them, circular in shape and lighter in color.

The hind wing has no defined border, the entire outer half being of light fulvous transversely crossed with a mass of wavy blackish lines. Under the costa, midway from base to apex, is a fulvous ocellus, one quarter inch across, bordered by a black thread and inclosing a half moon of minute white specks. There is another similar ocellus just below discoidal space, having, however, a yellow line within the outer black thread, and a heavy dusting of dark blue scales at lower edge. The silver band of fore wing extends across the discoidal space, terminating at the third median nervule. The outer portion of discoidal space is crossed by several irregular black threads. The space within the silver band is identical with the outer portion of the wing.

This superb specimen was taken September 12, 1899, by my collector, Mr. William J. Gerhard, and I take pleasure in naming it after him. It differs from others of this genus in that the lower ocellus of hind wing beneath is single, and the general coloring of under surface is quite different.

Nisoniades menuda sp. nov.

Habitat: Bolivia. Expanse: .75 inch.

Head, thorax, abdomen, antennae and legs, above, very dark brown, nearly black; beneath, the same, except that the antennae are lighter.

Upper surface in general appearance closely resembles *N. icelus* Scudd., and *N. brizo* Bsd.-Lec.

Upper surface of fore wing dark brown, nearly black. Hind margin has a border of somewhat lighter color tending to grayish, one eighth inch wide. Running down the central portion of this border is a thread of ground color. Within this, near apex and downward from costa, are three or four subcostal dots of same color. Extending from costa downward across end of discoidal space, is a band of same color, ending at submedian nervure. There is also a band near base, running from median nervure to submedian nervure. These markings are so indistinct that it is hard to locate and describe them.

Upper surface of hind wing is much the same, the marginal border being less prominent. The hind marginal fringe is lighter than ground color.

Under side of fore wing of the same ground color as upper surface, the basal and central portion showing blacker. Inner marginal area light brown.

Under side of hind wing of the same ground color as fore wing. There are no markings. The anal angle area is dusted slightly with light scales extending upward toward base and also along hind margin. Marginal fringe, of ground color.

Described from a series of specimens taken five days' travel north from Cochabamba about August 25, 1899.

***Cystineura aurantia* sp. nov.**

Habitat: Bolivia, near Coroico. . . Expanse: 1.65 inches.

Head nearly black, grayish underneath. Palpi black, grayish underneath. Antennae black with white annulations at base of each joint. Club black with orange tip. Legs gray. Thorax black with gray hairs. Abdomen black above, gray beneath.

General ground color of upper surface is white with orange and dark brown markings.

Costa of fore wing dark brown. Hind margin slightly dentated, a slight thread of white at edge, and within this a narrow margin of dark brown dentated on inner side. The entire fore wing may be divided equally among three colors, orange, white, and dark brown. The orange covers the outer third, covering the apical space and narrowing to a point at lower angle. The white area covers the central portion, starting at inner margin, from lower angle to a point one quarter inch from base and narrowing as a triangle to a point on costa one third distance from apex to base. The upper portion of this white area is represented by four white interspatial dashes running downward at right angles to costa and then broadening out and occupying nearly all of the lower interspaces. The discoidal space and costal space above, also

the adjoining portion of the four lower interspaces, are dark brown, excepting a slight white dash in discoidal space, extending from outer end and running toward base. There is another smaller dash above it, and also a very prominent triangular white mark, one quarter inch long, with its base at end of discoidal space, extending toward hind margin. The entire brownish area is lightened by a scattering of grayish scales, thickest near base.

Hind margin of hind wing dentated, and edged by a white thread. The border of hind margin is nearly black, and just within the edge is a series of interspatial half moons of blue. The basal area is brown. The rest of the wing is white, excepting a band of brown running transversely across centre of wing.

Under side of fore wing has same markings as upper side, but the brown is replaced by orange. There is also an irregular white line running from base to end of discoidal space.

Under side of hind wing is the same as upper side, except that the brown is replaced by dark orange dusted with blackish scales, and the white portion, while fully as prominent, is more restricted in its area. The half moons at hind margin are white instead of blue.

In some specimens the brown portions are so heavily dusted with white scales that they appear gray, while in others there is almost an entire absence of this dusting. The orange apex of fore wing contains in some specimens one or two white interspatial dashes.

Described from twenty-three specimens taken on the mountains near Coroico in May, 1899.

Thymele bridgmani sp. nov.

Habitat: Bolivia. Expanse: 1.90 inches.

Head blackish brown, the hairs having a slight greenish tinge. Palpi, above, blackish brown; below, yellowish gray. Antennae black. Club, above, black; below, yellowish. Thorax and abdomen blackish brown, covered with hairs of a greenish tinge. Legs dark brown with distinct yellow annulations at base of each joint.

Upper side of fore wing dark brown, the basal area covered with greenish hairs. In subcostal interspaces, midway from base to apex, are two small white marks. Below these and covering outer portion of discoidal space is a large semi-transparent white mark. Below this, in interspace below median nervure, is a still larger similar mark crossing entire interspace, concave on both sides. In the interspace above this and nearly touching these two large

spots is a smaller one, concave on outer edge. There is also another under the lower submedian nervule. The markings are in a line drawn from centre of costa to lower angle, and give the appearance of a band crossing the wing. Midway between this and apex is a series of four small subcostal white spots, running toward upper portion of hind margin. The two interspaces below are crossed by a white line nearly under the spots but a little nearer the margin and parallel to it. Hind marginal fringe, of ground color.

Upper side of hind wing dark brown, somewhat richer than fore wing. Basal area covered with greenish hairs. The hind marginal fringe is pronounced and pure white in color. The anal angle area extends downward, forming a short tail about one quarter inch long.

Under side of fore wing nearly identical with upper side. The costa near base is slightly dusted with yellow scales. There are very short indistinct greenish hairs in basal area. The inner marginal area, nearly up to lower submedian nervule, is light brown. Under the lower spot of the semi-transparent band and at lower angle is a spot or dash of very light brown. Marginal fringe, of ground color.

Under side of hind wing rich dark brown, dusted very slightly with yellow scales. The basal area has hairs of a greenish tinge. One quarter inch above the anal angle is a line of yellowish white, running from submedian nervure toward apex and ending at lower submedian nervule. It is about one quarter inch long only, but forms the only feature of hind wing. The hind marginal fringe is prominently white, as on upper side.

Taken five days' travel north from Cochabamba in August, 1899. A specimen was found in the Hewitson collection, unnamed.

PROCEEDINGS
OF THE
NEW ENGLAND ZOOLOGICAL CLUB

SOME UNDESCRIBED BUTTERFLIES FROM COLOMBIA AND FROM LOWER CALIFORNIA.

BY A. G. WEEKS, JR.

Ithomia sarcinarius sp. nov.

Habitat: Bogota, Colombia. Expanse: 1.80 inches.

Head black with a white speck behind each eye and two more between the eyes in front. Thorax black, above, with a white longitudinal dash down its centre; beneath, black with a white speck at each shoulder. Abdomen, above, black; beneath, grayish. Antennae black with tawny club.

Fore wing, above, transparent with black markings. The costa is black, the black turning at apex and continuing down hind margin as a narrow border. The inner marginal area, up to lower submedian nervule, is black, excepting a small portion at lower angle. There is a black dash extending downward from the costal black border across end of discoidal space and terminating in a point in interspace below. There is also a black dash crossing the centre of discoidal space. This dash is broken into a succession of three or four spots. In the black border at apical area and along hind margin there is a mere suggestion of interspatial white spots, but so indistinct as to be almost invisible. In some lights the transparent portion of wing just below costa at end of discoidal space has a yellowish dash. The median nervure also appears yellowish in some lights.

The upper side of hind wing is transparent, distinctly yellowish in some lights. The costa is black, and the hind margin has a border of black nearly one quarter inch wide, covering anal angle and extending along inner margin as a line only. The black of costa extends downward somewhat near end of discoidal space. The yellow tinge of transparent portion is more apparent in the basal area.

The under side of fore wing is the same as upper side, except that in the first four interspaces at apex are four well-defined white spots.

The under side of hind wing is the same as upper side, except that the upper half of the black border at costa is tawny. The hind marginal border also becomes tawny as it approaches the anal angle. In the interspaces below upper angle, in the centre of the black hind marginal border, are six white spots.

Taken near Bogota in 1896.

***Pedaliodes mariona* sp. nov.**

Habitat: Colombia, Bogota district. Expanse: 1.60 inches.

Head, palpi, antennae, thorax, abdomen and legs, brownish black above and below.

Upper side of fore wing bronzy brown, the basal two thirds of wing showing darker in certain lights. One eighth inch within hind margin is a wavy dark line, very indistinct and running from costa parallel to hind margin down to submedian nervure.

Lower wing the same, somewhat dentated at hind margin. A narrow dark thread borders hind margin, and within that appears the continuation of the line mentioned on fore wing. At anal angle these two lines assume a brick color. All are very indistinct. Inner marginal space grayish brown.

Under side of fore wing dead brown. Hind margin edged with a fine dark thread bordered on inside by a thread of brick red. One eighth inch within this is a wavy dark line running from costa to submedian nervure. One quarter inch within this is another line running from costa to submedian nervure, not touching discoidal space. The space between these last two lines is a shade lighter than ground color. Midway between the last-mentioned line and the base is another line, starting at costa and running only across discoidal space.

The basal half of under side of hind wing is dead brown, the same as fore wing. The lines of fore wing are repeated, but more prominently, the brick red being tawny and broader. The line one eighth inch within hind margin is very wavy, the points extending baseward at centre of each interspace. The line one quarter inch within this is reddish brown and suffuses downward on each nervule in a decided manner. The inner side of this line, from a point opposite end of discoidal space down to inner margin, is heavily bordered with yellow which suffuses generously upward as it approaches anal angle, the suffusion being more brownish. The space between these last-mentioned lines is

a dead silver with prominent ocelli in each interspace. These ocelli have a black centre with a white dot, then a delicate circle of yellowish and, inclosing all, a delicate thread of reddish brown.

The type was taken near Bogota. It closely resembles *P. decorata* Feld., but the suffusion at anal angle area of lower wing underneath is more yellowish. The ocelli of lower wing underneath are bordered by a delicate thread of reddish brown, instead of a generous and suffusing border as in *P. decorata*.

Aricoris aurigera sp. nov.

Habitat: Colombia, Bogota district. Expanse: 1.25 inches.

Head, antennae and legs, black. Thorax and abdomen black above; grayish black beneath.

Fore wing, above, entirely black with a very prominent tawny golden band. Hind margin fringed with black hairs. The lower edge of the golden band starts at very edge of costa, three sixteenths of an inch from base, running across to hind margin at end of submedian nervure. The band is fully three sixteenths of an inch in width.

Hind wing entirely black. Hind margin fringed with black hairs.

Under side of fore wing is identical with upper surface, except that the band is of a slightly lighter shade and the inner margin somewhat grayish.

The costal area of under side of hind wing is black. The fringe of hairs at hind margin is black. The rest of the wing is grayish black with black nervures and nervules.

Taken near Bogota in 1896.

Prenes californica sp. nov.

Habitat: Lower California. Expanse: 1.70 inches.

Head, above, dark brown; beneath, nearly white. Eyes brown, surrounded by a fine line of white. Antennae black. Thorax dark brown, grayish beneath. Abdomen dark brown, nearly white beneath. Legs dark brown.

General ground color of upper surface dark brown.

One quarter distance from apex to base of fore wing are three minute white spots at right angles to costa. In next lower interspace is a larger white spot nearer to hind margin. In next lower interspace is a still larger white spot, situated not under the other but nearly touching discoidal space. Below this and still nearer base, under the outer end of discoidal space, is another white spot, the largest of all, nearly square, its lower portion extending outward somewhat toward hind margin. In the discoidal space is an oblong longitudinal white mark, its outer point touching the last-mentioned white spot. Below these, in centre of lower third of wing is a similar longitudinal white mark resting on the lower nervule. Hind margin is dark brown without markings.

Under side of fore wing presents the same white spot, but ground color is a shade darker. The costa is of a lighter shade than ground color. The second-mentioned "white mark" of upper side is replaced by a silvery dash of somewhat larger area. The interspaces at hind margin, excepting the three lower ones, bear a triangular dash of grayish not at all prominent.

Under side of hind wing is somewhat darker than fore wing. The nervures and nervules are grayish. There is a small white spot in subcostal space, one quarter inch from base, and another of similar size in end of discoidal space. The two upper interspaces have an indistinct dash of gray scales, one third distance from upper angle to base, which are repeated in lower interspaces, but are placed nearer hind margin. The triangular dashes of gray in the interspaces of fore wing at hind margin are duplicated. The inner margin is lighter brown than ground color.

The specimen which I describe has been submitted to Prof. E. T. Owen, Mr. E. M. Aaron, Dr. Henry Skinner, Dr. Herman Strecker, and has been compared with the collections of Godman, Druce, Hewitson, the British Museum, etc. It was taken by Mr. M. Abbott Frazar in 1888.

Lycaena maritima sp. nov.

Habitat: Lower California. Expanse: 1.00 inches.

Head black above, grayish underneath. Palpi grayish, black-tipped. Antennae black, with white annulations at base of each joint. Club black, with whitish tip. Thorax covered with bluish gray hairs above and beneath. Abdomen black above, gray beneath. Legs gray.

Fore wing and hind wing the same, being entirely deep sky blue with considerable lustre. Hind and inner margins fringed with bluish hairs. Hind mar-

gin has a black thread at border, suffusing in some lights into ground color. The inner margin of hind wing is grayish.

Under side of fore wing brownish gray. Transversely across top of discoidal space is a black line, edged on both sides with whitish. Midway between discoidal space and hind margin is a series of six interspacial black spots, each surrounded by whitish, extending from first subcostal space down to inner margin, following contour of hind margin. The lower spot is double, making seven spots in all. Base of wing darker than the rest, but dusted with gray scales. Hind margin bears a fine dark thread at border.

Under side of hind wing of the same ground color, darkening at base as in fore wing, also bearing the discoidal black line, although less prominently. There are also six interspacial black spots surrounded by white, following contour of hind margin, in much the same relative position as those on fore wing. These spots are smaller and far less prominent than those on fore wing. There is a fine dark thread on hind margin, scarcely perceptible.

Taken by Mr. M. Abbott Frazar in 1888.

PROCEEDINGS
OF THE
NEW ENGLAND ZOÖLOGICAL CLUB

ON A SECOND COLLECTION OF BIRDS MADE IN
CHIRIQUI, BY W. W. BROWN, JR.

BY OUTRAM BANGS.

THE present paper takes up Mr. Brown's bird-collecting in Chiriqui at the point where I left it in a paper lately published upon the work he did at David and Divala.¹ The period covered is from January to August, 1901, and the collection is a very large one, including a large proportion of the birds known to occur in this highly interesting region. Some species that were taken by Arcé and recorded, or described as new, by Mr. Salvin in several papers that he published on Arcé's collections, Mr. Brown did not meet with, while on the other hand Mr. Brown secured several birds that were not represented in Arcé's material. Bird-collecting in tropical America is a fine art; and in order to make a nearly complete collection of the birds of any region a collector must remain at each station through the various seasons of the year. For although, strictly speaking, the birds are non-migratory, at certain seasons certain species can be got with ease in any number, while at other seasons not one individual of them can be found. The ripening of certain fruits, the blossoming of flowers, and the presence or absence of ants and other insects, all have the greatest effect upon the movements of the birds; and it is

¹ On a collection of birds made by W. W. Brown, Jr., at David and Divala, Chiriqui. *The Auk*, Vol. XVIII, pp. 355-370, Oct., 1901.

hard for one who has collected only in the North to realize how local many of the species are in their distribution, and to understand all the difficulties that beset the path of the collector in the tropics.

During this trip Mr. Brown collected chiefly on the Volcan de Chiriqui itself, at various altitudes, covering the different life zones to the very top. The largest part of the collection was made at Boquete — a small village on the southern slope of the volcano, in the mountain forest zone, about 3000 to 5000 feet altitude. He also collected for a short time in June on the northern or Caribbean exposure of the volcano, and he took some species there that he did not find on the southern slope. Small collections were made also at Bogaba, altitude 600 feet, in the foothills, and at Sona and Pedregal, on the Pacific coast, and a few specimens were collected at David during a day or two that Mr. Brown had to stop there again.

At every station Mr. Brown took the altitude with an aneroid barometer, and this is marked on each label. Thus the range of any species can be very well established, and the life zones of the mountain are clearly indicated from the birds alone. In the following list I give the altitudes at which the various species were found.

A large proportion of the mountain species are not different from the birds of the high Costa Rican mountains, although there are some striking exceptions; and the Volcan de Chiriqui is probably too near to have a mountain fauna wholly its own. Those birds that do differ usually have larger bills than their Costa Rican representatives.

Mr. Brown wrote a careful itinerary of his trip, and from it I take the following extracts — all that space will allow me — which may be of interest to the student of the biota of Central America.

“Leaving the town of David on horseback one rides over a level savanna for about an hour before coming to the southern slope of the Cordillera de Chiriqui. The characteristic species of this savanna are the scissor-tailed flycatcher and the meadow-lark. The scissor-tail is usually seen sitting on the ground, which is its normal habit on the plain. I often saw at one time as many

as ten perched on the grass-covered plain about me. The meadowlark is very common and tame, and its song is very distinct from that of *Sturnella magna*. Turkey buzzards and king vultures are always to be seen soaring overhead.

“Upon reaching the foothills, which are covered by a scrubby growth of trees, the trail gradually descends into a valley where the vegetation is much more luxuriant and where one meets again the characteristic birds of the lowland forest,—toucans, jacamars, blue tanagers, red-rumped tanagers, and the like,—as well as the big black and the red-bellied squirrels. After a gradual ascent one emerges onto another llano, or plain, like the first but higher. Here I saw the pigmy titlark. This attractive little fellow was a bird of the trail, running along in front of my horse twenty or thirty yards, then taking wing and alighting again, to repeat the performance as I came up.

“After an hour over this llano the trail descends again to cross a shallow stream, which is wooded, and then begins gradually rising through a sparsely wooded region to the pueblo de Dolega, with its great plantations of cocoa, coffee, sugarcane and bananas, at an elevation of about 700 feet. Many species of birds were to be seen about the plantations—parrots, hummingbirds, grass-quits, red-rumped and blue tanagers being the most conspicuous. Beyond Dolega the trail crosses two rivers with wooded banks where kingfishers, doves and blue herons were seen. Beyond the second river another great llano, gradually ascending, opens out, with here and there a patch of scrubby timber and in other places covered with blackened rocks—said to be lava from the volcano. It affords good pasturage for cattle, but the ride of five hours across it is hot and monotonous.

“On the further side of the llano, at an altitude of 3500 feet, the trail leaves the plain and passes through valleys and over hills, in a cool luxuriant forest with swiftly running streams and brooks rippling among fern-covered rocks. One begins to see an immense number of birds, all of different species from those of the lowlands—water ousel dart about on the rocks in the foaming, rushing streams, small thrushes [*Catharus*] and solitaires are singing everywhere in the jungle and the branches overhead are

full of tanagers and warblers. This zone extends up to about 5000 feet. Between 5000 and 8000 feet another change in the bird life is noticed, but not so marked a one.

