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STUDIES OF PERUVIAN BIRDS. NO. XLIV[1]

NOTES ON THE GENERA *DIGLOSSA* AND *CYANERPES*, WITH ADDENDA TO *OCHTHOECA*

BY JOHN T. ZIMMER

Grateful acknowledgments are made to Mr. R. M. de Schauensee and Mr. James Bond of the Academy of Natural Sciences of Philadelphia for the loan of material of much service in the following study.

Names of colors are capitalized when direct comparison has been made with Ridgway's "Color Standards and Color Nomenclature."

Diglossa baritula sittoides (D'Orbigny and Lafresnaye)

Serrirostrum sittoides D'ORBIGNY AND LAFRESNAYE, 1838, Mag. Zool., VIII, Cl. 2, 'Syn. Av.,' Pt. 2, p. 25—Yungas and Valle Grande, Bolivia; cotypes in Paris Mus.

A record from Oconeque, southeastern Perú, presumably belongs with the Bolivian form to which it was originally assigned. I have seen no specimens from this part of the country.

Although there are no exact intergrades between *sittoides* and *baritula* or between either of these and *plumbea*, I believe that Hellmayr has correctly included them in a single species. The depth of color on the under parts of *baritula* and its obvious conspecies *montana* and *parva* is heavier than in *sittoides* and its South American representatives, but the upper parts may be matched quite closely in certain of the subspecies. The gray *plumbea* and *veraguensis* break the continuity of range between the *baritula* and *sittoides* subdivisions but seem to occupy the same position as the dark *lafresnayii* and *aterrima* in the *lafresnayii* and *carbonaria* groups, respectively (cf. Zimmer, 1929, Auk, XLVI, pp. 21–37). It is interesting to find a young male of *veraguensis* from Chitrá with the lower under parts distinctly cinnamon-buffy, becoming more cinnamomeous on the under tail-coverts. Traces of the same warm tones are to be seen in various males of *plumbea*.

Diglossa baritula decorata Zimmer

Diglossa sittoides intermedia CORY (nec *D. intermedia* Cabanis, 1851), 1919 (May 31), Field Mus. Nat. Hist. Publ., Orn. Ser., I, No. 7, p. 292—Cajamarca, Perú; ♂; Field Mus. Nat. Hist.

Diglossa sittoides decorata ZIMMER, 1930 (Dec. 10), Field Mus. Nat. Hist. Publ., Zool. Ser., XVII, No. 7, p. 416—new name for *D. s. intermedia* Cory.

This form is not so perfectly consistent in its characters as I believed when I supplied a new name for Cory's subspecies, but it may be recognized in adult male plumage in quite a large proportion of cases. Out of twenty-five adult males from Perú and Ecuador, three lack any decided pale patch on the tertials, but this patch is very prominent in all of the others, although it is faded to whitish in two or three of them and is suggested even in the three exceptions mentioned.

On the other hand, two of six Bolivian examples have a slight rufescent edging near the tips of one or more of the tertials, not so broadly or strongly developed as in most of the Peruvian birds. The Bolivian birds average larger than the Peruvian skins. The six Bolivian males (adults) have the wing, 61.5–68 mm. (av., 63.3); tail, 48–50 (av. 49). Five from central-southern Perú approach these measurements with wing, 60–62.5 (av., 61.1); tail, 46–47 (av.,

[1] Earlier papers in this series comprise American Museum Novitates, Nos. 500, 509, 523, 524, 538, 545, 558, 584, 646, 647, 668, 703, 728, 753, 756, 757, 785, 819, 860, 861, 862, 889, 893, 894, 917, 930, 962, 963, 994, 1042, 1043, 1044, 1045, 1066, 1095, 1108, 1109, 1126, 1127, 1159, 1160, 1168, and 1193.

46.8). The remaining twenty Peruvian and Ecuadorian males have the wing, 55–62 (av., 58.2; only one bird above 60); tail, 41–50 (av., 45.4). The three birds with the markings on the tertials obsolete are all below the minimum measurements of *sittoides* as exemplified in the series at hand. Except for the birds from south-central Perú, which are intermediate in size and occasionally in pattern, the adult males at hand are all identifiable as *sittoides* or *decorata* on one character or another. The bill of *sittoides* averages somewhat longer than that of most *decorata*, but this character is not constant. The supposedly brighter forehead of *decorata* males, to which I formerly called attention, is a variable character of no taxonomic value. Females of the two forms are not readily distinguishable except by the average larger measurements of *sittoides*, although in *decorata* the tertials are usually more prominently and sharply marked with a pale latero-terminal spot than in the Bolivian form. In both series, there is considerable variation in the intensity of yellow on the under parts and the clarity of olive or brown on the back.

Young males are not always certainly distinguishable from adult females, although judging by the sexes as given on the labels of the specimens at hand (with some exceptions that may be erroneously determined) the young males often have a faintly bluish tinge in the olive of the dorsum and a trace of ochraceous on the under parts above the crissum which may be ochraceous in adult females. The belly may have less yellow and the breast may be less definitely streaked than in the females. It is impossible to say, with the series at hand, how much of this distinction may be valid and how much may be overcome by individual variation.

Six of the birds at hand, all sexed as females, are fairly uniform in regard to olive back, yellow belly, and variable striping on the breast, never very sharp. One bird from San Pedro, Perú, sexed as a male, has a slight trace of blue-gray on the scapulars and forehead, a definite tinge of ochraceous over most of the under parts but a trace of pale, clear yellow in the middle of the belly. The pectoral striping is very faint.

A "♀" from Huancabamba is dark above, only slightly glaucous, and pale below, with no ochraceous color and only a trace of yellowish on the belly. The pectoral striping is obsolete.

A "♀" from Seques is darker above and has a single blue-gray feather on the crown. The belly is white, the crissum strongly ochraceous, the breast somewhat buffy with rather prominent stripes.

Another "♀" from Utcuyacu, Junín, is quite strongly glaucous above and has the entire under parts clear cinnamomeous, only slightly paler than in some of the adult males.

A "♀" from Papallacta, Ecuador, is dark olive brown above, brownish buff on the breast, and pale buff on the belly, with the crissum ochraceous buff.

Some of these birds may be wrongly sexed, but no two of them are alike, and none is like the six yellow-bellied females first mentioned. The young male from San Pedro is labeled as having the gonads much enlarged (February 7) and if this fact and the sex are correct, it would appear that the males sometimes breed in subadult plumage. The exact sequence of plumages in the male sex and the individual variations of the females, however, still present a problem to be worked out when larger series are available. In this connection, it is well to mention a specimen of *d'orbignyi* from near San Augustin, Colombia, sexed as a female with eggs, but having the breast and crissum clear, light cinnamomeous and the top of the head provided with a number of glaucous feathers that are in some contrast to the olive remainder.

As noted in the foregoing discussion, the birds from south-central Perú are intermediate between *sittoides* and *decorata* but may be included in *decorata* for the present. Records that may go in the same form are from Palambla, Yánac, Santiago, Achamal, Auquimarca, Pumamarca, and Tambillo.

A male of "*hyperythra*" from Junquito Road, Caracas, Venezuela, is so like a series of *d'orbignyi* that I question the validity of the Caracas form. The reputed criterion of the male sex as having the top of the

head concolor with the back is found in many *d'orbignyi* as well as this form. A female from Colonia Tovar has, however, a rather distinct pale eye-ring that I cannot find in *d'orbignyi*. Perhaps a series of Caracas birds might show the constancy of this character or some other feature that would warrant the retention of the name *hyperythra*, and final judgment may await the examination of more adequate material.

SPECIMENS EXAMINED

D. b. sittoides.—
BOLIVIA:
Parotani, 3 ♂, 1 ♀;
Apolobamba, 2 ♂;
Yungas, Cochabamba, 1 ♂, 1 ♀;
California, Santa Cruz, 1 "♀";
Cochabamba, 1 ♂[1];
Cerro Hosane, Santa Cruz, 1 ♀[1].
ARGENTINA:
Tafí Viejo, Tucumán, 1 ♂.

