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STUDIES OF PERUVIAN BIRDS. NO. 58

THE GENERA *CHLOROSTILBON, THALURANIA, HYLOCHARIS,* AND *CHRYSURONIA*

BY JOHN T. ZIMMER

I am again indebted to Mr. James Bond and Mr. Rodolphe M. deSchauensee of the Academy of Natural Sciences of Philadelphia, and to Mr. Karl P. Schmidt and Mr. Emmet R. Blake of the Chicago Natural History Museum for the loan of comparative material utilized in the following paper.

Names of colors are capitalized when direct comparison has been made with Ridgway's "Color standards and color nomenclature."

Chlorostilbon mellisugus phoeopygus (Tschudi)

Tr[ochilus] phoeopygus TSCHUDI, 1844 (May), Arch. Naturgesch., 10th year, vol. 1, p. 297—Perú; Chanchamayo Valley suggested by Peters, 1945; Berlin Mus.

Chlorostilbon Daphne GOULD, 1861, An introduction to the Trochilidae, p. 177—Pampas del Sacramento [Perú]; ♂♂ cotypes in British Mus.

Agyrtria media PELZELN, 1868, Zur Ornithologie Brasiliens, pt. 1, pp. 29, 57—Villa Bella de Matto Grosso, Brazil; ♂; Vienna Mus.

The present form is found over most of eastern and central Perú, and most of the Peruvian records are assignable here. They include, in addition to some of the localities from which material has been examined, Huambo, Achamal, Amable Maria, Chirimoto, Chachapoyas, Huiro, and Borgoña.

I have no birds from the Pampas del Sacramento or anywhere on the lower Ucayali from which to establish with certainty the reference of Gould's "*Daphne*" to the present form rather than to

napensis which occurs on the south bank of the Marañón a little below the mouth of the Ucayali. Both birds were described by Gould at the same time and on the same page, with no mention of *phoeopygus*, so it would appear probable that Gould had both forms before him. Furthermore, *napensis* is said to have the blue of the breast somewhat more restricted than it is in "*Daphne*" and the tail shorter than in that form, both of which features agree with the characters distinguishing *napensis* from *phoeopygus*. The assignment of "*Daphne*" to the synonymy of *phoeopygus* is therefore indicated. Taczanowski (1884, Ornithologie du Pérou, vol. 1, p. 415) gives a separate account of "*Chlorostilbon melanorhynchus*," including in the synonymy various references that belong with *phoeopygus*. As far as is known, *melanorhynchus* does not occur in Perú.

Gyldenstolpe (1945, K. Svenska Vetensk. Akad. Handl., vol. 22, no. 3, p. 80) has published a comment (*in litt.*) by Hellmayr to the effect that the type of Pelzeln's "*Agyrtria media*" is a young male of the present form. It appears to be the only record of *phoeopygus*, or any form of *mellisugus*, from this part of Brazil. Gyldenstolpe, however, records it furthermore from the upper Rio Juruá and the upper Beni in Bolivia, and Todd (1942, Ann. Carnegie Mus., vol. 29, p. 303) had already assigned two birds from Buena Vista, Santa Cruz, Bolivia, to the same subspecies. I have at hand a young male from the Río Apolobamba, Santa Cruz, and a female from the Province of Sara, Bolivia, that appear to belong here. They certainly are not the following form, *peruanus*, which occurs in northern Bolivia at somewhat higher elevations without any demonstrable overlap in distribution.

In an earlier publication (1930, Field Mus. Nat. Hist., zool. ser., vol. 17, no. 7, p. 275) I cited a reference to the specific name "*daphne*" erroneously credited to Bonaparte. Bonaparte, in turn, credits the name to Bourcier, with no citation except the date, 1854. I am unable to find any mention of the species in any of Bourcier's papers of that, or any, date, and the name in Bonaparte's account is a mere *nomen nudum*. The first valid publication is that by Gould as given above.

There is a slight question concerning the type locality of the oldest name, *phoeopygus*. In the original reference, Tschudi gave no exact locality, but later (1846, Fauna Peruana, Aves, p. 250) he said that the form was found in the coastal region of that country where it was found by Bernhard Philippi; he had not ob-

served the bird himself. Hartert (1900, Das Tierreich, no. 9, p. 227) considered Tschudi's bird to have been unrelated to "*Chlorostilbon prasinus daphne*" (under which he had tentatively assigned the reference on p. 77) but possibly a *Metallura*, a conclusion to which he may have been drawn by Tschudi's comparison of *phoeopygus* with "*Orthorhynchus smaragdinicollis.*" In spite of Hartert's belief, I think there is little doubt of the identity of *phoeopygus* with the present species. The described characters, including the measurements, are in good agreement, and there is no other Peruvian hummingbird to which they apply equally well. The region assigned to it is certainly erroneous, as is the case with a number of other species described by Tschudi, both from his own and from Philippi's collection.

Taczanowski (1884, Ornithologie du Pérou, vol. 1, p. 415) gives a separate account of "*Chlorostilbon melanorhynchus*" in distinction from "*prasinus,*" including among the references in the synonymy various citations that belong to *phoeopygus*. He gives no localities, and it is uncertain what basis he may have had for the inclusion of *melanorhynchus* in the Peruvian list for which there is no confirmation. Taczanowski's description agrees well enough with *melanorhynchus* and presumably was drawn up from Ecuadorian examples of that form.

Chlorostilbon mellisugus napensis Gould

Chlorostilbon Napensis GOULD, 1861, An introduction to the Trochilidae, p. 177—banks of River Napo (I suggest Puerto Indiana, northeastern Perú, as restricted type locality); ♂♂ cotypes in British Mus.

Prasitis vitticeps SIMON, 1910, Rev. Française d'Ornith., vol. 1, p. 263—Napo region, Ecuador; ?Paris Mus.

Twenty-three specimens from north of the Marañón, in eastern Ecuador and northeastern Perú, and one from the south bank of that stream east of the Ucayali show certain differences from *phoeopygus* of central Perú that suggest the desirability of recognizing *napensis*. The males are very similar to those of *phoeopygus* but have the belly somewhat more strongly glittering and with a lighter hue, in greater contrast to the bluish color of the throat and breast. In this respect they resemble *subfurcatus* of the Roraima-Duida region of Venezuela, but have the tail less deeply forked. The females have noticeably more extensive green markings on the lateral under parts than in the same sex of the other forms; the green area crosses the entire breast and

upper belly and passes narrowly along the sides of the throat to the base of the bill, leaving the light Smoke Gray throat as a completely encircled patch. I can find no comparable appearance in any of the other forms of the genus, either in the females or the young males.

The possibility that the birds described are young males instead of females as sexed appears untenable. They show none of the usual signs of immaturity but appear to be quite adult. Young males, furthermore, appear to acquire their ventral green coloration first on the median under parts, especially anteriorly, leaving the sides of the throat grayish or sooty even after the whole throat and breast are glittering green or bluish green—quite a different pattern from that exhibited here. The tail in these females also is rounded but not furcate as in even young males (except of *mellisugus mellisugus*). I am further reassured as to the sex of the specimens in question by the account of a female from Andoas, discussed by Berlioz (1937, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 9, p. 358), evidently like my examples.

One of the young males in the series shows the characters ascribed by Simon to his "*vitticeps*," but the characters are obviously only those of immaturity. The brilliant feathering of the crown has appeared only in the median portion, leaving a broad, dusky brown stripe on either side as the remains of the immature plumage. Similarly, the adult blue-green color of the anterior under parts is in place, but the lower under parts remain sooty, with the central spots of the under tail-coverts bluer (and somewhat duller) than they are in adults; the upper tail-coverts likewise are slightly bluer than the same area in fully developed birds. Perfect transition between this dress and that of adults is shown by other young males in the series. It is obvious that "*vitticeps*" is not a distinct form, even of subspecific rank.

The question of the specific name of the group may well be discussed at this point. Authorities, from very early in the history of hummingbird taxonomy, have been unwilling to adopt the name given by Linnaeus (1758, Systema naturae, ed. 10, vol. 1, p. 121) to a small green hummingbird with a black bill and evenly truncate blue tail, a form which he called *Trochilus mellisugus*. The locality given was "*in Indiis*," admittedly inadequate by modern standards but comprehensive enough to cover a wide range of possible places of origin. No synonymy was given except to the Museum Adolphi Friderici (1754). However, a few

years later (1766, Systema naturae, ed. 12, vol. 1, pt. 1, p. 192) a number of references were given, particularly those to Edwards (1764, Gleanings of natural history, vol. 3, p. 316, pl. 360, fig. 1). Edwards' figure has likewise been discounted by some authors, but his figure shows a small green hummingbird with black bill and evenly truncate, short blue tail, agreeing well with the Linnaean description.