“At 10,000 feet the character of the forest changes decidedly, the trees become low and stunted, their trunks and branches are thickly covered with cold, saturated moss. On some of the branches globular formations of moss give an odd appearance to the tree. The undergrowth is chiefly of berry-bearing shrubs and two species of cane, with ferns and flowering herbs. One shrub produces a berry about the size of a cherry, which has a rich flavor, and of which doves and the big *Merula* [*M. nigrescens*] are very fond. At 11,000 feet the forest ends, and at the timber line the characteristic species are the Junco [*Junco vulcani*], a big-footed finch [*Pezapetes capitalis*], the long-tailed ptilogonys and a curious little wren with peculiar notes, that lives in the cane brakes [*Troglodytes browni*]. The country is open, broken, barren and very rocky, but there is a growth of low huckleberry-like shrubs that average ten inches in height and are literally black with berries. There are also low flowering plants, and some tiny ferns, different from any seen below.

“Standing up high above this desolate region is the great rocky peak of Mt. Chiriqui, which I believe I am the only man to have climbed. The summit is a towering rock, its extreme point so sharp and narrow that I had to straddle it. Under one foot was a sheer fall of some nine hundred feet, under the other a sharp slope of six or seven hundred. I found no signs of any previous ascent, but left two records of my own visit. From the top I looked down on the waters of the Caribbean Sea and of the Pacific Ocean, seeing distinctly the indentations of both coasts. To the west I could see the Costa Rican Mountains, and to the east stretched an ocean of small peaks. My aneroid registered 11,500 ft.”

In identifying the species in the collection I have been much assisted by Dr. Robert Ridgway, Mr. E. W. Nelson and Mr. H. C. Oberholser, to all of whom I express my sincerest thanks, as well as to the authorities of the National Museum, the Biological Survey and the Boston Society of Natural History, for allowing

me to make comparisons with the series of birds in their charge. The latter institution contains the priceless Lafresnaye types.

Two gentlemen who were very kind to Mr. Brown while in Chiriqui, are Captain Hughes of the SS. Chiriqui, an enthusiastic ornithologist, who spends most of his time collecting, when on shore, and who got many rare birds that he gave to Mr. Brown, and Mr. H. Watson of Bogaba, who has had much experience in collecting birds and mammals in Chiriqui, and who helped Mr. Brown in many ways and gave him permission to collect on his extensive coffee, banana and cocoa plantations.

In the following descriptions all measurements are in millimeters, the wing is measured on the chord of its natural curve and not flattened down on the rule, and colors, when definite names are used, are according to Ridgway's Nomenclature of Colors.

Florida cærulea cærulescens (Lath.).

One adult male, Remedios, July 10.

Butorides virescens (Linn.).

One adult male, Sona, July 12.

Tigrisoma cabanisi (Heine).

One adult female, Sona River, July 21.

Polyborus cheriway (Jacq.).

One adult female, Bogaba, July 7.

Ibycter americanus (Bodd.).

One adult male, Bogaba, July 9.

Milvago chimachima (Vieill.).

Two specimens, male and female, young, Sona, July.

Buteo costaricensis Ridg.

One adult female, Boquete, 4000 feet, April 10.

Buteo platypterus (Vieill.).

Three specimens, two adult and one young, all males, Boquete and Volcan de Chiriqui, 4000 to 7500 feet, Feb. 27, March 10 and April 19.

Buteo brachyurus Vieill.

One male in the black phase, Sona, July 25.

Rupornis ruficauda (Scl. and Salv.).

Three males, Boquete, 4000 feet, April, and Bogaba, July.

Urobitinga anthracina (Nitzsch).

One young female, Sona, July 21.

Leucopternis ghiesbreghtii (Du Bus).

One male, Bogaba, July 17.

Herpetotheres cachinnans (Linn.).

One adult male, Bogaba, July 14.

Regerhinus uncinatus (Temm.).

One young male, Boquete, 4000 feet, April 18.

Harpagus fasciatus Lawr.

One young male, Bogaba, July 13.

Ictinia plumbea (Gmel.).

One adult male, Bogaba, July 3.

Falco albigularis Daud.

Two specimens, male and female, adults, Boquete, 3500 feet and 4000 feet, March.

Cerchneis sparveria (Linn.).

Two males, Boquete, 4000 feet, Jan. 27 and March 19.

Crypturus soui modestus (Cab.).

Two adult males, Boquete, 4500 and 4800 feet, March.

Crax panamensis Ogilvie-Grant.

One adult female, Boquete, 5000 feet, April 20.

Penelope cristata (Linn.).

Five specimens, both sexes, Boquete and Caribbean slope of Volcan de Chiriqui, 4000 to 7000 feet, April and June.

Chamæpetes unicolor Salv.

Two adult males, Boquete, 5600 and 5800 feet, March.

Odontophorus castigatus Bangs.

Three males, Bogaba, July.

Odontophorus guttatus (Gould).

Eight specimens, adults of both sexes and young, Boquete and Volcan de Chiriqui, 4000 to 7500 feet, February, March and April.

Odontophorus veraguensis Gould.

Two adult females, Boquete, 4000 and 5800 feet, April 10 and March 22, and one adult female, Boquete, 4500 feet, March 1, that is a perfect intergrade (or hybrid?) between *O. guttatus* and *O. veraguensis*. This region is the meeting ground of these two very different species; all the specimens of *O. guttatus* are perfectly typical, as are the two examples of *O. veraguensis*; and as the two occur strictly together I am inclined to regard the one intermediate example as a hybrid rather than an intergrade.

Odontophorus leucolæmus Salv.

Six specimens, adults of both sexes, Boquete and Caribbean slope of Volcan de Chiriqui, 4500 to 5000 feet, March, April and June.

Symphemia semipalmata (Gmel.).

One male in half gray and half barred plumage, Sona, Aug. 10.

Helodromas solitarius (Wils.).

One adult male, Sona, Aug. 10.

Actitis macularia (Linn.).

One adult male, Boquete, 4000 feet, April 13.

Gallinago delicata (Ord.).

One female, Boquete, 4000 feet, Jan. 30.

Columba speciosa Gmel.

Two adult males, Boquete, 5000 feet, and Bogaba, April and July.

Columba albilinea crissalis Salvadori.

Four adult males, Boquete and Volcan de Chiriqui, 4000 to 10,800 feet, March, April, May and June. These are practically topotypes; three of them are much paler below than true *C. albilinea*, but one is hardly distinguishable from the South American bird.

Columba subvinacea Lawr.

Five adult males, Boquete, 4000 feet, February, March and April.

Claravis mondetoura (Bp.).

Five adults, both sexes, Boquete and Volcan de Chiriqui, 3000 to 7000 feet, January, March, April and May.

Leptoptila verreauxi Bp.

Two adult males, Bogaba, July.

Geotrygon montana (Linn.).

One adult female, Boquete 4000 feet, April 21.

Geotrygon costaricensis Lawr.

Four adults, both sexes, Boquete and Volcan de Chiriqui, 7000 to 10,000 feet, February, April and May.

Geotrygon chiriquensis Scl.

Seven adults, both sexes, Boquete and Volcan de Chiriqui, 4500 to 10,000 feet, February, March, April and June.

Piaya cayana thermophila (Scl.).

Three adults, both sexes, Boquete, 4000 feet, January and February.

Diplopterus nævius (Linn.).

Three males, Boquete, 4000 to 5600 feet, January, March and April.

Dromococcyx phasianellus (Spix.).

One adult male, Boquete, 7000 feet, April 15.

Ara macao (Linn.).

One adult male, Bogaba, July 11.

Conurus ocellularis Scl. and Salv.

One adult male, Bogaba, July 4.

Pyrrhura hoffmanni (Cab.).

Twenty-seven specimens, adults of both sexes and one young, Boquete and Volcan de Chiriqui, 4000 to 10,000 feet, January, February, March, April and June.

Count Salvadori thought the birds from Chiriqui differed in having red shafts and tips to the feathers of the nape. On comparing this large series with Costa Rica specimens, I could find no constant difference, some Costa Rica examples having such red markings and some Chiriqui birds being without them.

Bolborhynchus lineolatus (Cassin).

Two males, Caribbean slope of Volcan de Chiriqui, 2000 feet, June 12. These two were shot from a small flock that was feeding in some low bushes, — the only time Mr. Brown met with this rare little parrot.

Brotogerys jugularis (Müller).

One adult female, Bogaba, July 4.

Amazona virenticeps (Salvadori).

Three males, Bogaba, July.

Pionus menstruus rubrigularis (Cab.).

One adult male, Bogaba, July 6.

Pionopsittacus hæmatotis Scl. and Salv.

Two specimens, male and female, young, Sona, August.

Momotus lessoni Less.

Four adults, both sexes, Boquete, 2500 to 4500 feet, January, February and March.

Pulsatrix perspicillata (Lath.).

One male, Bogaba, July 7.

Syrnium¹ virgatum Cass.

Two specimens, adult male and young male, Boquete, 4000 feet, and Bogaba, February and July.

Syrnium nigrolineatum Scl.

One adult male, Volcan de Chiriqui, February.

Nyctidromus albicollis (Gmel.).

One adult female, Boquete, Jan. 25.

Antrostomus carolinensis (Gmel.).

One adult male, Boquete, 4500 feet, March 10.

Doryfera veraguensis Salv.

Two adult females, Boquete, 7000 and 7500 feet, March 17 and April 15.

Phaëthornis guy coruscus² subsp. nov.

Fifteen specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7500 feet, February, March and April.

Type, from Boquete, southern slope of Volcan de Chiriqui, 4500 feet altitude, ♂ adult, no. 8414, coll. of E. A. and O. Bangs, collected March 14, 1901, by W. W. Brown, Jr.

Characters. — Similar to *P. guy emiliae* (Bourc. and Muls.) of Bogota, but bill slightly shorter; plumage, above and below, more glittering; color of back and sides, in both sexes, decidedly more bluish, less greenish; upper tail coverts always metallic blue.

¹ I have before used the generic term *Ciccaba* for these owls, but Mr. Ridgway tells me the only character is the naked toes, and as this is shown in some of the subspecies of *S. nebulosum* and not in others, the genus *Ciccaba* must go.

² *Coruscus* — glittering.

Color. — Adult male: forehead dusky green, with little lustre; hind neck and back shining, dark, metallic green blue; upper tail coverts dark blue, with dark subapical band and slight buffy tips; basal portion of rectrices blue, rest black, with grayish white tips to two central feathers; sides like back, but not so brilliant; centre of belly dark gray; under tail coverts dark gray fringed with whitish; a well-defined chestnut gular stripe; auriculars blackish.

Adult female similar to the male above; below, dark gray, with only slight metallic green blue on sides; gular stripe more extended and paler in color; also slight superciliary and malar stripes, of pale chestnut, enclosing the black auriculars; all the rectrices tipped with grayish white, the light tips of the two central feathers much longer than in the male.

Young male, similar to female, but the light tips of central rectrices shorter (as in the adult male).

MEASUREMENTS (in millimeters).

| No. | Sex and age | Wing | Tail | Culmen ¹ |
|------|-------------|------|------|---------------------|
| 8414 | ♂ ad. | 62.0 | 57.0 | 42.5 |
| 8415 | ad. | 62.0 | 56.0 | — |
| 8416 | ♂ ad. | 61.0 | 52.0 | 42.5 |
| 8417 | ♂ ad. | 62.5 | 58.0 | 41.5 |
| 8418 | ♂ ad. | 62.0 | 54.0 | 41.0 |
| 8422 | ♀ ad. | 61.0 | 68.5 | 40.5 |
| 8423 | ♀ ad. | 60.5 | 70.0 | 41.5 |
| 8424 | ♀ ad. | 60.0 | 69.0 | 40.0 |

Remarks. — Costa Rica and Chiriqui specimens of this wide-ranging *Phaëthornis* have always been referred to Bourcier and Mulsant's subspecies *emiliae*, described from Bogota. On carefully comparing a large number of skins I find that the northern examples constitute a race more different from either true *P. guy* of Trinidad and Venezuela or *P. guy emiliae* of Bogota than are these two from each other. *P. guy coruscus* differs from the southern races in its much more glittering back and sides and in the more bluish color of these parts, besides having a shorter bill.

¹ In Columbian examples of *P. guy emiliae* the wing averages about the same as in the present series; the culmen is, however, longer, measuring about 44 mm. in the male and 43 in the female.

Campylopterus hemileucurus mellitus subsp. nov.

Thirty-two specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7500 feet, February, March and April.

Type, from Boquete, southern slope of Volcan de Chiriqui, 4800 feet altitude, ♂ adult, no. 8425, coll. of E. A. and O. Bangs, collected April 10, 1901, by W. W. Brown, Jr.

Characters.— Similar to true *C. hemileucurus* of Mexico, but larger; bill longer; tail more deeply tipped with white; adult male with breast and belly uniform violet (in true *hemileucurus* the belly gradually becomes much bluer than the breast); upper parts with more green, less violet, (in true *C. hemileucurus* the green is restricted to the upper tail coverts, wing coverts, and a few of the scapulars — in the new bird the rump is mostly, sometimes wholly, green as well); adult female with back and rump wholly green (in true *C. hemileucurus* the adult female has a strong coppery tinge to the upper parts, not seen in the new bird) and throat more violet, less blue.

MEASUREMENTS² (in millimeters).

| No. | Sex and age | Wing | Tail | Culmen |
|------|-------------|-------------------|------|--------|
| 8425 | ♂ ad. | 80.0 | 58.0 | 28.5 |
| 8427 | ♂ ad. | 78.5 | 56.0 | 28.5 |
| 8429 | ♂ ad. | 78.0 | 57.5 | 29.0 |
| 8432 | ♂ ad. | 79.5 | 59.0 | 28.5 |
| 8434 | ♂ ad. | 79.5 | 58.0 | 29.0 |
| 8438 | ♀ ad. | 72.+ ³ | 55.0 | 30.5 |
| 8439 | ♀ ad. | 70.+ ³ | 54.0 | 31.5 |
| 8440 | ♀ ad. | 73.0 | 55.0 | 31.5 |
| 8441 | ♀ ad. | 74.0 | 57.0 | 32.0 |

Remarks.— Through the kindness of Mr. E. W. Nelson of the U. S. Biological Survey I was able, while lately in Washington, to compare our skins with the fine series of true *C. hemileucurus* that he and Mr. Goldman collected in southern Mexico. The southern bird proved to be a very well-marked race, at once distinguished by its larger size, longer bill and the color differences pointed out above.

¹ *Mellitus* — lovely.

² Adult males of true *C. hemileucurus* from southern Mexico measure (about): wing, 78.; tail, 55.5; culmen, 26.5 mm.

³ Tips of primaries somewhat worn off.

Saucerottea niveoventer (Gould).

One adult male, Boquete, 4000 feet, Jan. 15.

Amizillis tzacatl (de la Llave).

One adult male, Volcan de Chiriqui, 5000 feet, May 21.

Hylocharis eliciae (Bourc. and Muls.).

One adult male, Boquete, 3000 feet, March 22.

Chlorostilbon assimilis Lawr.

Two adult males, Boquete, 4000 and 4800 feet, February and March.

Panterpe insignis Cab. and Heine.

Seven adults, both sexes, Boquete and Volcan de Chiriqui, one from Caribbean slope, 6000 to 7600 feet, February, April and June.

Eupherusa egregia Scl. and Saly.

Eleven specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7700 feet, January, February, March and April.

Elvira nigriventris (Lawr.).

Three adult males, Caribbean slope of Volcan de Chiriqui, 6000 to 7000 feet, June.

Elvira chionura (Gould).

Three specimens, two males and one female, Boquete and Volcan de Chiriqui, 4000 to 7700 feet, January and February.

Petasophora cyanotus cabanidis (Heine).

Five adults, both sexes, Boquete, 4000 to 5800 feet, January and March.

This strongly characterized race—perhaps distinct species—differs from true *P. cyanotus* of South America, in having a much longer bill, in being much darker green both above and below, and in the adult male having a decided purplish tinge on middle of belly. Attention was first called to this bird by Cabanis, and it was subsequently named *P. Cabanidis* by Heine (1863), and again *P. cabanisi* by Lawrence (1870).

Eugenes spectabilis Lawr.

One adult female, Volcan de Chiriqui, 8000 feet, May 29.

Oreopyra leucaspis Gould.

Seventeen specimens, adults of both sexes and one young male, Boquete and Volcan de Chiriqui, 4000 to 7700 feet, January, February, March and April.

Oreopyra calolæma Salv.

One adult male, Boquete, 4000 feet, Jan. 19. As I do not know how to tell the females of these two species apart, I have referred all females to *O. leucaspis* which is much the commoner bird.

Heliodoxa jacula henryi Lawr.

Four adult females, Boquete, Volcan de Chiriqui, and Caribbean slope of Volcan de Chiriqui, 4000 to 7500 feet. February, March, and June.

Heliothrix barroti (Bourc. and Muls.).

Five adults, both sexes, Boquete and Volcan de Chiriqui, 4500 to 7000 feet, January, February, March and April.

Floricola superba pallidiceps (Gould).

One male, Boquete, 3000 feet, March 24.

Calliphlox bryantæ (Lawr.).

Three adult males, Boquete and Volcan de Chiriqui, 4000 to 5800 feet, January and February.

Selasphorus torridus Salv.

Two adult females, Volcan de Chiriqui, 10,300 feet, May.

Selasphorus scintilla (Gould).

Five specimens, four males and one female, Boquete, 4000 feet, January and February.

Pharomacrus mocinno costaricensis (Cab.).

Forty specimens, adults of both sexes and young males in various stages of plumage from that resembling the adult female to that of the adult male, Boquete and Caribbean slope of Volcan de Chiriqui, 4000 to 7000 feet, January to June.

Trogon puella Gould.

Six specimens, adults of both sexes, Boquete, 4000 to 7000 feet, January, February, March and April.

Trogon aurantiiventris Gould.

Thirteen specimens, adults of both sexes and two young males, Boquete, 3000 to 6000 feet, January, March and April.

It has been doubted¹ if this is more than a color phase of *T. puella*. In the present large series there is not a sign of any intermediate coloring, adult males, adult females, and young males all being perfectly characteristic of one or the other species. The two birds occur right together, although on the Volcan de Chiriqui *T. aurantiiventris* is much the commoner.

Mr. Brown had splendid opportunities of observing the birds in life and is convinced that they are distinct species; he told me that whenever he saw a pair together, always it was two red-bellied or two yellow-bellied birds and never a red-bellied with a yellow-bellied.

The difference in color is just the same that distinguishes *T. chionura* from *T. bairdi*, but these two have different geographic ranges, while *T. puella* and *T. aurantiiventris* are found in the same region.

Galbula melanogenia Scl.

Three adult males, Bogaba, July.

Capito salvini Scl.

Twenty specimens, both sexes, Boquete, Volcan de Chiriqui and Caribbean slope, 4000 to 5000 feet, January to June.

Tetragonops frantzii Scl.

Nine specimens, adults of both sexes and one young female, Boquete and Caribbean slope of Volcan de Chiriqui, 4000 to 7000 feet, March, April and June.

All females lack the black occipital crest. The one young example is like the adults in color, but has a much weaker bill.

Pteroglossus frantzii Cab.

One adult female, Boquete, 3000 feet, January.

¹ Salvin and Godman, Biol. Centr. Amer., Aves, Vol. II, p. 493.

Aulacorhamphus cæruleigularis Gould.

Five adults, both sexes, Boquete, 4000 feet, January.

Chloronerpes yucatanensis uropygialis (Cab.).

Eight adults, both sexes, Boquete, 4000 to 5600 feet, January, February, March and April.

Melanerpes formicivorus striatipectus Ridg.

Seventeen specimens, both sexes, Boquete, 4000 to 4500 feet, January, February and April.

This is a fairly well-marked subspecies, having a shorter, stouter bill and more striped and spotted breast than the Mexican form.

Melanerpes wagleri Salv. and Godm.

Three adults, both sexes, Boquete, 4000 feet, January and February.

Dendrocopus villosus extimus¹ subsp. nov.

Eleven specimens, adults of both sexes, Boquete and Volcan de Chiriqui, 4000 to 9000 feet, January to May.