D. b. decorata.—
PERU:
Seques, 4 ♂, 2 ♀;
Uchco, 1 ♂;
Chachapoyas, 1 [♂];
Huancabamba, 2 ♀, 1 "♀";
Succha, 1 ♂;
Cajabamba, 3 ♂;
Utcuyacu, 1 ♂, 1 "♀";
San Miguel Bridge, 2 ♂, 3 ♂[2], 1 ♀[2];
Idma, 1 ♂[2];
Cajamarca, 1 ♂ (type)[3];
Chinchao, 3 ♂[3], 1 ♀[3];
Huachipa, 1 ♂[3].
ECUADOR:
Zamora, 1 ♂;
Valle Tumbaco, 1 ♂, 1 ♀;
Ambato, 1 ♂;
Mt. Pichincha, 4 ♂;
Papallacta, 1 ♂, 1 ♀;
Ibarra, 1 ♂;
Celica, 1 ♀;
"Ecuador," 1 ♂.

D. b. d'orbignyi.—
VENEZUELA:
Mérida region, 19 ♂, 3 ♀.
COLOMBIA:
(San Antonio, Cerro Munchique, Río Toché, Cundinamarca, El Roble, near San Augustin, Quitame, La Candela, east of Palmira, and "Bogotá"), 17 ♂, 3 ♀.

D. b. hyperythra.—
VENEZUELA:
Junquito Road, 1 ♂;
Colonia Tovar, 1 ♀.

D. b. mandeli.—
VENEZUELA:
Sucre, Mt. Turumiquire, 4 ♂ (incl. type)[1], 1 ♀[3].

D. b. veraguensis.—
PANAMÁ:
Chitrá, 4 ♂, 1 ♀ (type).

D. b. plumbea.—
PANAMÁ:
Boquete, 1 ♂;
Chiriquí, 1 ♂;
Volcán Chiriquí, 2 ♂, 1 ♀.
COSTA RICA:
(Irazú, Turrialba, Iscazú, Copey, Cartago, Azahar de Cartago, and La Estrella), 25 ♂, 7 ♀.

D. b. montana.—
GUATEMALA:
(San Lucas, Tecpam, and Santa Elena), 6 ♂, 6 ♀.

D. b. parva.—
HONDURAS:
(Cantoral, Archaga, and Muye, La Paz), 8 ♂, 2 ♀.

D. b. baritula.—
MEXICO:
[Volcan de Nieve, La Cumbre, and La Laguna Juanacastlan (Jalisco), Guerrero, Oaxaca, City of Mexico, and "Mexico"], 7 ♂, 1 ♀.

[1] Specimens in Carnegie Museum, Pittsburgh.
[2] Specimens in U. S. National Museum, Washington.
[3] Specimens in Field Museum of Natural History, Chicago.

Diglossa albi-latera schistacea
Chapman

Diglossa albilatera schistacea CHAPMAN, 1925 (Feb. 26), Amer. Mus. Novit., No. 160, p. 7—Chaupe, northeast of Huancabamba, Perú; ♂; Amer. Mus. Nat. Hist.

The type of this subspecies is not quite fully adult, having slight traces of an olive tinge on the outer margins of the remiges. Three other males show even more pronounced signs of immaturity, but four are fully adult and confirm the designated characters of the form. A few Colombian specimens of *albi-latera* approach the darkest extreme of *schistacea*, but the number is very slight.

Males from northern Ecuador average somewhat darker than Colombian specimens, but I am not sure that there is a constant distinction. These darker Ecuadorian birds, occupying a geographical position on the side of the range of *albi-latera* nearest to that of the pale *schistacea*, help to make the distinctions between these two subspecies more apparent.

On the other hand, across the Marañón from *schistacea* and separated from *a. albi-latera* by that form, is a population differ-

ing from the typical form principally by greater average size and often darker coloration. If its range were continuous with that of *a. albi-latera*, the advisability of distinguishing it by name might be open to question. Since the population is isolated by the interposition of *schistacea*, added weight is given to the characters that do exist.

Records from Cutervo and Tambillo belong to *schistacea* without much question. Hellmayr (1935, Field Mus. Nat. Hist. Publ., Zool. Ser., XIII, Pt. 8, p. 236) gives the measurements of a Tambillo male as: wing, 65 mm.; tail, 53. These are larger than the measurements of any specimen of *schistacea* now at hand and agree with those of the separable form from across the Marañón, but a male from Chira, not far from Tambillo, agrees with other skins of *schistacea*, in size as well as color.

Diglossa albi-latera affinis, new subspecies

TYPE from Chachapoyas, Perú; altitude, 7,300 feet. No. 508,295, American Museum of Natural History. Adult male collected October 15, 1894, by O. T. Baron.

DIAGNOSIS.—Similar to *D. a. albi-latera* of Colombia, northern Ecuador, and southwestern Venezuela but averaging larger in measurements of wing and tail; males with coloration, especially of upper parts, averaging darker and duller, without as much bluish "bloom" apparent at the tips of the feathers. Females larger than those of *albi-latera*, with upper parts more brownish, less olive, and throat and breast warmer, less ochraceous.

Similarly differs from the adjacent *D. a. schistacea* of northern Perú but contrast in tone of male coloration even more pronounced.

RANGE.—North-central Perú in the highlands above the Río Utcubamba.

DESCRIPTION OF TYPE.—Top of head and mantle Dusky Neutral Gray × Black, with a silky sheen but without a pronounced slaty tone; uropygium grayer, approaching Slate Color; under parts a little lighter than the back, near Dusky Neutral Gray; lower under parts approaching Deep Neutral Gray. Wings and tail Blackish Mouse Gray with the feathers narrowly margined with deeper black; sides of the lower breast and upper flanks with a large area of silky white feathers concealed under the wing at rest; under wing-coverts and axillars similarly silky white except for a band of blackish along the carpal margin and some dusky tips on the under primary coverts. Bill (in dried skin) blackish brown; feet lighter brown. Wing, 65.25 mm.; tail, 55; exposed culmen, 9; culmen from base, 13; tarsus, 21.5.

REMARKS.—Females with upper parts Dresden Brown × Brownish Olive; throat and breast near Sayal Brown × Tawny Olive (ferruginous Hazel in one specimen; Cinnamon × Clay Color in one); belly paler and more buffy; flanks darker and browner; under tail-coverts near the color of the breast. Wings and tail browner than in the males and with the outer margins of the quills narrowly like the back, though brighter on the inner remiges; greater and median upper wing-coverts with light outer margins, brighter near the tips; a white patch on the sides of the lower breast and upper flanks, concealed as in the males; under wing-coverts and axillars as in the males but without a dusky carpal border (in which some males agree). Wing, 57–61 mm.; tail, 46.25–51.

In the series of twelve adult males of this form one has a wing of 61 mm. and one 62; the remainder vary from 62.5 to 65.25. The average is 63. The tail measures from 51 to 55.5, average, 53.4.

North-Ecuadorian, Colombian, and Venezuelan *albi-latera* are very uniformly smaller, having the wing, 58–62 (average, 60); tail, 43–51 (average, 48.2).

The lack of a slaty bloom on the dorsal plumage of the males is not a constant character of *affinis*, for it is suggested in some of the series of that form and absent in some *albi-latera*. Nevertheless, when series of the two forms are compared, the more bluish coloration of the typical form is quite apparent. It is especially marked in some of the birds from the Mérida region of Venezuela, although not confined to them or of constant occurrence in that region.

As in *albi-latera*, some *affinis* have noticeable whitish tips on the under tail-coverts, equaling the minimum development of this character in the north-Venezuelan *federalis*. A number of specimens also have similar whitish tips on the middle belly. Four of the males show this pattern, two of which show some signs of immaturity in the plumage while another more obviously immature male has no trace of white on the belly. One of the four skins mentioned has the white of the belly less sharply defined

than the others but instead has the whole lower under parts paler gray than any of the series of *schistacea*. In size and remaining coloration it fits well in the series of *affinis* with others from the same locality, La Lejia.

