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STUDIES OF PERUVIAN BIRDS. NO. 62 THE HUMMINGBIRD GENERA *PATAGONA*, *SAPPHO*, *POLYONYMUS*, *RAMPHOMI-* *CRON*, *METALLURA*, *CHALCOSTIGMA*, *TAPHROLESBIA*, AND *AGLAIOCERCUS*

BY JOHN T. ZIMMER

I am greatly indebted to Mr. James Bond and Mr. Rodolphe M. de Schauensee of the Academy of Natural Sciences of Philadelphia, and to Mr. Emmet R. Blake of the Chicago Natural History Museum for the loan of critical material of service in the following study. I am also indebted to Dr. William H. Phelps of Caracas and Dr. V. Aellen of the Musée d'Histoire Naturelle of Neuchâtel for valuable information concerning certain specimens in their possession or charge.

***Patagona gigas peruviana* Boucard**

Patagona peruviana BOUCARD, 1893, Genera of hummingbirds, p. 61—Perú; type is from Tinta, Perú; ♂, ♀ cotypes in Paris Mus.

Patagona boliviana BOUCARD, 1893, *loc. cit.*—Bolivia; Paris Mus.

This northern form of the species is fairly readily determinable in distinction from the southern *gigas gigas* when fully adult birds are compared, but young examples can be confusing. It is necessary, therefore, to be able to recognize immature specimens as such, which is not always easy. Several characteristics may be noted, most of which were noted by Mulsant and Verreaux (1876, *Histoire naturelle des oiseaux-mouches*, vol. 2, p. 195). The remiges and often the rectrices are noticeably and sometimes broadly tipped with white; the rectrices are more pointed; the general plumage may show narrow whitish tips if they are not

worn off (but adults may show similar ones); the under parts are usually decidedly more strongly and completely rufous than in any adult plumage; the gular spotting is consequently weaker than in adults, which means that in *peruviana*, young birds have the gular markings about as in adult *gigas*. The white of the rump is continued up the middle of the back and even when change to adult plumage is far advanced there usually remains a whitish patch, if only of one or two feathers, isolated in the middle of the back; the bill is in some intermediate condition of development, both of breadth and length; young *peruviana* may thus resemble adult *gigas* in various ways.

For example, a few specimens at hand from the Urubamba Valley have the relatively short and slender bill and the weak gular marking of *gigas*, but they are all young birds. All the adult examples from this region are clearly *peruviana*. I have seen no Peruvian specimens that indicate the occurrence of *gigas gigas* in Perú, although there is evidence that that subspecies has some migratory tendencies, as noted by Hellmayr (1932, Field Mus. Nat. Hist., zool. ser., vol. 19, p. 232).

I would emend a statement made by Hellmayr (*loc. cit.*) with reference to certain Argentine specimens that he found to be "in every particular typical of the large northern form." These were a male from Tilcara, Jujuy, and two birds from Lara, Tucumán. Three females from Tilcara are fairly typical *peruviana*, but the others are identifiable only by their measurements, since they are immature and in coloration resemble other young of both forms.

The numerous Peruvian records of *peruviana* include those from Chota, Otusco, Socota Valley, Motil, Araqueda, Tulpo, Hacienda Huarapa, Yauli, Anco, Huancavelica to Acoria (sight), Lircay (sight), Huanta, Chospiyoc, and Puno.

SPECIMENS EXAMINED

P. g. peruviana.—

ECUADOR:

Mt. Pichincha, 1 ♂;
"Quito," 1 [♀];
Valle Tumbaco, 4 ♂, 2 ♀.

PERÚ:

Cajabamba, 1 ♂;
Cajamarca, 1 ♂, 1 ♂¹;
Huamachuco, 1 ♀, 2 (?);
Succha, 1 ♀;

¹ Specimen in Chicago Natural History Museum.

Huancabamba, 2 ♂, 3 ♀;
 Macate, 11 ♂¹, 4 ♀¹;
 Hacienda Llagueda, 1 ♂¹;
 Culcui, 1 ♀¹;
 Huánuco Viejo, 1 ♀¹;
 Matucana, 1 ♂¹, 1 ♀¹;
 Chipa, 2 ♂, 3 ♀;
 Acobamba, 2 ♂, 2 ♀;
 Oroya, 1 ♂, 4 ♀;
 Arequipa, 1 ♂;
 Tinta, 1 ♂, 1 ♀, 1 ♂¹, 1 ♀¹;
 Pisac, 1 ♀;
 Cachupata, 1 ♂, 1 ♀;
 Cusco, 4 ♂, 2 ♀;
 La Raya, 1 ♀;
 Ollantaytambo, 2 ♂, 2 ♀;
 Huaracundo Cañon, 1 ♂, 1 ♀;
 Ttica-Ttica, 1 ♂, 1 ♀.

BOLIVIA:

Arque, 1 ♀;
 Totorá, 1 ♂;
 Río Pilcomayo, Sucre, 1 ♂.

CHILE:

Putre, 3 ♂¹;
 "Chili," 1 (?).

ARGENTINA:

Tilcara, Jujuy, 1 ♂, 3 ♀;
 Lara, Tucumán, 1 ♂, 1 ♀.

P. g. gigas.—

CHILE:

Tofo, 5 ♂, 3 ♀;
 Valparaíso, 1 ♂, 1 (?);
 Santiago, 1 ♂;
 Limache, 1 ♂, 2 ♀, 1 (?), 1 ♂¹, 1 ♀¹;
 Caldera, 4 ♂¹, 2 ♀¹;
 La Compañía, Coquimbo, 1 ♂¹;
 Papudo, 1 ♀¹;
 San José de Maipo, 2 ♂¹.

ARGENTINA:

Colalao del Valle, 1 ♀¹;
 Fuerte de Andagala, 1 ♂;
 Mendoza, 2 ♂, 1 ♀.

***Sappho sparganura sparganura* (Shaw)**

Trochilus sparganurus SHAW, 1812, General zoology, vol. 8, pt. 1, p. 291—"Peru"; ♂ in Bullock's Museum, London.

Cometes Phaon GOULD, 1847 (May 17), Proc. Zool. Soc. London, pt. 15, p. 31—"Peru"; ♂, ♀ in collection of the Earl of Derby.

¹ Specimens in Chicago Natural History Museum.

It is with some hesitation that I include this species in the Peruvian list, but the evidence for it seems fairly conclusive, although it has been overlooked or minimized by most recent authors. Tschudi (1844, Arch. Naturgesch., 10th year, vol. 1, p. 296) included the species (under the name *Trochilus chrysurus*) in his list of birds observed or collected by himself in Perú. Later (1846, Fauna Peruana, Aves, pp. 244, 250) he again included it, gave a description, and noted it as an inhabitant of the forest region (presumably the Chanchamayo Valley or environs). The same year (1846, Reiseskizzen, vol. 2, p. 256) he again mentioned the species as an inhabitant of the "Ceja de Montaña," the mountain forest of the Subtropical Zone, a correct allocation not, so far as I know, previously recorded.

The only disturbing factor in Tschudi's accounts is in his description of the tail [of the male] in which he says that the individual rectrices have a dark spot in the middle and a darker and less glittering basal portion, but omits mention of the broad, dark tips on these same feathers—a very prominent part of the pattern. Quite possibly, however, the position of the dark bands was inadvertently wrongly specified. The other characters of the description, including the measurements, are accurate and can apply to no other known species.

Dr. V. Aellen of the Musée d'Histoire Naturelle of Neuchâtel kindly writes me that there is no specimen of this species now in the Tschudi Collection which is preserved in that institution. The final proof of Tschudi's reiterated statement is, therefore, still lacking. Nevertheless, it seems certain that Tschudi actually found the bird in the area he specified, although no subsequent worker in the region has duplicated his discovery.