There is only one hummingbird that agrees in these respects with the description of Linnaeus and the figure by Edwards, and that is the Cayenne form of the present species. All other hummingbirds that may agree in one or other of the characters mentioned disagree quite definitely in others. I can see no possibility of associating the name *mellisugus* with any species but this one. Curiously enough, the reference to Edwards appears not to have been questioned by the authors who refused to accept a definite application of the Linnaean citation.

Similarly there has been some question of the application of the name *prasinus* (*Ornismya prasina* Lesson, 1830, Histoire naturelle des oiseaux-mouches, p. 188, pl. 65—believed to be from "Brésil"), long associated with the Cayenne bird under discussion. It is true that Gould (1861, An introduction to the Trochilidae, p. 176; 1853, A monograph of the Trochilidae, [pt. 5], vol. 5, text to pl. 355) misapplied the name to another species, being uncertain as to the precise application, and more recently Berlioz (1949, Bull. Mus. Hist. Nat., Paris, ser. 2, vol. 21, p. 55) has expressed uncertainty as to the identity of Lesson's bird. Here again, however, there is no other species to which Lesson's account can apply and no clear disagreement between the Cayenne birds and the form in question. I have no hesitation in placing *Ornismya prasina* of Lesson as a synonym of *Trochilus mellisugus* of Linnaeus and propose Cayenne as restricted type locality for both birds. *Chlorostilbon brevicaudatus* Gould (1861, An introduction to the Trochilidae, p. 178—Cayenne) is a still later synonym, obviously introduced when he adopted *prasinus* for a different species.

A complication of possible significance is involved in the use of the specific name *mellisugus*. The Brissonian genus *Mellisuga* had among its original species the present one under the unavailable name of "*Mellisuga Cayanensis*." Since it possessed the generic name as the correct name of the species in question (although this is not determinable in the original account), the case

might be thought to require the acceptance of "*Mellisuga Cayanensis*" as the type of the genus, by absolute tautonymy, under the provisions of Article 30, I, (d) of the International Code of Zoological Nomenclature. This would necessitate changing the name of both *Chlorostilbon* and the present *Mellisuga* which would be unduly exasperating. Fortunately, Brisson also included among his species of *Mellisuga* one to which he gave the prebinomial name of "*Mellisuga*," and, under the provisions of Opinion 16, this is still acceptable as the type of the genus which leaves the generic nomenclature unchanged. Quite possibly the original intent of the Code was to make available only the "valid" names or synonyms actually cited under the generic name at the time of its original publication, but it does not so state. This provision is in need of rewording by the Commission if the suggested restriction is in order.

Peruvian records of *napensis* are restricted to those from Andoas, Pebas, and Nauta, possibly also "Upper Amazons." It is probable that the cotypes were collected on a portion of the Rio Napo now in Peruvian territory, although this is unascertainable. Gould does not even specify Ecuador in the original account. I have suggested, therefore, Puerto Indiana, mouth of the Río Napo, northeastern Perú, as the restricted type locality.

Chlorostilbon mellisugus peruanus Gould

Chlorostilbon Peruanus GOULD, 1861, An introduction to the Trochilidae, p. 177—Perú; ♂; British Mus.

Chlorostilbon Stübelii A. B. MEYER, Zeitschr. Gesellsch. Ornith., vol. 1, p. 206.

This form was described by Gould ostensibly from Perú, but there is no record of a definite locality in that country. All specimens of exactly known origin have been from northern Bolivia. Nevertheless there is a limited area in extreme southeastern Perú from which the type may have come, and it is unsafe to withdraw the form from the Peruvian list and accept some place in Bolivia as type locality at the present writing. The possible Peruvian region embraces only the general area at the headwaters of the Madre de Dios, Inambari, and Tambopata rivers. If the bird occurs there, it is surprising that it has not been found by one of the various collectors who have visited the region since Gould's time.

I find myself quite unable to appreciate any specific differences in any of the blue-tailed forms of *Chlorostilbon* except those of the

aureo-ventris group. Every character by which different forms can be distinguished from each other shows intergradation either by individual variation or by geographical progression. Extremes at various places may be used to point out rather decided differences from some other extreme, but any attempt to group the forms in recognizable species on such bases must overlook other resemblances of equal significance.

The most important distinctions of the males are those of the color of the bill, the presence or absence of a glittering cap, the intensity of glitter on the lower under parts, the furcation of the tail, and the attenuation of the rectrices. Those of the females are the amount of green on the tail and the development of a subbasal gray band on at least the outer rectrices. Relative size and, in the males, the blueness or greenness of the breast are certainly also only of subspecific value, often only as an average feature.

An additional character that at first seemed of possible specific significance is the shape of the rectrices, but this proves to be variable at critical places in the geographical sequence of forms. In one group of subspecies, the rectrices are obtuse in outline, and the outermost ones show a somewhat obliquely truncate tip. In the other forms, the outer feathers are more slender and more gradually tapering distally. The first group includes the birds with the least furcation of the tail, and the second, those with the greatest forks, although there is overlap in this respect.

The two divisions approach each other closely in the Santa Marta and Goajira regions of northern Colombia and extreme northwestern Venezuela. Two forms have been recognized in this region by various authors—*chrysogaster* to the westward and *nitens* to the eastward—each assigned to a different specific group by most authors, although Simon considered them as belonging to a single form. From the material at hand, which is not satisfactory in some respects, I am inclined to agree with Simon. The type of *nitens* is indistinguishable from several Santa Martan males except by a slightly shorter fork in the tail and slightly broader outer rectrices. However, there are at hand two additional males from the Lawrence Collection, obtained by Lawrence from W. Galbraith (as was the type of *nitens*), of similar preparation (including the brown fiber used as stuffing), and similarly labeled "Venezuela." These two birds are not different from some of the Santa Martan examples, although there is great

probability that they were collected at or near the same place as the type of "*nitens*." In the Santa Martan series, there is the same amount of variability, although it is at a different place on the scale. None quite matches the type of *nitens*, but some are like the two other Galbraith specimens, and one, together with a male from La Playa, near Barranquilla (virtually topotypical), is at a maximum of depth of fork in the tail and slenderness of the outer rectrices. Except for the characters of the tail, there are no observable differences between *chrysogaster* and "*nitens*." I may add that I have at least one specimen of *gibsoni* that has a tail like that of the type of "*nitens*," although the usual condition in that form is more like that of the intermediate examples from Santa Marta and "Venezuela." Also in *caribaeus* there is a similar amount of variation, although the resemblance there is greater to the type of "*nitens*." I should not be surprised if *nitens* proved to be only a variant of *chrysogaster* but am unable to offer conclusive proof at the moment.

Except for the color of the bill, "*nitens*" closely resembles *caribaeus* which, in turn, approaches *subfurcatus* very closely. I am unable to recognize "*nanus*" from the Orinoco. Although the Orinocan specimens at hand average a trifle smaller than north-coast birds, there is so much overlap that identification of single specimens becomes difficult. There is an average of deeper furcation of the tail in *caribaeus* than in *subfurcatus* and usually less development of blue on the anterior under parts, but extreme examples in the two series show close approximation. General size shows much overlap, especially in the case of the specimens of *subfurcatus* from Roraima and Auyan-tepui. Birds from Duida are rather consistently larger than the Roraima birds, reaching an extreme of size greater than any of the series of *caribaeus*. I hesitate to propose a division of *subfurcatus* on the basis of the slight difference in size (particularly the length of tail), at least until more is learned concerning the distribution on various of the mountains between Roraima and Duida.

The females present a character that shows a certain amount of regularity in its occurrence, but it is not completely regular. The character is that of the markings on the outer rectrices. In the Central American and Mexican forms from *auriceps* down to *salvini*, there is a well-marked gray band near the base of these feathers. It is absent in *assimilis* but occurs rather weakly in *pumilus*, *melanorhynchus*, and *chrysogaster*. It is fully developed

again in *gibsoni*. In the rest of the forms it is rarely suggested, although there is an occasional trace of it.

A series of maps showing the distribution of each of the characters throughout the forms under discussion presents a different pattern for each character and no combination of characters is any more satisfactory. In spite of the wide divergence of extremes, therefore, I believe the best arrangement is that which considers all these forms as conspecific representative subspecies of a very versatile species.

I am puzzled by the distribution of *melanorhynchus* and *pumilus* in western Ecuador and Colombia. The distinction between the two forms is not great, being based on the larger size of *melanorhynchus*, in which feature there is enough overlap to cause confusion. It has been suggested that *melanorhynchus* occurred at higher elevations than *pumilus*, but this is not entirely correct, judging by the material at hand which shows *pumilus* occurring from 200 to 8325 feet, and *melanorhynchus* from 3500 to some 8000 feet. A further disturbing detail is present in five males from the Río Chimbo, Ecuador (virtually topotypical of *pumilus*), that appear to be isolated from the Colombian segment of the population by the occurrence of *melanorhynchus* at Paramba, in the intervening terrain. In any case, the separation of *melanorhynchus* and *pumilus* is far from satisfactory on taxonomic as well as geographical or altitudinal grounds.