A single male, with some signs of immaturity in wing and tail, is labeled "Peru" but is of doubtful origin in that country. It is quite small, with wing, 54 mm.; tail, 40. These measurements are smaller than those of any male bird, adult or subadult, of any form. The coloration is darker than that of *schistacea* and agrees best with that of some examples of *a. albi-latera*. The specimen bears the initials "J. H." and the date "5.11.80." and presumably was collected by John Hauxwell, although I have no information as to localities which he visited in that year. Possibly the specimen is from eastern Ecuador. Since it is not adult it is not possible to place it with certainty, but for the present I assign it to *albi-latera* with a query as to its locality.

Chachapoyas records belong with *affinis*.

SPECIMENS EXAMINED

D. a. federalis.—
VENEZUELA:
(Galipan, Silla de Caracas, Junquito, and Colonia Tovar), 8 ♂, 2 ♀.

D. a. albi-latera.—
VENEZUELA:
(Mérida, Escorial, Culata, Valle, Nevados, Conejos, and El Loro), 10 ♂, 3 ♀, 2 (?).
COLOMBIA:
[Fusugasugá, El Roble, El Piñón, Aguadita, Buena Vista, Fomeque, "Bogotá," Subia, Barro Blanco, Paramillo Trail, El Eden, Santa Elena, above Salento, Choachi, Almaguer, east of Palmira, Río Toché, Laguneta, San Antonio, Cerro Munchique, west of Popayan, Las Nubes (Santa Marta), and El Libano], 33 ♂, 18 ♀, 7 (?).
ECUADOR:
(Gualea, Pichincha, Baeza, Porvenir, Topo, and Papallacta), 11 ♂, 3 (?); "Perú" (?), 1 ♂.

D. s. schistacea.—
PERÚ:
Chaupe, 4 ♂ (incl. type), 3 ♀, 1 ♂[1];
Chugur, 1 ♂, 1 ♀;
Chira, 1 ♂[1].
ECUADOR:
San Bartolo, 1 ♂, 3 ♀.

[1] Specimens in Academy of Natural Sciences, Philadelphia.

D. a. affinis.—
PERÚ:
Chachapoyas, 4 ♂ (incl. type);
San Pedro 4 ♂;
La Lejia, 3 ♂, 2 ♀;
Leimebamba, 4 ♂[1], 2 ♀[1];
Llui, 1 ♀[1].

Diglossa caerulescens pallida (Berlepsch and Stolzmann)

Diglossopis caerulescens pallida BERLEPSCH AND STOLZMANN, 1896, P. Z. S. London, p. 334—Garita del Sol, Perú; ♂; Warsaw Mus.

Two examples from Cueva Seca, Río Mixiollo, are rather lighter in color than the Chanchamayo series and show some tendency toward an obvious demarcation between the pale belly and darker breast, but they have the same dull coloration as *pallida* and not the clearer blue tints of *intermedia* to the northward. On the other hand, specimens from the southeastern part of Perú are darker than the central Peruvian specimens with other distinctions that are detailed below in a description of the new subspecies to which they belong.

Records assignable to *pallida* are from Utcubamba, Ninabamba, Garita del Sol, and Auquimarca.

Diglossa caerulescens intermedia Carriker

Diglossa caerulescens intermedia CARRIKER, 1935 (Oct. 25), Proc. Acad. Nat. Sci. Phila., LXXXVII, p. 356—Chira, Dept. Cajamarca, Perú; ♂; Acad. Nat. Sci. Phila.

Carriker (*loc. cit.*) states that Leimebamba specimens examined by him are not typical but intermediate between typical skins and *pallida* in one particular, the hue of the throat and chest. The series before me does not show the brighter, clearer blue of the upper parts in comparison with Colombian *saturata* as mentioned by the describer, although the difference exists in comparison with *pallida*. The under parts are exactly intermediate between those of the other two forms mentioned, showing rather obvious contrast between the breast and the belly, though with the breast definitely paler than that of *saturata*.

Records from Achamal and Chirimoto, upper Río Huambo, are referred here with a query; those from Chira, Tambillo,

Palto, Tabaconas, Levanto and Tamiapampa without question.

Diglossa caerulescens mentalis, new subspecies

TYPE from "Camp 1," below Limbani, southeastern Perú. No. 147,832, American Museum of Natural History. Adult male collected March 8, 1917, by Harry Watkins; original No. 712.

DIAGNOSIS.—Similar to *D. c. pallida* of central Perú but darker; upper parts with a clearer bluish tinge; throat and breast darker grayish; point of chin with a small but obvious blackish area spreading over the anterior malar region.

RANGE.—Southeastern Perú and probably northwestern Bolivia.

DESCRIPTION OF TYPE.—Upper parts rather clear Green-Blue Slate at the tips of the feathers in some contrast to the dusky subterminal portions; top of head brighter than the back; forehead, broad loral region, a stripe over the orbit (less obviously continued around its posterior margin and forward beneath it), anterior malar region, and a restricted area on the point of the chin black; throat and breast Deep Gull Gray × Dark Gull Gray, darker on the sides where it passes into the color of the back; belly Light Gull Gray; flanks dark like the sides of the breast; under tail-coverts dull grayish with more whitish tips. Wings and tail blackish with outer margins of the feathers the color of the back except on outermost primary; under wing-coverts pale gray. Bill (in dried skin) black; feet dark brown. Wing, 70 mm.; tail, 51.5; exposed culmen, 12.5; culmen from base, 16.75; tarsus, 21.

REMARKS.—Females like the males but a little smaller and sometimes slightly paler; blackish chin-spot occasionally absent.

The absence of any form of this species from Ecuadorian collections is most curious but may not be taken as proof that one will not yet be discovered in that country.

SPECIMENS EXAMINED

D. c. caerulescens.—
VENEZUELA:
Galipan, 5 ♂, 3 ♀;
Silla de Caracas, 2 ♂, 1 ♀;
Junquito, 3 ♂;
Colonia Tovar, 1 ♂.

D. c. saturata.—
VENEZUELA:
(Mérida, Valle, Culata, Nevados, Escorial, El Loro, and La Cuchilla), 10 ♂, 3 ♀, 3 (?);
Páramo de Tamá, 1 ♂[1].
COLOMBIA:
("Bogotá," El Eden, Fusugasugá, west of Popayán, Nóvita Trail, El Piñón, Cerro Munchique, Santa Elena, Almaguer, Barro Blanco, and Las Ventanas), 4 ♂, 4 ♀, 7 (?);
Páramo de Tamá, 1 ♂[1], 2 ♀[1].

D. c. intermedia.—
PERÚ:
La Lejia, 4 ♂, 2 ♀;
San Pedro, 5 ♂, 1 ♀;
Leimebamba, 2 ♂;
Chachapoyas, 1 ♀.

D. c. pallida.—
PERÚ:
Cueva Seca, 2 (?);
Chinchao, 3 ♂[1], 1 ♀[1];
Utcuyacu, 5 ♂, 2 ♀;
Huacapistana, 2 ♀[2].

D. c. mentalis.—
PERÚ:
below Limbani, 1 ♂ (type), 2 ♀;
Santo Domingo, 1 ♂, 4 ♀, 2 ♂[2], 1 ♀[2];
Inca Mine, 2 ♂.

Diglossa cyanea dispar, new subspecies

TYPE from Chugur, northwest of Cajamarca, northwestern Perú; altitude 9,000 feet. No. 236,161, American Museum of Natural History. Adult male collected April 29, 1926, by Harry Watkins; original No. 10,362.

DIAGNOSIS.—Similar to *D. c. cyanea* of Colombia, southwestern Venezuela, and northern Perú in general brightness of coloration, as opposed to the duller *D. c. melanotis* of central and southern Perú and parts of Bolivia, but the blue color is less violaceous and with more of a greenish trend. Size about that of *cyanea;* wing and tail averaging shorter than in *melanotis.*

RANGE.—Northwestern Perú, west of the Marañón, and southwestern Ecuador.