Type, from Boquete, southern slope of Volcan de Chiriqui, 6000 feet altitude, ♂ adult, no. 8507, coll. of E. A. and O. Bangs, collected April 18, 1901, by W. W. Brown, Jr.

Characters. — Similar to *D. sanctorum* (Nelson) of the high mountains of Chiapas and Guatemala, but much smaller, and with the dorsal stripe white anteriorly, smoky brown only just as it reaches the rump (in *D. sanctorum* the dorsal stripe is mostly or entirely smoky brown); under parts and outer rectrices a little paler.

Color. — Upper parts black; primaries, secondaries and inner webs of tertials, somewhat spotted with white; malar and supra-auricular stripes white; dorsal stripe white anteriorly, smoky cinnamon just as it reaches the

¹ *Extimus* — outermost, most remote.

rump; broad occipital band scarlet (wanting in the female); under parts and outer rectrices smoky cinnamon brown; sides of breast heavily streaked with black; nasal tufts cinnamon.

MEASUREMENTS (in millimeters).

| No. | Sex and age | Wing | Tail | Tarsus | Culmen |
|------|-------------|-------|------|--------|--------|
| 8507 | ♂ ad. | 100.0 | 61. | 19.0 | 27.0 |
| 8508 | ♂ ad. | 100.5 | 58. | 18.5 | 25.0 |
| 8509 | ♂ ad. | 101.0 | 61. | 18.5 | 26.5 |
| 8510 | ♂ ad. | 99.5 | 54. | 18.5 | 25.5 |
| 8511 | ♀ ad. | 101.0 | 61. | 18.0 | 22.5 |
| 8512 | ♀ ad. | 99.5 | 59. | 17.5 | 22.5 |
| 8513 | ♀ ad. | 99.0 | 58. | 17.5 | 23.0 |
| 8514 | ♀ ad. | 102.0 | 62. | 18.5 | 24.0 |

Remarks.—This new hairy woodpecker occurs commonly in the higher mountains of Costa Rica and the Volcan de Chiriqui, and is the southern extreme of the species. Whether or not it, *D. sanctorum* and *D. jardinei* should be considered distinct species or geographic races of one wide-ranging bird, is much a matter of opinion; the latter course seems to me the more reasonable. All are very different, and very easily recognized, and it is surprising that they were for so long “lumped” together.

Veniliornis caboti (Malh.).

One adult male, Caribbean slope of Volcan de Chiriqui, 7000 feet, June 16.

Platyrynchus albogularis Scl.

Nine specimens, both sexes, Boquete, Volcan de Chiriqui and Caribbean slope, 3000 to 7500 feet, January to June.

Platyrynchus superciliaris Lawr.

One male, Caribbean slope of Volcan de Chiriqui, 2000 feet, June 11.

Rhynchocyclus brevirostris (Cab.).

Sixteen specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7500 feet, February, March and April.

Todirostrum cinereum (Linn.).

Three adults, both sexes, Boquete 3000 to 3800 feet, March and April.

Lophotriccus minor Cherrie.

Four specimens, both sexes, Boquete, 4500 to 4800 feet, March and April. These have been compared with the type, with which they agree.

Pogonotriccus zeledoni Lawr.

Three adult females, Boquete, 4000 to 4500 feet, January and March.

I believe that before Mr. Brown was fortunate enough to get these specimens, the type (in the National Museum at Washington) was the only example known. Our skins match it exactly.

Serphophaga cinerea grisea Lawr.

Two specimens, male and female adult, Boquete, 5000 and 6000 feet, January.

Mionectes olivaceus Lawr.

Seven specimens, both sexes, Boquete, 4000 to 5800 feet, March and April.

Myiopagis placens accola¹ subsp. nov.

Four males, Boquete, 4000 feet, January and February.

¹ *Accola* — a neighbor.

Type, from Boquete, southern slope of Volcan de Chiriqui, 4000 feet altitude, ♂ adult, no. 8539, coll. of E. A. and O. Bangs, collected Feb. 1, 1901, by W. W. Brown, Jr.

Characters.— Similar to true *M. placens* (Scl.) of southern Mexico and Guatemala; but greater coverts edged with much lighter green (in true *M. placens* the greater coverts are not edged with lighter); throat less gray, more yellowish; sides of face paler; sides of pileum less grayish; back decidedly less ashy.

Color.— Sides of pileum grayish olive; a large semi-concealed vertical crest bright yellow; an indistinct superciliary stripe grayish; sides of face dull yellowish gray, speckled with dusky; throat pale yellowish gray; breast much shaded and indistinctly streaked with olive; belly, sides, and under tail coverts, sulphur yellow; back olive green, rather more dusky on hind neck, paler and brighter on lower back, rump and upper tail coverts; wings hair brown, the lesser coverts mostly olive green, secondaries, tertials and greater coverts conspicuously edged with pale yellowish green; tail dusky olive, edged with olive green; bend of wing and lining of wing sulphur yellow.

MEASUREMENTS (in millimeters).

| No. | Sex and age | Wing | Tail | Tarsus | Culmen |
|------|-------------|------|------|--------|--------|
| 8539 | ♂ ad. | 70. | 68. | 18.5 | 13.0 |
| 8540 | ♂ ad. | 67. | 64. | 18.0 | 11.5 |
| 8541 | ♂ yg. | 64. | 59. | 16.5 | 10.5 |
| 8542 | ♂ yg. | 60. | 56. | 16.5 | 11.0 |

Remarks.— Costa Rica, Chiriqui and Panama specimens seem all referable to this new subspecies, which is quite different from true *M. placens* of Mexico and Guatemala. The easiest character to tell it by is the pale edging of the greater wing coverts, which is not shown at all in the Mexican bird.

Tyranniscus parvus Lawr.

Two adults, male and female, Boquete, 4000 feet, January.

Elaenia pagana subpagana (Scl. and Salv.).

One adult female, Boquete, 4000 feet, Jan. 22.

Elaenia frantzii (Lawr.).

Four specimens, Boquete and Volcan de Chiriqui, 4500 to 11,000 feet, February, March and June.

Myiozetetes granadensis Lawr.

One adult female, Bogaba, July 3.

Myiodynastes audax nobilis (Scl.).

Four specimens, both sexes, Boquete, 3500 to 4800 feet, January, March and April.

Megarhynchus pitangua mexicana (Lafr.).

Two males, Boquete, 4000 feet, January and February.

Onychorhynchus mexicanus (Scl.).

Three adults, both sexes, Bogaba, July.

Mitrephanes aurantiiventris (Lawr.).

Eight specimens, both sexes, Boquete, 4000 to 4800 feet, January to April.

Mitrephanes atriceps (Salv.).

Six specimens, both sexes, Volcan de Chiriqui, 10,300 to 11,000 feet, May.

Sayornis amnicola¹ sp. nov.

Three adults, one male and two females, Boquete, 4000 to 4800 feet, January, March and April.

¹ *Amnicola* — that dwells by a river.

Type, from Boquete, southern slope of Volcan de Chiriqui, 4000 feet altitude, ♂ adult, no. 8543, coll. of E. A. and O. Bangs, collected Jan. 21, 1901, by W. W. Brown, Jr.

Characters. — Most like the South American *S. cineracea*, except lacking the conspicuous white edgings of the wings of that species. Differing from *S. aquatica* of Guatemala and southern Mexico in larger size, blacker color throughout, less white on belly, and in having *black* under tail coverts — they are cinereous in *S. aquatica*.

Color. — Black, including under tail coverts, middle of back slightly grayer; small patch in middle of belly white; wing feathers slightly edged with grayish; outer web of outer rectrix white; under wing coverts mixed white and black.

MEASUREMENTS¹ (in millimeters).

| No. | Sex and age | Wing | Tail | Tarsus | Culmen |
|------|-------------|------|------|--------|--------|
| 8543 | ♂ ad. | 89. | 78. | 18.0 | 15.5 |
| 8544 | ♀ ad. | 83. | 74. | 16.5 | 15.5 |
| 8545 | ♀ ad. | 85. | 76. | 16.5 | 15.5 |

Remarks. — A series of skins from Costa Rica, in the National Museum, are similar in every way to the three taken by Mr. Brown on the Volcan de Chiriqui. *Sayornis amnicola* is very different from its northern representative, *S. aquatica*, as also from *S. cineracea* of South America; and while all the black phœbes may eventually prove to be subspecies of one wide-ranging bird, I prefer to regard it as a distinct species.

Empidonax traillii (Aud.).

One adult male, in worn plumage, Pedregal, Aug. 21. There is no doubt that this bird is the North American *E. traillii*, Mr. Ridgway having carefully examined it. The date at which it was taken in Chiriqui is remarkable, and suggests that possibly it may have been left behind in the spring migration and have spent the summer here.

¹ Sclater, Cat. Birds British Museum, Vol. XIV, gives the wing measurements of both *S. aquatica* and *S. cineracea* as 3.4 inches. I find that females are smaller than males, and that *aquatica* is a smaller bird than *cineracea*, the new species agreeing in this respect with the latter (*cineracea*).

Empidonax traillii alnorum Brewst.

One male, Boquete, 4000 feet, April 10.

Empidonax flaviventris (Baird).

Two specimens, male and female, Boquete, 4000 feet, Jan. 19 and Jan. 24.

Empidonax flavescens Lawr.

Thirteen specimens, both sexes, Boquete, 4000 to 6500 feet, January to April.

Nuttallornis borealis (Swains.).

One male, Boquete, 4000 feet, April 20.

Horizopus lugubris Lawr.

Eighteen specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7500 feet, January to April.

Horizopus richardsoni sordidulus (Scl.).

One female, Boquete, 4000 feet, March 27.

Myiarchus panamensis Lawr.

One female, taken in a valley below Boquete, 2500 feet, Jan. 20.

Myiarchus nigricapillus Ridg.

Two specimens, male and female, Boquete, 4000 and 6000 feet, January.

Tyrannus melancholicus satrapa (Licht.).

Two males, one in valley below Boquete, 2000 feet, Jan. 19, the other Bogaba, July 4.

Pipra leucorrhoa Scl.

Five specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 5000 feet, March, April and May.

Chiroxiphia lanceolata (Wagl.).

Eleven specimens, both sexes, Boquete, 3000 to 4000 feet, March and April.

Tityra semifasciata personata (Jard. and Selb.).

Thirteen specimens, both sexes, Boquete, 3000 to 5000 feet, January, February and March.

Pachyrhamphus cinereiventris Scl.

Two adult males, Boquete, 4000 feet, April 5, and Bogaba, July 1.

Lipangus holerythrus Scl. and Salv.

Two females, Boquete and Caribbean slope of Volcan de Chiriqui, 5000 and 6000 feet, April and June.

Attila sclateri Lawr.

Four specimens, both sexes, Boquete, 4000 to 4500 feet, January, March and April.

All the Chiriqui birds in our collection differ slightly from Panama (Loma del Leon) ones in having the back rather redder, less green.

Cotinga ridgwayi Zeledon.

Two adult males, Bogaba, July.

Mr. Brown tells me that, in the regions in which he collected, this is a very rare, local species, very seldom taken by the feather hunters.

Carpodectes antoniae Ridg.

Two adult males, Pedregal, August.

The beautiful, white cotinga is another species of which it is exceedingly difficult to get specimens. These two were shot in the scrub just back of the beach, and were the only examples Mr. Brown saw.

Cephalopterus glabricollis Gould.

Three adults, one male, two females; Boquete, 4000 to 6000 feet, March and April.

Chasmorhynchus tricarunculatus J. and E. Verr.

Seven adult males, Boquete, 4000 to 6000 feet, January to April.

Thamnistes anabatinus Scl. and Salv.

Two males, Caribbean slope of Volcan de Chiriqui, 2000 and 3000 feet, June.

Dysithamnus semicinereus Scl.

Two specimens, male and female, Boquete, 4000 and 5000 feet, February and April.

Myrmotherula menetriesii (d'Orb.).

Nine specimens, both sexes, Boquete and Volcan de Chiriqui, 3000 to 7800 feet, February, March and April.

Rhamphocænus semitorquatus Lawr.

Two males, Caribbean slope of Volcan de Chiriqui, 1000 and 2000 feet, June.

Gymnopathys bicolor olivascens Ridg.

Six specimens, both sexes, Boquete, 4500 to 6000 feet, March and April.

Myrmelastes immaculatus (Lafr.).

One adult female, Caribbean slope of Volcan de Chiriqui, 2000 feet, June 12.

Grallaria princeps Scl. and Salv.

Five specimens, both sexes, Boquete and Volcan de Chiriqui, 7000 to 11,000 feet, April to June.

Grallaricula vegeta¹ sp. nov.

Type (and only specimen), from Caribbean slope of Volcan de Chiriqui, 4000 feet altitude, ♀ adult, no. 8552, coll. of E. A. and O. Bangs, collected June 12, 1901, W. W. Brown, Jr.

Characters.—Similar to *G. flavirostris* Scl. of Rio Napo, Ecuador, but much darker and grayer above and less marked below with blackish; similar also, to *G. costaricensis* Lawr. of Costa Rica, but darker above and less uniformly rufous below, and more marked with black.

Color.—Frontal region, lores and sides of head, ochraceous; crown and occiput grayish olive; back bistre; outer margins of wing feathers and tail, Prout's brown; throat and breast pale ochraceous—the feathers of breast margined with blackish; belly and under tail coverts white, somewhat spotted with blackish toward sides; sides tinged with ochraceous. Upper mandible horn color; lower, pale yellowish.

Measurements.—Type, ♀ adult: wing, 66.; tail, 20.; tarsus, 19.5 (approximately—both legs being broken by shot); culmen, 14.5 mm.

¹ *Vegetus*—active, sprightly.

Remarks. — After examining the series of *Grallariculas* in the National Museum, which includes the type of *G. costaricensis* and other specimens of that species and of *G. flavirostris* of Ecuador and Colombia, I found no trouble in at once telling these two species apart. Neither could the one specimen upon which I found *G. vegeta* be referred to either of them. It differs from both in its much darker, more grayish, back and head. Though most authors lump under one name all of these birds from Ecuador to Costa Rica, there appear to be at least three well-marked forms in this area.

Siptornis rufigenis (Lawr.).

Fifteen specimens, adults of both sexes and young in various stages of plumage, Boquete, Volcan de Chiriqui and Caribbean slope of Volcan de Chiriqui, 4000 to 7500 feet, January, February, March, April and June.

This fine series clearly shows that the bird from Costa Rica described as *Synallaxis rufigenis* by Lawrence was a young example and that the supposed characters of the species are simply those of immaturity.¹ The adult birds, however, are not the same as *S. erythrops* Scl. of Pallatanga, Ecuador, as they have been supposed to be, and Lawrence's name holds for a valid form.

Adult birds from Costa Rica and Chiriqui differ from *S. erythrops* of Ecuador in being much darker below and above, with wings deeper chestnut, and the chestnut of cap more extended over malar and auricular regions.

Specimens wholly in young plumage vary somewhat. In no. 8553 the cap is dark grayish olive, the postocular stripe is pale yellowish olive and the under parts have but little trace of any ochraceous tinge. In no. 8554 the cap is olive, the postocular stripe and malar and auricular regions are orange rufous, and the

¹ *Synallaxis rufigenis* Lawr., Ann. L. N. Y., Vol. IX, p. 105, 1868. Type locality: Costa Rica. Sclater, Cat. Birds British Museum, Vol. XV, p. 60, describes the same plumage, mentioning a specimen in the Salvin-Godman collection.

Salvin and Godman, Biol. Centr. Amer., Aves, Vol. II, p. 152, Tab. 45, fig. 2, describe and use their specimen from Costa Rica, saying that it is immature and that they greatly doubt the validity of the species.

under parts are strongly washed with ochraceous. This bird is probably older than no. 8553, as several of the chestnut feathers, characteristic of the adult, are appearing on the crown. No. 8555 has nearly attained the adult dress, but still retains the postocular stripe (which becomes quite obsolete in the adult) and has the under parts still washed with ochraceous. No. 8556 is similar to it.

The olive cap, the pale postocular stripe and the ochraceous tinge of the under parts are all merely marks of immaturity, and gradually disappear as the bird attains the plumage of the fully adult.

***Pseudocolaptes lawrencii* Ridg.**

Four specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 10,300 feet, April and May.

***Automolus rufobrunneus* (Lawr.).**

Seven specimens, both sexes, Boquete and Volcan de Chiriqui and Caribbean slope of Volcan de Chiriqui, 4500 to 7700 feet, February, March, April and June.

***Philydor panerythrus rufescens* (Lawr.).**

Two specimens, male and female, Boquete, 6500 feet, March, and Caribbean slope of Volcan de Chiriqui, 7000 feet, June.

***Xenicopsis variegaticeps* Scl.**

Eight specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 4800 feet, February to April.

***Xenicopsis subalaris lineatus* (Lawr.).**

Four adults, both sexes, Boquete and Volcan de Chiriqui and Caribbean slope of Volcan de Chiriqui, 4500 to 7800 feet, February, April and June.

Xenops genibarbis Ill.

One adult male, Caribbean slope of Volcan de Chiriqui, 6200 feet, June 12.

Xenops rutilus Licht.

Two males, Boquete, 4500 and 5000 feet, March and April.

Sclerurus canigularis Ridg.

Two adults, male and female, Boquete, 5800 and 5600 feet, March 19.

Sclerurus mexicanus pullus¹ subsp. nov.

Two adults, male and female, Boquete, 4500 and 5000 feet, April.

Type, from Boquete, southern slope of Volcan de Chiriqui, 5000 feet altitude, ♂ adult, no. 8566, coll. of E. A. and O. Bangs, collected April 20, 1901, by W. W. Brown, Jr.

Characters.—Similar to true *S. mexicanus* Scl. of southern Mexico, but much darker throughout; top of head dusky, almost black, instead of brown; back several shades darker brown; rump very dark, almost walnut brown—bright chestnut in true *S. mexicanus*; throat chestnut, instead of hazel; belly and under tail coverts much darker; chin and lores dusky—plain hazel in true *C. mexicanus*.

MEASUREMENTS (in millimeters).

| No. | Sex | Wing | Tail | Tarsus | Culmen |
|------|-----|------|------|--------|--------|
| 8566 | ♂ | 80 | 56 | 22.0 | 25 |
| 8567 | ♀ | 78 | 50 | 20.5 | 20 |

Remarks.—The two examples from Chiriqui stand apart from the whole series of *S. mexicanus* with which I have compared them, their very dark coloration not being matched even in speci-

¹ Pullus—dark-colored.

mens from Loma del Leon, Panama. The latter are rather troublesome, and perhaps really belong with some of the South American races of the *S. mexicanus* group. They are paler than the Chiriqui skins, and in this respect come nearer to true *mexicanus*. The hazel color of the throat is, however, much more extended onto the breast and upper belly.

Margarornis rubiginosa Lawr.

Ten specimens, both sexes, Boquete and Volcan de Chiriqui, 5000 to 11,000 feet, February to June.

Premnoplex brunnescens Scl.

Eleven specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7700 feet, January to April.

Glyphorhynchus cuneatus (Licht.).

One female, Caribbean slope of Volcan de Chiriqui, 7000 feet, June 16.

Dendrocincla ruficeps Scl. and Salv.

Six specimens, both sexes, Boquete, 4000 to 4500 feet, February and March.

Sittasomus levis¹ sp. nov.

Eight specimens, both sexes, Boquete, 4000 to 5000 feet, January to April.

Type, from Boquete, southern slope of Volcan de Chiriqui, 4000 feet altitude, ♂ adult, no. 8568, coll. of E. A. and O. Bangs, collected Jan. 21, 1901, by W. W. Brown, Jr.