SPECIMENS EXAMINED

C. m. auriceps.—
MÉXICO:
(Guerrero, Terra Tepic, and "México"), 2 ♂, 3 [♂], 2 (?♂), 1 ♀, 2 (?♀).

C. m. canivetii.—
MÉXICO:
(Jalapa, Oaxaca, Yucatán, and "México"), 16 ♂, 4 ♀, 1 (?).
GUATEMALA:
(Secanquim and Chanquejelve), 4 ♂, 3 ♀.

C. m. forficatus.—
MÉXICO:
Cozumel Island, 2 ♂, 1 ♀.

C. m. osberti.—
GUATEMALA:
Dueñas, 1 ♂ (cotype);
(Puebla, Finca La Primavera, Finca El Cipres, Finca Sepacuite, San José, Lake Amatitlan, and "Guatemala"), 15 ♂, 3 ♀, 1 "♀" [=♂].
NICARAGUA:
(San Rafael del Norte, Chontales, Matagalpa, Volcán Viejo, Chinandega, Calabasa, and "Nicaragua"), 6 ♂, 2 ♀, 1 (?).

HONDURAS:

(Tegucigalpa, Las Flores, Catacamas, Mt. Pucca, Cantoral, Archaga, Caliche, La Flor, Cerro Nieve, Santa Barbara, Mt. Redondo, and "Honduras"), 39 ♂, 1 "♀" [?=♂], 22 ♀, 1 (?).

C. m. salvini.—

COSTA RICA:

(Escazú, San José, Agua Caliente, Miravalles, La Sabanilla, Las Concovas, Bebedero, and "Costa Rica"), 19 ♂, 1 "♀" [?=♂], 8 ♀, 3 (?).

C. m. assimilis.—

Costa RICA:

Buenos Aires, 1 ♂, 1 ♀.

PANAMÁ:

(Panamá), 1 ♂ (type);

(Chitrá, El Banco, Boquerón, Bogava, Boquete, La Chorrera, Chiriquí, Veragua, El Villano, Santa Fé, near Corozal, Agua Dulce, Cerro Flores, La Marea, Gamboa, La Colorada, Panamá R. R., [Lion Hill], Jicarón I., Cebaco I., Coiba I., Gobernador I., Pacheco I., Pedro González I., San José I., Palenque I., San Miguel I., Sevilla I., and "Panamá"), 59 ♂, 15 ♀, 2 (?).

C. m. chrysogaster.—

COLOMBIA:

La Playa, 1 ♂;

Bonda, 3 ♂, 1 [♀], 1 (?);

Santa Marta, 2 ♂;

"Venezuela," 2 ♂.

C. m. nitens.—

VENEZUELA: 1 ♂ (type).

C. m. pumilus.—

COLOMBIA:

(Dabeiba, Atuncela, Río Zapata, San Antonio, Barro Blanco, Antioquia, Cali, Caldas, Las Lomitas, Ricaurte, Cerro Munchique, Popayán, Miraflores, La Sierra, Primavera, Cauca Valley, near Medellín, Chicoral, Santa Elena, and "Bogotá"), 30 ♂, 1 "♀" [?=♂], 8 ♀, 1 ?♀, 4 (?).

ECUADOR:

(Cocó, Chimbo, and Naranjo), 5 ♀.

C. m. melanorhynchus.—

ECUADOR:

(Pichincha, Valley of Cumbaya, Tumbaco, Ibarra, Quito, Lake Taguaracocha, Chota, Paramba, "Río Napo," "Panamá," and "Trinidad"), 37 ♂, 10 ♀.

C. m. gibsoni.—

COLOMBIA:

(Sasaima, Río Toché, Chicoral, El Carmen, within 20 miles of Honda, west of Cúcuta, near San Agustin, "Bogotá," and "Venezuela"), 79 ♂, 15 ♀.

NO LOCALITY: 1 ♂.

C. m. caribaeus.—

VENEZUELA:

Caicara, 5 ♂ (including type of *nanus*), 2 ♀;

(Plain of Cumaná, San Félix, Tucacas, La Tigrera, Caracas, La Florida, Las Trincheras, El Cuji, Barquismeto, Altagracia, San Fernando de Apure, Puerto Zamuro, Quiribana de Caicara, Las Barrancas, Sacupana, Ciudad Bolívar, Perico, Ayacucho, and Orinoco River), 39 ♂, 8 ♀.

CURAÇAO: 7 ♂ (including type), 2 ♀.

BONAIRE: 2 ♂.

MARGARITA: 1 ♂.

ARUBA: 3 ♂.

TRINIDAD:

(Tacarigua, Laventille, and Pointe Gourde), 10 ♂, 1 ♀.

C. m. mellisugus.—

CAYENNE:

Roche Marie, 1 ♂;

Cayenne, 13 ♂, 4 ♀;

"Cayenne" [trade skins], 6 ♂, 1 ♀.

SURINAM:

Near Paramaribo, 2 ♂.

NO LOCALITY: 1 [♂].

C. m. subfurcatus.—

BRITISH GUIANA:

Wismar, 1 ♀.

VENEZUELA:

Mt. Roraima, 8 ♂, 3 ♀;

Philipp Camp, Roraima, 3 ♀;

Arabupu, 4 ♂, 4 ♀;

Mt. Auyan-tepui, 1 ♂, 2 (?);

Mt. Duida (Cerros de Savanna and Laterite Valley), 17 ♂, 4 ♀, 1 (?).

C. m. napensis.—

ECUADOR:

(Río Suno above Avila, below San José, and Gualaquiza), 6 ♂, 1 [♀].

ECUADOR OR PERÚ:

Napo, 8 ♂.

PERÚ:

Pebas, 1 ♂;

Puerto Indiana, 3 ♂, 1 ♀;

Orosa, 1 ♀.

NO LOCALITY: 1 ♂.

C. m. phoeopygus.—

PERÚ:

Río Seco, west of Moyobamba, 3 ♂;

Perené, 1 ♂;

Utcuyacu, 1 ♂;

La Merced, 1 ♂;

Chanchamayo, 1 ♂[1];

Huánuco, 3 ♂[1], 1 ♀[1];

Chinchao, 3 ♂[1];

Vista Alegre, 1 ♂[1];

[1] Specimens in Chicago Natural History Museum.

Río Cayumba, 1 ♂[1];
San Miguel Bridge, 2 ♂;
San Miguel, 1 ♂;
Santa Ana, 4 ♂, 2 ♀, 1 (?);
"Perú," 1 [♂].

C. m. peruanus.—
BOLIVIA:
(Yungas, Mapiri, Suapi, Omeja, Chaco, Río Apolobamba, and Prov. Sara), 7 ♂, 3 ♀.

[Chlorostilbon poortmani euchloris (Reichenbach)

Chlorestes Euchloris REICHENBACH, 1854, Jour. f. Ornith., vol. 1, Extraheft, Beilage, p. 23—"Nord-Peru" [*errore* = Colombia]; ♂; Halberstadt Mus.

Although Reichenbach specifically claims the type to have been collected in northern Perú by Warszewicz, and the specimen was evidently so labeled since the claim is maintained by Cabanis and Heine and later by Ferdinand Heine, there is no supporting evidence of the occurrence of any of the green-tailed forms of the genus *Chlorostilbon* in that country.

The presumably correct assignment of the name to one of the Colombian forms is difficult to trace. Gould (1861, An introduction to the Trochilidae, p. 180) tentatively suggested "New Granada" on the basis of a second specimen in the Berlin Museum which was without certain locality, and in later accounts he omitted the query. Mulsant and Verreaux (1875, Histoire naturelle des oiseaux-mouches, vol. 2, p. 117) discuss the name under the allied form, *alice*, and Elliot (1878, Smithsonian Contrib. to Knowledge, no. 317, p. 248) places it in the synonymy of that form. Berlepsch (1887, Jour. f. Ornith., vol. 35, p. 336) appears to be the first author to establish the identity of *euchloris* with any certainty when he compared the type with his "*Panychlora poortmani major*" (1884, Jour. f. Ornith., vol. 32, p. 313—Bucaramanga, Colombia) and found them identical.

I have considerable doubts of the validity of *euchloris* in distinction from *poortmani*. I have seen very few specimens with definite localities, but over 60 Bogotá trade-skins are impossible to segregate into two satisfactory forms on the basis of either size or coloration. Furthermore, some authors who have recognized both forms have found *poortmani* on both sides of the Eastern Andes to which *euchloris* appears to be restricted. Without adequate series of localized specimens, however, I am unable to establish either the identity or distinction.]

[1] Specimen in Chicago Natural History Museum.