DESCRIPTION OF TYPE.—Held between the observer and the light, the top of the head is Cadet Blue, passing into Deep Cadet Blue on the back; under parts bright Tyrian Blue with a trace of China Blue. Held away from the light the hues are greener; top of head Vanderpoel's Blue (× Chessylite Blue); back Blanc's Blue × Chessylite Blue; under parts Deep Orient Blue (× China Blue). Regardless of position, forehead, chin, and sides of face black; under tail-coverts narrowly margined with white, broadest on the lateral feathers. Remiges black; outer margins of the primaries (except the outermost) narrowly and sharply blue of a hue even more greenish than the back; this color absent from the outermost primary and restricted to the basal half of the margin on the subexternal, progressively lengthening on the others; secondaries with similar outer margins reaching near to the tip on all and of a deeper blue than those on the primaries; tertials with these margins much broader, reaching the shaft and rounding the tip on the innermost; upper wing-coverts

[1] Specimens in Field Museum of Natural History, Chicago.

[2] Specimens in Academy of Natural Sciences, Philadelphia.

with exposed surfaces like the back; under wing-coverts grayish with a broad blue stripe along the carpal margin. Tail black with outer margins of rectrices near the color of the back but only faintly indicated on the outermost feathers. Bill (in dried skin) black; feet dark brown. Wing, 75.5 mm.; tail, 59.5; exposed culmen, 14; culmen from base, 17; tarsus, 21.

REMARKS.—Females like the males but averaging smaller in size and duller, often a little more greenish blue, in coloration.

Young birds are still duller in color, with the under parts dull and sooty and showing only a wash of blue on the throat and chest, none on the belly.

Dr. Chapman (1926, Bull. Amer. Mus. Nat. Hist., LV, p. 640) noted the tendency toward light coloration in the birds from northwestern Perú and southwestern Ecuador and with the limited material then available thought that there was a diminution in size also evident. The present series amply substantiates the difference in color but not that of size. The males in the series of *dispar* show a range of wing-measurement of 70.5 to 80 mm.; males of *cyanea*, 71–78.25.

An occasional specimen of *cyanea* approaches *dispar*, but most of these are females or young birds which often are lighter than the adult males of the same form. When compared with examples of *dispar* in the same plumage, the similarity is less. A single specimen from Colonia Tovar, near Caracas, Venezuela, sexed as a male and apparently adult, is unusually light in color and has a faint touch of bluish on the lower auriculars. More material from this region is needed to determine the significance of the characters noted.

Peruvian records assignable to *dispar* are from Cutervo and Paucal.

Diglossa cyanea melanopis Tschudi

D[iglossa] melanopis TSCHUDI, 1844 (May), Arch. Naturg., X (1), p. 294—Perú = Junín region; Mus. Neuchâtel.

Birds from the whole Andean region of Perú, except the northwestern region occupied by the preceding form, are large (♂, wing, 73.25–86 mm.) and dark, with the general hue duller and more violaceous than that of typical *cyanea* and with the blue outer margins of the tertials less sharply outlined. Specimens from the Cochabamba region of northern Bolivia, as well as a single skin from near La Paz, are inseparable from the Peruvian series.

Records assignable to this form are from Garita del Sol, Tamiapampa, above Machu Picchu, "Cumpang" (= Compan), and Sierra of Carabaya.

SPECIMENS EXAMINED

D. c. cyanea.—
VENEZUELA:
(Mérida, Escorial, Nevados, Valle, Colonia Tovar[1]), 3 ♂, 2 ♀, 3 (?).
COLOMBIA:
(Fusugasugá, Chipaque, Cerro Munchique, Almaguer, Subia, El Piñón, coast range west of Popayan, Anolaima, El Roble, Santa Elena, Santa Isabel, Laguneta, San Antonio, Cundinamarca, Barro Blanco, "Bogotá," El Eden, and Río Tocheé), 34 ♂, 19 ♀, 9 (?).
ECUADOR:
(Pichincha, El Corazón, Guaillabamba, "Riobamba," above Intag, upper Sumaco, Mindo, and Quito), 17 ♂, 7 ♀, 6 (?).

D. c. dispar.—
PERÚ:
Chugur, 2 ♂ (incl. type), 1 ♀;
Taulis, 2 ♂, 2 ♀;
Tamborapa, 1 ♂;
El Tambo, 1 ♂;
Chaupe, 1 ♂, 1 ♀.
ECUADOR:
Zaruma, 2 ♂;
Salvias, 2 ♂;
El Chiral, 1 ♂, 3 ♀;
Loja, 1 ♀;
Taraguacocha, 1 ♀.

D. c. melanopis.—
PERÚ:
La Lejia, 5 ♂, 1 ♀;
San Pedro, 3 ♂, 1 ♀;
Molinopampa, 1 ♂[2], 1 ♀[2];
Uchco, 1 ♂[1];
mountains above Panao, 4 ♂[2], 2 ♀[2];
Levanto, 3 ♂;
Cushi Libertad, 1 ♂;
Rumicruz, 4 ♂, 2 ♀;
Chilpes, 2 ♂, 1 ♀;
Maraynioc, 2 ♂, 5 ♀;
Torontoy, 1 ♂;
Occobamba Valley, 1 ♂;
Limbani, 2 ♂.
BOLIVIA:
Locotal, 3 ♂, 3 ♀;
Incachaca, 6 ♂, 5 ♀;
Cocopunco, 1 (?).

Cyanerpes cyaneus cyaneus (Linnaeus)

Certhia cyanea LINNAEUS, 1766, Syst. Nat., de. 12, I, p. 188—based on the "Black and Blue

[1] Not typical.
[2] Specimens in Field Museum of Natural History.

Creeper," Edwards, Glean. Nat. Hist., 2, p. 114, Pl. 264; Surinam.

Arbelorhina brevipes CABANIS, 1851, Mus. Hein., I, p. 96—"Porto Cabello," Venezuela, errore = southeastern Brazil according to Hellmayr, 1935; Mus. Halberstadt.

This form is more restricted in range than has been indicated heretofore. An examination of specimens from many parts of the range ascribed to it shows that it must be divided into at least three parts, leaving typical *cyaneus* restricted to Trinidad, south Venezuela, the Guianas, and eastern Brazil—east of the Rio Negro (north of the Amazon), southward across the Amazon and along the eastern coast of Brazil at least as far as Espirito Santo, and extending up the southern bank of the Amazon to Teffé.

Specimens from Trinidad show an approach toward *eximius* of the northern coast of South America, having the bill averaging a little longer than that of Guianan birds. Southward, there is a corresponding reduction in this measurement, but there is too much overlap to permit the recognition of "*brevipes*." No definite differences in color are apparent in this entire region except that the birds from the more western part of the south bank of the Amazon show a trend toward one or the other of the more violaceous forms described hereunder.

The measurements in different parts of the range of *cyaneus cyaneus* are as follows:

cyaneus:				
Trinidad, ♂ ad., w.,	63–67.5	(av., 65.3); ex. cul.,	14–18	(av., 16.6)
Guianas,	60.5–66	(63)	14–16.2	(15.9)
e. Venez.,	62–64.5	(64)	15–17	(16.2)
Obidos,	65			15
s.e. Brazil,	60.25–65.5	(63.2)	13.8–15.1	(14.4)
eximius:	62–68.1	(65.2)	16–21.1	(18.3)

The geographic connection between Trinidad and the mainland in the range of this bird apparently is made across the "Serpent's Mouth" instead of the more northern "Dragon's Mouth," since Paría Peninsula and Guanoco birds are *eximius*.

Most puzzling are two birds, an adult female and a young male from Minnehaha Creek, British Guiana. Both birds are exceptionally large, particularly as regards the length of the bill, which is 20 mm. long (exposed culmen) in the young male and 22 in the female. This would be large, even for a long-billed *eximius*, and is of uncertain significance but is not likely to be of taxonomic importance since the other British Guianan specimens at hand are like the French and Dutch Guianan examples.