The origin of the type specimens of "*sparaganurus*" and "*phaon*" is more questionable. Many of the specimens from the older collections without accurate data were given an ostensible locality on suspicion of their origin, and at best the terms used were very general. "Peru" might, therefore, have covered a wide extent of terrain not properly indicated by that term even at a time when the boundaries of the country were different from what they now are. I have seen no examples of *s. sparaganura* bearing a suggestion of Peruvian origin as do the types mentioned, but there are listed by Hartert (1892, Catalogue of birds in the British Museum, vol. 16, p. 144) three examples of that nature. I have four specimens labeled "Peru," but all

belong to *S. s. sapho*, the range of which does not approach the Peruvian boundaries. Another male of *sapho* is labeled as from "La Paz" but must have come from some other part of Bolivia, if even from that country.

It is quite possible, therefore, that "Perú" as the type locality of *sparaganura* is erroneous but, in view of Tschudi's report, I believe it is not yet justifiable to accept "Bolivia" in place of it. Consequently I have retained the original locality in quotation marks.

SPECIMENS EXAMINED

S. s. sparaganura.—

BOLIVIA:

Sapahaqui, La Paz, 4 ♂;

"Bolivia," 2 ♀.

No LOCALITY: 2 [♂], 1 [♀].

S. s. sapho.—

BOLIVIA:

(Tarata, Tujma, Vinto, Parotani, California, Arque, Río Pilcomayo, Mizque, "Bolivia," and "La Paz,"), 13 ♂, 8 ♀, 1 [♀].

ARGENTINA:

(Tafí Viejo, above Tafí, Tucumán, "S. Tucumán," San Pablo, Vipos, Sarmiento, Cerro de Tucumán, Tilcara, Valle de Lerma, Lavallo, and Mendoza), 14 ♂, 13 ♀.

CHILE:

Portillo Pass, 1 ♀.

"PERÚ" (*errore*): 2 ♂, 1 ♀, 1 "♀" [= ♂].

Polygonymus caroli (Bourcier)

Trochilus Caroli BOURCIER, 1847 (May), Proc. Zool. Soc. London, pt. 15, p. 48—no locality; I suggest Cajabamba, Perú; ♂; type lost.

Cajabamba, 1 ♂, 1 ♀; Otuzco, 1 ♂; no locality [?Cajabamba or Otuzco], 1 ♂; Chipa, Pasco, 1 ♂.

I have already (1930, Field Mus. Nat. Hist., zool. ser., vol. 17, pp. 286–287) commented on part of the present material in addition to other examples, and have little to add to the details there reported. It seems probable, however, that the species is not so uncommon as I then believed. At any rate it is fairly widely distributed along the Western Andes of Perú, invading parts of the Central Andes in the neighborhood of the Junín plateau.

Records are from Motil, Tulpo, Macate, Hacienda Huarapa (near Huánuco), Cullcui (Río Marañón), Matucana, "Andes of Lima," "Rimac Valley 8000 feet," Yauli, Lircay, and Coracora.

Ramphomicron microrhynchum microrhynchum (Boissonneau)

O[rnismya] microrhyncha BOISSONNEAU, 1839 (Dec.) [probably 1840], Rev. Zool., [vol. 2], p. 354—Santa Fé de Bogotá; ♂; repository unknown to me.

Trochilus brachyrhynchus FRASER, 1840 (July), Proc. Zool. Soc. London, pt. 8, p. 16—Bogotá.

Five specimens of this species from northwestern Perú agree well with the typical subspecies in distinction from the central-Peruvian *albiventris*. Possibly the record from Cutervo belongs here, also; that from Paucal, not far from Taulis, rather certainly does. Other Peruvian records presumably belong to *albiventris*, which is discussed below.

Ramphomicron microrhynchum albiventris Carriker

Ramphomicron microrhynchum albiventris CARRIKER, 1935 (Oct. 25), Proc. Acad. Nat. Sci. Philadelphia, vol. 87, p. 349—Huacapistana, Junín, Perú; ♂; Acad. Nat. Sci. Philadelphia.

This subspecies is not very sharply defined. The only character that appears to distinguish the adult males from those of *microrhynchum* is found in the lighter margins of the under tail-coverts. These margins are not "white" in the two examples at hand, but they are paler than in almost all the adult males of *microrhynchum*, although at least one example of that form is very close in this respect. Likewise, the adult female of *albiventris* at hand has the under tail-coverts far from "white," showing as deep buff on those feathers as the lightest examples of *microrhynchum* although exceeded by most. In addition, this female of *albiventris* has the throat and belly white, without the tinge of buff that is shown by most females of *microrhynchum*, but, again, not by all of them. The speckling on the throat is finer than in any female *microrhynchum*, although closely approached by two examples from Colombia. The characters of *albiventris* are, therefore, worth consideration mainly because of their apparent constancy in central (and southern) Perú rather than because of their prominence.

Young males of *microrhynchum* can be distinguished from the females before they have acquired any of the glittering gorget plumes or the violet dorsal feathers by having the tail longer and more deeply forked (although exceeded in both by the adult males), by rather larger spots on the under parts, tending to occupy a wider space on the sides and flanks, and by under tail-coverts that usually have the broad, dark centers shown by the

adult males, with broad borders that are often as pale and whitish as in adult male *albiventre*. I have seen no young males of *albiventre*.

The west-Venezuelan form, *andicolum*, is even more unsatisfactory than *albiventre*. It was described as having [the margins of] the under tail-coverts of the [adult] males more rufescent than in *microrhynchum* and the dark centers of these feathers quite small. An additional character is given that is quite dubious—the gorget golden with a green tip, presumably in contrast to the all-green gorget of *microrhynchum*. At any rate, two adult males from the Mérida region have the usual green gorget; their under tail-coverts are not more rufescent on the margins than in numerous males of *microrhynchum* and less so than in some of the latter; but the central dark area on these coverts is not so broad as it is in most adult male *microrhynchum*, although an occasional young male has the same feature. In addition, two Mérida females have the gular speckling finer than in nearly all females of *microrhynchum*, agreeing in that respect with my single female of *albiventre*, from which they are distinguishable chiefly by having a stronger buffy tinge on the belly and distinctly more buff on the throat.

For the present, therefore, I retain both *albiventre* and *andicolum*, although identification of single specimens may prove to be difficult.

Records of *albiventre* are from Auquimarca, Pomayaco, and Hacienda Huarapa, as well as from Cachupata that is represented in the material examined. A record from Cutervo I have assigned tentatively to *microrhynchum*.

SPECIMENS EXAMINED

O. m. andicolum.—

VENEZUELA:

- Escorial, 2 ♂;
- Nevados, 1 ♂;
- Páramo de Santo Domingo, 1 [♀];
- Montañas Sierra, 1 ♀;
- Conejos, 1 [♂].

O. m. microrhynchum.—

COLOMBIA:

- Almaguer, 1 ♂;
- Paramillo, 1 ♂;
- Laguneta, 3 ♂, 1 ♀;
- Coast Range west of Popayán, 4 ♂, 1 [♀];

Santa Isabel, 1 ♀ ;
 El Roble, 2 ♂ ;
 El Peñón, 1 ♂ ;
 "Bogotá," 31 [♂], 7 [♀].

ECUADOR:

Pichincha, 10 ♂, 2 ♀ ;
 Nono, 1 [♀] ;
 Papallacta, 3 ♂ ;
 Oyacachi, 1 ♂ ;
 Taraguacocha, 1 ♂ ;
 "Quito," 1 ♂, 1 [♂], 1 [♀] ;
 "Ecuador," 1 [♂].

PERÚ:

Taulis, 4 ♂, 1 ♀ .