¹ *Levis*—quick, nimble.

Characters.— Similar to *S. sylvioides* Lafr. of southern Mexico, but larger; rump, wings, tail, under and upper tail coverts, paler rufous; back paler and not so uniformly brown, more mixed with grayish olive. From *S. amazonus* Lafr. of the upper Amazon, the new form differs in its very much smaller—shorter and weaker—bill and smaller size, though the two are much alike in color.

Color.— Head and under parts grayish olive, slightly washed with reddish brown on middle of belly and sides; back raw umber, with a strong grayish olive cast; rump, upper tail coverts and under tail coverts, pale ferruginous; tail rufous chestnut; tertials ferruginous (a little darker and slightly more rufous than rump); secondaries similar, but with large central black markings and buff-yellow bases of inner webs; lesser and middle coverts, alula, primary coverts and outer edges of primaries, dull olive, slightly more reddish olive on outer edges of primaries; rest of primaries dusky, with central buff-yellow markings on inner webs, showing as a band on under side of closed wing; under wing coverts dull buff-yellow.

MEASUREMENTS (in millimeters).

| No. | Sex and age | Wing | Tail | Tarsus | Exposed culmen |
|------|----------------|------|------|--------|-------------------|
| 8568 | ♂ ad. | 84.0 | 79.0 | 18.0 | 14.0 |
| 8569 | ♂ ad. | 84.0 | 77.5 | 18.0 | 13.5 |
| 8570 | ♂ ad. | 83.5 | 81.0 | 18.5 | 13.5 |
| 8571 | ♂ ad. | 83.5 | 82.0 | 18.0 | 13.5 |
| 8572 | ♀ ad. | 74.5 | 69.5 | 17.5 | 12.5 |
| 8573 | ♀ ad. | 74.0 | 68.0 | 17.0 | 13.0 |

Remarks.— When Mr. Ridgway wrote his synopsis of the genus *Sittasomus*¹ he was in doubt where to place Veragua specimens, putting them under *S. sylvioides* with a question mark. On comparing the good series in the present collection with specimens of *S. sylvioides* of southern Mexico and with the types of *S. amazonus*, the Chiriqui bird proves to be different from either, though closely related to both. From the former it differs in larger size and paler color of back, rump, wings, etc., and from the latter in smaller size and *much* weaker bill.

¹ Proc. U. S. Nat. Mus., Vol. XIV, pp. 507-510, 1891.

Dendroornis punctigula Ridg.

Fifteen specimens, both sexes, Boquete, 4000 to 5000 feet, January to April.

Picolaptes affinis (Lafr.).

Thirteen specimens, both sexes, Boquete, 4000 to 6000 feet, February to April.

Picolaptes compressus (Cab.).

One adult male, Boquete, 4500 feet, April.

Xiphorhynchus grandis Cherrie.

One adult male, Caribbean slope of Volcan de Chiriqui, 700 feet, June 16.

Dendrocolaptes puncticollis ScL. and Salv.

One adult female; Boquete, 7000 feet, April.

Scytalopus argentifrons Ridg.

Seven specimens, young and adults of both sexes, Boquete and Volcan de Chiriqui, 5000 to 7500 feet, February to May.

Galeoscoptes carolinensis (Linn.).

One male, Boquete, 4800 feet, March 5.

Myadestes melanops (Salv.).

Fifteen specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7500 feet, February to April.

***Merula nigrescens* (Cab.).**

Twenty-four specimens, both sexes, Volcan de Chiriqui, 10,000 to 11,100 feet, May and June. Mr. Brown did not see this species below 10,000 feet.

***Merula obsoleta* (Lawr.).**

One male, Caribbean slope of Volcan de Chiriqui, 4500 feet, June 13.

***Merula plebejus* (Cab.).**

Four adults, both sexes, Boquete, 4000 to 7000 feet, February and April. All four have larger bills than Costa Rica specimens, but otherwise are similar.

***Merula leucauchen dagnæ* (Berlepsch).**

Nine specimens, both sexes, Boquete, 4000 to 5000 feet, January to April. The type locality of this form is western Colombia. All Chiriqui birds appear to belong to it, differing from true *M. leucauchen* in smaller size, and darker brown upper parts.

***Merula grayii casius* (Bp.).**

Seven specimens, both sexes, Boquete, 4000 to 4500 feet, January and March.

***Hylocichla ustulata swainsonii* (Cab.).**

Five specimens, both sexes, Boquete, 4000 to 4800 feet, March 24 to April 4.

Catharus fuscater (Lafr.).

Twenty-one specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7500 feet, February to April.

Catharus frantzii Cab.

Three adults, both sexes, Boquete and Volcan de Chiriqui, 5000 to 7000 feet, April and May.

Catharus griseiceps Salv.

Ten specimens, both sexes, Boquete, 4000 to 4800 feet, January to April.

Catharus gracilirostris accentor¹ subsp. nov.

Eight adults, both sexes, Boquete and Volcan de Chiriqui, 5000 to 11,000 feet, March, April and May.

Type, from Volcan de Chiriqui, 10,300 feet altitude, ♀ adult, no. 8576, coll. of E. A. and O. Bangs, collected May 27, 1901, by W. W. Brown, Jr.

Characters.— Similar to true *C. gracilirostris* of Costa Rica, but wing much shorter; bill very much stouter and longer; upper parts less rufescent, more olivaceous. The color of the back and wings in the new form is raw umber (usually a little darker and more olivaceous than is this color in Ridgway's "Nomenclature of colors," but sometimes almost exactly matching it).

MEASUREMENTS (in millimeters).

| No. | Sex and age | Wing | Tail | Tarsus | Exposed culmen |
|------|-------------|------|------|--------|----------------|
| 8576 | ♀ ad. | 70.5 | 59. | 29.5 | 15.0 |
| 8577 | ♀ ad. | 70.0 | 59. | 30.0 | 14.5 |
| 8580 | ♀ ad. | 69.0 | 56. | 30.0 | 14.0 |
| 8581 | ♀ ad. | 71.0 | 60. | 30.0 | 13.5 |
| 8578 | ♂ ad. | 71.0 | 56. | 31.0 | 14.0 |
| 8579 | ♂ ad. | 73.0 | 61. | 30.5 | 15.0 |
| 8582 | ♂ ad. | 70.0 | 59. | 31.0 | 15.0 |

¹ *Accentor* — one who sings with another.

Remarks.—The Costa Rican form of this little thrush—true *C. gracilirostris* Salv.—is remarkable for its very small, slender bill, and has been supposed to be an aberrant member of the genus; but the new bird from the higher slopes of the Volcan de Chiriqui has a bill that is proportionally rather larger than that of many typical species, *C. griseiceps* for example, though in other respects it is so much like true *C. gracilirostris* that I have thought best to treat it as a subspecies.

Like other members of the genus this bird is a fine songster. Its performance, however, cannot be compared to that of *C. fuscater*; the vocal achievements of the latter, Mr. Brown tells me, are unsurpassed by any bird he has ever heard.

***Zeledonia coronata* Ridg.**

Two adult males, Boquete, 7000 and 5800 feet, March and April.

The exact position of this curious bird is still in doubt, but it seems to me well, for the present at least, to put it somewhere near the thrushes.

Mr. Brown was able to tell me nothing of its habits or song, the two individuals were shot while “hopping about in the underbrush.”

These two specimens have been compared with the type, and I could not see that they differed from it in any way.

***Cinclus ardesiacus* Salv.**

Eleven specimens, adults of both sexes and two young in the pale gray plumage, Boquete and Volcan de Chiriqui, 4000 to 7500 feet, February to April.

***Thryophilus modestus elutus*¹ subsp. nov.**

Eight specimens, adults of both sexes and one nestling, Boquete, 3800 to 4800 feet, March and April, and Pedregal, August (one male in nestling plumage).

¹ *Elutus*—washed out.

Type, from Loma del Leon (Lion Hill Station, Panama R. R.), Panama, ♀ adult, no. 7354, coll. of E. A. and O. Bangs, collected March 26, 1900, by W. W. Brown, Jr.

Characters.—Similar to true *T. modestus* of Costa Rica, but rather smaller, and paler in color throughout, with more grayish on sides and back of neck; from *T. zeledoni* the new bird is very different—*T. zeledoni* being much larger, and uniformly grayish brown above, and having very dull-colored flanks and under tail coverts.

Color.—Pileum dull grayish brown, becoming smoke gray on sides of neck and tinged with this color on cervix; a conspicuous white superciliary stripe, and below it a dusky stripe passing through eye; cheeks dull white, slightly pointed with dusky gray; back grayish raw umber; rump and upper tail coverts pale russet; tail dull russet crossed by blackish bands; wing—outer edges of feathers dull grayish raw umber crossed by inconspicuous darker bands, outer edges of outer primaries isabella color; throat, breast, middle of belly and lining of wing, dull grayish white; flanks and under tail coverts cinnamon.¹

MEASUREMENTS (in millimeters).

| No. | Sex and age | Locality | Wing | Tail | Tarsus | Exposed culmen |
|------|-------------|-----------------------|------|------|--------|----------------|
| 7355 | ♂ ad. | Loma del Leon, Panama | 58.5 | 49.0 | 25.0 | 16.5 |
| 7354 | ♀ ad. | " " " " | 55.0 | 46.5 | 23.5 | 15.0 |
| 8610 | ♂ ad. | Boquete, Chiriqui. | 57.0 | 49.0 | 24.0 | 17.0 |
| 8611 | ♂ ad. | " " | 59.0 | 50.0 | 24.0 | 18.0 |
| 8612 | ♂ ad. | " " | 62.0 | 52.0 | 26.0 | 17.0 |
| 8613 | ♂ ad. | " " | 60.0 | 49.0 | 25.0 | 17.0 |
| 8614 | ♂ ad. | " " | 61.0 | 51.0 | 24.5 | 17.5 |
| 8615 | ♂ ad. | " " | 60.0 | 50.5 | 25.0 | — |
| 8616 | ♀ ad. | " " | 58.0 | — | 23.5 | 16.0 |

Remarks.—I have selected for the type one of the specimens from Loma del Leon, collected over a year ago by Mr. Brown, because Panama specimens are more extreme of the new race than Chiriqui ones. All the birds taken in the latter district seem best referred to the new form, but most of them show an approach toward true *T. modestus* of Costa Rica, both in size and in color.

The Panama form of *T. modestus* was referred to, and its characters pointed out, both by Baird² and by Salvin and Godman,³ but so far as I can find it has not been named till now.

¹ Description taken from the type, adult female, and a topotype, adult male, no. 7355.

² Review of American Birds, Part I, p. 131.

³ Biologia Centrali-Americana, Aves, Vol. I, pp. 83, 84.

Thryothorus fasciatoventris melanogaster Sharpe.

One adult male, Bogaba, July 3.

Thryothorus hyperythrus Salv. and Godm.

Six specimens, adults of both sexes, Boquete, 4000 to 4500 feet, January, March and April.

Cistothorus polyglottus elegans (Scl. and Salv.).

One adult male, Boquete, 5000 feet, April 25.

Troglodytes inquietus Baird.

Two males, Boquete, 4000 feet, February.

Troglodytes ochraceus¹ Ridg.

Four adults, both sexes, Boquete, 4000 to 4500 feet, March and April.

Troglodytes browni² sp. nov.

Eleven specimens, adults of both sexes and young, Volcan de Chiriqui, 10,000 to 11,000 feet, May and June:

Type, from Volcan de Chiriqui, 10,000 feet altitude, ♂ adult, no. 8631, coll. of E. A. and O. Bangs, collected May 21, 1901, by W. W. Brown, Jr.

Characters.—An exceedingly aberrant *Troglodytes*, if really referable to that genus. Feet very large, tarsus long; tail very short, all the feathers narrow; coloration peculiar—outer edges of primaries *white*, slightly notched with brown; a broad, white, superciliary stripe; sides of neck mottled with white.

Color.—Upper parts burnt umber, dullest on head and shaded with chestnut on rump and upper tail coverts; a broad white superciliary stripe reaching from

¹ Mr. Ridgway at one time was inclined to place this species in *Hemiura*.

² Named for Mr. W. W. Brown, Jr.

nostril to neck; lores and region below the eye and lower part of cheeks white with slight dusky specklings; a stripe behind eye (between the white cheeks and the superciliary stripe) brown; sides of neck mottled with whitish — the white markings narrowly bordered with dusky; throat, breast and middle of belly white with slight dusky specklings; flanks and under tail coverts brown (a shade about between raw umber and burnt umber); scapulars brown with longitudinal white shaft spots bordered by dusky; some of the greater coverts, marked in the same way; wings dusky brown, outer edges of primaries white notched with dusky; outer edges of rest of feathers pale burnt umber notched with dusky; bend of wing and lining of wing grayish white; tail dull raw umber, banded and freckled with dusky; legs and feet dark brown; upper mandible blackish; lower mandible blackish at tip, yellowish toward base. Young, in nestling plumage, differ from adults in being paler brown above; in having the superciliary stripe and the markings of sides of neck more yellowish and not so pronounced; and in having the throat, breast and middle of belly thickly freckled with dusky — each feather having a dusky tip.

MEASUREMENTS (in millimeters).

| No. | Sex and age | Wing | Tail | Tarsus | Exposed culmen |
|------|----------------|------|------|--------|-------------------|
| 8631 | ♂ ad. | 47.5 | 28.0 | 22.5 | 13.0 |
| 8632 | ♂ ad. | 48.0 | 29.0 | 23.0 | 14.0 |
| 8633 | ♂ ad. | 48.0 | 28.5 | 22.5 | 13.0 |
| 8634 | ♂ ad. | 48.5 | 31.0 | 22.5 | 13.0 |
| 8635 | ♀ ad. | 45.0 | 27.0 | 21.5 | 12.5 |
| 8636 | ♂ ad. | 47.5 | 32.0 | 23.0 | 13.5 |

Remarks.—Mr. Brown found this peculiar little wren wholly confined to the cane brakes on top of the Volcan de Chiriqui, where it was very hard to shoot, though in considerable numbers. It lived much after the manner of a marsh wren, and its song and notes were wholly unlike those of any wren Mr. Brown is familiar with.

In placing the species in the genus *Troglodytes*, which I do with much hesitation, I may be wrong. Probably, some day, the bird must have a peculiar genus made for it. *Troglodytes*, as at present understood, is pretty composite, and it is better to let some one divide it into groups in a thorough manner, than to propose a new genus for this bird now.

In coloration *T. browni* suggests some species of *Thryothorus*

or even *Henicorhina*. Its bill, however, seems to be that of a typical *Troglodytes*, wholly lacking the notch toward the end of the edge of the upper mandible.

It is at all events a very distinct, peculiar species, needing comparison with no other known wren, its large feet and long tarsus, its short, slender tail, and the conspicuous white edgings of the primaries, distinguishing it at once from any other *Troglodytes* or from *Hemiura*.

***Henicorhina prosthaleuca* ScL.**

One adult male, Caribbean slope of Volcan de Chiriqui, 5700 feet, June 10.

***Henicorhina collina*¹ sp. nov.**

Fifteen specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7500 feet, January to April.

Type, from Boquete, southern slope of Volcan de Chiriqui, 6000 feet altitude, ♂ adult, no. 8640, coll. of E. A. and O. Bangs, collected April 16, 1901, by W. W. Brown, Jr.

Characters.—A large species, with very dark gray breast, and with the throat heavily striped with black—rather more noticeably so in the male than in the female.

Color.—Middle line of crown dark grayish bistre; sides of crown black; a white line from above eye to nape; below this a black band; cheeks and sides of neck black thickly spotted with white; back, rump and upper tail coverts uniform chestnut-hazel; wings dusky, the outer edges of the feathers and the whole of tertials and wing coverts bright chestnut-hazel barred with dusky—the darker bars on wing coverts very indistinct; alula dusky, slightly spotted with isabella color; bend of wing grayish white; lining of wing gray mottled with dusky; tail chestnut, barred with blackish; throat white, heavily striped with black; breast and sides dark gray (almost slate gray in some specimens), slightly paler on middle of belly, where the feathers are distinctly banded with dark gray and pale gray; lower sides, flanks and under tail coverts, raw umber shaded somewhat with chestnut; feet and bill blackish. Adult females differ from adult males in being slightly paler gray on the breast and in having the throat less conspicuously striped with black.

¹ *Collinus*—found or living on a hill.

MEASUREMENTS (in millimeters).

| No | Sex and age | Wing | Tail | Tarsus | Exposed culmen |
|------|----------------|------|------|--------|-------------------|
| 8640 | ♂ ad. | 56.0 | 30.0 | 25.0 | 15.5 |
| 8641 | ♂ ad. | 56.5 | 29.0 | 24.5 | 15.5 |
| 8642 | ♂ ad. | 57.0 | 30.5 | 24.5 | 15.5 |
| 8646 | ♂ ad. | 57.5 | 32.0 | 24.0 | 16.0 |
| 8647 | ♀ ad. | 52.5 | 26.0 | 22.5 | 14.5 |
| 8648 | ♀ ad. | 54.0 | 27.0 | 24.0 | 15.0 |
| 8649 | ♀ ad. | 55.0 | 30.0 | 24.0 | 14.5 |
| 8650 | ♀ ad. | 52.5 | 26.5 | 23.5 | 15.0 |

Remarks. — *Henicorhina collina* is very different from any gray-breasted wood wren yet named, its deep gray breast, banded belly and striped throat at once distinguishing it.

Costa Rica specimens are similar, but all the characters given above are less strongly marked in the specimens I have seen, and this form also is perhaps a distinct one. *H. collina* hardly needs comparison with *H. leucophrys* of South America.

Microcerculus acentetus¹ sp. nov.

Three adult males, Boquete, 4000 to 5000 feet, March and April.

Type, from Boquete, southern slope of Volcan de Chiriqui, 5000 feet altitude, ♂ adult, no. 8651, coll. of E. A. and O. Bangs, collected April 18, 1901, by W. W. Brown, Jr.

Characters. — Apparently a very different species from any heretofore described. All the colors very dark; no cross-banding whatever on under parts or back, the crown alone with slight dusky tips to the feathers, producing a scaly appearance.

Color. — Upper parts deep, rich burnt umber, without a trace of cross-barring; top of head duller, about mummy brown, the feathers very slightly tipped with dusky, producing a scaly appearance; upper tail coverts blackish, edged with dark burnt umber; sides of head, breast and middle of belly dull drab gray slightly washed with burnt umber; throat dull grayish white; lower sides, flanks and under tail coverts dark burnt umber, wholly unbarred; wing and tail blackish brown; wing coverts and tertials margined with same color as back.

¹ *Acentetus* — without spots or points.

MEASUREMENTS (in millimeters).

| No. | Sex and age | Wing | Tail | Tarsus | Exposed culmen |
|------|----------------|------|------|--------|-------------------|
| 8651 | ♂ ad. | 59.0 | 23.5 | 22.0 | 17. |
| 8652 | ad. | 57.5 | 25.0 | 20.5 | 17. |
| 8653 | ♂ ad. | 58.0 | 24.0 | 22.0 | 17. |

Remarks.—*Microcerculus* divides into local species, each with a comparatively limited range, in the most astounding manner. So many forms had already been described from near-by localities that it was with some hesitation that I made up my mind to name another, and only after the most careful comparisons, when I found it impossible to refer the bird of the Volcan de Chiriqui to any of them.

The neighboring species are:—

M. lusciniæ Salv. of Santa Fé de Veragua and Santiago de Veragua, south to Panama.

M. daulias Ridg., Atlantic side of Costa Rica.

M. orpheus Ridg., Pacific side of Costa Rica.

M. philomela (Salv.), Guatemala.

From all of these *M. acentetus* differs much, except from *M. orpheus*, which is its nearest ally. From this species the new form can be told by its wholly unbarred back, rump and upper tail coverts, its much less varied under parts, and shorter bill.