A good series of birds from the Matto Grosso region of central Brazil is quite readily separable from *cyaneus*, as restricted here, both by color and by proportions of wing and bill. It may be known as follows.

Cyanerpes cyaneus violaceus, new subspecies

TYPE from Chapada, Matto Grosso, Brazil. No. 31,363, American Museum of Natural History. Adult male collected August 28, 1885, by H. H. Smith.

DIAGNOSIS.—Similar to *C. c. cyaneus* (Linnaeus) of the Guianas and neighboring regions, but wing and tail averaging longer, bill averaging shorter, and blue color of males (except the light cap) more violaceous. Females differ in color from those of *cyaneus* principally by duller yellowish inner margins of the remiges.

RANGE.—Matto Grosso highlands of Brazil.

DESCRIPTION OF TYPE[1].—Narrow frontal band, broad lores, and a narrow strip surrounding the orbit velvety black; top of head light Calamine Blue (light Turquoise Green); sides of head, a narrow border between the crown and the black frontal band, extending backward over the black orbital ring and crossing the occiput, completely encircling the bright cap, colored like the throat. Chin, throat, breast, and most of belly Sailor Blue × Smalt Blue (Gentian Blue × Deep Soft Blue-Violet); lower middle of belly and whole under tail-coverts black, with a narrow violet margin on the tips of some of the coverts; flanks violaceous but with a tinge of dark green along the superior margin; thighs black basally, violaceous on terminal part; mantle velvety black, extending over the lower portion of the hind neck and laterally toward the sides of the breast, and involving the proximal portion of the scapulars and a few of the lesser upper wing-coverts; lower back, upper tail-coverts, and a stripe on each side extending anteriorly over the longer scapulars and most of the lesser upper wing-coverts, Cornflower Blue (Cornflower Blue × Commelina

[1] Colors in parentheses are those seen when the bird is held away from the source of light; otherwise, when held toward the light.

Blue). Remiges black with a broad stripe of Picric Yellow on the inner margin, not reaching the tip of the feather but reaching nearly to the shaft at the base of the outermost primary, becoming progressively wider on the succeeding quills until most of the entire inner web is yellow on some of the inner secondaries; tertials with the yellow area confined to the base; greater, median, and lower row of lesser upper coverts black; under wing-coverts Picric Yellow with a broad black stripe along the carpal and radial margins; tail black with a very small patch of yellow at the bases of the inner margins of most of the quills. Bill (in dried skin) black; feet Warm Buff, claws blackish. Wing, 70 mm.; tail, 41; exposed culmen, 13.25; culmen from base, 17; tarsus, 15.

REMARKS.—Females much like those of *cyaneus* except for measurements, but perhaps averaging less bluish, more yellowish, green and with inner margins of remiges duller, near light Yellowish Olive. Wing, 60–67 mm. (av., 64.1); exposed culmen, 13.25–15 (av. 13.6).

The series of adult males shows the following measurements of wing and bill: wing, 65–72 (av., 66.1); exposed culmen, 12.5–14 (av., 13.3). Thus, as pointed out by Allen (1891, Bull. Amer. Mus. Nat. Hist., III, p. 348), the female has a shorter wing but a longer bill than the male, an average condition that prevails in the various forms of the species.

The character of violaceous tips on some of the under tail-coverts is too variable to be of taxonomic service. Occasional specimens of some of the subspecies show the bright terminal margins, including several skins of the present form, in one of which the tips are more prominent than in the type.

Young males are very like the females in general coloration, although they may average a little more bluish green. Of this there is some doubt unless certain specimens at hand are wrongly sexed.

From this juvenal plumage, taking the species as a whole, the young males pass into a transitional stage that is very difficult to understand unless it is quite variable. Birds in this stage often have the wings and tail about as deeply black and yellow as the adult males, and there usually is some trace of blue and black feathering scattered through the green of the general body plumage. Occasionally the black remiges have a slight tinge of greenish or yellowish, especially toward the tips of the tertials, but this is not common. On the other hand, there are certain skins which appear to be of the same sex and about the same age as these black and green birds, which have the general plumage rather dark and the wings and tail dusky, either in entirety or, perhaps, only toward the tips of the feathers. In general appearance, these birds are not very different from the females and some of them may be, as labeled, of that sex.

In any case, there are specimens at hand molting from both these extremes of first winter male plumage to the adult dress of blues, yellow, and black. In the Matto Grosso series, there are two February birds nearly completely adult; one January male about half way between the first winter and the adult plumages; one male with green body and black wings and tail; and one male, dated September but rather exactly like the January specimen just mentioned and possibly mislabeled. Allen (1891, *loc. cit.*) noted that the records show that this bird breeds in the Matto Grosso region in October. I have a surprising absence of molting adults, however, and cannot say whether the molt is prenuptial or postnuptial in their case. For the young birds, the present material seems to demonstrate a postnuptial molt, possibly when the birds are over a year old. There is thus a possibility that they may breed in their first winter plumage.

I have no Bolivian material, but it is probable that the specimens recorded from Guarayos, eastern Bolivia, belong to *violaceus*.

Males from the Cassiquiare region of southwestern Venezuela agree with those of *violaceus* in coloration and length of bill but have the wing as long as that of Guianan *cyaneus*. The females, furthermore, have a slight distinction in color from the Matto Grosso females. Since there is a fairly extensive area occupied by birds of this sort, it seems advisable to give the population a distinctive name.

Cyanerpes cyaneus dispar, new subspecies

TYPE from Buena Vista, Río Cassiquiare, southwestern Venezuela. No. 433,789, American Museum of Natural History. Adult male collected April 30, 1929, by the Olalla brothers.

DIAGNOSIS.—Similar to *C. c. violaceus* of Matto Grosso, Brazil, in respect to length of bill (averaging very little longer) but with shorter wing and tail. Males with general color similarly violaceous but top of head usually a little bluer, less greenish; yellow inner margins of remiges broader than in most *violaceus*, usually more distinct or more sharply defined distally, and often deeper yellow; yellow area at bases of inner webs of rectrices averaging more extensive. Females like those of *violaceus* in general color but with inner margins of remiges more distinctly yellowish.

RANGE.—Southwestern Venezuela in the Duida-Cassiquiare region, extending westward to eastern Colombia (Bogotá-skin), eastern Ecuador (Napo), and northern Perú; apparently intergrades with *cyaneus* of the Guianas somewhere along the course of the Rio Negro, northwestern Brazil.

DESCRIPTION OF TYPE.—General coloration as described for *violaceus* but cap Pale Cerulean Blue × Light Methyl Blue (Calamine Blue × Cendre Blue away from the light), yellow of wing-lining near Pinard Yellow; under tail-coverts black without violet tips; inner bases of rectrices with noticeable yellow in an area about half as long as the longest under tail-coverts. Wing, 65 mm.; tail, 38.2; exposed culmen, 14; culmen from base, 18; tarsus, 13.5.

REMARKS.—Females as discussed for *violaceus* but general color averaging darker; inner margins of remiges brighter, near Olive Yellow. Wing, 58.5–64 (av., 60.8); exposed culmen, 12–16 (av., 14).

Measurements of the males, for comparison with *cyaneus* and *violaceus*, are: wing, 60.5–65.25 (av., 63.4); exposed culmen, 12.2–14.5 (av., 13.7). As indicated in the description, the color of the cap in the males is somewhat variable, and a few examples are quite like *violaceus* in this respect. Most of the specimens are, however, like the type in having the cap deeper and more bluish.

The extent of the yellow patch at the base of the rectrices is not perfectly constant as a criterion for distinguishing males of this form from *violaceus*. A few examples of that form have a fairly extensive yellow area in this region, and some specimens of *dispar* have less. Nevertheless, the prominence of the yellow patch averages distinctly greater in *dispar* than in *violaceus*. Occasionally the patch is extensive enough for it to be visible at the bases of the median rectrices in dorsal aspect, but it does not pass beyond the tips of the under tail-coverts as it does in some *carneipes;* rarely it invades the bases of some of the under tail-coverts.