O. m. albiventris.—

PERÚ:

Rumicruz, 1 ♂, 1 [♀] ;
 Cachupata, 1 ♂ .

***Metallura aeneocauda aeneocauda* (Gould)**

Trochilus (—?) *aeneocauda* GOULD, 1846 (Nov.), Proc. Zool. Soc. London, pt. 14, p. 86—Bolivia; Unduavi suggested by Carriker, 1935.

I use a trinomial for this form in the belief that *malagae* of the Cochabamba region of Bolivia is a conspecies. The only distinctions of note in the two forms are the redder tail and somewhat longer bill in *malagae*. With respect to the tail, there is considerable variation in the present form, some examples of which have a decidedly reddish tone on the rectrices in contrast to the usually clearer green. This is particularly noticeable in two examples from the Urubamba Valley, Perú, and may indicate the possibility of separating an intermediate subspecies from that non-intermediate locality, for which, however, confirmation by longer series should be a prerequisite. In any case, the trend is decidedly toward the character of *malagae* which I place in merely sub-specific rank.

There are no certain records of *aeneocauda* from farther north in Perú than the Urubamba Valley. Taczanowski (1884, Ornithologie du Pérou, vol. 1, p. 355) recorded it from Chota and Cutervo—a record that was accepted by Simon but ignored by Hartert. A careful reading of Taczanowski's description leads to the conclusion that he had examples of *Metallura tyrianthina septentrionalis* instead of *aeneocauda*. The description tallies in major details with that Taczanowski gives to "*smaragdinicollis*" of central Perú (which he records also from Chota) and differs

from it in those features by which *septentrionalis* differs from the central-Peruvian form of *tyrianthina*. The dimensions are wrong for *aeneocauda*, as are the shape of the gorget and the color of the tail, although these agree with those of *septentrionalis*. Since Taczanowski had no other records of "*aeneocauda*" than those from Chota and Cutervo, it appears probable that he was unacquainted with the true *aeneocauda*.

All certain localities of record are included in the subjoined list of specimens examined.

SPECIMENS EXAMINED

M. a. aeneocauda.—

PERÚ:

Cedrobamba, Urubamba Valley, 1 ♂, 1 ♀;
Oconeque, 1 ♂;
Limbani, 1 ♀;
Cachupata, 1 ♀.

BOLIVIA:

Cocopunco, 1 [♂];
"Bolivia," 2 ♂, 2 [♂], 1 [♀].

M. a. malagae.—

BOLIVIA:

Incachaca, 1 ♂.

***Metallura theresiae* Simon**

Metallura theresiae SIMON, 1902 (July), Novitates Zool., vol. 9, p. 181—Prov. Pataz, Tayabamba [Perú]; Amer. Mus. Nat. Hist., and Berlioz Coll., Paris; cotypes.

Laticauda rubriginosa CORY, 1913 (May 31), Field Mus. Nat. Hist., ornith. ser., vol. 1, p. 287—mountains east of Balsas, Perú; ♀; Chicago Nat. Hist. Mus.

Tayabamba, 1 (?) (cotype); La Lejia, 1 ♀, 1 [? ♀].

Metallura theresiae appears to be a rare bird in collections, and the plumage of the adult male still remains to be described. The three birds at hand differ a little among themselves, and since two of them were not sexed by the collector, exact determination is impossible at this time.

The type of "*rubriginosa*," which I examined some years ago, and the two non-sexed birds now at hand agree in having the central area of the throat rather dull green at the tips of the feathers. The female from La Lejia has the gular area in poor condition but shows a few feathers with green tips and others with more coppery lights, possibly due to imperfect cleaning of the plumage when collected. None shows a clear and extensive gorget such

as is found in adult males of allied species. The non-sexed La Lejia bird has the broadest and clearest pale tips on the outer rectrices; the female from La Lejia has the tips weaker and duller; the cotype has these tips barely suggested. The white patch on the anal region is variable, being most extensive in the cotype. The coppery red on the upper parts and the lateral under parts is brightest and clearest in the non-sexed La Lejia specimen, and the bluish reflections of the tail and back, visible in certain lights, are weakest in this last-mentioned bird and strongest in the cotype. Nevertheless, the general pattern of all three birds (and the type of "*rubiginosa*") is so similar throughout that it appears probable all four of these birds are females, perhaps of different ages.

Additional records are from Patás and Atuén.

The position of *theresia* is, I believe, quite clearly in a series of related forms that comprises *williami*, *atrigrularis*, *primolina*, *baroni*, *theresia*, *eupogon*, *aeneocauda*, and *malagae*. These forms agree in various characters and replace one another geographically, but differ in certain particulars that perhaps are of no more than subspecific value. The association of *williami*, *atrigrularis*, and *primolina* is certainly specific and, at the southern end of the series, *aeneocauda* and *malagae* unquestionably belong together. The remaining three forms are more divergent from the general pattern of the series, and it is probably best to give each of them individual specific status until specific relationship can be more positively demonstrated. Nevertheless, the eight forms should be kept together as a superspecific group.

If this group is ever considered as a specific one, it will bear the specific name *aeneocauda*. Both *aeneocauda* and *williami* (*T[rochilus]* *Williami* De Lattre and Bourcier, Rev. Zool., vol. 9, p. 308) appeared in 1846. *Aeneocauda* was published in November of that year, while *williami* appeared in the September number of the journal cited. However, the August number of the Revue Zoologique for that year contains a note by the editor to the effect that the September and October numbers were necessarily to be delayed and would appear with the November issue, and the November number, in turn, carries a note concerning a meeting held on November 30. It is obvious, therefore, that publication of *williami* could hardly have been earlier than some time in December. Other names in the same paper should be dated likewise in December, 1846.

A word may be added regarding a specimen I accept as the type of *primolina* (*Metallura primolinus* Bourcier, 1853 [July], Rev. et Mag. Zool., vol. 5, p. 295—Laguano, Río Napo). This specimen was obtained by Elliot from Bourcier and is the individual described and figured by Gould (1861 [Sept.], Monograph of the Trochilidae, pl. 194) who stated that it was the only example known to date. Gould believed it to be a female, although Bourcier had described it as a male, and his conclusion appears to be correct. It bears no exact locality except "Ecuador," and Bourcier's statement as to "Laguano, bords du Napo" must have been based on personal information from the collector, Osculati. I am unable to find Laguano on any map, but the Río Napo has its source in the high mountains of northern Ecuador, and Osculati is reputed to have descended the whole course of the river. Laguano, therefore, if it is the correct locality, must be at a considerable elevation near the extreme headwaters of the Napo or one of its tributaries. The neighborhood of Antisana is very probable.

***Metallura eupogon* (Cabanis)**

Urolampira eupogon CABANIS, 1874 (January), Jour. f. Ornith., 22d year, p. 97—Maraynioc, Perú; Berlin Mus.

Metallura hedvigae TACZANOWSKI, 1874, Proc. Zool. Soc. London, p. 139, pl. 21, fig. 2—Maraynioc, Perú; ♂; Warsaw Mus.

As is the case with *M. theresiae*, there is little doubt that *eupogon* belongs in the series of forms ranging from *williami* in Colombia to *malagae* in northern Bolivia, and when material is available from certain intervening localities it is quite possible that specific relationships can be established that are now speculative. Peters (1945, Check-list of birds of the world, vol. 5, p. 119) has proposed the specific association of *eupogon* and *baroni* of southwestern Ecuador, but I believe that this is no more certain than similar association of *eupogon* and *theresiae*, which latter form occupies a range between that of *eupogon* and *baroni*. (There is no valid record of *eupogon* from northern Perú as implied in some citations of range.)

In any case, I prefer, for the present, to consider *eupogon* as sufficiently distinct from its near relatives to maintain a specific status.