Cyanolyca argentigula (Lawr.).

Eleven specimens, adults of both sexes, Volcan de Chiriqui, 9000 feet, June.

This jay and the following species appear to be extremely local in their distribution. A small colony of *C. argentigula* was found at the spot where these were taken, but the species was seen nowhere else on the Volcan de Chiriqui. On the Caribbean slope Mr. Brown took the three specimens of *C. cucullata*, but saw no more of that species.

Cyanolyca cucullata Ridg.

Three adult males, Caribbean slope of Volcan de Chiriqui, 7000 feet, June.

Ptilogonys caudatus Cab.

Twenty-seven specimens, adults of both sexes and young, Volcan de Chiriqui, 10,000 to 11,000 feet, May and June.

Mr. Brown found this species only at high altitudes on the Volcan de Chiriqui. The birds were in small flocks, composed of adults and full-grown young still in nestling plumage. Several times he saw one of these flocks leave the high peak of the mountain and fly across the valleys in the direction of the lofty Costa Rican mountains, which could be seen in the distance.

Phainoptila melanoxantha Salv.

Fifteen specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 10,000 feet, January, March, April and May.

Vireo flavoviridis (Cassin).

Four specimens, both sexes, Boquete, 4800 feet, and Bogaba, February, March and July.

Vireo philadelphicus (Cassin).

Two males, Boquete, 3000 and 4000 feet, Jan. 16 and March 26.

Vireo josephæ Scl.

Seven specimens, both sexes, Boquete and Caribbean slope of Volcan de Chiriqui, 4000 to 7000 feet, January, February, March, April and June.

Vireo flavifrons Vieill.

One female, Boquete, 4000 feet, Jan. 22.

Vireo carmioli Baird.

One adult male, Boquete, 4500 feet, March 17.

Hylophilus decurtatus (Bp.).

Three adults, both sexes, Boquete, 4000 and 5000 feet, January and April.

Hylophilus ochraceiceps Scl.

One male, Caribbean slope of Volcan de Chiriqui, 4000 feet, June 11. This specimen has a very large bill, much larger than in examples of true *H. ochraceiceps* of Mexico; and should others prove the same, the southern form must be named.

Cyclorhis flavipectus subflavescens Cab.

Seven specimens, both sexes, Boquete, 4000 to 4800 feet, January, March and April.

Progne chalybea (Gmel.).

Four adults, both sexes, Boquete, 4500 to 4800 feet, and Bogaba, March, April and July.

This northern form of *P. chalybea*, which Prof. Baird named *Progne leucogaster*, is probably worth recognizing by name. I have, however, seen no specimens from Guiana, and judge only by early descriptions and figures.

Atticora cyanoleuca montana Baird.

One young male, Volcan de Chiriqui, 10,800 feet, May 27.

This little swallow was seen often flying about the top of the volcano, but was very hard to get shots at, and still harder to retrieve when shot, Mr. Brown losing several that fell over the cliffs.

Rhodinocichla rosea (Less.).

Three specimens, both sexes, Boquete, 3000 to 3500 feet, and Bogaba, January, April and July.

Mr. Ridgway¹ has shown that the "rose-breasted Wren" cannot be associated with the Mimidæ or Troglodytidæ, and I follow him in placing it near to the Mniotiltidæ.

Basileuterus leucopygius veraguensis Sharpe.

Two specimens, one an adult female, the other unsexed, Boquete, 4000 feet, Feb. 4 and April 12.

Basileuterus melanogenys Baird.

Eleven specimens, both sexes, Boquete and Volcan de Chiriqui, 4500 to 10,200 feet, February to May.

Basileuterus melanotis Lawr.

Eleven specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7500 feet, February to April.

Basileuterus culicivorus godmani Berlepsch.

Twelve specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7700 feet, January to April.

¹ The Birds of North and Middle America, Part I, page 18, foot-note. 1901.

Setophaga aurantiaca Baird.

Five specimens, both sexes, Boquete, 4000 to 4500 feet, January and February.

Setophaga torquata Baird.

Ten specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7500 feet, February to May.

Setophaga ruticilla (Linn.).

One female, Boquete, 4000 feet, January 24.

Myiodioides canadensis (Linn.).

Two males, Boquete, 4000 and 4500 feet, April 7.

Myiodioides pusillus pileolatus (Pall.).

Two adult males, Boquete, 4000 feet, Jan. 16 and Jan. 24.

Geothlypis philadelphia (Wils.).

Two specimens, male and female, Boquete, 4500 and 4000 feet, March 17 and April 7.

Geothlypis tolmiei (Townsend).

One adult male, Boquete, 4000 feet, Jan. 20.

Geothlypis caninucha icterotis Ridg.

Six adults, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7500 feet, February and April.

Mr. Brown did not get *G. chiriquensis* Salvin, and though constantly on the lookout for it, never saw it. It must be a very local species, perhaps found on a large savanna on the northern slope of the volcano, that Mr. Brown did not visit. He heard that one of Arcé's men collected some birds on this savanna years ago, and he meant to visit the place, but time did not permit.

Oporornis formosa (Wils.).

Two males, Boquete and Volcan de Chiriqui, 7700 and 4500 feet, Feb. 22 and March 3.

Seiurus noveboracensis (Gmel.).

One male, Boquete, 4000 feet, March 27.

Seiurus aurocapillus (Linn.).

Two specimens, male and female, Boquete and Volcan de Chiriqui, 4000 and 7700 feet, Feb. 20 and April 15.

Dendroica æstiva (Gmel.).

One male, in the autumnal plumage of a young bird, Pedregal, Aug. 21. This seems an early date for the summer yellow bird to reach Panama, but probably the autumnal migrants arrive in Central and South America much earlier than we are accustomed to think they do.

Dendroica blackburniæ (Gmel.).

One adult male, Boquete, 4000 feet, March 27.

Helminthophila peregrina (Wils.).

One adult male, Boquete, 4000 feet, Jan. 18.

Helminthophila chrysoptera (Linn.).

Five specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7700 feet, Feb. 8 to April 16.

Mniotilta varia (Linn.).

One female, Boquete, 4000 feet, Jan. 24.

Compsothlypis pitiayumi speciosa Ridg.

Five adult males, Boquete, 3000 to 4500 feet, January, March and April. These include the type (no. 177,411, coll. U. S. Nat. Mus.) of this fine new subspecies just described by Mr. Ridgway (Auk, Vol. XIX, p. 69, Jan., 1902).

Oreothlypis gutturalis (Cab.).

Seven adults, both sexes, Boquete and Volcan de Chiriqui, 7000 to 10,300 feet, February, May and June.

Dacnis venusta Lawr.

Twenty specimens, adults of both sexes, and young males in various stages of plumage, Boquete, 4000 to 5000 feet, March, April and May.

Cyanerpes cyaneus carneipes (Scl.).

Six specimens, both sexes, Boquete, 3000 to 5000 feet, January and April.

Diglossa plumbea Cab.

Three specimens, both sexes, Boquete, 4500 to 7000 feet, March and April.

Cacicus vitellinus Lawr.

One adult male, moulting, Sona, July 10.

Amblycercus holosericeus (Licht.).

Five specimens, both sexes, Volcan de Chiriqui, 9500 to 10,300 feet, May and June.

Leistes guianensis (Linn.).

One male, David, July 25.

Sturnella magna inexpectata Ridg.

Fourteen specimens, both sexes, Boquete, 4000 to 6000 feet, January to March.

Icterus galbula (Linn.).

Two males, Boquete, 3100 and 4000 feet, Jan. 19 and April 15.

Chlorophonia callophrys (Cab.).

Eighteen specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7500 feet, February to May.

Euphonia crassirostris Scl.

Four specimens, two adult males, a young male and an adult female, Boquete, 3000 to 4000 feet, January, March and April.

Euphonia hirundinacea Bp.

Two adult males, Boquete, 3800 and 4000 feet, April 11 and April 15.

Euphonia annæ Cassin.

Four adult males, Boquete and Caribbean slope of Volcan de Chiriqui, 4500 to 7000 feet, March and June.

Euphonia elegantissima (Bp.).

Six specimens, both sexes, Boquete, 4000 to 4500 feet, January, February, March and May.

Calospiza gyroloides (Lafr.).

Twenty-two specimens, both sexes, Boquete, 3500 to 4800 feet, January, March and April.

Calospiza icterocephala (Bp.).

Twenty-one specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7500 feet, January to April.

Calospiza dowi (Salv.).

Nine specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7500 feet, February, March, April and June.

Calospiza florida arcaei Ridg.

One male, Caribbean slope of Volcan de Chiriqui, 2000 feet, June 4.

Tanagra cana diaconus (Less.).

Four specimens, both sexes, Boquete, 3000 to 4000 feet, and Bogaba, January, February, April and July.

Ramphocelus passerinii Bp.

Fifteen males, Bogaba, July.

Piranga rubra (Linn.).

Seven specimens, both sexes, Boquete, 3000 to 5000 feet, January to April.

Piranga erythromelas (Vieill.).

Two specimens, Boquete, 4800 feet, March 25 and March 26, a female and a male. The latter is in very peculiar plumage: the wings and tail are black and the rest of the body is a brilliant orange.

Piranga leucoptera latifasciata Ridg.

Fourteen specimens, both sexes, Boquete, 4000 to 5000 feet, January to April.

Piranga bidentata sanguinolenta (Less.).

Nine specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7000 feet, January to April.

Phoenicothera vinacea Lawr.

Fifteen specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7500 feet, February to April.

Eucometes spodocephala stictothorax Berlepsch.

Four adult males, Boquete, 4000 and 4800 feet, and Bogaba, April and July.

Chlorospingus hypophæus Scl. and Salv.

Five specimens, both sexes, Caribbean slope of Volcan de Chiriqui, June.

Chlorospingus pileatus Salv.

Twenty-two specimens, adults of both sexes and young, Boquete and Volcan de Chiriqui, 5000 to 11,000 feet, March, April, May and June.

The young have the lower mandible yellow.

Chlorospingus novicius¹ sp. nov.

Twenty-three specimens, both sexes, Boquete, Volcan de Chiriqui and Caribbean slope of Volcan de Chiriqui, 4000 to 7500 feet, February, March, April and June.

Type, from Volcan de Chiriqui, 7500 feet altitude, ♀ adult, no. 8740, coll. of E. A. and O. Bangs, collected Feb. 5, 1901, by W. W. Brown, Jr.

Characters.—A very different bird from *C. albitempora* (Lafr.) of Bolivia, with which it usually has been confused. At once distinguished by its very much stouter, differently shaped, bill. It is also a larger bird than *C. albitempora*; has a more spotted throat; darker green back; sides of throat darker; and the pale color of throat does not extend onto malar region (as it does in *C. albitempora*). A perhaps rather nearer ally of the new species is *C. punctulatus* Scl. and Salv. of Cordillera del Chucu, Panama. That bird, however, has a black head and more spotted throat, and more white over the eye.

Color.—Head, including suborbital region, dusky greenish brown; rather grayer on sides of neck; a white patch behind eye, extending above the eye to about the middle line; and usually a few white feathers below eye; rest of upper parts, including edges of wings and tail, olive green; throat soiled white,—inclining to fawn color or wood brown on malar region,—speckled with dusky; jugulum greenish ochre, shading into olive yellow on breast; sides and under tail coverts, olive yellow, rather greener—less yellowish—than breast; middle of belly white; bend of wing yellow; lining of wing yellowish white; inner margins of wing feathers,—primaries, secondaries and tertiaries,—whitish; under side of tail dusky olive.

Novicius—new.

MEASUREMENTS (in millimeters).

| No. | Sex and age | Wing | Tail | Tarsus | Exposed culmen |
|------|----------------|------|------|--------|-------------------|
| 8742 | ♂ ad. | 68.0 | 58.0 | 22.0 | 13.0 |
| 8741 | ♂ ad. | 68.5 | 59.0 | 21.5 | 13.0 |
| 8749 | ♂ ad. | 65.0 | 56.0 | 22.0 | 13.5 |
| 8750 | ♂ ad. | 66.0 | 57.0 | 21.5 | 13.0 |
| 8752 | ♂ ad. | 64.5 | 55.5 | 22.0 | 13.5 |
| 8740 | ♀ ad. | 64.5 | 55.5 | 21.5 | 13.0 |
| 8754 | ♀ ad. | 65.0 | 57.0 | 22.0 | 13.0 |
| 8756 | ♀ ad. | 65.0 | 59.0 | 21.5 | 13.0 |

Remarks.—Specimens from Costa Rica and Chiriqui have always been confused with *C. albitempora* (Lafr.) of Bolivia, but the two birds are very different, and can at once be told apart by the bills—*C. novicius* having a large stout bill, and *C. albitempora* a small slender one,—besides which there are marked differences in color. There are no skins of *C. albitempora* in the National Museum, but the American Museum of Natural History lent Mr. Ridgway a fine specimen, collected by Rusby in Bolivia, which he and I compared with the northern bird, with the above result.

Saltator magnoides intermedius Lawr.

Three females, Boquete, 4000 feet, January and March.

Saltator atriceps lacertosus Bangs.

One adult female, Boquete, 4000 feet, Jan. 29.

Pheucticus tibialis Baird.

Three specimens, adult males, Boquete, and Caribbean slope of Volcan de Chiriqui, 5000 and 5600 feet, March 20, April 22 and June 12.

Zamelodia ludoviciana (Linn.).

Two males, Boquete, 4000 feet, Jan. 21 and Feb. 26.

Canospiza cyanea (Linn.).

Two males, Boquete, 4000 feet, Jan. 18 and Feb. 13, both in mixed blue and brown plumage.

Tiaris¹ **pusilla** (Swains.).

Three males, Boquete, 4000 feet, January and April.

Pezapetes capitalis Cab.

Twelve specimens, adults of both sexes, and two young in nestling plumage, Volcan de Chiriqui, 10,000 to 11,000 feet, May and June.

Pselliophorus tibialis (Lawr.).

Eight specimens, both sexes, Boquete and Volcan de Chiriqui, 5600 to 7700 feet, February, March and May.

Buarremon brunneinucha (Lafr.).

Twenty-one specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7700 feet, January to April.

Atlapetes gutturalis (Lafr.).

Twenty-one specimens, both sexes, Boquete, 4000 to 5000 feet, January to March.

Lysurus crassirostris (Cassin).

Fourteen specimens, both sexes, Boquete and Volcan de Chiriqui, 4000 to 7800 feet, February to April.

¹*Tiaris* must be used instead of *Euetheia*. Cf. Richmond, Auk, Vol. XIX, p. 87, Jan., 1902.

Arremonops conirostris richmondi Ridg.

Five specimens, both sexes, Boquete, 4000 feet, and Bogaba, January, February and July.

These, as well as the specimens collected by Mr. Brown at Divala, Chiriqui, and most of those taken at Loma del Leon, Panama, prove referable to this well-marked subspecies. Examples in the National Museum from Panama City belong to true *A. conirostris*.

Brachyspiza capensis peruviana (Less.).

Eight specimens, adults of both sexes and nestlings, Boquete and Volcan de Chiriqui, 4000 to 10,000 feet, January, February, March and May.

Junco vulcani (Boucard).

Sixteen specimens, adults of both sexes and young in nestling plumage, Volcan de Chiriqui, 10,000 to 11,200 feet, May and June.

Spiza americana (Gmel.).

One adult male, Boquete, 4000 feet, Jan. 24.

PROCEEDINGS
OF THE
NEW ENGLAND ZOÖLOGICAL CLUB

TWO NEW BIRDS FROM SAN MIGUEL ISLAND,
BAY OF PANAMA.

BY OUTRAM BANGS.

THE accession of better material, and a more careful study and comparison of the birds collected on San Miguel Island, Bay of Panama, by Mr. W. W. Brown, Jr., in the spring of 1900, have led me to describe as new several species that at first I referred to mainland birds. Even after the two which I now name — the Vireo, which I formerly called *Virco chivi agilis*, and the ant wren, which I referred to *Drymophila intermedia*,¹ — there still remain undescribed three or four species whose identity with their mainland representatives I greatly question. The birds were taken late in the spring and some are in worn plumage, and I was unable to find mainland examples in corresponding condition for comparison. In the cases of the *Saltator* and the *Ornithion* the differences seem too great to be accounted for by abrasion or fading, and I think both these will prove to be island forms, requiring names.

I have now studied material which warrants me in naming the following two species.

Formicivora² **alticincta**³ sp. nov.

Type, from San Miguel Island, Bay of Panama, ♂ adult, no. 4940, coll. of E. A. and O. Bangs, collected April 30, 1900, by W. W. Brown, Jr.

¹ Auk, Vol. XVIII, pp. 24-32, Jan., 1901.

² See Dr. R. Bowdler Sharpe's note on the use of the generic names *Formicivora* and *Drymophila*, Hand List of Birds, Vol. III, p. 25, 1901.

³ *Alticinctus* — active, busy.

Characters.—Size of *F. intermedia* Cab., with rather stouter bill. Color of back much darker; top of head dark grayish brown, contrasting with color of back; the black band down centre of belly wider, leaving space occupied by the long plume-like white feathers of the sides narrower.

Color.—Adult male (female unknown): pileum mouse gray, the centres of the feathers darker—showing as indistinct lines; a broad white superciliary stripe; back and rump dark broccoli brown; wings black, conspicuously marked with white at ends of lesser, middle and greater coverts, the ends of primaries, secondaries and tertials gradually becoming brownish; tail black, the feathers tipped with white, shorter ones much so, longer ones less; throat, chest, sides of head and middle of belly, to and including under tail coverts, black; a narrow area along sides occupied by long, silky, plume-like, white feathers; feet and bill black.

MEASUREMENTS (in millimeters).

| No. | Sex and age | Wing | Tail | Tarsus | Exposed culmen |
|-----------------|----------------|------|------|--------|-------------------|
| 4940 (type) | ♂ ad. | 54. | 48. | 22. | 14.8 |
| 4939 (topotype) | ♂ ad. | 56. | 48. | 21. | 14.4 |

Remarks.—The type locality of true *Formicivora intermedia* Cab. is Colombia, Cabanis saying his museum had specimens from Cartagena and also from the Valley of Aragua in Venezuela.¹ All specimens from northern Colombia—Santa Marta to the Bogota region—are similar. They are small (wing of adult male about 55 mm.) and pale above; the color of the back is drab, and the head is not darker and not grayish.

The bird of Tobago has lately been separated as *F. tobagoensis* Delmas (Mém. Soc. Zool. France, XIII, p. 141, 1900). It is a large, dark-colored form (wing in adult male about 60 mm.). Specimens from the coast of Venezuela—Margarita Island and La Guayra—approach it in color, but are smaller, and seem to be intermediate between it and true *F. intermedia*.

I cannot find any record for the bird from the continent as far north as Panama, and it was therefore a surprise to find a form on San Miguel Island. This island form is easily distinguished from true *F. intermedia* by its stouter bill, its grayish head and dark coloration, and from *F. tobagoensis*—which it more nearly resembles in color—by much smaller size.

¹ Wieg. Arch., 1847, pt. 1, p. 225 and following.

Vireo insulanus sp. nov.

Type, from San Miguel Island, Bay of Panama, ♀ adult, no. 4947, coll. of E. A. and O. Bangs, collected April 29, 1900, by W. W. Brown, Jr.

Characters.—Similar to *V. flavoviridis*, but much smaller; general coloration paler, the yellow of sides and under tail coverts paler as well as duller—slightly greener; back grayer olive green; wing formula as in *V. flavoviridis*, i. e., outer primary intermediate in length between fourth and fifth (counting from outside). In *V. olivaceus* the outer primary equals or exceeds the fourth, while in *V. chivi agilis* the outer primary equals the fifth.