[**Chlorostilbon auratus** (Cabanis and Heine)

Panychlora aurata CABANIS AND HEINE, 1860, Museum Heineanum, pt. 3, p. 50—Perú; ♂♂ cotypes in Halberstadt Mus.

This supposed form, resurrected by Simon (1921, Histoire naturelle des Trochilidae, pp. 60, 289), although with a query, is in much the same situation as *euchloris*. I can find no critical review of the cotypes, although Berlepsch (1887, Jour. f. Ornith., vol. 35, p. 334) places the name tentatively in the synonymy of *poortmani* where I suspect it belongs. The Peruvian origin of the cotypes is extremely doubtful.]

Thalurania furcata viridipectus Gould

Thalurania viridipectus GOULD, 1848, Proc. Zool. Soc. London, pt. 16, p. 13—Columbian Andes; I suggest Buena Vista, above Villavicencio; ?British Mus.

Thalurania tschudii "Gould MS." SCLATER, "1858" [1859], Proc. Zool. Soc. London, pt. 26, p. 460—Gualaquiza and Zamora, Ecuador; ?British Mus.

A series of birds from the region of the Rio Negro, northern Brazil, the type region of Gould's *nigrofasciata*, shows certain fairly definite differences from the east-Ecuadorian, east-Colombian, and north-Peruvian population and suggests the advisability of recognizing an additional form, for which the name *viridipectus* is presumably available. The Rio Negro birds are more golden green, less bluish green, on the back, with a more obvious blackish band across the upper mantle as seen in certain lights and with the entire back becoming rather uniformly sooty in certain positions. The top of the head is more frequently coppery, although this feature is more variable than the color of the back which is observable in females as well as males. The green gorget of the males averages lighter in tone than in the Ecuadorian birds and their near neighbors, and the black necklace bordering the gorget is somewhat more broadly developed in many cases. The females, as mentioned, have the back more golden and less bluish green than those of *viridipectus*, and the same difference of color is noted on the median rectrices where, in addition, the greenish hue is more frequently carried to the tips instead of being succeeded by a slaty blue terminal area.

It is unfortunate that the name *viridipectus* appears to have been based on a bird which lacked the black necklace, but Gould later (1861, An introduction to the Trochilidae, p. 78; 1861, A monograph of the Trochilidae, [pt. 21], vol. 2, text to pl. 104) con-

sidered it to be the same as "*nigrofasciata*," and no evidence has been presented to identify it with one of the forms that never has the black necklace. A young male from "Bogotá" shows no black in the area but is still in undeveloped plumage as, perhaps, Gould's bird may have been. The original description notes the abdomen as "bright blue" which again suggests an immature example. No specimen is recorded in the "Catalogue of birds in the British Museum" as type of *viridipectus*, so the matter is difficult to decide otherwise than by accepting the conclusion of the author of the name. If *viridipectus* should prove untenable in this connection, *tschudii* is available for this form.

It is curious that Salvin and Elliot (1873, Ibis, ser. 3, vol. 3, p. 357) should have stated that Gould described *nigrofasciata* from specimens secured in Ecuador. Gould clearly notes the locality of origin as Rio Negro, Brazil.

I have no hesitation, therefore, in recognizing this form, which at present I call *viridipectus*, as a distinct subspecies. It ranges from the eastern side of the Andes near Bogotá, Colombia, southward to the Marañón and even crosses the Marañón in northern Perú to the neighborhood of Moyobamba. Birds from Moyobamba have hitherto been referred to another subspecies that will be discussed under *jelskii*, and it is true that birds from that area sometimes show a trend toward the characters of that form, but of 10 males from the Moyobamba region, six are indistinguishable from *viridipectus*, and the other four are varyingly intermediate. A male from Chayavitas also presents the characters of *viridipectus*. Until a larger series from that region is available that might point to other conclusions, I must refer the Moyobamba series to *viridipectus*.

Records that will go with this subspecies are presumably those from Yurimaguas and Jeberos, in close proximity to Chayavitas, as well as some of the localities from which material has been examined in the present study.

Thalurania furcata jelskii Taczanowski

Thalurania tschudii GOULD, 1860 (not Sclater, 1859), Proc. Zool. Soc. London, pt. 28, p. 312—neighborhood of the River Ucayali; cotypes in British Mus.

Thalurania jelskii TACZANOWSKI, 1874, Proc. Zool. Soc. London, p. 138—Soriano, Perú; ♂; formerly Warsaw Mus., now lost.

Thalurania taczanowskii DUNAJEWSKI, 1938, Acta Ornith., Mus. Zool. Polonici, vol. 2, no. 15, p. 322—Achamal, Río Huambo, Perú; ♂; Warsaw Mus.

I am somewhat hesitant in recognizing this population as a valid subspecies since it is, at best, strictly intermediate between *viridipectus* and *boliviana* and varies in different parts of its range according to the proximity of one form or another. It must be admitted that in the neighborhood of the type locality of "*taczanowskii*" it is at its greatest stability, but specimens from other areas, including the Chanchamayo Valley, the type region of *jelskii*, show enough of the same features to make clear distinction difficult. Whether the name *jelskii* is used, therefore, for this intermediate population or for the one I prefer to call *boliviana*, the bulk of the population will be at some variance from the topotypical series. This is in addition to the fact that Taczanowski described *jelskii* from an abnormally small individual of the species of which he had another example from the same locality that he called "*tschudii*," in turn a misnomer since "*tschudii*" Gould was preoccupied by Sclater's use of it in another connection the year before Gould's account appeared! The nomenclature, therefore, is complicated.

In the Huayabamba Valley (including Achamal) the birds show the green gorget abbreviated, with the terminal margin somewhat truncate, followed by a greenish blue or bluish green triangular area within the black necklace which, in turn, is complete but noticeably weaker than in *viridipectus*. Some examples show a gradual transition from the green of the upper throat to this lower bluish portion, but all the examples at hand have the blue in evidence, even if sharply defined from the green space and approaching the more violaceous color of the breast below the necklace.

As mentioned in the discussion of *viridipectus*, specimens from the vicinity of Moyobamba, a few miles north of Achamal but in the Río Mayo Valley, show a preponderating similarity to *viridipectus* with a minority suggesting the Huayabamba birds. A single example from Chayavitas also appears to be referable to *viridipectus*. It is surprising, therefore, that two specimens from Chamicuros, not far from Chayavitas though across the lower Huallaga, show approximation to the Huayabamba series, not to the fullest extent but sufficient to keep them from assignment to *viridipectus*, although a good series from Chamicuros might show an influence of *viridipectus* not evidenced by either of these two birds.

A more interesting specimen is one of Gould's "Ucayali" speci-

mens on which he planned to erect his "*tschudii*," unfortunately nullified by Sclater's use of the name for specimens of *viridipectus*. This "Ucayali" bird has the black necklace as shown by the Huayabamba specimens, and has pronounced blue within the bight of the dark line, but it is of a somewhat different pattern of development. Beginning on the posterior sides of the throat, the green of the gorget becomes increasingly tinged with blue so that the blue area is laterally more extensive than in the Huayabamba birds in which it is confined principally to the center of the region. Gould's plate of his "*tschudii*" shows a gradual transition across the breast much as in the Huayabamba birds.

Hellmayr (1907, Novitates Zool., vol. 14, p. 77), in calling attention to the blue throat patch of the Huayabamba population which he referred to Gould's "*tschudii*," doubted the Ucayali origin of Gould's specimens, but I am not so convinced. Considering the intermediate nature of the blue-marked birds, such intermediacy might appear on the lower Ucayali, at that point in the periphery of the range of *boliviana* which inhabits the upper Ucayali. Perhaps the style of blue coloration shown by this "Ucayali" bird may be constant in the lower Ucayali region, and, if so, it may be possible to recognize a separable form on that basis, but a good series is required to determine the exact nature and range of such variants. The two Chamicuros birds may belong in that segment, as, indeed, their pattern of coloration suggests. Such an assignment would give a more satisfactory explanation of distribution and affinity of the Chamicuros specimens than is now possible.

The Chanchamayo Valley birds are for the most part intermediate between the Huayabamba Valley series and *boliviana*. The black necklace is still weaker and usually interrupted in the middle, as it is in some Huayabamba specimens; the blue patch on the lower throat is weaker and appears as a bluish tinge at the lower margin of the green gorget, expanded laterally about as in the "Ucayali" specimen though less prominently. One example is very close to *boliviana;* none is so strongly marked as the extreme examples from the Huayabamba Valley, but I believe their intermediate nature entitles them to inclusion with the Huayabamba, Chamicuros, and [?lower] "Ucayali" specimens under the oldest available name, *jelskii*.

It may be noted that Junín specimens from outside the Chanchamayo Valley (Pozuzo and Puerto Yessup) are *boliviana* and

show the characters of that form without affecting the validity of *jelskii* for the intermediate population.