Specimens have been examined from all localities of record.

SPECIMENS EXAMINED

M. eupogon.—

PERÚ:

Mountains above Huánuco, 5 ♂¹, 3 ♀¹;

Maraynioc, 4 ♂, 1 [♂], 1 ♀, 1 [?♀];

Chipa, 1 ♀;

Rumicruz, 1 ♂.

***Metallura phoebé* (De Lattre and Lesson)**

O[rnysmia] Phoebé DE LATTRE AND LESSON, 1839, Rev. Zool., [vol. 2], p. 17—"Cordillère des Andes au Perou"; I suggest Cajamarca, Dept. San Martin, Perú, as restricted type locality.

Tr[ochilus] opacus TSCHUDI, 1844 (May), Arch. Naturgesch., 10th year, (vol. 1), p. 298—Perú; I suggest Maraynioc; Berlin Mus.

Trochilus cupricauda GOULD, 1846, Proc. Zool. Soc. London, pt. 14, p. 87—Bolivia.

Metallura Jelskii CABANIS, 1874 (Jan.), Jour. f. Ornith., 22d year, p. 99—Maraynioc?, Perú; I accept Maraynioc as restricted type locality; Berlin Mus.

There is some evidence of possible distinction between the birds of this species from northern Perú and those from the central part of the country, and Berlepsch and Stolzmann (1902, Proc. Zool. Soc. London, pt. 2, p. 26) noted some differences in birds from some unspecified western area, but it remains to be demonstrated that any of these distinctions are of taxonomic value.

The central-Peruvian birds that I have examined appear to have a larger white anal patch than do those from the north, and the outer margins of the lateral under tail-coverts, even in males marked as with enlarged gonads, are whitish or (in the females) rather broadly buffy. In the northern males at hand there is never more than a suggestion of a pale fringe on these coverts unless the complete pale margin of the immature or female plumage is present. The fact that there is a suggestion of immaturity in the character makes me hesitate to accept it as a definite criterion of subspecific distinction, although it may prove to be adequate in a more extensive series.

In any case, by the proposal of the restriction of the type locality of *phoebé* to the region inhabited by the northern birds and that of *opacus* to central Perú, names are made available for both extremes without the addition of an unfamiliar term that might add to existing synonymy. The type specimen of *phoebé* appears to be lost; it is not among the types of humming birds listed by Jouanin (1950, Bull. Mus. d'Hist. Nat., [ser. 2], vol. 22, suppl. 2) as in the Paris Museum, if indeed, it was ever in that collection.

¹ Specimens in Chicago Natural History Museum.

The characters noted by Berlepsch and Stolzmann (*loc. cit.*) are those of intensity of general coloration and, I believe, are no more than individual variations such as are evident in the series at hand from single localities. I have no specimens from the western side of the Western Andes of central Perú, but examples from the eastern side of that range are inseparable from other central-Peruvian specimens, as is to be expected considering the high elevation at which the species lives. A specimen of *jelskii*, presumably a female, from Maraynioc (one of Jelski's examples) is marked "Type," but I believe is not entitled to that honor. Sztolcman and Domaniewski (1927, Ann. Zool. Mus. Polonici Hist. Nat., vol. 6, p. 111) claim a specimen in the Warsaw Museum from Palcamayo as type, also a Jelski bird. However, Cabanis noted in the introduction to the paper in which *jelskii* was described that since Jelski was collecting for the Warsaw Museum, he (Cabanis) had to prepare his descriptions from duplicates in the Berlin Museum. The true type, therefore, should be a specimen in Berlin.

In case future material makes advisable the recognition of a northern and a more southern subspecies, records from Motil and Algamarca and present specimens from Cajamarca, Huamachuco, Otusco, Santiago, and Cullcui will be assignable to the northern form; the remaining specimens at hand and the records from Palcamayo, Tambo de Aza, Tapo, Queta, Acancocha, upper Rimac River, "Andes of Lima," Coracora, and Chihuata will be placed with the central-Peruvian subspecies. At present I am unwilling to make this formal separation.

I question the occurrence of this species in Bolivia. Gould described his "*cupricauda*" from "Bolivia," but the specimens in the British Museum from the Gould collection (and cotypes) are noted in the "Catalogue of birds in the British Museum" as from "Valley of Palea, near Tacna, Bolivia (Bridges)." "Palea" is certainly Palca and although there is a Palca in the Province of Cochabamba, Bolivia, it is not near any Tacna nor is there any evidence of the occurrence of *phoebe* in that, or any, part of Bolivia. There is, however, a Palca near Tacna in southwestern Perú on an old route from the coast to Bolivia which Bridges may well have followed on his journey. It is a place later visited by Garlepp, among other collectors. It would not be surprising if Bridges passed through this Peruvian locality but did not distinguish between Peruvian and Bolivian localities

on the labels of his specimens. In this same paper, Gould described "*Trochilus* (—?) *hispidus*" from "Peru?" while the type in the British Museum is catalogued as from "Bolivia (Bridges)." A specimen at hand labeled "Bolivia" appears to have been obtained by Elliot from Gould and presumably is one of the original Bridges birds, but it bears no exact locality. The matter is difficult to disentangle at this late date, but until the definite occurrence of *phoebé* in Bolivia is established without question, some uncertainty must remain.

SPECIMENS EXAMINED

M. phoebé.—

PERÚ:

Cajamarca, 1 ♂, 1 ♂¹, 1 [♀];

near Cajamarca, 2 ♂, 1 ♀;

Huamachuco, 5 ♂, 5 ♀;

Otusco, 1 ♂;

Santiago, 2 ♂, 2 ♀;

Cullcui, 1 ♂¹, 1 ♀¹;

La Quinua, 1 ♂¹, 1 ♂ (?)¹;

Tarma, 1 ♀¹;

Acobamba, 2 ♂;

Chipa, 2 ♂, 4 ♀, 1 [♀];

Maraynioc, 1 [?♀];

"Peru," 1 [?♀].

"BOLIVIA:"

(No other locality), 1 ♂.

Metallura tyrianthina tyrianthina (Loddiges)

Trochilus tyrianthinus LODDIGES, 1832, Proc. Comm. Zool. Soc. London, pt. 2, p. 6—Popayán, Colombia.

This subspecies has an unusual distribution, if *quitensis* (*Metallura Quitensis* Gould, 1861, Introduction to the Trochilidae, p. 112—[Quito] Ecuador) is to be maintained. It inhabits a good part of Andean Colombia, extending southward in eastern Ecuador and avoiding the northwestern region but crossing to southwestern Ecuador whence it reaches the western side of the Western Andes in extreme northwestern Perú. The northwestern part of Ecuador harbors *quitensis*.

Recognition of *quitensis* depends, according to the specimens I have examined, on its average longer bill and wing. Twenty-seven males from the Quito region have the wing 57.0–63.5;

¹ Specimens in Chicago Natural History Museum.

culmen 11–13. Thirty-eight males of *tyrianthina* (as here restricted) have the wing 52–61; culmen 9.3–11.5. Only four of the Quito males have the bill as short as 11 mm., and only one of the others has the bill over 11, making distinctions of *quitensis* on that basis fairly satisfactory. The overlap in lengths of wing is too great to make that measurement of equal service.

El Tambo, Department of Piura, is the only locality in Perú from which this subspecies has been reported. It is distinguished from the other Peruvian conspecies by the redness of the tail in contrast to the general violaceous tone in the other subspecies found in this country.

***Metallura tyrianthina septentrionalis* Hartert**

Metallura smaragdinicollis septentrionalis HARTERT, 1899, Novitates Zool., vol. 6, p. 73—part; Cajabamba, Cajamarca, Huamachuco, and Celendín, Perú; type, ♂, from Huamachuco, in Amer. Mus. Nat. Hist.