Bogotá collections contain examples both of this form and of *eximius*, the form found at Carthagena and the Santa Marta region. In the material at hand, I have examples of each from this source.

It is difficult to determine the proper geographical line of demarcation between *dispar* and *cyaneus*, on the one hand, and *dispar* and *violaceus* on the other. For the first part of the problem I have one adult male and seven females and young males from several localities on the Rio Negro, Brazil. The male, from the right bank of the Rio Negro a short distance above the mouth, agrees well with the Cassiquiare males. A female from the same locality likewise may be referred to *dispar*. Three well-grown young males from Manaos, on the lower left bank of the Rio Negro, have the exposed culmen 13.9, 13.9, and 14 mm., respectively; this is as in similar examples of *dispar*. An adult female from Manaos, however, has the culmen 17 mm., agreeing with *cyaneus*. A male from Obidos and a female from Faro belong to *cyaneus*, and it is probable that the birds from the left bank of the lower Rio Negro do also, but adult males from the locality will be needed to determine the resemblances of color.

Three specimens from the upper Orinoco, below the Duida region, are of problematical identity since no adult male is among them. One is sexed as a female, two as males. One of the latter is still in full immature plumage; the other has acquired wings and tail and a few blue feathers of adulthood. The wings measure: ♀, 65; ♂♂, 63, 63. Exposed culmen: ♀, 17; ♂♂, 15.75, 16.75. These measurements are such that affinity with typical *cyaneus* is suggested, and I refer the examples to that form.

On the upper Rio Negro, a young male and female from San Gabriel, left bank,

have the exposed culmen 14.25 and 13.5, respectively, agreeing best with *dispar*.

The southwestward extension of the range of *dispar* also must remain somewhat in doubt. A limited amount of material is available to help in this problem.

In the first place, one of two adult male Bogotá trade-skins appears best referable to *dispar* in distinction from the other which is evident *eximius*. The skin in question has the darker colors of *dispar* and a shorter and straighter bill than *eximius*, with exposed culmen 14.5 mm., whereas the shortest-billed ♂ *eximius* at hand has the culmen 16 mm. The wing, however, is long, 66.5 mm. Of two "Bogotá" females, or young males, one appears to be *eximius;* the other, with culmen only 16 mm., is not certainly identifiable and may be another *dispar*.

A single adult male from the "Napo" is clearly *dispar*. A male from the Río Mazán, Perú, an affluent of the lower Napo, agrees well with *dispar* in size but is not quite so deeply violaceous as most, although not the lighter blue of *cyaneus*. Two females from the Río Mazán show the same affinities as the male. One is young and in molt, but the other appears to be fully adult and has the characters of female *dispar*.

Obviously, therefore, *dispar* ranges at least as far as the Río Marañón in northern Perú. The placement of the records from south of the Marañón is not so certain. I have only one specimen from this region, a male, in postjuvenal molt, from Rioja. This bird has a wing as long as the Bogotá male, 66.5 mm., which is longer than the measurement of any Cassiquiare male, but the bill is 14.8, exposed culmen, which is longer than that of any Matto Grosso *violaceus* male. The color and breadth of the yellow inner margins of the remiges agree better with *dispar* than with *violaceus*.

Taczanowski (1884, Orn. Pérou, I, p. 437) gives the measurements of a male and female which may have been taken from the specimens he records from Sarayacu, Jeberos, and Chamicuros. These measurements agree better with *dispar* than with *violaceus*. The evidence, therefore, inclines me to refer all the Peruvian specimens and records to date to *dispar* until additional material may refute or confirm this disposition.

Peruvian records are from the three localities mentioned and from Yurimaguas. A Huambo record refers to another species, *C. caeruleus microrhynchus*.

Specimens Examined

C. c. cyaneus.—
- Trinidad:
  - (Savanna Grande, Seelet, Valencia, heights of Aripo, Caparo, Princestown, and "Trinidad"), 24 ♂, 6 ♀, 2 (?).
- Venezuela:
  - Suapure, 1 ♂, 1 ♀;
  - La Unión, 1 ♀;
  - "Orinoco," 5 ♂.
- British Guiana:
  - (Demerara, Rockstone, Kamakusa, Mines district, upper Mazaruni River, Wismar, Tumatumari, and Minnehaha Creek), 13 ♂, 4 ♀.
- Dutch Guiana:
  - Paramaribo, 1 ♂, 1 ♀;
  - "interior of Surinam," 1 ♂.
- French Guiana:
  - Cayenne, 4 ♂, 2 ♀.
- Brazil:
  - Rio Negro, Manaos, 2 ♂, 2 ♀;
  - Faro, 1 ♀;
  - Obidos, 1 ♂;
  - Rio Tocantins, Baião, Pedral, 4 ♂, 4 ♀;
  - Mocajuba, 2 ♀;
  - Rio Tapajoz, Santarem, 1 ♂;
  - Aramanaý, 1 ♀;
  - Rio Madeira, Borba, 1 ♂;
  - Teffé, 1 ♂;
  - Pará, 1 ♂;
  - Bemfica, 1 ♀;
  - Mocajatuba, 1 ♀;
  - Igarapé Assú, 1 ♀;
  - Prata, 1 ♂;
  - Maranhão, Miritiba, 1 ♂, 1 ♀;
  - "Bahia," 1 ♂;
  - "Rio de Janeiro," 1 (?);
  - Goyaz, Fazenda Esperança, 1 ♂;
  - Espirito Santo, Lagôa Juparaná, 1 ♂.

C. c. violaceus.—
- Brazil:
  - Matto Grosso, Chapada, 22 ♂ (incl. type), 8 ♀;
  - Abrilongo, 2 ♂;
  - Tapirapoan, 2 ♂, 1 ♀;
  - Utiarity, 1 ♀.

C. c. dispar.—
- Venezuela:
  - Río Cassiquiare, Buena Vista, 7 ♂ (incl. type), 3 ♀;
  - Solano, 18 ♂, 8 ♀, 2 (?);
  - Río Huaynia, 3 ♂, 3 ♀, 1 (?);
  - Mt. Duida, Savana Grande, 1 ♀.

BRAZIL:
Rio Negro, San Gabriel, 1 ♂, 1 ♀;
Tatú, 1 ♂ (juv);
Igarapé Cacao Pereira, 1 ♂, 1 ♀.
COLOMBIA:
"Bogotá," 1 ♂, [?1(?)].
ECUADOR:
"Napo," 1 ♂.
PERÚ:
Río Mazán, 1 ♂, 2 ♀;
Rioja, 1 ♂.

C. c. tobagensis.—12.
C. c. ramsdeni.—2.
C. c. eximius.—130.
C. c. pacificus.—18.
C. c. carneipes.—245.

Cyanerpes caeruleus microrhynchus (Berlepsch)

Coereba caerulea microrhyncha BERLEPSCH, 1884, Jour. für Orn., XXXII, p. 287—Bucaramanga, Colombia; ♂; Frankfort Mus.

Cyanerpes caerulea cherriei BERLEPSCH AND HARTERT, 1902, Novit. Zool., IX, p. 16—Munduapo, Venezuela; ♂; Amer. Mus. Nat. Hist.

A good series of specimens from eastern Colombia (one from Táchira, Venezuela), eastern Ecuador, and central and northeastern Perú shows no distinctions either of size or coloration. Eight males from southeastern Perú tend to be faintly darker and duller in general coloration, and one of them has an exposed culmen measuring 20 mm. Six males from the Province of Sara, eastern Bolivia, show a similar trend, with one specimen having the exposed culmen 18.9 mm. Otherwise the measurements of these skins are within the limits of the general series although toward the larger end, particularly as regards the Bolivian skins. The difference in color is neither pronounced nor constant, and I think it inadvisable to propose any division of the subspecies *microrhynchus* on these bases.

On the other hand, specimens farther away from the Andes, from the upper Orinoco, Cassiquiare, upper Rio Negro, middle Amazon, Rio Madeira, Matto Grosso, and northern Bolivia tend to have shorter bills than their more western relatives, and the name *"cherriei"* was proposed for this short-billed population.