A somewhat similar situation is presented in Nicaragua where a population exists that is intermediate between *townsendi* of Honduras and eastern Guatemala and *venusta* of Costa Rica and Panamá. I have nine males from Honduras, every one of which is intermediate in varying degree between the two adjacent forms.

Without an examination of the critical specimens, it is impossible to assign some of the earlier records to this form or to one of the others. Specimens from Sarayacu, Río Ucayali, probably belong here as do records from Santa Cruz, near Chamicuros. Huambo, Achamal, and Soriano belong with the series listed below under *jelskii*. Possibly some of the "Upper Amazon" or Río Javari material is Peruvian in origin and of the same assignment.

In this connection it may be well to call attention to a statement by Gyldenstolpe (1945, K. Svenska Vetenskaps. Akad. Handl., ser. 3, vol. 22, no. 3, p. 81) regarding a series of birds from the Rio Juruá, Brazil, which he identified as *T. f. simoni*, a form described by Hellmayr from Teffé, Brazil. Gyldenstolpe noted that *simoni* (as here identified) had the green throat in the male sex not abruptly defined from the blue of the belly but gradually merging with it. This feature is quite at variance with the character of true *simoni* and strongly suggests that the Juruá specimens belong to *jelskii* or at least to the population of the lower Ucayali which, at present, appears to belong to that form. The range of *jelskii* would thus extend eastward from the lower Ucayali to the Juruá—a range that is quite understandable. Further comments on *simoni* will be given on a later page.

Thalurania furcata boliviana Boucard

Thalurania furcata boliviana BOUCARD, 1894, Genera of humming birds, p. 107—Bolivia; Paris Mus.

As mentioned in the discussion of *jelskii*, birds from the upper Ucayali and the neighborhood of Pozuzo and Puerto Yessup belong to the Bolivian form to which southeast-Peruvian specimens also belong. In this form, the green gorget is relatively short, being truncate or double-rounded on its posterior margin. The black necklace of *nigrofasciata* is so broadly interrupted in the middle and withdrawn to the sides that it is at best inconspicuous as a pair of isolated dark patches and is frequently quite lacking.

In some young birds, there is a suggestion of blue at the upper end of the purplish violet area adjacent to the green gorget, but other young birds show none of it, being uniformly colored below the green throat as are the adults, although the young birds may show the entire lower under parts lighter and more bluish, less violaceous, than older birds.

The under tail-coverts in *boliviana* usually show some whitish marginal stripes or patches in the adult males, but occasionally they are nearly uniform steely black, especially in birds from the upper Ucayali where some approach to the characters of *jelskii* might be expected. In *jelskii*, these coverts are more uniform, as a rule, although not constantly so in any part of the range.

Records that may be assigned to *boliviana* are from Cumaria, Huaynapata, Río Cadena, and Carabaya.

Before leaving *Thalurania furcata* I should like to record a specimen from Teffé, Brazil, the type locality of Hellmayr's *T. f. simoni*, which is at decided variance from the type and male paratype of that form, now before me. *Simoni* was described as resembling "*jelskii*" (=*boliviana* as here considered) except for certain details that are given, in most of which *simoni* is said to agree with *balzani;* the difference from *balzani* is noted as consisting of broad, dark, central stripes, edged with white, on the under tail-coverts instead of the pure white coverts of *balzani*. This new specimen from Teffé has the under tail-coverts nearly pure white, with pale brownish shaft streaks on a few of the shorter feathers—less than is shown by numerous examples of *balzani*. No specimen of *balzani* at hand, however, shows the prominent dark central markings of the two original males of *simoni*, and I hesitate to do more than suggest, therefore, that these two specimens are merely unusual examples of *balzani* in proximity to the range of *jelskii* or *boliviana*. *Simoni* has been recorded, without comment, from São Paulo de Olivença by Todd, 1942, and from the Rio Juruá by Gyldenstolpe, 1945. The Juruá birds, however, can hardly belong to *simoni*, since Gyldenstolpe notes the fact that (presumably in his specimens) "*simoni*" has the green of the throat gradually merging with the blue of the belly, a character of *jelskii* but not of *simoni* which shows sharp definition between throat and breast. I conclude, therefore, as previously noted, that the Juruá birds may belong to *jelskii* but not *simoni*.

Nevertheless, the third male from Teffé emphasizes the inter-

mediate nature of *simoni* which a larger series may prove to be only an extreme of *balzani*, its nearest relative at present. *T. f. furcatoides* from the Pará district, which differs from *simoni* principally by darker upper surface and a violet band connecting the scapular patches, shows even more variation in the color of the under tail-coverts which are sometimes nearly pure white and sometimes with only a feeble development of whitish edges. It will be necessary to have more than three males from the Teffé region before it can be determined with certainty whether the predominant pattern of the coverts is that of the type of *simoni* or that of *balzani*.

SPECIMENS EXAMINED

T. f. townsendi.—
NO LOCALITY: 1 [♂].
T. f. townsendi × *venusta.*—
NICARAGUA:
(Savala, Eden Mine Hill, Río Coco, Los Sabalos, Río Grande, Matagalpa, Tuma, and Peña Blanca), 9 ♂, 11 ♀.
T. f. venusta.—
COSTA RICA:
(Aquinares, Carrillo, Bonilla, Pozo Azul, Tucurrique, Guapiles, Atalanta, Puerto Jiménez, Hacienda La Iberia, Guayabo, and Volcán de Oso), 21 ♂, 11 ♀, 2 (♀).
PANAMÁ:
(Veragua, [Lion Hill], Brava I., Chitrá, Agua Dulce, Almirante, Cocoplum, Santa Fé [Veraguas], Río Calovevora, Boquete, Gatún, Chiriquí, and Bogava), 31 ♂, 5 ♀, 1 (?).
T. f. fannyi.—
PANAMÁ:
(Tacarcuna and Tapalisa), 4 ♂, 4 ♀.
COLOMBIA:
(Buenavista, Juntas de Tamaná, La Vieja [Chocó], Alto Bonita, and "St. Bonaventure" [cotype]), 8 ♂, 4 ♀ (including cotype).
ECUADOR:
(Paramba, Cachiyacu, and Carondeled), 11 ♂, 7 ♀, 1 "♂" [= ♀].
T. f. colombica.—
COLOMBIA:
(El Consuelo, near San Agustín, Andalucia, La Candela, Santa Marta, Minca, Onaca, El Libano, Donamo, Las Nubes, Valparaiso, "New Grenada," "Bogotá," and "Colombia"), 45 ♂, 16 [♂], 11 ♀, 18 [♀], 2 (?).
VENEZUELA:
(Mérida and Azulita), 2 ♂.
T. f. subtropicalis.—
COLOMBIA:
(Río Dagua, Las Lomitas, San Antonio, Castilla, and "Cauca Valley"), 7 ♂, 1 "♀" [?=♂], 5 ♀.

T. f. verticeps.—
ECUADOR:
"Quito," 9 ♂, 5 ♀.
T. f. hypochlora.—
ECUADOR:
"Quito," 1 ♂, 2 ♀;
(Santa Rosa, Naranjo, Bucay, Gualea, La Chonta, Las Piñas, Río Pescada, and "Río Napo" [*errore*]), 11 ♂, 4 [♂], 1 "♀" [?=♂], 7 ♀, 3 [♀].
T. f. refulgens.—
TRINIDAD: 6 ♂.
VENEZUELA:
(Cumaná, Cristóbal Colón, Cuchivano, Santa Ana Valley, Los Palmales, San Antonio [Bermúdez], Montaña del Guácharo, Quebrada Seca, Campos Alegre Valley, La Tigrera, and "Venezuela"), 24 ♂, 4 ♀.
T. f. furcata.—
CAYENNE:
(Pied Saut, Ipousin, Cayenne, and "Cayenne" [trade-skins]), 13 ♂, 3 ♀.
SURINAM:
Pararah, 1 ♂.
BRAZIL:
Rio Jamundá, Faro, 1 ♂.
"VENEZUELA":
("Venezuela" and "State of Cumaná" [*errore*]), 2 ♂.
NO LOCALITY: 1 ♂.
T. f. fissilis.—
BRITISH GUIANA:
(Mines District, Potaro Landing, Kamakusa, Tumatumari, upper Mazaruni River, Minnehaha Creek, and "British Guiana"), 11 ♂, 8 ♀.
VENEZUELA:
(Suapure, La Prisión, El Llagual, Roraima, Arabupú, and Auyan-tepui), 24 ♂ (including type from Suapure [mountains]), 8 ♀.
T. f. orenocensis.—
VENEZUELA:
(Nericagua, Munduapo, [western] foot of Mt. Duida, Playa del Río Base, Foothills Camp, Pie del Cerro, Segundo Pico, Laterite Valley, and Agüita), 14 ♂ (including type from Nericagua), 14 ♀.
T. f. nigrofasciata.—
VENEZUELA:
Río Orinoco (Lalaja and mouth of Río Ocamo), 3 ♂, 1 ♀;
Río Casiquiare (Buena Vista, El Merey, opposite El Merey, Solano, and terrain between Huaynia and Casiquiare), 3 ♂, 3 ♀.
COLOMBIA:
Opposite Tahuapunto [Brazil], 4 ♂, 2 ♀;
junction of Río Huaynia and the Casiquiare, 1 ♂, 1 ♀.
BRAZIL:
Rio Uaupés (Tahuapunto and Iauarete), 4 ♂, 5 ♀;
Rio Negro (Tatú, Yavanarí, Tabocal, Cucuhý, Yucabí, Santa Maria, Manaos, and Muirapinima), 9 ♂, 15 ♀.
[CAYENNE]: "Oyapock" [*errore*], 3 ♂, 2 ♀.