In view of the distributional pattern that is evident in the Peruvian material of this species I now have available, I believe I was wrong in referring certain central-northern specimens to *septentrionalis* (1930, Field Mus. Nat. Hist., zool. ser., vol. 17, p. 288). I had not, at that time, any undoubted *septentrionalis* at hand for comparison and based my identification on characters from the original description that appeared to be present in a modified degree. With the type and other specimens of the real *septentrionalis* now at hand, although I have not reexamined my earlier series, I find the basis for my first identification inadequate.

Septentrionalis is longer-billed than *tyrianthina*, agreeing with *quitensis* in that respect, and has the same light bronzy green under parts with considerable buff exposed on the ventral feathering, in which *tyrianthina* and *quitensis* both agree to some extent. In contrast to these subspecies, however, *septentrionalis* has the tail distinctly violaceous in ventral aspect, while the upper surface of the median rectrices is greenish in most lights, with some purplish usually at the tips; the remaining rectrices are a little more purplish than the median ones. Compared to *smaragdinicollis*, the tail is less violaceous, the bill is longer, and the ventral coloration is paler.

Septentrionalis is confined to northern Perú, mostly above the Marañón Valley on both the Western and Central Andes in Cajamarca, La Libertad, and northern Ancash, although it occupies the western side of the Western Andes in suitable localities.

Its range approaches that of *amethysticollis* very closely in the north-east, where an isolated population of *smaragdinicollis* occupies the Central Andes above the Río Utcubamba (as is discussed below under *smaragdinicollis*), while *septentrionalis* occurs at Cajamarquilla, just beyond the head of the valley to the southward.

As mentioned in the discussion of *Metallura aeneocauda aeneocauda*, Taczanowski's records of that form from Chota and Cutervo (1884, Ornithologie du Pérou, vol. 1, p. 355) rather certainly belong to one or other of the subspecies of *M. tyrianthina*. As a matter of fact, the Chota and Cutervo birds were originally recorded by Taczanowski in earlier papers in the Proceedings of the Zoological Society of London as *smaragdinicollis* as were examples (or an example) from Tambillo of which I can find no further mention. The exact identity of the Chota, Cutervo, and Tambillo records is subject to some uncertainty without examples from the same localities for examination, but there are two reasons why it is highly probable that they belong to *septentrionalis*. The description of the supposed "*aeneicauda*" given by Taczanowski applies very well to *septentrionalis* and specifies certain characters (such as the less violaceous tail) in which it differs from *smaragdinicollis*, and the localities are in reasonable proximity to the known range of *septentrionalis* with no obvious barriers. For these reasons, the three localities may be included in the range of the present form. To them can be added Tayabamba; other localities of record are duplicated in the list of specimens examined. The record from Levanto, included in the original account of *septentrionalis*, must belong to *smaragdinicollis* of which I have seen examples from the same locality.

***Metallura tyrianthina smaragdinicollis* (D'Orbigny and Lafresnaye)**

O[rnismya] smaragdinicollis D'ORBIGNY AND LAFRESNAYE, 1838, Mag. Zool., vol. 8, cl. 2, "Synopsis avium," 1, p. 31—"Yungas, rep. Boliviana" = Ayupaya, Bolivia; ♂; Paris Mus.

Metallura Peruviana BOUCARD, 1893 (March), Humming Bird, vol. 3, p. 6—Perú = Cachupata, southeastern Perú; Paris Mus.

This form is unsatisfactory for exact disposition owing to its irregular distribution and its unstable characters. Birds from Bolivia and southeastern Perú are indistinguishable, having the

median rectrices usually, but not always, definitely greenish in some lights, and the bill relatively long, about as in *septentrionalis*. Specimens from central Perú have the median rectrices less often (but sometimes) greenish, though usually dark violaceous, while the bill averages slightly shorter. The specimens I recorded from the Huánuco region fit well into this segment of the population. North of the Huánuco region, on at least the western side of the Central Andes, *septentrionalis* occurs, possibly blocking further continuous northward extension of the range of *smaragdinicollis*, with a very slight possibility of its occurrence on the eastern (Huellaga) side of that cordillera. (It is equally possible that *septentrionalis* occurs on that side as well as on the west.) In any case, the limited area above the Río Utcubamba, beyond the known range of *septentrionalis* in the Central Andes, supports a population that closely approximates the Bolivian and south-Peruvian birds. The only distinction I can find is one of average shorter bill in the northern males (10.2–12 mm. as against 11.5–13). More than half of the specimens come within the zone of overlap! Whatever is done with the birds of central Perú, therefore, I can see no way to recognize the Utcubamba Valley population as a subspecies distinct from topotypical *smaragdinicollis*.

The central-Peruvian birds have been credited with the name *peruviana*, but it cannot be used for that population. Boucard noted that the bird he was naming as new had been discovered in Perú by Whitely, and one of the cotypes, now in the Paris Museum, carries the locality Cachupata (Jouanin, 1950, Bull. Mus. Natl. Hist. Nat., Paris, ser. 2, vol. 22, suppl. 2, p. 24). Furthermore, the characters cited by Boucard as distinguishing features were the greenish bronze color of the median rectrices and the relatively large size. Both characters serve to confirm south-eastern Perú as the locality of origin and identity with *smaragdinicollis* of that region rather than of central Perú.

The central-Peruvian part of the population is thus left without a name, but in view of the uncertainty of decisive distinction, I prefer not to propose a new term that may easily revert to synonymy under *smaragdinicollis*.

Records that belong to *smaragdinicollis* are from Tamiapampa, Hacienda Huarapa, Pariayacu, Pampas River Valley, Torontoy, and Oconeque.

SPECIMENS EXAMINED

M. t. chloropogon.—

VENEZUELA:

(Silla de Caracas, Galipán, Colonia Tovar, and Las Ciénagas del Aguilón),
4 ♂, 2 ♀, 1 “♀” [?=♂].

M. t. oreopola.—

VENEZUELA:

(Mérida, Culata, Conejos, Santo Domingo, Escorial, Nevados, and Mucuchies), 25 ♂, 14 [♂], 10 ♀, 6 [♀], 3 “♀” [?=♂].

M. t. districta.—

COLOMBIA:

El Líbano, Santa Marta, 10 [♂], 1 ♀, 1 [♀], 1 (?).

M. t. tyranthina.—

COLOMBIA:

(Chipaue, Laguneta, Santa Isabel, Coast Range west of Popayán, Cundinamarca, Anolaima, Almaguer, Santa Elena, Palo Hueco, El Edén, El Peñón, and Antioquia), 22 ♂, 5 [♂], 16 ♀, 3 [♀], 2 “♀” [?=♂], 2 (?);
“Bogotá,” 8 ♂, 27 [♂], 1 ♀, 10 [♀], 4 (?).

ECUADOR:

(Oyacachi, Papallacta, Ambato, above Baeza, Loja, Taraguacocha, Bestion, El Paso, and “Ecuador”), 12 ♂, 4 [♂], 10 ♀, 1 (?).

PERU:

El Tambo, 5 ♂, 1 ♂¹, 2 ♀, 2 ♀¹.

M. t. quitensis.—

ECUADOR:

(Yanacocha, Gualea, Pichincha, Pallatanga, Lloa, and “Quito”), 16 ♂, 13 [♂], 10 ♀, 3 [♀], 1 “♀” [?=♂];
“Ecuador,” 9 [♂], 1 ♀.

M. t. septentrionalis.—

PERÚ:

Huamachuco, 1 ♂ (type);
Cajabamba, 5 ♂, 1 ♂¹, 2 ♀;
near Cajamarca, 1 ♀;
Celendín, 1 ♂, 1 ♀;
Cajamarquilla, 1 ♂¹;
Soquián, 1 ♂¹, 1 ♀¹;
Patás, 2 ♂¹;
Yánac, 2 ♂¹;
Chugur, 2 ♂, 2 ♀;
Taulis, 3 ♂, 1 ♀;
“N. Peru,” 1 [♀].