The male is considerably larger than the female, as appears to be the case with all the species of this group—*Vireosylva*. In color the sexes are alike. Mr. Brown notes that, in freshly killed specimens, the “iris is red, the tarsus plumbeous.”

MEASUREMENTS (in millimeters).

Vireo insulanus Bangs.

| No. | Sex and age | Wing | Tail | Tarsus | Exposed culmen |
|-----------------|-------------|------|------|--------|----------------|
| 4947 (type) | ♀ ad. | 71.5 | 50.0 | 17.4 | 13.4 |
| 4949 (topotype) | ♀ ad. | 71.0 | 49.0 | 17.0 | 13.2 |
| 4948 | ♂ ad. | 75.5 | 52.5 | 16.8 | 13.4 |
| 4950 | ♂ ad. | 77.0 | 55.0 | 17.6 | 13.8 |

Vireo flavoviridis (Cassin).

| No. | Locality | Sex and age | Wing | Tail | Tarsus | Exposed culmen |
|------|-------------------|-------------|------|------|--------|----------------|
| 8696 | Boquete, Chiriqui | ♀ ad. | 76.0 | 53. | 17.6 | 14. |
| 8699 | “ “ | ♀ ad. | 75.5 | 54. | 18.2 | 14. |
| 8698 | “ “ | ♂ ad. | 83.0 | 58. | 18.2 | 15. |
| 8697 | Bogaba, Chiriqui | ♂ ad. | 82.0 | 56. | 17.8 | 15. |

Vireo chivi agilis (Licht.).

| No. | Locality. | Sex and age | Wing | Tail | Tarsus | Exposed culmen |
|------|-----------------------|-------------|------|------|--------|----------------|
| 5468 | Santa Marta, Colombia | ♀ ad. | 66. | 47.0 | 18.0 | 14.0 |
| 5467 | “ “ “ | ♂ ad. | 73. | 51.5 | 17.4 | 15.0 |
| 5469 | “ “ “ | ♂ ad. | 75. | 55.0 | 18.0 | 14.4 |
| 5470 | “ “ “ | ♂ ad. | 74. | 52.0 | 18.4 | — |

PROCEEDINGS
OF THE
NEW ENGLAND ZOÖLOGICAL CLUB

DESCRIPTIONS OF TWO NEW, INSULAR BLARINAS
FROM EASTERN MASSACHUSETTS.

BY OUTRAM BANGS.

FOR some years past I have been accumulating specimens of the large *Blarina* of eastern North America and studying its distribution and variations, and I now have a series almost completely covering its range. This animal is of course the *Blarina brevicauda talpoides* (Gapper), the type locality of which is the vicinity of Lake Simcoe, Ontario. As to whether this form should be recognized as distinct from true *Blarina brevicauda* (Say) of the West (type locality, near Blair, Nebraska), there will always be, I think, a difference of opinion. To me the two seem quite different enough to stand as subspecies, though Dr. Merriam thought otherwise.¹ Dr. Merriam's view that *talpoides* is an intergrade between *brevicauda* and *carolinensis* is hardly in accordance with its geographic distribution, as it occupies the whole of continental eastern North America from at least as far north as Lake Edward, Quebec, south to Maryland and the District of Columbia, at its southern limit passing abruptly into *B. brevicauda carolinensis*. I can detect but little difference in specimens from various widely separated stations throughout this large area; thus I have been unable to distinguish between examples from Lake Edward, Quebec, Ontario, Nova Scotia, Maine, New Hampshire, Massa-

¹ See Miller, Proc. Boston Soc. Nat. Hist., Vol. XXVI, pp. 185-187, 1894, and Merriam, North Amer. Fauna, no. 10, pp. 10-13, 1895.

chusetts, and Connecticut, either by the skulls or by the skins, without referring to the labels or to the 'make' of the skins.

On the coast of Massachusetts *B. brevicauda talpoides* has developed at least two well-characterized insular forms — perhaps more will be found when other islands have been explored.

1st. On Martha's Vineyard Island there is a small form with dark brownish back and very pale — almost whitish — under parts; and with a short skull, the rostral portion of which is much broader and stronger, and the nasal aperture larger, than in *B. brevicauda talpoides*.

2d. On Nantucket Island is a form closely related to the last in size, proportions and skull, but very different in color, being darker below and more plumbeous above, — in these respects more nearly like the continental *Blarina brevicauda talpoides*.

When trapping these two island forms I noticed a striking peculiarity, possessed by both, in which they differ from *B. brevicauda talpoides*. This is, that they have to a very much less degree the strong smell so characteristic of the common short-tailed shrew. I believe that dissection would show their scent glands to be much less well developed.

These two insular forms, which, perhaps, it is best to regard as subspecies, may be formally characterized as follows:

***Blarina brevicauda aloga*¹ subsp. nov.**

MARTHA'S VINEYARD BLARINA.

Type, from West Tisbury, Martha's Vineyard, Massachusetts, old adult ♂, no. 9727, Bangs coll., coll. Museum of Comparative Zoölogy, collected June 25, 1899, by Outram Bangs.

Characters. — Smaller than *B. brevicauda talpoides*; colors browner above and grayer below — a decided line of demarcation along sides, between the two colors; skull very different — much shorter but quite as wide; rostral portion particularly short, very massive and much wider; the nasal aperture larger; teeth much the same, but tooth row shorter.

Color. — Upper parts dark brownish drab, through which the gray of the

¹ *Alogus* — irregular, that does not correspond.

under fur shows somewhat; under parts pale silvery gray, almost whitish on ventral region and between arms, the basal portion of the fur slightly darker than the apical; a sharply drawn line of demarcation along middle of sides between colors of upper and under parts; hands and feet white—decidedly paler than in *B. brevicauda talpoides*; tail dusky above, gray below—distinctly bicolor. (For measurements, see pages 77 and 78.)

*Blarina brevicauda compacta*¹ subsp. nov.

NANTUCKET BLARINA.

Type, from Nantucket, Massachusetts, old adult ♂, no. 9705, Bangs coll., coll. Museum of Comparative Zoölogy, collected July 10, 1899, by Outram Bangs.

Characters.—Similar to *B. brevicauda aloga* in size and cranial characters, but very different in color—in this respect more nearly like the mainland *B. brevicauda talpoides*, but at once distinguishable from that animal by its small size and peculiar skull like that of *B. b. aloga*.

Color.—Upper parts drabby slate gray, the dark gray under fur showing through; under parts similar but slightly less drabby; no line of demarcation along sides—the animal being distinctly one-colored; hands and feet soiled grayish, as in *B. b. talpoides*; tail unicolor, dusky. (For measurements, see page 78.)

MEASUREMENTS (in millimeters).

Blarina brevicauda aloga Bangs.

| No. | Sex and age | Locality | Total length | Tail vertebræ | Hind foot |
|------|-------------|---------------------|--------------|-----------------|-----------|
| 9727 | ♂ old ad. | West Tisbury, Mass. | 120. | 24.0 | 14.0 |
| 9726 | ♂ old ad. | “ “ “ | 128. | 24.5 | 15.0 |
| 9729 | ♂ old ad. | “ “ “ | 125. | 27.5 | 14.0 |
| 9731 | ♂ old ad. | “ “ “ | 121. | 29.0 | 15.0 |
| 9728 | ♂ ad. | “ “ “ | 118. | 25.0 | 14.5 |
| 9733 | ♂ ad. | “ “ “ | 118. | 24.0 | 14.0 |
| 9730 | ♂ ad. | “ “ “ | 115. | 21.5 (tip gone) | 14.0 |
| 9734 | ♀ old ad. | “ “ “ | 118. | 23.0 | 14.0 |
| 9732 | ♀ old ad. | “ “ “ | 118. | 25.0 | 14.0 |
| 9725 | ♀ ad. | “ “ “ | 113. | 26.5 | 14.5 |

¹ *Compactus* — thick-set.

Blarina brevicauda compacta Bangs.

| No. | Sex and age | Locality | Total length | Tail vertebræ | Hind foot |
|------|-------------|------------------|--------------|---------------|-----------|
| 9705 | ♂ old ad. | Nantucket, Mass. | 125. | 25.5 | 15.0 |
| 9703 | ♂ old ad. | “ “ | 122. | 25.0 | 14.5 |
| 9701 | ♂ ad. | “ “ | 119. | 23.0 | 14.5 |
| 9704 | ♀ ad. | “ “ | 118. | 22.5 | 15.0 |
| 9706 | ♀ ad. | “ “ | 114. | 22.0 | 14.0 |
| 9702 | ♀ ad. | “ “ | 114. | 22.0 | 14.5 |
| 9708 | ♀ ad. | “ “ | 110. | 23.0 | 13.5 |

(Note.—Due allowance must always be made for the flesh measurements of ‘total length’ or ‘head and body,’ as *Blarinas* soften very soon after death, often before they can be skinned, and are then apt to stretch, causing those measurements to be too long.)

SKULL MEASUREMENTS (in millimeters).

| | Greatest length, to outside of incisors | Basal length | Length of tooth row, from back of last molar to front of incisor | Greatest width | Interorbital width | Greatest width in front of orbits (across last big molars) | Outside width across nasal aperture | Length of single half of mandible |
|---|---|--------------|--|----------------|--------------------|--|-------------------------------------|-----------------------------------|
| Type of <i>B. brevicauda aloga</i> , old ♂ (no. 9727) | 22.0 | 19.6 | 10.0 | 12.2 | 6.0 | 7.8 | 3.2 | 12.2 |
| Type of <i>B. brevicauda compacta</i> , very old ♂ (no. 9705) | 22.4 | 19.8 | 10.0 | 12.4 | 6.0 | 8.0 | 3.4 | 12.2 |
| <i>Blarina brevicauda talpoides</i> , no. 4330, Bedford, Mass., very old ♂. | 23.6 | 21.0 | 10.8 | 12.4 | 5.6 | 7.8 | 3.0 | 13.0 |

PROCEEDINGS
OF THE
NEW ENGLAND ZOÖLOGICAL CLUB

ON THE OCCURRENCE OF CORY'S LEAST BITTERN
(*ARDETTA NEOXENA*) IN EASTERN
MASSACHUSETTS.

BY WILLIAM BREWSTER.

DR. FREDERIC N. DAMON of Roxbury, Massachusetts, has kindly given me permission to announce that he killed a Cory's Least Bittern at Scituate, Plymouth County, Massachusetts, last May. The circumstances attending its capture were most interesting and peculiar. Dr. Damon is fond of shooting and he has a collection of about three hundred birds, most of which were killed and mounted by himself. He spends his summers at Scituate, where he has a small place close to the water and near the main road. On the morning of May 18, 1901, he was at work in the barn, when his father, Mr. C. A. Damon, called to him that there was a 'Water Rail' in the yard. He ran out immediately, but it flew around the corner of the house before he could get a sight at it. A moment later it reappeared and, after passing directly over the veranda and just above the stone walls that border the road, alighted in a field beyond. Getting his gun, Dr. Damon hastened to the spot, where he came upon the bird crouching close to the ground with its bill pointing upward toward the sun. He approached within a few feet, when it took wing and he shot it.

It proved to be a female with well-developed ovaries. Its appearance in a place so utterly unsuited to a bird of its habits is difficult to explain. Perhaps it had been overtaken by daylight while migrating and before reaching its intended destination, and had alighted in the first spot that offered shelter of any kind, as Rails will sometimes do under similar stress of circumstances; or it may have been driven out of a small marsh not far distant, where, as Dr. Damon tells me, a few pairs of Least Bitterns nest every season.

The specimen, a well-mounted bird, now in my collection, is a perfectly typical example of *A. neoxena*, the first that is known to have occurred in New England. Its wing coverts, as well as the sides of the head and neck, are deep chestnut; its throat and fore neck, light reddish chestnut; its flanks, abdomen and under tail coverts, slaty brown tinged with reddish. There are a few pure white feathers on the tibiæ, just above the tarsal joint.

PROCEEDINGS
OF THE
NEW ENGLAND ZOÖLOGICAL CLUB

DESCRIPTIONS OF TEN NEW BIRDS FROM THE
SANTA MARTA REGION OF COLOMBIA.

BY OUTRAM BANGS.

DURING the two years Mr. W. W. Brown, Jr., was collecting for my brother, E. A. Bangs, and myself in the Santa Marta region of Colombia, I published several papers on the birds from time to time, as they were received, describing a number of new forms. Many species, however, were not satisfactorily identified, owing to lack of material necessary for comparison. Some of these have since been described, but there remain the following—among them, some of the best-marked forms of the region—that appear to need special names.

At the time Mr. Brown was in the Santa Marta region, Mr. Herbert H. Smith also was collecting there, in the interest of the American Museum of Natural History. Dr. J. A. Allen has published a long and very instructive paper¹ on the results of Mr. Smith's work for the first year and a half, giving in it lists of all birds that thus far have been recorded from the region. He described nine new species, only one of which, *Myiobius assimilis*, was represented in Mr. Brown's collection, the Brown and the

¹ List of Birds collected in the District of Santa Marta, Colombia, by Herbert H. Smith, J. A. Allen, Bull. Amer. Mus. Nat. Hist., Vol. XIII, pp. 117-183, Aug. 25, 1900.

Smith collections having been made, as pointed out by Dr. Allen, in rather different regions, Mr. Brown working for the most part high up in the mountains, and Mr. Smith mostly at low altitudes.

Under each species described here I give a reference to Dr. Allen's Santa Marta paper, where all records for the region can be found.

Nyctidromus albicollis gilvus subsp. nov.

Nyctidromus albicollis (Gmel.), Allen, Bull. Amer. Mus. Nat. Hist., Vol. XIII, p. 137.

Type, from Santa Marta, Colombia, ♂ adult, no. 5201, coll. of E. A. and O. Bangs, collected Jan. 5, 1898, by W. W. Brown, Jr.

The Santa Marta Parauque is one of the palest of the races of this wide-spread, variable bird, being exceeded in general pallor of coloration only by *N. albicollis merrilli* Senn. of Texas. It is, however, much smaller than that bird, and the male has the usual amount of white on the outer tail feathers. From the small, dark rufous true *N. albicollis* of Cayenne, on the one hand, and from the dark, dusky, heavily striped and banded Central American race, on the other, the Santa Marta bird, although occupying an intermediate position, is very different.

The general color of the upper parts is pale grayish (as in *N. a. merrilli*) and the back is, comparatively speaking, but little mottled with darker brown, the pale markings of the feathers are deeper yellow (about pale ochraceous in the new form, buff in *N. a. merrilli*); the tail and wings are darker than in *N. a. merrilli*, but not as dark as in Central American examples; the under parts are pale yellowish brown (pale ochraceous buff), darker and grayer on breast; the belly, sides and under tail coverts are nearly clear ochraceous buff, the dusky cross markings, so conspicuous in Central American specimens, being very narrow, much broken, and very pale in color—the under parts being less decidedly barred even than in *N. a. merrilli*.

Measurements.—Adult male, type: wing, 150.5; tail, 149.; tarsus, 24.; exposed culmen, 10.5 mm.

Adult male, topotype, no. 5200: wing, 151.; tail, 152.; tarsus, 24.5; exposed culmen, 10. mm.

Chloronerpes yucatanensis alleni¹ subsp. nov.

Chloronerpes yucatanensis uropygialis (Cab.), Allen, Bull. Amer. Mus. Nat. Hist., Vol. XIII, p. 136.

Type, from San Sebastian, Sierra Nevada de Santa Marta, Colombia, 6600 feet altitude, ♂ adult, no. 6943, coll. of E. A. and O. Bangs, collected July 20, 1899, by W. W. Brown, Jr.

A fine series of *C. y. uropygialis*, obtained by Mr. Brown in Chiriqui, proves the Santa Marta bird, formerly called by this name by both Dr. Allen and myself, to be very different. The new bird has the back bright reddish olive, thus agreeing with *C. y. uropygialis* of Central America, and differing from true *C. yucatanensis* of Mexico, in which the back is green. It differs from *C. y. uropygialis* in averaging a little larger; in having the whole under parts much more evenly barred, the darker bars much more dusky, less olivaceous; in the ground color of belly being much paler — olive yellow (olivaceous wax-yellow in *uropygialis*); in lacking the strong reddish olive of jugulum and breast of *uropygialis* — in the new bird these parts are scarcely darker than lower breast and belly; in having the under tail covert, sharply banded with dusky; in having the ground color and quills of the two outer tail feathers more golden, less olivaceous; and in having these feathers barred with dusky on outer webs (instead of plain) and much more broadly edged with dusky on inner webs.

Measurements.—Adult male, type: wing, 123.; tail, 83.; tarsus, 23.; exposed culmen, 26. mm. Adult female from La Concepcion, 3000 feet altitude, no. 6062: wing, 117.5; tail, 82.5; tarsus, 22.; exposed culmen, 23.5 mm.

Xenicopsis anxius² sp. nov.

Anabazanops striaticollis (Scl.), Allen, Bull. Amer. Mus. Nat. Hist., Vol. XIII, p. 158.

Type, from Chirua, Sierra Nevada de Santa Marta, Colombia, 7000 feet altitude, ♂ adult, no. 6154, coll. of E. A. and O. Bangs, collected Feb. 17, 1899, by W. W. Brown, Jr.

Soon after I recorded this bird from the Santa Marta Mountains, I found I was wrong in calling it *striaticollis*, and I have since been awaiting an opportunity to describe it. In order to be sure of my ground — as Dr. Allen had in the mean time recorded his series as *Anabazanops striaticollis* — I again, last autumn, in company with

¹ Named for Dr. J. A. Allen, in recognition of his elaborate paper on the birds of this region.

² *Anxius* — uneasy.

Mr. Ridgway, compared very carefully the Santa Marta series with numerous Bogota examples of *X. striaticollis* in the National Museum. As a result, the Santa Marta bird appeared to us to show even more difference than I remembered.

The new species differs from *X. striaticollis* of the Bogota region of Colombia and of Ecuador, in being much yellower, less fulvous, below — the throat and superciliary streak maize yellow; in lacking the stripes on top of head, the feathers being edged with dusky, giving a scaly instead of striped appearance; in having the pileum decidedly more olivaceous.

Measurements. — Adult male, type: wing, 85.5; tail, 69.5; tarsus, 18.5; exposed culmen, 17. mm. Adult female, topotype, no. 6155: wing, 78.5; tail, 67.; tarsus, 17.; exposed culmen, 16. mm.

Premnoplex coloratus¹ sp. nov.

Margarornis brunnescens Scl., Allen, Bull. Amer. Mus. Nat. Hist., Vol. XIII, p. 157.

Type, from San Miguel, Sierra Nevada de Santa Marta, Colombia, 7500 feet altitude, ♀ adult, no. 6149, coll. of E. A. and O. Bangs, collected Jan. 29, 1899, by W. W. Brown, Jr.

On comparing the two specimens of the Santa Marta bird with a large series of *P. brunnescens* from Chiriqui, I find it to differ very much in color. It is true I have had no Bogota examples for comparison, but Sclater's original plate and description agree very well with the Chiriqui examples, and if the Bogota and Chiriqui forms are different, they are certainly much more like each other, than is either like the Santa Marta form.

The new species differs from *P. brunnescens* in having the ground color of under parts much darker, richer brown — less olivaceous; in the throat being ferruginous, instead of pale ochraceous; the tear-shaped shaft spots on under parts rather small, much darker, more ferruginous in color, and more sharply contrasted with ground color, the dusky borders of the spots blacker and more conspicuous; under tail coverts with deeper-colored — ferruginous — shaft stripes, which are much more conspicuous and better defined than in *P. brunnescens*; back and rump richer, redder brown, less olivaceous brown.