T. f. viridipectus.—

COLOMBIA:

(La Morelia, Buena Vista, and "Bogotá"), 3 ♂, 2 ♀.

ECUADOR:

(Macas, Río Suno above Avila, lower Río Suno, below San José, Sarayacu to Capetaza, Guayabo, "Napo," Zamora, "Zamora or Gualaquiza," "Nanegal" [*errore*], "Ecuador," and "Quito-skin"), 24 ♂, 13 ♀.

PERÚ:

Mouth of Río Curaray, 5 ♂, 3 ♀, 1 ♀[1];
"headwaters of Marañón," 10 [♂];
Puerto Indiana, 9 ♂, 6 ♀, 1 ♂[1];
Pebas, 2 ♂;
Nauta, 1 ♂;
Iquitos, 3 ♂, 1 ♀;
"N.O. Peru," 1 ♀;
Río Mazán, 4 ♂;
mouth of Río Santiago, 3 ♂, 1 ♀;
Pomará, 6 ♂, 3 ♀, 1 (?);
Huarandosa, 2 ♂;
Moyobamba, 3 ♂[1], 1 ♀[1];
Río Seco, 4 ♂;
Río Negro, 4 ♂;
Chayavitas, 1 ♂, 1 ♀;
"Perú," 1 ♂.

T. f. jelskii.—

PERÚ:

Chamicuros, 2 ♂;
Ucayali, 1 ♂;
Guayabamba (Huayabamba), 6 ♂, 3 ♀;
Nuevo Loreto, 1 ♂, 1 ♀;
Tulumayo, 1 ♂, 3 ♀;
La Gloria, 1 ♂;
Borgoña, 1 ♂;
La Merced, 1 ♀;
Chanchamayo, 1 ♂[2], 3 ♀[2];
"Divisoria Fundo Sinchona," 1 ♂[2];
Río Colorado, 3 ♂[2].

T. f. boliviana.—

PERÚ:

Pozuzo, 1 ♂;
mouth of Río Urubamba, 2 ♂;
Santa Rosa, Ucayali, 9 ♂;
Lagarto, 2 ♂;
Puerto Yessup, 4 ♂[1], 1 ♀[1];
Astillero, 12 ♂, 1 ♀, 3 (?);
Candamo, 3 ♂, 1 ♀, 1 (?);

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

[2] Specimens in Chicago Natural History Museum.

Río Inambari, 2 ♂;
Río Huacamayo, 2 ♂;
Huacamayo, 1 ♂[1];
La Oroya, 2 ♂[1];
La Pampa, 1 ♂[1].

BOLIVIA:

(Yungas [Cochabamba], "Mapiri," Chairo, Todos Santos, mouth of Río San Antonio, Mission San Antonio, Santa Cruz, Vermejo, San Augustín, Province of Sara, and "Bolivia"), 19 ♂, 6 [♂], 13 ♀, 2 [♀].

T. f. simoni.—

BRAZIL:

Teffé, 3 ♂ (including type), 1 ♀.

T. f. balzani.—

BOLIVIA:

(Mapiri, Reyes, Salinas, and "Yungas"), 2 ♂ (including cotype from "Yungas"), 5 [♂], 1 ♀, 2 [♀].

BRAZIL:

(Santa Isabel [Rio Preto], Porto Velho, Calamá, Alliançá, Borba, Igarapé Auará, Villa Bella Imperatríz, Santarem, Igarapé Brabo, Itaituba, Tauarý, Caxiricatuba, Aramanay, and "Amazonas"), 21 ♂, 2 [♂], 12 ♀, 1 [♀].

T. f. furcatoides.—

BRAZIL:

Rio Tocantins, Mocajuba, 3 ♂, 1 ♀;
Baião, 1 ♂;
Pará (Igarapé Assú, Prata, Utinga, Bemfica, Benevides, and Pará), 17 ♂, 1 "♀" [=♂], 9 ♀.

T. f. baeri.—

BRAZIL:

Goiaz (Fazenda Esperanza, Goiaz, Leopoldina, and Rio Uruhú), 7 ♂ (including type), 1 ♀;
Piauhy, Patos, 2 ♂, 1 [♂];
Matto Grosso (Tapirapoan, Utiarity, Urucum, Belvedere de Urucum, Chapada, and Campos Novos), 25 ♂, 4 ♀.

T. f. eriphile.—

BRAZIL:

Minas Gerais (Sertão de Diamantina and Rio Jordão de Araguary), 3 ♂, 2 ♀;
"Brazil," 3 ♂, 1 ♀.

PARAGUAY:

Zanja Morotí, 1 [♂].

"ECUADOR" [*errore*]: 1 ♂.

Hylocharis sapphirina (Gmelin)

Trochilus sapphirinus GMELIN, 1788, Systema naturae, vol. 1, p. 496—Guiana.

T[*rochilus*] *latirostris* WIED, 1832, Beiträge zur Naturgeschichte von Brasilien, vol. 4, pt. 1, p. 64—islands in Rio Belmonte, Cachoeirinha, Brazil; ♂ type (or cotype) in Amer. Mus. Nat. Hist.

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

Hylocharis Guianensis BOUCARD, 1891, Humming Bird, vol. 1, p. 52—River Carimang, Camacusa, and Merumé Mountains, British Guiana.

Hylocharis brasiliensis BOUCARD, 1893, Humming Bird, vol. 3, p. 7—Brazil [= Bahia].

Chamicuros, 1 ♂, 1 ♀; Puerto Indiana, 1 ♂; mouth of Río Curaray, 1 ♀.

Compared with 68 additional skins from Cayenne, British Guiana, southern Venezuela, northern Brazil, the Colombian side of the Río Uaupes, the Amazon Valley from the Rio Madeira to Pará, Bahia, Rio Janeiro, and Espirito Santo, including the type (or cotype, the only one of Wied's specimens extant) of *latirostris*. No distinctions appear in this series.

Other Peruvian records are from Pebas and Jeberos.

Hylocharis cyanus rostrata Boucard

Hylocharis cyanea rostrata BOUCARD, 1895, Genera of humming birds, p. 400—Rioja, Perú; type possibly in Frankfort Mus.

This form was described by Boucard from notes presumably supplied by Berlepsch in whose collection the type (or cotypes) may be preserved. The only certain character by which the form can be separated from *viridiventris* is the greater average length of the bill, since both subspecies agree in the general depth of coloration. There is a slight overlap in the length of the bill. Of 31 males of *viridiventris* measured, one has the bill 18 mm. in length; one, 17.5; 29, 15 to 17. Of the far fewer *rostrata* at hand, one has the bill 17.5; five, 18; one, 19; and one, 20.

There appear to be no records of *rostrata* from the southern part of Perú, but the form occurs in northwestern Bolivia and may occur in adjacent parts of Perú. Farther east in Bolivia there appears to be a decided approach toward the coloration of *cyanus cyanus* with the retention of the long bill of *rostrata*. With 20 specimens in good agreement on the characters, a new form may justifiably be recognized, as is described in more detail below.

One of the Bolivian specimens of *rostrata* (not sexed) lacks the glittering cap of the adult male plumage, having this area bluish green. The remainder of the plumage is that of the adult male, although the sides of the head and the malar region have a slight greenish tinge, apparent only in certain lights. The bill is relatively dark, with the maxilla wholly blackish and the mandible light brownish, with a more blackish tip. These features agree

in many respects with those described for "*Hylocharis pyropygia*," although the top of the head is said to be glittering in that supposed form.