It is with some diffidence that I suggest the retirement of *"cherriei"* into the synonymy of *microrhynchus*, but I find myself unable to maintain it in the light of a considerable series of specimens from the upper Rio Negro and Cassiquiare regions. These birds ought to be referable to *"cherriei"* if that form is to be recognized as ranging from the upper Orinoco to Matto Grosso, Brazil, and they do, in fact, show a range of characters in which the type and other specimens of *"cherriei"* fit satisfactorily. However, the characters presented by the entire series show so much overlap with those of *microrhynchus* that segregation is not at all satisfactory.

The variation in color in *microrhynchus* and *"cherriei"* furnishes no basis for subspecific separation. The length of wing is not definitive, although *"cherriei"* averages slightly smaller (ad. ♂♂, 52–57; av., 53.5 mm., as compared with 53–58; av., 55.8). The length of bill is in hardly better position as the following figures show: ad. ♂♂ *"cherriei,"* exp. cul., 13.9–18; av., 15.4 mm., as compared with 15–20; av. 16.6.

In the southwest-Venezuelan series, eight birds from Mt. Duida have the bill averaging longer than the others with two specimens showing a measurement a little beyond that of any of the other males, one of them equal to the largest *microrhynchus* (*sensu stricto*) except one from southeastern Perú and one from Bolivia. Even if we leave out of consideration the Duida birds and the southern Perú-Bolivian specimens, there apears to be no place where a line can be drawn between *"cherriei"* and *microrhynchus* without leaving more than 25 per cent of the specimens unidentifiable. An arbitrary division would leave *"cherriei"* with bill, 13.9–18 (av., 15.3) and *microrhynchus*, 14.7–18 (av., 16.4), but twenty-two of seventy-nine skins are in the overlapping zone! If the Duida and southern Perú-Bolivian specimens be included in the calculations, it is still impossible to allocate rather more than a quarter of the specimens. Only by manipulating the series, including the long-billed southern specimens from Perú and Bolivia in *microrhynchus* and leaving out of consideration the Duida birds, whose separation from Orinoco and Cassiquiare birds would be difficult to explain, is it possible to exceed this figure and allocate

about 78 per cent of the material. This figure might be altered by a different set of specimens from the same regions, but the overlap in measurements is so great that I doubt the advisability of continuing to recognize *"cherriei."*

It is not always easy to separate specimens of *microrhynchus* from those of typical *caeruleus*. The bill averages slightly longer in *caeruleus* (♂♂, exposed culmen, 15.1–21.5; av., 17.6) but with too much overlap to be of much service; only three out of thirty-four males have a longer bill than any *microrhynchus*. The general color of the males of *caeruleus* is, however, somewhat more purplish than that of the males of *microrhynchus*, and most of the specimens may be distinguished by this criterion. In series the distinction is quite evident. Furthermore, the males of *caeruleus* frequently have the top of the head darker and duller blue than most *microrhynchus*, and the same difference may be seen on the malar stripe, but many *caeruleus* have bright caps, and many *microrhynchus* do not exceed the average of the other form.

Specimens from the Rio Tapajoz are definitely intermediate between the two forms mentioned but a little closer to *caeruleus*, to which I refer them. Rio Madeira is inhabited by *microrhynchus*.

Among the material examined in connection with the present study is a single male from Nicaragua. Bangs, in the original description of *isthmicus* (1907, Auk, XXIV, p. 306), found Nicaraguan birds to be intermediate between *isthmicus* and *lucidus* but closer to *isthmicus*, but the specimen at hand seems to be readily distinguishable from a series of *isthmicus* by its lighter tint of blue, with the cap concolor with the back. In the absence of Guatemalan males for comparison, I hesitatingly refer the specimen to *lucidus*.

Peruvian records of *microrhynchus* are from Pebas, Moyobamba, Yurimaguas, Jeberos, Huambo, Achamal, Vista Alegre, Puerto Bermúdez, Chanchamayo, Paltaypampa (Prov. Junín), Monterico, Chaquimayo, Yahuarmayo, Río San Gaban, Huaynapata, Río Cadena, Escopal, and Cosñipata.

SPECIMENS EXAMINED

C. c. caeruleus.—

DUTCH GUIANA:
Paramaribo, 1 ♂, 2 ♀;
"interior," 2 ♂.

FRENCH GUIANA:
Ipousin, 1 ♂;
Cayenne, 5 ♂, 1 ♀.

BRITISH GUIANA:
upper Mazaruni River, 1 ♂;
Mines District, 7 ♂, 3 ♀;
Demerara, 1 ♂;
Minnehaha Creek, 1 ♂;
Kamakusa, 1 ♂;
Bartica Grove, 1 ♂;
Tumatumari, 2 ♂, 1 (?);
Rockstone, 5 ♂, 5 ♀.

VENEZUELA:
(Campos Alegre Valley, Colonia Tovar, Caracas, Cristóbal Colón, Guanoco, Santa Ana Valley, Cumbre Chiquitos, La Tigrera, Quebrada Seca, Los Palmales, Cumaná, San Esteban, Cuchivano, Cocallar, and mouth of Río Chanaro), 20 ♂, 12 ♀.

COLOMBIA:
(Santa Marta—Bonda, Minca, Cacagualito, Onaca, Las Nubes, Donama, and Santa Marta), 34 ♂, 12 ♀, 11 (?).

BRAZIL:
(Pará, Bemfica, Prata, Igarapé Assú, Santa Isabel; Rio Jarý—S. Antonio de Cachoeira; Rio Jamundá—Faro; Rio Tocantins—Mocajuba; Rio Tapajoz—Tauarý, Aramanaý, Piquiatuba, and Caxiricatuba), 14 ♂, 16 ♀, 1 (?).

C. c. microrhynchus.—

VENEZUELA:
Altos de San Cristóbal, Tachira, 1 ♂.

COLOMBIA:
"Bogotá," 20 ♂, 11 (? ♀);
Buena Vista, 1 ♂;
Río Uaupés, opposite Tahuapunto (Brazil), 6 ♂, 5 ♀.

ECUADOR:
("Napo," Archidona, upper Río Suno, above Avila, and Zamora), 5 ♂, 6 ♀.

PERÚ:
Río Tigre, 1 ♂;
mouth of Río Curaray[1], 1 ♂, 3 ♀;
Apayacu, 8 ♂, 7 ♀;
Sarayacu, 2 ♂, 3 ♀;
Pachiza, 1 ♂, 1 ♀;

[1] By virtue of the recent treaty between Perú and Ecuador, this locality is now definitely within the boundaries of Perú. In previous numbers of the present "Studies" numerous birds have been listed from this locality as Ecuadorian which now must be assigned to Perú. The "mouth of Lagarto Cocha" similarly has been of frequent record but, since the locality is exactly on the boundary line, it is impossible to say whether the specimens in question came from one side or the other. In the absence of any probable distributional barrier at this point, the resident birds are assuredly to be found on both sides and may, therefore, be justifiably included in the Peruvian avifauna.

Pozuzo, 2 ♂, 1 ♀;
Río Mazán, 1 ♀;
Iquitos, 1 (?);
"Upper Amazon," 1 ♂;
Perené, 2 ♂;
La Merced, 1 ♂, 1 ♀;
Pomará, 4 ♂, 3 ♀;
Río Seco, 3 ♂;
Río Negro, 1 ♀;
Huarandosa, 1 ♂;
Astillero, 3 ♂;
La Pampa, 1 ♂;
Río Tavara, 4 ♂, 3 ♀.

BOLIVIA:
Province Sara, "Camp Woods," 6 ♂, 3 ♀;
Guanay, 1 ♂;
Mapiri, 1 (?);
Falls of the Madeira, 1 ♂;
San Agustin, 1 ♂.

BRAZIL:
(Morinha Lyra; Jamarysinho; Rio Madeira—Humaythá, Borba, Igarapé Auará, and Santo Antonio de Guajará; Teffé; Rio Preto—Santa Isabel; Rio Uaupés—Tahuapunto and Iauarate; Rio Negro—Tatú and Yucabí), 17 ♂, 13 ♀, 1 (?).