¹ *Coloratus* — embrowned.

Measurements: Adult female, type: wing, 57.5; tail, 66.; tarsus, 19.5; exposed culmen, 14.5 mm. Adult female, from Chirua, 7000 feet altitude, no. 6150: wing, 58.; tarsus, 19.5; exposed culmen, 15.5 mm.

Mionectes olivaceus galbinus¹ subsp. nov.

Mionectes olivaceus Lawr., Allen, Bull. Amer. Mus. Nat. Hist., Vol. XIII, p. 149.

Type, from La Concepcion, Sierra Nevada de Santa Marta, Colombia, 3000 feet altitude, ♂ adult, no. 6768, coll. of E. A. and O. Bangs, collected March 17, 1899, by W. W. Brown, Jr.

As soon as I examined the series of beautifully prepared skins of true *M. olivaceus* Lawr., collected by Mr. Brown in Chiriqui, I saw that the Santa Marta bird is quite different, though probably a subspecies of *olivaceus* rather than a distinct species.

The Santa Marta form is similar to true *M. olivaceus* of Costa Rica and Chiriqui in size and proportions, but differs much in color, being paler throughout, having the yellowish of under parts brighter, clearer yellow; being less marked with olivaceous on throat and breast, and having these markings more yellowish, less dusky olive; and in having the upper parts much paler and greener—in the new form yellowish oil green, in true *M. olivaceus* dull olive green.

Measurements.—Adult male, type: wing, 68.; tail, 53.5; tarsus, 16.5; exposed culmen, 12.5 mm. Adult female, topotype, no. 6758: wing, 61.; tail, 49.; tarsus, 15.; exposed culmen, 12. mm.

Myiopagis placens pallens subsp. nov.

Myiopagis placens (d'Orb. and Lafr.), Allen, Bull. Amer. Mus. Nat. Hist., Vol. XIII, p. 148.

Type, from Santa Marta, Colombia, ♀² adult, no. 5226, coll. of E. A. and O. Bangs, collected Jan. 9, 1898, by W. W. Brown, Jr.

Similar to *M. placens accola* Bangs, of Panama, Chiriqui and Costa Rica, with which it agrees in having the greater coverts conspicuously edged with

¹ *Galbinus*—yellowish green.

² See foot-note on page 86.

paler, but a much paler and yellower bird throughout, the throat and breast scarcely tinged at all with ashy, the sides of head much yellower, less ashy, the sides of crown, bordering the yellow, semi-concealed crest, much paler—in *M. p. accola* grayish olive, in the new form grayish oil green; hind neck, back and rump much paler—in *M. p. accola* dull olive green, in the new form pale oil green with a slight grayish cast.

Measurements.—Adult female,¹ type: wing, 70.; tail, 66.; tarsus, 18.; exposed culmen, 11.5 mm. Adult male, topotype, no. 5224: wing, 69.; tail, 62.; tarsus, 18.; exposed culmen, 12. mm. Adult female, topotype, no. 6707: wing, 63.; tail, 57.5; tarsus, 17.; exposed culmen, 10.5 mm.

Onychorhynchus mexicanus fraterculus subsp. nov.

Muscivora mexicana Scl., Allen, Bull. Amer. Mus. Nat. Hist., Vol. XIII, p. 145.

Type, from Santa Marta, Colombia, ♂ adult, no. 5250, coll. of E. A. and O. Bangs, collected Jan. 4, 1898, by W. W. Brown, Jr.

Salvin and Godman, in their paper on Simons's Santa Marta collection, gave the presence of this bird in the region as one reason for thinking there was a certain Mexican element in the ornithology of the Sierra Nevada de Santa Marta. A critical comparison of a large amount of material, however, shows that the Santa Marta plumed tyrant bird cannot properly be referred to true *O. mexicanus*. It (the new form) is like true *O. mexicanus* in color and color pattern, but is very much smaller, with proportionally larger bill (actually, about the same width and but little shorter). The Santa Marta bird is evidently but a small southern race of *O. mexicanus*, as there is a gradation through Panama and Chiriqui. Mexican examples are always very large. Besides the following list of measurements, I measured and compared a large series of specimens in Washington, that in every way bore out those given below.

¹ As in most tyrant birds, the females of *Myiopagis* are smaller than the males. The specimen I select for the type of this new form is, I think, wrongly sexed, and is probably an adult male.

Onychorhynchus mexicanus mexicanus (Scl.).

| No. | Sex and age | Locality | Wing | Tail | Tarsus | Culmen ¹ | Breadth of bill at middle of nostril |
|------|----------------|--------------------------|------|------|--------|---------------------|--|
| 2434 | ♂ ad. | Buena Vista, V. C., Mex. | 89.0 | 75.5 | 17.0 | 28.6 | 9.0 |
| 2433 | ♀ ad. | " " " " " | 81.0 | 71.5 | 16.5 | 27.0 | 8.6 |
| 8546 | ♂ ad. | Bogaba, Chiriqui | 88.0 | 73.0 | 17.0 | 28.2 | 9.0 |
| 8548 | ♂ ad. | " " | 88.0 | 73.0 | 17.0 | 27.0 | 8.8 |
| 8547 | ♀ ad. | " " | 79.0 | 66.0 | 16.5 | 24.4 | 8.0 |
| 7225 | ♀ ad. | Loma del Leon, Panama | 79.5 | 65.5 | 17.0 | 24.4 | 8.4 |

Onychorhynchus mexicanus fraterculus Bangs.

| No. | Sex and age | Locality | Wing | Tail | Tarsus | Culmen | Breadth of bill at middle of nostril |
|------|----------------|----------------------|------|------|--------|--------|--|
| 5250 | ♂ ad. | Santa Marta Colombia | 84.5 | 67. | 16.5 | 26.0 | 9.0 |
| 5249 | ♂ ad. | " " " | 83.0 | 66. | 16.5 | 27.0 | 9.2 |
| 5248 | ♀ ad. | " " " | 76.0 | 62. | 16.0 | 24.4 | 8.2 |

***Microcerculus corrasus*² sp. nov.**

Microcerculus marginatus (Scl.), Allen, Bull. Amer. Mus. Nat. Hist., Vol. XIII, p. 180.—(One specimen from Onaca provisionally referred to this species by Allen.)

Type, from Chirua, Sierra Nevada de Santa Marta, Colombia, 7000 feet altitude, ♀ adult, no. 6070, coll. of E. A. and O. Bangs, collected March 13, 1899, by W. W. Brown, Jr.

When I recorded, as *M. marginatus*, the only specimen taken by Mr. Brown, it was done because I did not like to give the bird a name then without having seen a skin of true *M. marginatus*, not that I thought the Santa Marta scrub wren was really that species. Since then I have examined all the material I could and have studied plates and descriptions with great care, and I hesitate no longer in naming the Santa Marta form.

¹ The culmen is measured from the base of the mandible, where it joins the skull, to the tip, as the 'exposed culmen' varies too much.

² *Corrasus* — procured with difficulty.

The new species differs from *M. marginatus* in having the flanks and sides conspicuously banded with dusky, and in the whole back and rump being concolor; from *M. squamulatus* by the duller brown color of upper parts, by the whole throat being indistinctly barred with grayish, and by paler colors below; from *M. pectoralis* Robinson and Richmond, of La Guayra, Venezuela, by duller color above and paler colors below. It is also smaller than either of the last two.

The type may be described as follows. Head, back and rump a shade between Prout's brown and raw umber, the head with darker centres to the feathers, giving a slightly scaly appearance; upper tail coverts similar, but with dusky cross bands; wings and tail dark, dusky brown, the secondaries and tertials edged with the color of back and indistinctly crossed by dusky bands; small pale spots at ends of greater and middle coverts; sides of head grayish brown; throat grayish white, with small, dusky grayish speckles; breast and middle of belly grayish white, thickly and irregularly barred and marked with grayish brown; sides, flanks, lower belly and under tail coverts, dull raw umber (the color is, perhaps, exactly speaking, raw umber slightly shaded with Prout's brown), thickly banded with dusky brown.

Measurements.—Wing, 55.; tail, 19.5; tarsus, 22.; exposed culmen, 17.5 mm.

***Chlorophonia frontalis psittacina*¹ subsp. nov.**

Chlorophonia frontalis Scl., Allen, Bull. Amer. Mus. Nat. Hist., Vol. XIII, p. 170.

Type, from La Concepcion, Sierra Nevada de Santa Marta, Colombia, 3000 feet altitude, ♂ adult, no. 6042, coll. of E. A. and O. Bangs, collected Feb. 18, 1899, by W. W. Brown, Jr.

The descriptions and the fine plate in 'Exotic Ornithology' of *C. frontalis* of Venezuela show several striking points of difference between the bird of that region and that of the Santa Marta Mountains. Furthermore, from Sclater's significant remark in the 'Catalogue of the Birds in the British Museum,' Vol. XI, p. 55,— "Examples from the Sierra Nevada of Santa Marta (Simons) seem to be similar to the Venezuelan bird,"—made on a study of females alone from this region, I infer that that distinguished

¹ *Psittacinus* — of a parrot; parrot-colored.

ornithologist felt so too. There is in the Museum of Comparative Zoölogy a fine pair of true *C. frontalis* from Venezuela, nos. 34,439 and 34,440, that were received in exchange from the British Museum. A comparison of these with the Santa Marta series shows plainly that the birds of the two regions belong at least to different subspecies.

The Santa Marta species is similar in general to *C. frontalis*, but the head is paler golden green, in more marked contrast to the dark grass green of back, and the blue band separating the colors of head and back is *very narrow* (in the type, which has the neck stretched, and therefore this band spread to its utmost, only 5 mm. wide) and of a color paler and greener blue—less turquoise blue—than the rump. In true *C. frontalis* the head and back are more nearly alike, and the collar on hind neck is very wide, sharply defined, and of a bright, clear, turquoise blue like the color of the rump.

Furthermore, in the new form the yellow frontal band is broader and much deeper in color—being darker than the belly, whereas in true *C. frontalis* it is paler yellow than belly; in true *C. frontalis* the yellow front, in both sexes, is separated from the bill by a narrow band of green, in the new form the yellow front, in both sexes and at all ages, extends directly to the base of the bill; the female of the new form has the lower part of the rump and the upper tail coverts blue—not so intense as in the adult male, but very different from the plain green of these parts in the adult female of true *C. frontalis*.

Young males of the new form are similar to the adult male, except that the under parts—breast, belly and sides,—are deep olive yellow, instead of clear, bright, lemon yellow, and that the blue of the rump is not so clear and intense. Adult females are similar to young males, but still duller, more olivaceous below, and with the rump mostly green, dull turquoise only on lower part and on some of the upper tail coverts.

Measurements.—Adult male, type: wing, 61.5; tail, 34.5; tarsus, 15.; exposed culmen, 8.5 mm. Adult female, from San Sebastian, 6600 feet altitude, (in worn plumage, June 28, 1899), no. 6989: wing, 61.; tail, 32.; tarsus, 16.; exposed culmen, 9. mm.

Catamenia alpica sp. nov.

Catamenia, sp., Allen, Bull. Amer. Mus. Nat. Hist., Vol. XIII, p. 164.

Type, from Paramo de Chiruqua, Sierra Nevada de Santa Marta, Colombia, 15,000 feet altitude, ♀ adult, no. 6248, coll. of E. A. and O. Bangs, collected Feb. 27, 1899, by W. W. Brown, Jr.

On the morning of Feb. 27, 1899, while Mr. Brown was out shooting on the Pass of Chiruqua, at the great height of 15,000 ft., a flock of small birds flew past him. He fired into it and killed one individual, an adult female. This curious little bird bears a striking superficial resemblance to the pine siskin (*Spinus pinus*) in its full autumnal plumage. Its feathers are exceedingly long, and the whole plumage has the soft, dense look of a bird adapted to extreme cold. I was wholly unable to identify it at the time, but, because it was a female, refrained from naming it. It cannot, however, be referred to any known species. I have examined many specimens, including Lafresnaye's types, of *Catamenia analoides*, from all of which the Santa Marta bird differs enormously; I am not even sure that it is a true *Catamenia*.

The Santa Marta Mountain bird, differs from the female of *C. analoides* in being rather larger, with much weaker bill—shorter and narrower, with the culmen straight and less bulging above nostril. The plumage is much more striped both above and below—especially so on top of head and on breast. There is no gray on back or rump. The plumage is very much longer, denser and looser.

The type may be described as follows: Head and back soft wood brown, shaded with russet on interscapulum, heavily streaked with dark blackish brown, the streaks on top of head and interscapulum very broad and conspicuous, on cervix narrower and less intense in color; rump and upper tail coverts broccoli brown, faintly streaked with darker; wings dusky, all the feathers, except primaries, broadly edged with russet; primaries narrowly edged with isabella color; no white spot at base of primaries, the inner webs very narrowly bordered with grayish; sides of head and whole under parts isabella color, darkest on throat, breast, sides and under tail coverts (approaching on these parts to wood brown), and palest on middle of belly, heavily streaked throughout with broad stripes of dusky brown, except a small area in middle of belly, which is plain, pale isabella color; tail dusky, the outer rectrices narrowly tipped with white on inner webs, all the rectrices with white central spots on inner webs, except the middle two pairs which are plain; outer edges of rectrices narrowly fringed with isabella color; bill (in dried skin) pale horn color, yellowish at base of lower mandible; foot and tarsus blackish.

Measurements.—Adult female, type: wing, 66.; tail 52.; tarsus, 18.; exposed culmen, 8. mm.

PROCEEDINGS
OF THE
NEW ENGLAND ZOÖLOGICAL CLUB

DESCRIPTION OF A NEW THRUSH FROM CHIRIQUI.

BY OUTRAM BANGS.

WHEN I wrote my last paper on the birds Mr. W. W. Brown, Jr., collected in Chiriqui,¹ I referred the thrush of the *Merula tristis* series to *Merula dagnæ* (Berlepsch), calling it *Merula leucauchen dagnæ*. I never felt sure of this identification, having been unable to examine specimens of the Colombian bird. I therefore sent some skins of the Chiriqui form to Mr. C. E. Hellmayr, who very kindly compared them with authentic examples of *M. dagnæ* and wrote me as follows:—

“The true *Turdus dagnæ* Berl. ex S. W. Colombia and N. Ecuador (Cachavi, S. Savier, and Ventana) differs at once from the Chiriqui bird, so named in your paper, in its bistre—or mummy brown—(Ridgway, Nomenclature of Colors, Pl. 3, figs. 6 and 10) upper surface, and light sepia brown breast and sides. Moreover, the bill in my specimens, taken in the same months (March and April) as those of Brown, is wholly black, and wing and tail are much shorter (ten specimens measured: ala, 103-106; c., 75-85 mm.). The much darker colors stamp it as at least a very well marked subspecies of *T. leucauchen*. The Chiriqui birds (three specimens examined), however, are much more like typical *leucau-*

¹ Proc. New England Zoöl. Club, Vol. III, pp. 15-70, Jan. 30, 1902.

chen ex Vera Paz (nine specimens), except in averaging a little smaller and darker. Specimens from Coiba Island are quite identical with them."

In Washington Mr. E. W. Nelson and I compared the large series of Chiriqui birds with an equally fine one of *M. leucauchen*, and we saw at once that the two were quite separable. Now that the relationship of the Chiriqui form to *M. dagnæ* has been established, it but remains to name the former.

*Merula leucauchen cnephosa*¹ subsp. nov.

Type, from Boquete, Volcan de Chiriqui, 4000 feet altitude, ♂ adult, no. 8701, coll. of E. A. and O. Bangs, collected Feb. 25, 1901, by W. W. Brown, Jr.

Characters.—Bill mostly yellowish, clouded with dusky at tip and at base; "iris hazel, orbital ring yellow"; similar to true *M. leucauchen* in general, except in being smaller and darker—more dusky, less olivaceous, above; and much grayer, less drabby or isabella color, on breast and sides. The color of the upper parts in the new form is,—dark grayish olive, darker, more dusky, on head, and grayer on rump; interscapulum olive; wings and tail blackish, edged with dark grayish olive. In true *M. leucauchen* the whole upper parts are brighter, more reddish olive, the head but little darker, the rump practically the same, or perhaps slightly paler; the wings and tail decidedly paler and less blackish than in the new form.

MEASUREMENTS (in millimeters).

| No. | Sex | Wing | Tail | Tarsus | Exposed culmen |
|-----------------|-----|-------|------|--------|----------------|
| 8701 (type) | ♂ | 122.0 | 96. | 29.5 | 21.0 |
| 8704 (topotype) | ♂ | 122.0 | 98. | 30.0 | 20.0 |
| 8702 " | ♂ | 118.0 | 92. | 30.5 | 20.0 |
| 8705 " | ♂ | 119.0 | 95. | 30.0 | 21.0 |
| 8706 " | ♂ | 120.5 | 95. | 30.0 | 20.5 |
| 8703 " | ♀ | 119.0 | 92. | 29.5 | 21.0 |

¹ *Cnephosus*—dark.

PROCEEDINGS
OF THE
NEW ENGLAND ZOÖLOGICAL CLUB

STEJNEGER'S CATALOGUE OF BIRDS THUS FAR
RECORDED FROM THE LIU KIU ISLANDS,
JAPAN, REVISED WITH ADDITIONS
TO DATE.

BY OUTRAM BANGS.

AT the close of an article on birds from the Liu Kiu Islands, in the Proceedings of the U. S. National Museum, Vol. X, 1887, pp. 414 and 415, Dr. Leonhard Stejneger gave a complete list of all species that, up to that date, had been recorded from the Liu Kiu Islands. In 1900 the Museum of Comparative Zoölogy received from Mr. Alan Owston a fine collection of Liu Kiu birds, which brought the number of species from seventy-seven in Stejneger's list to ninety-nine.¹ It therefore seems worth while to publish a revised list of the birds of these islands, which I do with Dr. Stejneger's full approval and consent. The new list is made to conform, as much as possible, to Dr. Stejneger's old one, and the same systematic sequence is followed. Some of the generic names are not the ones used by Stejneger, and possibly his views are really the correct ones (for example, *Janthœnas jouyi* and *J. janthina* vs. *Columba jouyi* and *C. janthina*), but in this respect I have tried to bring the nomenclature up to date.

In the following list the particular island from which a species has been recorded is not stated, but this can be ascertained easily

¹ On a collection of birds from the Liu Kiu Islands, Outram Bangs, Bull. Mus. Comp. Zool., Vol. XXXVI, no. 8, pp. 255-269, July, 1901.

by any one enough interested in the subject to take the trouble to consult Dr. Stejneger's list or my paper on the Owston collection, to both of which I give cross references.