M. t. smaragdinicollis.—

PERÚ:

La Lejía, 4 ♂, 2 ♀, 1 [♀];
San Pedro, 1 ♂, 1 ♀;

¹ Specimens in Academy of Natural Sciences of Philadelphia.

Chachapoyas, 1 ♂;
 Leimebamba, 3 ♂¹;
 Atué, 1 ♂¹ 2 ♀¹;
 Levanto, 1 ♂¹, 2 ♀¹;
 Molinopampa, 2 ♀²;
 mountains near Huánuco, 5 ♂², 2 ♀²;
 Rumicruz, 7 ♂, 1 ♀;
 Maraynioc, 6 ♂, 3 ♀;
 Auquimarca, 3 ♂¹, 1 ♀¹;
 Huacapistana, 4 ♂¹, 4 ♀¹;
 Cachupata, 6 ♂, 1 ♂², 1 ♀;
 Marcapata, 1 "♀" [= ♂];
 Limbani, 2 ♂, 1 ♂¹;
 Huaisampillo, 1 ♂;
 Oconeque, 3 ♂¹;
 "Peru," 1 ♂.

BOLIVIA:

Río Aceramarca, 1 ♂, 1 [♂], 1 ♀;
 "Bolivia," 1 ♀².

"ECUADOR OR BOLIVIA": 1 ♂.

***Chalcostigma olivaceum pallens* Carriker**

Chalcostigma olivacea pallens CARRIKER, Oct. 25, 1935, Proc. Acad. Nat. Sci. Philadelphia, vol. 87, p. 348—La Galera, Junín, Perú; ♀; Acad. Nat. Sci. Philadelphia.

Birds from central Perú appear to be somewhat paler and smaller than those from Bolivia, justifying the recognition of *pallens* although from a wider range than that accorded it. Chapman (1921, Bull. U. S. Natl. Mus., no. 117, p. 69) noted a bird from the Lucma-Cosireni Pass (Urubamba region) to be paler than a Bolivian specimen, but gave no measurements. Peters and Griswold (1943, Bull. Mus. Comp. Zool., vol. 94, p. 305) identified a male from Maraynioc as typical *olivaceum* because of its small size in comparison with published measurements of two females and an immature male of *pallens*. The comparison was hardly just, however, in view of the absence of an adult male of undoubted *pallens* or measurements of such.

The recorded measurements and those of the specimens in hand show the following distinctions. Lawrence's original measurements of the type of *olivaceum* have been converted to millimeters.

¹ Specimens in Academy of Natural Sciences of Philadelphia.

² Specimens in Chicago Natural History Museum.

	WING	TAIL	CULMEN
Males			
Bolivia	89-95.3	73-79	14.3-16
Southern Perú	92	70-74	14.5-15
Central Perú	87-92	57.5-67.5	12-13.1
Western Perú	?	?	?
Females			
Bolivia	80-83	57.5-64	13-16
Southern Perú	81	66	14
Central Perú	79	55	11
Western Perú	76-78	54-55	11.5

From this tabulation, the assignment of central-Peruvian birds to *pallens* is indicated as also the agreement of southeast-Peruvian examples with the Bolivian *olivaceum*. It will be noted from the subjoined list of specimens examined that a male from Maraynioc is among the central-Peruvian specimens at hand.

One of the Bolivian specimens at hand is not sexed, but it has the fork of the tail relatively short compared with that of males of *pallens*, in which respect it agrees with sexed females of both forms. The relatively small gorget, with its terminal portion less varicolored than that of male *pallens*, shows similar correlation, while its general dimensions are those of the sexed Bolivian female. It is, presumably, also a male. It is the bird with which Chapman compared his Urubamba specimen, but it is not certainly immature as Chapman believed. The specimen is of further interest in that Lawrence obtained it from the Smithsonian Institution which is the repository of the type of *olivaceum*, and it is, I believe, a paratype as it is a topotype.

Simon (1921, *Histoire naturelle des Trochilidae*, p. 383) includes northern Perú in the range of the species, but I can find no evidence in support of this statement. As far as I can learn, the species has not been found north of the Junín region.

Records assignable to *pallens*, therefore, are from La Galera, upper Rimac River, above Lima, Junín, "Tuhan" [? = Julcán], Maraynioc, and Lucma-Cosireni Pass.

***Chalcostigma olivaceum olivaceum* (Lawrence)**

Ramphomicron olivaceus LAWRENCE, 1864, Ann. Lyc. Nat. Hist. New York, vol. 8, p. 44—Bolivia, La Paz; U. S. Natl. Mus.

This form is discussed under the preceding subspecies. The only Peruvian records are from Aricoma Pass, and Huancorani, southeastern Perú.

SPECIMENS EXAMINED

C. o. pallens.—

PERÚ:

Maraynioc, 1 ♂;

Chipa, 1 ♂, 2 ♀.

C. o. olivaceum.—

BOLIVIA:

La Paz, 1 [♀];

Alaska Mine, 1 ♀.

***Chalcostigma ruficeps* (Gould)**

Trochilus (—?) *ruficeps* GOULD, 1846, Proc. Zool. Soc. London, pt. 14, p. 89—Bolivia = Unduavi, Yungas of La Paz (Gould, 1852, Monograph of the Trochilidae, vol. 3 [pt. 4], text to pl. 188); ♂; ? British Mus.

Chalcostigma ruficeps aureofastigatum HARTERT, 1899, Novitates Zool., vol. 6, p. 74—Loja, Ecuador; ♂; Amer. Mus. Nat. Hist.

Aureofastigatum has been recognized by various authors, but I am not convinced of its validity. There is no doubt that the type has a prominent golden area on the terminal third of the gorget, but a paratype, also from Ecuador, has only a weak one, no stronger than is exhibited by one of the Bolivian specimens now before me. On the other hand, Gould's plate of *ruficeps* shows a terminal mark on the gorget of the type that appears to be even more prominent than that on the type of *aureofastigatum*. A specimen from southeastern Perú has an equally strong golden tip on the gorget and, although this specimen is apparently not fully adult (as evidenced by narrow pale tips on the rectrices), other young males from various parts of the specific range show no such age-linked variation. At the same time, the specimen at hand with the strongest and most uniform green on the gorget is also from southeastern Perú which thus shows both ends of the series of variations. Examples from both northern and central Perú are intermediate between the extremes.

This species has, on occasion, been transferred to the genus *Metallura*, but I believe it is more properly kept in *Chalcostigma*.

Peruvian records, other than those from localities represented in the series at hand, are from Cutervo, Chachapoyas, Leimebamba, Molinopampa, Tamiapampa, Tambillo, Maraynioc, Tambo de Aza, Huacapistana, and Oconeque.

SPECIMENS EXAMINED

C. ruficeps.—

ECUADOR:

Loja, 1 ♂ (type of *aureofastigatum*);

"Ecuador," 1 [♂].

PERÚ:

La Lejía, 4 ♂;
San Pedro, 1 ♂;
Rumicruz, 3 ♂;
Utcuyacu, 2 ♂;
Marcapata, 1 ♂;
Huaisampillo, 1 ♂.

BOLIVIA:

"Bolivia," 2 ♂, 1 ♀.

***Chalcostigma stanleyi versigularis* Zimmer**

Chalcostigma stanleyi versigularis ZIMMER, 1924 (April 19), Field Mus. Nat. Hist., zool. ser., vol. 12, p. 52—mountains near Huánuco, Perú; ♂; Chicago Nat. Hist. Mus.