Another Bolivian specimen (not sexed) has the forehead and sides of the head somewhat glittering bluish green, and the throat somewhat bluer, though not so strongly as in adult males. The belly is broadly whitish, and the tail is that of the female plumage, having the outer two pairs of rectrices broadly tipped with gray. Other specimens (of *rostrata* and the other forms), some sexed as males and some as females, show varying amounts of green color on the glittering feathers of the head and throat, particularly on feathers that give indications of recent development. From this I judge that "*pyropygia*" may possibly represent merely a stage of arrested development of the male plumage or an "advanced" condition of the female plumage. Certainly, in the various specimens here discussed I can see no admixture of *Chlorostilbon* characters as suggested by Berlioz (1938, Rev. Française d'Ornith., new ser., vol. 8, p. 18), which does not preclude the existence of such characters in the specimens examined by him. In any case, I suspect that the birds from Cumaria, Perú, reported as *pyropygia* by Dunajewski (1938, Acta Ornith., Mus. Zool. Polonici, vol. 2, p. 320), without a discussion of their characters, may be no more than variants of *rostrata* as noted herewith.

Other records of *rostrata* are from Rioja, Nauta, Jeberos, Chamicuros, and Moyobamba.

Hylocharis cyanus conversa, new subspecies

TYPE: From Camp-woods, 750 meters, Province of Sara, Bolivia. No. 480547, American Museum of Natural History. Adult male collected June 24, 1906, by J. Steinbach; original no. 671.

DIAGNOSIS: Similar in coloration to *H. c. cyanus* of eastern Brazil (Bahia to São Paulo) but with the bill longer as in *H. c. rostrata* of eastern Perú and northwestern Bolivia. Differs from *rostrata* in the male sex by paler belly, with paler and weaker green tips in the area; under tail-coverts paler and usually more strongly margined with light edges.

RANGE: Eastern Bolivia and probably the Matto Grosso region of western Brazil and the Paraguayan Chaco.

DESCRIPTION OF TYPE: Forehead and crown glittering Deep Blue-Violet; back of head Forest Green, becoming a little lighter

on the mantle and bronzy on the rump, passing into coppery Chestnut on the upper tail-coverts. Sides of the head like the crown, with the blue color extending farther posteriad, leaving a narrow green stripe in the supra-auricular region; chin white, with terminal spots of Deep Blue-Violet; throat and breast Deep Blue-Violet; sides of breast like the back, with the green coloration passing posteriad along the flanks in a paler and weaker tone and spreading across the upper belly in still weaker condition; belly near Mouse Gray with only slight traces of dull greenish tips, visible in certain lights; femoral tufts and extreme lower belly silky white; longer under tail-coverts blackish brown, the remainder lighter brown, with narrow pale margins. Wings, including greater upper coverts and primary-coverts, purplish brown; median coverts similar, with green tips; lesser coverts like the back; under coverts dark green. Tail steely blue-black. Bill "meet-coloured [*sic*]; point black"; feet black. Wing, 54 mm.; tail, 29; culmen, 19.

REMARKS: Females above lighter green than the male and without the blue cap; posterior upper parts less deeply coppery; tail with median rectrices bronzy and outer two pairs more or less conspicuously and broadly tipped with light gray; under parts largely whitish, with green tips on the feathers of the sides; throat variably with or without evidence of the male gular coloration on the tips of the feathers; sometimes strongly spotted, sometimes immaculate. The general dorsal color is lighter than in females of *rostrata*.

I have not seen specimens from the Matto Grosso region of Brazil or from the Paraguayan Chaco, from both of which areas "*rostrata*" has been recorded. It is rather certain that the populations of these two areas belong to *conversa*.

SPECIMENS EXAMINED

H. c. viridiventris.—

SURINAM:

Vicinity of Paramaribo, 5 ♂, 1 ♀, 1 [?♀].

BRITISH GUIANA:

(Essequibo River, Tumatumari, Merumé Mountains, Annai, "British Guiana"), 6 ♂, 2 ♀.

VENEZUELA:

(Roraima, Auyan-tepui, Nericagua, Suapure, Campos Alegre Valley, opposite mouth of Río Ocamo, above Ihuapo, LaLaja, Esmeralda, Mt. Duida [Savana Grande, Valle de los Monos, Campamento del Medio,

Playa del Río Base, Foothills Camp], opposite El Merey), 21 ♂, 15 ♀, 1 (?).

COLOMBIA:

Opposite Tahuapunto, 1 ♂;
junction of Río Huaynia and Casiquiare, 3 ♂, 2 ♀.

BRAZIL:

Rio Negro (Tatú, Cucuhy, Tabocal, Yucabí, Igarapé Cacao Pereira), 15 ♂, 17 ♀;
Rio Uaupés (Tahuapunto and Iauarete), 2 ♂, 2 ♀;
Rio Tapajoz, Itaituba, 1 ♂, 1 ♀;
Rio Tocantins, Mocajuba, 3 ♂, 3 ♀;
Pará, Prata, 2 ♂;
Ceará, Viçosa, 1 ♂;
"Brazil," 2 ♂.

H. c. cyanus.—

BRAZIL:

Bahia, 4 ♂, 1 ♀;
Espirito Santo (Lagõa Juparaná and Baixo Guandú), 13 ♂, 6 ♀;
Minas Gerais (São Benedicto and Rio Doce), 5 ♂;
"Río de Janeiro," 4 ♂, 1 (?);
São Paulo, São Sebastião, 1 ♂.

H. c. rostrata.—

PERÚ:

Iquitos, 2 ♂;
Puerto Indiana, 1 ♂;
Río Negro, west of Moyobamba, 1 ♂;
Yarina Cocha, Río Ucayali, 1 ♂, 1 ♀.

BOLIVIA:

Salinas, Río Beni, 4 [♂], 4 [♀];
Reyes, Río Beni, 1 [♀].

H. c. conversa.—

BOLIVIA:

Camp-woods, Province of Sara, 10 ♂ (including type), 3 ♀, 2 "♀" [?=♂];
Todos Santos, 3 ♂, 1 ♀;
Mission San Antonio, 1 ♀.

[**Hylocharis grayi** (DeLattre and Bourcier)

Trochilus Grayi DELATTRE AND BOURCIER, 1846, Rev. Zool., p. 307—Popayán, Colombia.

Heine and Reichenow (1884, Nomenclator Musei Heineani ornithologici, p. 180) record a specimen of this species from Perú, the only example in the collection. In the earlier book (1860, Museum Heineanum, vol. 3, p. 43), Cabanis and Heine record what is probably the same specimen as from "Neu-Granada." Since there is no supporting evidence of Peruvian occurrence and not even very close distributional approximation of either sub-

species to the Peruvian boundary, it appears probable that Heine and Reichenow were in error.]

[Hylocharis chrysura (Shaw)

Trochilus chrysurus SHAW, 1912, General zoology, vol. 8, p. 335—Paraguay.

Two examples at hand are labeled "Peru," and three specimens in the British Museum are recorded with the same limited data. The species occurs in northwestern Bolivia, and it is not impossible that it reaches the southeastern corner of Perú, but there are no authentic records. In view of the uncertainty of Peruvian occurrence, it is best to leave the species on the hypothetical list.]

Chrysuronia oenone oenone (Lesson)

Ornismya oenone LESSON, 1832, Histoire naturelle des colibris, Supplément a l'histoire naturelle des oiseaux-mouches, p. 157, pl. 30—Trinidad.

Chrysuronia brevirostris MADARÁSZ, 1911, Ornith. Monatsber., vol. 19, p. 32—Ecuador.

The distribution of this form in Perú is somewhat unusual since it does not follow the Napo downstream as far as the mouth, where it is replaced by *C. o. josephinae*. It reaches the Marañón west of Nauta, possibly only beyond the Pongo de Manserriche. There are no specimens or records between Nauta (where *josephinae* appears to occur) and Pomará (in the range of *oenone*).

I can find no distinctions between north-Venezuelan birds and those from eastern Ecuador and Perú, although the intervening region is occupied by a slightly different population that has been named *longirostris* (Berlepsch, 1887, Jour. f. Ornith., vol. 35, p. 333—"Bogotá"). I have seen no adult males from any definite locality in Colombia, but 12 Bogotá trade-skins agree in having the bill 20 mm. or over in length, while 21 Venezuelan, Ecuadorian, and Peruvian males show a bill length of 18 to 19 mm., reaching 19.5 in only three examples of this series. Several additional males, labeled "New Granada," have bills of the shorter dimension, but they are not true "Bogotá-skins" and hence are of doubtful Colombian origin. Females have slightly longer bills than the males, and in this sex there is similar demarcation in length between three Bogotá-skins plus one female from Villavicencio and numerous examples from Venezuela, Ecuador, and Perú. It seems probable, therefore, that *longirostris* may be able to stand as a recognizable form on the sole character of the greater length of bill. I can find no distinctions in color.

Some years ago (1930, Field Mus. Nat. Hist., zool. ser., vol. 17, p. 276), I reached other conclusions regarding *longirostris*, but at that time I did not appreciate the sexual difference in the length of bill in this species. In the light of the present study, a reëxamination of the measurements I noted shows that the single adult Bogotá male had the bill 20.5 mm. in length, while that of Trinidad, Venezuelan, and Ecuadorian males did not exceed 19 mm. The longer-billed birds I recorded at that time were all females of *oenone*. Consequently there is no disagreement with the present findings to dispute the apparent validity of *longirostris*.