CATALOGUE OF BIRDS THUS FAR RECORDED FROM THE LIU KIU ISLANDS, JAPAN.

| Current number. | Number in Stejneger's Catalogue of Liu Kiu Birds, Pr. U. S. Nat. Mus., Vol. X, pp. 414-415, 1887. | | Page number, Bangs, Bull. Mus. Comp. Zool., Vol. XXXVI, no. 8, July, 1901. |
|-----------------|---|--|--|
| 1 | 1 | <i>Sterna sinensis Gmel.</i> | |
| 2 | 2 | <i>Sterna melanouchen Temm.</i> | 255 |
| 3 | 3 | <i>Sterna dougalli gracilis (Gould).</i> | 256 |
| 4 | 4 | <i>Sterna fuliginosa crissalis (Lawr.).</i> | 256 |
| 5 | 5 | <i>Sterna bergii boreotis Bangs.</i> | 256 |
| 6 | 6 | <i>Anous pullus Bangs.</i> | 258 |
| 7 | 7 | <i>Oceanodroma monorhis Swinh.</i> | |
| 8 | | <i>Puffinus leucomelas Temm.</i> | 259 |
| 9 | | <i>Bulweria bulweri (Jard. & Selb.).</i> | 259 |
| 10 | | <i>Arenaria interpres (Linn.).</i> | 259 |
| 11 | 8 | <i>Squatarola squatarola (Linn.).</i> | |
| 12 | 9 | <i>Charadrius dominicus fulvus (Gmel.).</i> | 259 |
| 13 | 10 | <i>Ægialitis dubia (Scop.).</i> | |
| 14 | | <i>Ægialitis alexandrina (Linn.).</i> | 259 |
| 15 | | <i>Ochthodromus mongolus (Pall.).</i> | 259 |
| 16 | 11 | <i>Actitis hypoleucos (Linn.).</i> | 259 |
| 17 | 12 | <i>Heteractitis brevipes (Vieill.).</i> | 259 |
| 18 | 13 | <i>Numenius lineatus Cur.</i> | |
| 19 | | <i>Gallinago gallinago (Linn.).</i> | 259 |
| 20 | 14 | <i>Phalaropus lobatus (Linn.).</i> | |

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|----|-----|---|-----|
| 21 | 15 | <i>Limnobænus phæopygus</i> (<i>Stejn.</i>). | 259 |
| 22 | 16 | <i>Rallina sepiaria</i> (<i>Stejn.</i>). | 260 |
| 23 | 17 | <i>Gallinula chloropus orientalis</i> (<i>Horsf.</i>). | 260 |
| 24 | 18 | <i>Fulica atra</i> <i>Linn.</i> | |
| 25 | 19 | <i>Fuligula marila</i> (<i>Linn.</i>). | |
| 26 | | <i>Fuligula fuligula</i> (<i>Linn.</i>). | 260 |
| 27 | | <i>Anas zonorhyncha</i> <i>Swinh.</i> | 260 |
| 28 | 20 | <i>Nettion crecca</i> (<i>Linn.</i>). | 260 |
| 29 | 21 | <i>Dendrocygna javanica</i> (<i>Horsf.</i>). | 260 |
| 30 | 22 | <i>Sula sula</i> (<i>Linn.</i>). | 260 |
| 31 | | <i>Gorsachius melanolophus</i> (<i>Raffles.</i>). | 260 |
| 32 | 23 | <i>Nycticorax nycticorax</i> (<i>Linn.</i>). | |
| 33 | 24 | <i>Demiegretta ringeri</i> <i>Stejn.</i> | 261 |
| 34 | 25 | <i>Demiegretta greyi</i> (<i>Gray</i>), <i>white phase?</i> | |
| 35 | | <i>Nannocnus eurythmus</i> (<i>Swinh.</i>). | 261 |
| 36 | | <i>Pyrrherodias manillensis</i> (<i>Meyen.</i>). | 261 |
| 37 | 26 | <i>Ardea cinerea</i> <i>Linn.</i> | |
| 38 | 27 | <i>Herodias alba modesta</i> (<i>Gray</i>). | |
| 39 | 28 | <i>Turnix taigoor</i> (<i>Sykes</i>). | 261 |
| 40 | 29 | <i>Sphenocercus permagnus</i> (<i>Stejn.</i>). | |
| 41 | | <i>Sphenocercus medioximus</i> <i>Bangs.</i> | 261 |
| 42 | 30? | <i>Sphenocercus sieboldii</i> (<i>Temm.</i>). | |
| 43 | 31 | <i>Columba jouyi</i> (<i>Stejn.</i>). | |
| 44 | 32 | <i>Columba janthina</i> <i>Temm.</i> | |
| 45 | 33 | <i>Columba intermedia</i> <i>Strick.</i> | |
| 46 | 34 | <i>Turtur stimpsoni</i> <i>Stejn.</i> | |
| 47 | | <i>Chalcophaps indica</i> (<i>Linn.</i>). | 262 |
| 48 | 35 | <i>Megascops elegans</i> (<i>Cassin.</i>). | 263 |
| 49 | 36 | <i>Megascops semitorques</i> (<i>Temm. & Schl.</i>). | |
| 50 | 37 | <i>Ninox japonica</i> <i>Temm. & Schl.</i> | 263 |
| 51 | | <i>Accipiter gularis</i> (<i>Temm. & Schl.</i>). | 263 |
| 52 | 38 | <i>Falco peregrinus</i> <i>Tunst.</i> | |
| 53 | 39 | <i>Butastur indicus</i> (<i>Gmel.</i>). | 263 |
| 54 | 40 | <i>Thalassoætus pelagicus</i> (<i>Pall.</i>). | |
| 55 | 41 | <i>Eurystomus orientalis</i> (<i>Linn.</i>). | |
| 56 | 42 | <i>Alcedo ispida bengalensis</i> (<i>Gmel.</i>). | |
| 57 | 43 | <i>Halcyon coromanda rufa</i> (<i>Wall.</i>). | 263 |

| | | | |
|----|----|---|-----|
| 58 | 44 | <i>Dendropicus nigrescens</i> <i>Seebh.</i> | |
| 59 | 45 | <i>Sapheopipo</i> ¹ <i>noguchii</i> (<i>Seebh.</i>). | |
| 60 | 46 | <i>Anthus maculatus</i> <i>Hodgs.</i> | 263 |
| 61 | 47 | <i>Anthus cervinus</i> (<i>Pall.</i>). | |
| 62 | 48 | <i>Motacilla melanope</i> <i>Pall.</i> | |
| 63 | | <i>Motacilla lugens</i> <i>Kittl.</i> | 263 |
| 64 | 49 | <i>Hypsipetes pryeri</i> <i>Stejn.</i> | 264 |
| 65 | 50 | <i>Hypsipetes amaurotis</i> (<i>Temm.</i>). | |
| 66 | 51 | <i>Icoturus namiyei</i> <i>Stejn.</i> | |
| 67 | 52 | <i>Icoturus komadori</i> (<i>Temm.</i>). | |
| 68 | 53 | <i>Merula naumanni</i> (<i>Temm.</i>) | |
| 69 | 54 | <i>Merula pallida</i> (<i>Gmel.</i>). | 264 |
| 70 | 55 | <i>Merula chrysolaus</i> (<i>Temm.</i>). | 264 |
| 71 | | <i>Merula obscura</i> (<i>Gmel.</i>). | 264 |
| 72 | | <i>Geocichla varia</i> (<i>Pall.</i>) ² | |
| 73 | 56 | <i>Monticola solitaria</i> (<i>Müll.</i>). | 264 |
| 74 | 57 | <i>Melodes calliope</i> (<i>Pall.</i>). | |
| 75 | 58 | <i>Ianthia cyanura</i> <i>Pall.</i> | |
| 76 | | <i>Terpsiphone illex</i> <i>Bangs.</i> | 264 |
| 77 | 59 | <i>Zanthopygia owstoni</i> <i>Bangs.</i> | 265 |
| 78 | 60 | <i>Zanthopygia narcissina</i> (<i>Temm.</i>)? ³ | |
| 79 | 61 | <i>Cisticola brunniceps</i> (<i>Temm. & Schl.</i>). | 266 |
| 80 | 62 | <i>Cettia cantillans</i> (<i>Temm. & Schl.</i>). | 266 |
| 81 | 63 | <i>Cettia cantans</i> (<i>Temm. & Schl.</i>). | 266 |
| 82 | | <i>Hirundo rustica gutturalis</i> (<i>Scop.</i>). | 266 |
| 83 | 64 | <i>Hirundo namiyei</i> (<i>Stejn.</i>). | |
| 84 | 65 | <i>Ampelis japonicus</i> (<i>Sieb.</i>). | |
| 85 | 66 | <i>Pericrocotus tegimæ</i> <i>Stejn.</i> | 266 |
| 86 | 67 | <i>Lanius bucephalus</i> <i>Temm. & Schl.</i> | 267 |
| 87 | 68 | <i>Parus castaneiventris</i> <i>Gould.</i> | |
| 88 | 69 | <i>Parus minor commixtus</i> (<i>Swinh.</i>). | |
| 89 | 70 | <i>Parus ater</i> <i>Linn.?</i> | |
| 90 | | <i>Parus nigriloris</i> <i>Hellmayr.</i> ⁴ | 267 |

¹ This genus, with a single species, is confined, so far as known, to the Liu Kiu Islands.

² One specimen taken by Zenasku in Zayejama Islands, recorded without date or exact locality by Owston in his price list, printed at the Japan Gazette Office, Yokohama, 1899.

³ Possibly the same as *Z. owstoni* Bangs.

⁴ *Parus nigriloris* Hellmayr, Ornithol. Monatsber., Vol. VIII, p. 139, 1900, equals and antedates *Parus stejneri* Bangs Bull. Mus. Comp. Zool., Vol. XXXVI, no. 3, p. 267, July, 1901.

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|----|----|--|-----|
| 91 | 71 | <i>Corvus macrorhynchus levaillantii</i> (<i>Lesson</i>). | 268 |
| 92 | 72 | <i>Sturnia pyrrhogenys</i> (<i>Temm. & Schl.</i>). | 268 |
| 93 | 73 | <i>Zosterops loochooensis</i> (<i>Tristram</i>). | 268 |
| 94 | 74 | <i>Emberiza personata</i> <i>Temm.</i> | |
| 95 | | <i>Emberiza spodocephala</i> <i>Pall.</i> | 269 |
| 96 | 75 | <i>Spinus spinus</i> (<i>Linn.</i>). | |
| 97 | 76 | <i>Fringilla montifringilla</i> <i>Linn.</i> | |
| 98 | 77 | <i>Passer montanus saturatus</i> <i>Stejn.</i> | 269 |
| 99 | | <i>Coccothraustes coccothraustes japonicus</i> (<i>Temm.</i> & <i>Schl.</i>). | 269 |

PROCEEDINGS
OF THE
NEW ENGLAND ZOÖLOGICAL CLUB

DESCRIPTION OF A NEW RACE OF THE GREAT
BLUE HERON FROM THE GALAPAGOS ISLANDS.

BY OUTRAM BANGS.

THE GREAT BLUE HERON has long been known to be resident in the Galapagos Islands, and the various writers on the ornithology of that remarkable region, have always referred the bird to true *Ardea herodias*, usually, however, somewhat doubtfully. Ridgway has always questioned this identification and Rothschild and Hartert¹ speak of the pale neck and upper and under wing coverts, but do not separate the island form by name.

In his lately published work on the birds of the Cape Region of Lower California² Brewster describes at length an adult male great blue heron from San José del Cabo, that is very pale in color and otherwise peculiar; and perhaps, when more specimens are available, the great blue herons of Lower California and those of the Galapagos will prove very similar, as is the case with the oystercatchers of the two regions.

On carefully comparing the one Galapagos great blue heron in our collection with a large series of North American specimens, there is no doubt left in my mind as to the distinctness of the two birds, but as the custom of treating slightly differentiated island forms as subspecies is gaining ground among ornithologists,

¹ Nov. Zool. Vol. 6, 1899, p. 180 (five females).

² Birds of the Cape Region of Lower California, William Brewster, Bull. Mus. Comp. Zoöl., Vol. XLI, no. 1, Sept., 1902, pp. 50-51.

— very justly, as it seems to me,— I shall call the Galapagos great blue heron

Ardea herodias cognata subsp. nov.

Type, from Indefatigable Island, Galapagos, (♀ ?) adult, no. 12,451, coll. of E. A. and O. Bangs, collected Feb. 16, 1901, by R. H. Beck.

Characters.— Similar to *Ardea herodias herodias* Linn. of North America, but smaller, with a proportionally larger bill. Colors all paler; sides of neck pale drab-gray, much paler and much more whitish toward head than in the continental bird; whole upper parts, including wings and tail, much paler gray; belly, breast and under side of neck, with much more white and much less black; thighs very much paler — dark, dull ferruginous in true *A. herodias*, vinaceous cinnamon in the new bird; bend of wing with much less ferruginous and much more white, the ferruginous color also very much paler.

Measurements.— Type, adult (probably a female, though not sexed by the collector): wing, 732; tail-feathers, 167; tarsus, 145; middle toe, without claw, 96; exposed culmen, 137 mm.

PROCEEDINGS
OF THE
NEW ENGLAND ZOÖLOGICAL CLUB

ON A SPECIMEN OF *GALICTIS CANASTER* NELSON.

BY OUTRAM BANGS.

IN the years 1882 and 1883 the Museum of Comparative Zoölogy received from P. Ma. Toro, of Orizaba, Mexico, a number of mammals and birds. The mammals had no original labels, other than, now and then, a piece of paper tied to the leg, with the color of the eye noted—as, “ojos negros.” All were catalogued and labelled in the Museum,—“Orizaba, Mexico.” Most of them probably did come from the vicinity of Orizaba, but some certainly did not. For example, there are in the lot three species of squirrels: two of these, *Sciurus deppei* and *S. aureogaster*, are found at Orizaba, but the third, *S. socialis*, is known only from the west coast. Mr. E. W. Nelson, who compared it for me with his material in the collection of the U. S. Biological Survey, wrote me as follows:—“The locality on old label is wrong, as this species is peculiar to west coast of Mexico and this specimen represents the typical form from near Tehuan-tepec.”

This collection of mammals had been put away in a case by itself, where it had lain undisturbed for nearly twenty years. A short time ago I took the skins out, for the purpose of having the skulls removed and the skins made over. The species had never been identified; most of them were common Mexican mammals of medium and large size, such as peccaries, raccoons, nasuas, potos, spotted cats, gray foxes, weasels, rabbits, and squirrels.

One skin, however, instantly arrested my attention: it was that of a fine, large, grizzled, gray *Galictis*. The skull was taken out, and was found to be perfect, except that the occipital region had been cut away, the more easily to remove the brains. It proves the specimen to have been fully adult, though not aged. The skin also is in fine condition.

Upon comparing this specimen with Mr. Nelson's account¹ of the living animal he examined, that had been captured by Indians near Tunkas, Yucatan, it becomes perfectly clear that the two belong to one and the same species, to which Mr. Nelson gave the appropriate name *Galictis canaster*. It is certainly very different from *Galictis vittata* Schreber (there is one specimen of the latter in our Museum, from Santa Rita, Brazil), being much larger and having the upper parts clear "pepper-and-salt" gray, in place of the yellowish brown color of these parts in *G. vittata*. What relationship *G. canaster* bears to *G. allamandi* Bell, or *G. crassidens* Nehring (first described from Minas-Geraes, Brazil, but afterward recorded by its describer from Guatemala), I am unable to say, from lack of material; my object in publishing this note is merely to call attention to what is probably the only museum specimen² of this rare Mexican animal at present to be found on this side of the Atlantic.

¹ A new species of *Galictis* from Mexico, E. W. Nelson, Proc. Biol. Soc. Washington, Vol. XIV, pp. 129-130, Aug. 9, 1901.

² *Galictis canaster* Nelson, ad. skin and skull, no. 6420, Mus. Comp. Zoöl., "Orizaba, Mexico," P. Ma. Toro.

PROCEEDINGS
OF THE
NEW ENGLAND ZOÖLOGICAL CLUB

A NEW RACE OF *SCOTOOTHORUS VERÆPACIS*
FROM CHIRIQUI.

BY OUTRAM BANGS.

SALVIN AND GODMAN have already called attention, in the *Biologia Centrali-Americana*, to the darker colors of the form of *Scotothorus veræpaci*s that inhabits southern Central America (Costa Rica and Chiriqui), but they considered the differences between this bird and true *S. veræpaci*s of southern Mexico and northern Central America, too slight to recognize. Last autumn I got together a considerable series of this bird, and found that the differences between the two geographic extremes stand out, to my way of thinking, far too clearly and too constantly to permit uniting them under one name. South of Chiriqui, again, in the Varaguan ranges, there appears to be a slightly different form, but the material in the U. S. National Museum is too scant to warrant naming it. Farther south still, in Panama, *S. stenorhynchus* either takes the place of *S. veræpaci*s or occurs with it.

The new form may be known as

Scotothorus veræpaci*s *dumicola¹ subsp. nov.

Type, from Divala, Chiriqui, ♂ adult, no. 7849, coll. of E. A. and O. Bangs, collected Dec. 8, 1900, by W. W. Brown, Jr.

Characters. — Similar to true *S. verapacis* (Scl.) of southern Mexico and northern Central America (type locality, Choctum, Vera Paz), but tail shorter, and coloration considerably darker throughout, especially so on breast and belly, the upper breast being dark reddish olive-green, and the belly and sides dusky grayish olive-green, without the yellowish olive-green edges of the feathers, which give to the belly of true *S. verapacis* its much paler and more yellowish cast.

Measurements. — Type, adult male: wing, 89.5; tail, 62.²; tarsus, 21.6; exposed culmen, 15.4 mm. Topotype, adult female, no. 7850: wing, 87.; tail, 61.; tarsus, 22.; exposed culmen, 15.6 mm.

¹ *Dumicola* — that dwells in thickets.

² In true *S. verapacis*, though the other measurements agree closely with those of the new form, the tail is always longer, averaging about 65 mm.

PROCEEDINGS
OF THE
NEW ENGLAND ZOÖLOGICAL CLUB

DESCRIPTION OF A NEW SUBSPECIES OF
MANACUS CANDEI (PARZUD.).

BY OUTRAM BANGS.

It has been customary to give the range of *Manacus candei*¹ as extending from southern Mexico to Costa Rica, the species having been described originally from specimens from Truxillo, Honduras.

Last winter Mr. W. W. Brown, Jr., secured a large series of specimens at Ceiba, Honduras, (spelled on some maps Laceiba) less than a hundred miles west of the type locality. Both towns are in the hot coastal plain, and the faunal conditions are undoubtedly the same at each place. Therefore Mr. Brown's specimens can be considered as being practically topotypes of true *Manacus candei* (Parzud.). On comparing these skins with a large series from Buena Vista, Vera Cruz, Mexico, a very great difference in color in the adult males is at once obvious, and the Mexican form must be distinguished by name. Besides the pronounced differences in color, the Mexican form averages slightly larger than the more southern true *M. candei*. It may be known by the following brief diagnosis.

¹ *Pipra candei* Parzud., Rev. Zool., 1841, p. 306.

Manacus candei electilis¹ subsp. nov.

Type, from Buena Vista, Vera Cruz, Mexico, ♂ adult, no. 2469, coll. of E. A. and O. Bangs, collected June 10, 1901, by A. E. Colburn and Percy W. Shufeldt.

Characters. — Slightly larger than true *M. candei* of Honduras — wing averaging 55.8 mm. in the new form, as against 54.6 mm. in true *M. candei*; under parts, below the white jugulum, pale lemon yellow with decided greenish tinge (the same area in true *M. candei* is intense chrome yellow); rump and upper tail coverts much darker and more dingy oil green (in true *M. candei* the lower rump is often decidedly yellowish, and the green color of the upper part of rump and upper tail coverts is a bright yellowish oil green).

The above characters are based wholly on adult males. Mr. Brown took females of true *M. candei*, but I have been unable to find females of the Mexican bird for comparison, though I have examined many males. As the females of other species and subspecies of *Manacus* are distinguishable by good color characters, it is probable that the females of *Manacus candei candei* and of *Manacus candei electilis* can be easily told apart.

¹ *Electilis* — dainty.



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ERRATA

- Page 20, line 13, for 'Urobitinga' read **Urubitinga**.
 " 25, line 22, for 'perspicilatal' read **perspicillata**.
 " 27, footnote, for 'Columbian' read **Colombian**.
 " 65, line 16, for 'arcaeï' read **arcæi**.
 " 69, line 1, for 'Canospiza' read **Cyanospiza**.





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