This relatively small form with tricolored gorget apparently ranges from the southeastern corner of the Department of La Libertad through Pasco and Junín. I have seen no specimens from Maraynioc, from which the species has been recorded, but, judging by critical comments on an adult male from that locality (Berlepsch and Stolzmann, 1902, Proc. Zool. Soc. London, p. 26), assignment should be here and not to the Bolivian subspecies.

Simon (1921, Histoire naturelle des Trochilidae, p. 382) included northern Perú in the range of *stanleyi*, but it appears probable that he misjudged the position of Maraynioc as being in the northern part of the country. I have no evidence of the occurrence of the species in true northern Perú, although it is not improbable.

***Chalcostigma stanleyi vulcani* (Gould)**

Ramphomicron vulcani GOULD, 1852, in Jardine, Contributions to ornithology, p. 135—Bolivia; British Mus.

An example from southeastern Perú, examined some years ago, is referable to the Bolivian subspecies, and notes by Berlepsch and Stolzmann, Hellmayr, Chapman, and Bond and de Schauensee on other specimens from that part of the country, including portions of the Urubamba region, confirm this reference.

Additional Peruvian records are from Occobamba, Occobamba Valley, Idma Road, Ollachea, and Limbani.

SPECIMENS EXAMINED

C. s. stanleyi.—

ECUADOR:

(Pichincha, El Corazón, "Napo," "Cuenca-Chimborazo," "Quito," Cerro Huamani, and Ecuador), 9 ♂, 1 ♂¹, 2 [♂], 1 "♀" [=♂], 1 ♀, 1 ♀¹, 1 [♀].

C. s. versigularis.—

PERÚ:

Patás, 1 ♀;

mountains near Huánuco, 3 ♂¹ (including type), 1 ♀¹;

Chipa, 2 ♂.

C. s. vulcani.—

PERÚ:

Marcapata, 1 ♂².

BOLIVIA:

La Paz, 1 ♂;

Málaga, 1 ♂;

"Bolivia," 1 [♀].

***Taphrolesbia griseiventris* (Taczanowski)**

Cyananthus griseiventris TACZANOWSKI, 1883, Proc. Zool. Soc. London, p. 72—Paucal, Perú; Raimondi Collection, possibly extant in Mus. Hist. Nat. "Javier Prado," Lima, Perú.

This species has a limited distribution in middle northwestern Perú, on both sides of the Western Andes, and the western side of the Central Andes, from southern Cajamarca to western Huánuco. Specimens have been examined from all localities of record except the type locality which is the only one west of the western cordillera.

Specimens vary considerably in the amount of coppery tinge on the dorsal plumage.

SPECIMENS EXAMINED

T. griseiventris.—

PERÚ.

Cajamarca, 1 ♂, 1 ♀;

near Cajamarca, 2 ♂, 1 (?);

Cajabamba, 3 ♂, 1 ♀;

Culcui, Río Marañón, 1 ♀¹.

***Agelaiocercus kingii smaragdinus* (Gould)**

Trochilus (Lesbia) smaragdinus GOULD, 1846, Proc. Zool. Soc. London, pt. 14, p. 85—Bolivia.

Cyananthus bolivianus GOULD, 1880, Ann. Mag. Nat. Hist., ser. 5, vol. 5, p. 489—Bolivia; cotypes in British Mus.

¹ Specimens in Chicago Natural History Museum.

² Specimen in United States National Museum, Washington, D. C.

The allied form, *mocoa* of southeastern Colombia and eastern Ecuador, has been credited to Perú, but I can find no sound basis for such conclusion. Examples from as far south as Sabanilla, Ecuador, are *mocoa*, but those from as far north in Perú as Chaupe are *smaragdinus* which may be expected to extend to the Ecuadorian border up the Chinchipe Valley. The localities are not widely separated.

The north-Peruvian males are matched by examples from central and southeastern Perú and northern Bolivia, but I cannot vouch for Bolivian females, of which I have no specimens.

Localities of record from which I have not seen specimens are Pumamarca, Vitoc, Huaisampillo, and Paucartambo.

An extensive study of all the known forms of the genus leads me to the conclusion expressed by Hartert (1922, *Novitates Zool.*, vol. 29, p. 411) that all the forms of this genus should be considered as subspecies of *kingii*. Attempts to break the aggregation into different species have produced nearly as many patterns as there have been authors making the attempt, and Hartert's final conclusion followed other dispositions that he had made earlier. Berlioz (1940, *L'Oiseau et Rev. Française d'Ornith.*, new ser., vol. 10, pp. 221-231) approached Hartert's position but kept *berlepschi* and the *coelestis-aethereus-pseudocoelestis* complex as two separable species. He did, however, consider *emmae* and *mocoa* as part of the *kingii* group, with which I thoroughly agree.

It is certain that *emmae* and *mocoa* are conspecific. *Emmae* males are a little longer-billed, a little lighter and duller green in body coloration, and a little lighter green on the glittering cap; the tail is, on average, lighter and less bluish green above, and on the under side of the outer rectrices shows, in some lights, a slightly greenish tinge on the terminal half or more, in some contrast to the more purplish basal portion; the gorget is brighter green than the breast but is not blue. Females of *emmae* differ from those of *mocoa* in their more heavily green-spotted throat and their lighter and duller rufescent lower under parts. In both *emmae* and *mocoa* females there is a tendency for the white area at the tips of the outer rectrices to be restricted to an oval spot completely surrounded by the dark parts of the webs. The white spot is sometimes quite small. The feature apparently occurs commonly also in *smaragdinus* and occasionally in the other forms where, however, the white area is usually somewhat truncate basally.

Intergradation between *emmae* and *mocoa* is demonstrable in

the series at hand. A male from Salento (7000 feet) has the characters of *mocoa* except for the lack of any blue on the gorget. A female from El Edén (8000 feet) just across the Central Andes from Salento, resembles *mocoa* more than it does *emmae* with which its locality of origin would seem to place it. A second male from above Salento (9000 feet) is typical *emmae*. One male Bogotá-skin agrees well with the Salento (7000 feet) bird. Other Bogotá-skins are good *emmae*, and still others are intermediate, including two examples that are best assigned to *mocoa* because of their shorter bills and the presence of a quite restricted, but still obvious, blue patch on the gorget. All indications point to *emmae* and *mocoa* as conspecies, and there can be no question that *smaragdinus* goes with them, whatever other disposition is made of the group.

The break between *mocoa* and *kingii* is not great, consisting of the difference, in the male sex, between the extensively green outer rectrices of *mocoa* and the violaceous ones of *kingii*. Some specimens of *kingii*, however, show a strong preponderance of green on the rectrices other than the outer ones, and the violet coloration of the outer feathers is, in turn, quite variable, being sometimes distinctly bluer or even showing a trace of greenish lights. Males of *mocoa*, on the other hand, sometimes show a trend in the other direction. Intergradation between *kingii* and *mocoa* has been postulated by various authors. The females have much resemblance to each other.

Intergradation between *kingii* and *caudatus* of the Mérida region of Venezuela is demonstrable, and two names have been supplied for the intermediate population. Berlioz (1940, L'Oiseau et Rev. Française d'Ornith., new ser., vol. 10, p. 225) characterized the population which he named "*C[yanolesbia] K[ingi] brevirostris*," describing it from Bogotá-skins since no examples were, or are, known from definite localities. Earlier, however, Simon (1921, Histoire naturelle des Trochilidae, p. 209) had proposed "*L[esbia] Kingi* var. *holocyanea*" for what appears to have been much the same concept, although his brief diagnosis is less satisfactory than that of Berlioz. His notation of the short bill (13.3 to 13.7 mm. in length) would be relatively definitive had he not given the same measurements for what he called "*L. Kingi*" (supposedly with blue, instead of violaceous, outer rectrices) and named the longer-billed Bogotá birds "*pseudomargarethae*." His account is thoroughly confused, and Berlioz,

with Simon's material at hand, was unable to accept Simon's arrangement, although he admitted the probability that "*holocyanea*" was in part equivalent to his "*brevirostris*."