There is some question as to the existence of a west-Ecuadorian form, *azurea* (Simon, 1921, Histoire naturelle des Trochilidae, p. 88—Paramba, Ecuador), based on the characters of bluer, less violet, anterior parts and dimensions like those of *longirostris*. I have a female labeled "W. Coast Ecuador"—a dealer's skin (H. Whitely) without full data—but it has a short bill, in agreement with east-Ecuadorian birds of the same sex. The degree of blueness on the head and throat of the males is not a character of great value in this species, since it is quite variable, depending to some extent on the age of the bird or the stage of development of the particular feathers, which appear to pass through a bluish stage before reaching the full violaceous coloration. Specimens in molt show this very well. The case of *azurea* (or of any occurrence of the species in western Ecuador) needs further confirmation.

I do not believe that *oenone* belongs in the genus *Hylocharis*, where it has been assigned by several authors. There are some similarities in coloration, but they are not peculiar to *Hylocharis* and *Chrysuronia*, while the prominent, seed-like expansion of the nasal operculum in *Hylocharis* is not developed in *oenone*.

Todd (1942, Ann. Carnegie Mus., vol. 29, p. 316) remarks on the apparent absence of records from the Mérida region of Venezuela. It may be well, therefore, to call attention to five specimens at hand from that area, from Azulita, Ejido, and Mérida.

Records of *oenone oenone* from Perú are restricted to the specimens listed below in the material examined.

Chrysuronia oenone josephinae (Bourcier and Mulsant)

T[rochilus] Josephinae Bourcier and Mulsant, 1848, Rev. Zool., [vol. 11], p. 272—no locality [= Upper Amazon].

Chr[ysuronia] oenone intermedia HARTERT, 1898, Novitates Zool., vol. 5, p. 519—Upper Amazon, especially near Pebas; ♂; Amer. Mus. Nat. Hist.

Hylocharis josephinae peruviana CARRIKER, 1935, Proc. Acad. Nat. Sci. Philadelphia, vol. 87, p. 345; Moyobamba, Perú; ♂; Acad. Nat. Sci. Philadelphia.

A series of over 60 examples of this species from Perú and Bolivia, other than the examples already discussed as *oenone oenone*, has presented considerable evidence concerning the distinction of a supposed blue-chinned form once separated as *intermedia*, and other possible variations.

Considering first the Peruvian series of more than 40 examples, the blue chin is, as has been pointed out by various authors, quite variable and apparently does not occur in all, or even most, adult males, even in regions most nearly adjacent to the range of the broadly blue-throated *oenone*. In the material now at hand, only five birds, including the type of *intermedia*, have the blue chin-spot well developed, and it is of varying size among these five. Three males, not all fully adult, show one or more blue feathers on the chin, the rest of which is green. Seventeen more males, either adult or nearly so, have a well-developed blue patch in the anterior malar region but no blue on the central part of the chin. The remainder of the males are too young to give any indication of presence or absence of blue in the regions mentioned. In a series of 14 males from northern Bolivia, most of them adult, none has a blue chin, one shows a single blue feather in that area, seven have blue in the anterior malar region, and four have none below the lores. Any distinction between Bolivian and Peruvian birds or any division of the Peruvian series must, therefore, rest on other factors, if any exist.

One character does appear to be of some value. In the Bolivian birds, particularly in the females, the rich coppery color of the upper tail-coverts tends to spread anteriad over the lower part of the rump, while in all the Peruvian specimens, from the north bank of the Amazon to the southeastern Inambari region, the rump remains green like the back or has only a very narrow incursion of the coppery coloration. There is not a great deal of overlap in this respect between the two series in the material at hand, and it may be possible to recognize a Bolivian subspecies at least tentatively, or until even larger series may disprove it. The question remains as to the name to be applied to it.

When Bourcier and Mulsant described *josephinae*, they gave no locality for it, but in their description they make a significant

statement that the rump is green while the upper tail-coverts are coppery. In Mulsant and Verreaux's "Histoire naturelle des oiseaux-mouches" (1875, vol. 2, p. 10; 1878, vol. 4, pl. 9) they repeat and illustrate this detail, accepting the allocation of the species to the region of the upper Amazon, as proposed by various authors whom they cite. This appears to coincide with the features exhibited by the birds from the upper Amazon now before me. Bond and deSchauensee (1943, Proc. Acad. Nat. Sci. Philadelphia, vol. 95, p. 203) proposed Calabatea, Bolivia, as restricted type locality, but I believe the features of the type as described and figured by Bourcier and Mulsant and Mulsant and Verreaux argue against such allocation, and I have no hesitation in accepting the upper Amazon as typical and restricting the type locality to Pebas, Perú. Hartert's "*intermedia*," of course, falls as a synonym of *josephinae*, as Hartert himself (1922, Novitates Zool., vol. 29, p. 406) was prepared to admit.

The next name of undoubted application to a Bolivian form is *alleni* (*Agyrtria alleni* Elliot, 1888, Auk, vol. 5, p. 263—Yungas, Bolivia; Amer. Mus. Nat. Hist.), and the type exhibits well the extensive coppery color on the lower rump. It is not sexed but appears to be an adult female rather than a young male. Gould's "*caeruleicapilla*" (1861, An introduction to the Trochilidae, p. 165) appears from its diagnosis to be no more than an individual variant of either *josephinae* or *alleni*, but since it is without definite locality, only an examination of the type in the British Museum can resolve the question. If equivalent to *alleni* it will, of course, take precedence, since it antedates Elliot's name by many years.

As recognized here, therefore, *josephinae* (in the adult males) is a predominantly green-throated form that occasionally shows a narrow chin-spot of violet blue or one or more feathers of that color in the area, with the anterior malar region violet blue, and with the coppery color of the upper tail-coverts not strongly invading the rump; the last feature is equally, or more strongly, marked in the females. It crosses the Amazon to the north bank as at Iquitos, Pebas, and Nauta, but does not extend far up the Napo, where it is replaced by *oenone oenone* which reaches the Marañón as at Pomará but does not cross it.

Records of *josephinae*, not duplicated by material at hand, are from "Upper Amazons," Nauta, Moyobamba, Saposoa, Tarapoto, Huambo, Jeberos, Quimiri (La Merced), Perené, Chanchamayo, Huacamayo, and Huaynapata.

SPECIMENS EXAMINED

C. o. oenone.—

TRINIDAD: 2 ♂[1], 1 ♀[1].

VENEZUELA:

(Cristóbal Colón, Quebrada Seca, Galipán, Campos Alegre Valley, San Esteban, Santa Ana Valley, Cumanacoa, Rincón San Antonio, Mérida, Ejido, and Azulita), 27 ♂, 2 "♀" [?=♂], 11 ♀, 1 (?);

La Azulita, 1 ♀[1].

ECUADOR:

(Below San José, Zamora, near Zamora, Machiyaco, "Río Tigre" [a Quitoskin], "W. Coast Ecuador," "Ecuador," and "Napo"), 11 ♂, 14 ♀;

"Ecuador," 1 ♂[1], 1 ♀[1].

PERÚ:

Mouth of Río Curaray, 2 ♂, 2 ♀;

headwaters of Marañón, 7 [♂], 1 [♀];

Pomará, 3 ♂, 1 ♀.

"NEW GRANADA": 3 ♂, 1 ♀.

C. o. longirostris.—

COLOMBIA:

"Bogotá," 12 ♂, 4 ♀, 1 ♂[1];

Villavicencio, 1 ♀;

C. o. josephinae.—

PERÚ:

Pebas, 4 ♂, 1 ♀, 1 ♂[1];

Iquitos, 1 ♀;

Puerto Indiana, 2 ♂;

"Perú," 2 ♂ (including type of "*intermedia*");

Río Seco, west of Moyobamba, 4 ♂, 1 ♀;

Rioja, 1 ♀[1];

Nuevo Loreto, 1 [♂];

Chinchao, 1 ♂[1];

Vista Alegre, 1 ♂[1];

Santa Rosa, Ucayali, 11 ♂, 10 ♀;

Río Tapiche, 1 [♂];

Pozuzo, 1 ♂, 1 ♀;

Candamo, 2 ♂, 1 (?);

Astillero, 1 ♀;

La Pampa, 1 (?).

C. o. alleni.—

BOLIVIA:

Yungas, 1 (?) (type);

Mapiri, 2 ♂;

Reyes, 1 ♂;

Tres Arroyos, 1 ♂;

Todos Santos, 1 ♀;

San Augustín, 6 [♂], 2 [♀];

Guanay, 3 [♂], 2 [♀].

[1] Specimens in Chicago Natural History Museum.