VENEZUELA:
Munduapo, 2 ♂ (incl. type of *"cherriei"*), 1 ♀; Maripa, 1 ♂;
Mt. Duida (Foothills Camp, Savana Grande, Caño Seco, Primer Campamento, Valle de los Monos, and Río Pescada), 9 ♂, 3 ♀;
Río Cassiquiare (Buena Vista, Solano, El Merey, junction with Río Huaynia, and opposite mouth of Río Ocamo), 15 ♂, 20 ♀, 1 (?).

C. c. chocoanus.—14.
C. c. longirostris.—29.
C. c. isthmicus.—105.
C. c. lucidus.—2.

Cyanerpes nitidus (Hartlaub)

Coereba nitida HARTLAUB, 1847, Rev. Zool., X, p. 84—"du nord du Pérou"; ♂; Bremen Mus.

A[rbelorhina] brevirostris CABANIS, 1851, Mus. Hein., I, p. 96—Porto Cabello, Venezuela (errore); ♂; Mus. Halberstadt.

Apayacu, 5 ♂, 1 ♀; Chuchurras, 1 ♂; no locality [= northern Perú, Hauxwell coll.].

Compared with nearly a hundred other specimens from the Caura, Duida, and Cassiquiare regions of Venezuela, the upper Rio Negro of Brazil, and other localities. There is considerable variation in the exact tone of blue in the male plumage and in the intensity of blue on the forehead and malar region in the female dress, but I can find no taxonomic significance attached to it.

Peruvian records are from Iquitos, Pebas, Chamicuros, Jeberos, Río Javarri, and Río Ucayali. There is a record also from Lamas which I take to refer to the locality of that name near Tarapoto. Taczanowski, however, took pains to alter the spelling of the name to "Lomas" and if this correction is justified, I cannot find the locality on the maps, at least in any part of the probable range of the species.

Ochthoeca rufi-pectoralis rufopectus (Lesson)

Tyrannulus rufopectus LESSON, 1844 (Aug.), Écho du Monde Savant, XI, No. 10, p. 233—"Colombie" = Bogotá region.

When I discussed this form in an earlier paper (1937, Amer. Mus. Novitates, No. 930, p. 14) I had seen very few skins from the Eastern Andes of Colombia, most of them ancient "Bogotá-skins." Recently, Mr. de Schauensee of the Academy of Natural Sciences of Philadelphia has been kind enough to send me a number of relatively fresh examples from the Santander region which amply support the suspicion that the East-Andean form is distinct from the population that occurs in the Central and Western Andes and ranges thence down through Ecuador to northwestern Perú.

This being the case, it is necessary to provide a new name for the more western and southern population. The description is given below where the characters of *rufopectus* also are discussed.

In order to establish greater accuracy in respect to the range of *rufopectus*, I suggest, as its restricted type locality, Pacho, Cundimarca, near Bogotá, Colombia.

Ochthoeca rufi-pectoralis obfuscata, new subspecies

TYPE from Taulis, northeast of Pacasmayo, Perú; altitude 8,850 feet. No. 235,959, American Museum of Natural History. Adult male collected June 28, 1920, by Harry Watkins; original No. 10,577.

DIAGNOSIS.—Similar to *O. r. rufopectus* Lesson, of the Cundinamarca-Santander region of eastern Colombia but upper parts darker and duller; breast darker and more rufescent.

Differs from *O. r. centralis* Hellmayr, of north-central Perú, much as from *rufopectus* but contrast in color of upper parts not so pronounced (though evident); sides of lower breast more grayish; wing-bar broader.

RANGE.—Central and Western Andes of Colombia, Andean Ecuador, and northwestern Perú west of the Western Andes.

DESCRIPTION OF TYPE.—Top and sides of head Dusky Neutral Gray but with broad white superciliaries meeting, fairly broadly, across the forehead and extending beyond the tips of the auriculars; this dark cap extends well over the anterior part of the mantle; rest of back Chaetura Drab × Fuscous-Black; chin and upper part of throat Neutral Gray; lower throat and breast Ferruginous × Hazel, merging at the sides of the breast into the color of the back and becoming clearer grayish latero-posteriorly; belly and under tail-coverts white; flanks tinged with gray; thighs dusky. Wings sooty black; secondaries with a bright brownish area on the median portion of the outer margins leaving a deep blackish area just beyond the tips of the greater coverts; tertials similar but with outer margins paler and broader; greater upper wing-coverts broadly tipped with dark Ferruginous; median and lesser series Dark Mouse Gray; under wing-coverts white with a darker area on the under primary-coverts; tail blackish with fine white points on all the rectrices and the entire outer web of the outermost feather white. Bill and feet (in dried skin) blackish brown. Wing, 72 mm.; tail, 65.5; exposed culmen, 10; culmen from base, 13; tarsus, 18.

REMARKS.—Females like the males in pattern and color but wing and tail a little shorter.

Young birds, presumably in first winter plumage, have the colors somewhat duller than the adults. The back is much more variable in color and sometimes approximates that of *rufopectus* but usually is distinctly darker even when there is a definite brownish tone.

There is some variation in the amount of white crossing the forehead in both adults and young. At times there is a fairly prominent frontal band, as in the type, but in other specimens there is little of this character remaining, and the two superciliary stripes are quite separated. No geographical significance is attached to this feature.

In contrast to the colors exhibited by *obfuscata*, the top of the head in *rufopectus* is Chaetura Drab; the back Buffy Brown × Drab (sometimes Drab × Hair Brown); and the breast is Cinnamon × Vinaceous-Cinnamon. Old "Bogotá-skins" may approach Saccardo's Umber on the back, with the top of the head correspondingly darker, but some examples are quite like the fresher skins from the same region.

In my former paper (1937), I called attention to a specimen from above Salento, Cauca Valley, which shows the characters of the Bogotá population in distinction from a number of skins taken nearby, at Laguneta. The Salento specimen can be matched in color by some immature specimens of *obfuscata* but is not clearly immature. Until the presence of true *rufopectus* at Salento can be demonstrated by more than this single example, geographical considerations point to this skin as representing an extreme approach from *obfuscata* toward *rufopectus*.

SPECIMENS EXAMINED

O. r. poliogastra.—
COLOMBIA:
Sierra Nevada of Santa Marta, 1 (?).

O. r. rufopectus.—
COLOMBIA:
"Bogotá" 6 (?), 3 (?)[1];
Palo Hueco, near Pacho, 1 ♀;
La Pica, Santander, 2 ♂[1], 2 ♀[1];
Ramirez, 1 ♂[1], 1 ♀[1];
Cachiri, 1 ♂[1].

O. r. obfuscata.—
COLOMBIA:
[Laguneta, above Salento (not typical), west of Popayan, Almaguer, Valle de las Pappas, and Paramillo Trail], 10 ♂, 16 ♀, 4 (?);
[Chiles (Nariño), Mayasquez, Coconuco, San Antonio, and El Tambo (Munchique)], 9 ♂[1], 5 ♀[1].
ECUADOR:
(above Baeza, Ambato, Papallacta, Mojanda, Verdecocha, Taraguacocha, Oyacachi, Macas region, upper Sumaco, Pichincha, Aloag, and "Bosques de Corazón"), 21 ♂, 11 ♀, 4 (?);
Papallacta, 1 ♂[1];
Sumaco, 1 ♀[1].
PERÚ:
Taulis, 2 ♂ (incl. type), 3 ♀, 1 (?);
Chugur, 2 ♂;
El Tambo, 1 ♂, 2 ♀.

O. r. centralis
O. r. tectricialis } as previously listed (1937).

O. r. rufi-pectoralis.—
PERÚ:
as previously listed (1937).
BOLIVIA:
Incachaca, 3 ♂, 5 ♀;
Río Aceramarca, 1 (?).

[1] Specimens in Academy of Natural Sciences, Philadelphia.