This intermediate population is, at best, very unstable. Its presumed characters are the small bill, and the generally dark coloration of the males, including the most deeply colored tail of the related forms, and with the blue gular spot reduced or absent. Specimens are at hand with these characters variously combined, and, without a definite locality or range, it is impossible to be certain that the characters mentioned are not simply indications of individual variation. Todd (1942, Ann. Carnegie Mus., vol. 29, p. 352) found Colombian specimens of *caudatus* to have a more greenish color on the tips of all but the outer rectrices than Venezuelan specimens, which would indicate that they do not show approach toward "*brevirostris*." On the other hand I have seen three specimens of *caudatus* from the Mérida region that have some blue feathering on the throat as in "*brevirostris*," and Dr. Phelps advises me that one of six specimens in his collection from Perijá also has this feature. For the present, therefore, I prefer to consider "*brevirostris*" as not sufficiently stabilized to rank as a true subspecies, although it may some time be shown to have a definite range and to deserve recognition.

There has been general agreement that *margarethae* is a conspecies of *kingii*; the resemblance is too close to justify any other disposition. It still remains to consider *coelestis* and its immediate affines, and *berlepschi*. I find it difficult to consider the distinctions from *kingii* as of specific value. The white breast of the females is sometimes weakly washed with light rufous, and some specimens of *mocoa* show a slight trend in the other direction. The rufous-edged under tail-coverts of the males are not always strongly different from those of some examples of most or all the other forms. The far-distant *berlepschi* is very like *pseudocoelestis* in many respects, and its broad rectrices (one of the original characters of the form) are equalled by some of the Pacific-coastal birds. The white under parts of the females of *berlepschi* carry the increase of ventral white in *coelestis* a step farther as do the broader white tips on the outer rectrices. It may be noted that a female from Carapas has a definite ochraceous tinge on the lower under parts, approaching a female of *margarethae* from the Cumbre de Valencia, which has lighter under parts than other females at hand belonging to that form. Thus, al-

though the various forms of the species are sufficiently well marked to make their identity certain in most cases (disregarding intermediates of uncertain assignment) and there is for each an adequate range, I believe, with Hartert, that only a single species is involved.

An interesting note is provided by the series of *caudata* in which numerous young males are marked as adult females, presumably by Hartert whose initials, E. H., are added to the notation. This is quite at variance with the descriptions of adult females and young males given by Hartert in "Das Tierreich" (1900, Lief. 9, pp. 175, 177), which are in agreement with the obviously correct allocation of the material. As noted in the published account, young birds of both sexes have a prominent white spot concealed on the lower back. Adults of both sexes do not. Young males have the pattern of the adult males without the glittering cap and with the tail considerably shortened although still elongated. Females (adults and young) have white tips on the outer rectrices. Some of the young males have the glittering cap of the adult plumage complete and others have it beginning to appear, showing that it may be one of the earliest adult features to develop, before the white uropygial spot is lost and before the fully elongated tail is acquired. Young females are duller than adults and at first have only a weak tinge of buff on the under parts, if even that. The stronger tawny ventral feathers are to be noted as coming in while the white uropygial spot is still evident. Segregation of ages and sexes appears to be easily made.

The various points noted form a pattern into which the specimens of all the forms examined fit satisfactorily, although the subspecific distinctions modify the details.

SPECIMENS EXAMINED

A. k. berlepschi.—

VENEZUELA:

Los Palmales, 1 ♂ (cotype), 2 ♀ (including a cotype);

Los Dos Ríos, 2 ♂, 3 ♀;

Carapas, 2 ♂, 1 (?) [= ♂], 1 ♀.

A. k. margarethae.—

VENEZUELA:

(Caracas, Galipán, Cumbre de Valencia, Junquito, Colonia Továr, El

Limón to Colonia Továr, and head of Chichirivichi Valley), 15 ♂, 1 "♀"

[= ♂], 11 ♀.

A. k. caudatus.—

VENEZUELA:

(Mérida, Conejos, Nevados, Culata, El Valle, Montañas Sierra, Escorial, Los Durainos, Río Chama, and Río Mucujún), 29 ♂, 11 ♂¹, 20 [♂], 20 ♀, 7 [♀].

A. k. kingii.—

COLOMBIA:

El Roble, 2 ♂, 2 ♀;
 "Bogotá," 53 [♂], 16 [♀];
 (New Grenada, "Colombia," and "Ecuador" [errore]), 6 [♂];
 "Santa Elena," (?errore), 1 ♂.

A. k. emmae.—

COLOMBIA:

(Salento, above Salento, Cerro Munchique, Santa Elena, San Antonio, El Edén, Alto de las Cruces, and "Antioquia"), 9 ♂, 5 [♂], 1 "♀" [=♂], 7 ♀, 2 [♀];
 "Bogotá," 10 ♂, 1 ♀.

A. k. mocoa.—

COLOMBIA:

(La Candela and La Palma), 11 ♂, 2 ♂¹, 4 ♀;
 "Bogotá," 2 [♂].

ECUADOR:

(Baños, east of Baños, Baeza, above Baeza, Ambato, Cuyuja, Río Oyacachi, below San José, upper Sumaco, Zamora, below Papallacta, Sabanilla, Napo, and "Ecuador"), 19 ♂, 7 [♂], 4 ♂¹, 12 ♀, 3 [♀], 1 ♀¹, 2 "♂" [=♀].

A. k. smaragdinus.—

PERÚ:

Chaupe, 5 ♂, 2 ♀;
 Uchco, 2 ♂;
 "Poco Tambo" [= Pucatambo], 1 ♂¹;
 Chinchao, 3 ♂¹;
 Utcuyacu, 3 ♂, 4 ♀;
 Rumicruz, 2 ♂;
 Chilpes, 4 ♂;
 Paltaypampa, 1 ♂;
 Idma, 2 ♂;
 Santo Domingo, 8 ♂, 1 ♀;
 below Limbani, 3 ♂;
 San Antonio, 2 ♂.

BOLIVIA:

Incachaca, 4 ♂, 1 [♂];
 Roquefalta, 1 ♂, 1 ♂¹;
 Quilabaya, 1 ♂;
 Chairó Road, La Paz to Yungas, 2 ♂;
 "Bolivia," 2 ♂¹, 1 ♀¹.

A. k. pseudocolestis.—

COLOMBIA:

¹ Specimens in Chicago Natural History Museum.

Nóvita trail, 2 ♂.

A. k. coelestis.—

COLOMBIA:

Ricaurte, 1 ♂, 1 ♀ ;

[La]Gallera, 2 [♂], 3 ♀ .

ECUADOR:

(Gualea, Paramba, west side of Pichincha, Milligalli, Naranjo, "Loja and Naranjal to Cuenca," Mindo, "Ecuador," and "Quito"), 14 ♂, 6 ♂¹, 13 [♂], 12 ♀, 1 ♀¹, 5 [♀].

A. k. aethereus.—

ECUADOR:

Alamor, 10 ♂ (including type), 1 "♂" [= ♀], 9 ♀ ;

Punta Santa Ana, 4 ♂, 2 ♀ ;

El Chiral, 2 ♂, 1 "♀" [= ♂];

Salvias, 1 ♂, 1 ♀ ;

Zaruma, 2 ♂, 1 [♂], 2 ♀ ;

San Bartolo, 1 ♂, 1 ♀ .

¹ Specimens in Chicago Natural History Museum.

