

Many times each day the wary Eagles passed over these busy lines of traffic to reach the Lake, their principal source of food, rising from the field to avoid the many wires strung from poles, apparently undismayed by the sights and sounds with which they had come to be familiar. Strangely mingled indeed were the wild screams of the Eagle with the strident voices of the steam siren and whistle, while a photographic plate which caught the monarch-bird bringing in a fish or serving it to its young, might also register a farmer afield ploughing with team of horses or cultivating his corn. It would be hard to find, and perhaps unreasonable to expect, greater adaptability than this among diurnal birds of prey.

Adelbert College, Cleveland, O.

THRAUPIS SAYACA AND ITS ALLIES.

BY MRS. E. M. B. NAUMBURG.

A STUDY of the series of specimens (181 in all) of *Thraupis sayaca* and its allies in the collections of the American Museum of Natural History from the Guianas, Brazil, Paraguay, Bolivia, and Argentina shows that certain changes in the systematic arrangement of the group is desirable. It is the object of the present paper to bring these proposed changes to the notice of other ornithologists as well as some other matters which have a direct bearing on the subject.

Thraupis sayaca belongs to the Tanagers (Tanagridae), a family closely related to the Finches. In fact, up to the present moment it is impossible to draw any sharp line between them. Even when the anatomical structure is known, it is doubtful whether it will be possible to define satisfactory family limits.

Thraupis sayaca may be described as a small, fruit- or insect-eating Oscine, with nine primaries and a short rather thick Finch-like bill. The bill shows a varied proportion in some of the genera of this family. The Tanagers are as closely related to the Finches as they are to the Warblers, but these purely New World families are weaker types than the more widely ranging Finches according to remarks of Professor W. K. Parker, the anatomist, and this bears

out the opinion that, on the whole, both birds and mammals of the Neotropical Fauna belong to a lower morphological rank.

It seemed to me that the forms of *Thraupis sayaca* were in need of a careful revision. *Tanagra sayaca* was described by Linnaeus in 1766,¹ habitat in *Brasilica*. Brazil has been considered the type locality up to the writing of this paper. *Tanagra sayaca* of Linnaeus is based on Marcgrave's² *Sayaçu*. *Tanagra brasiliensis varia* Brisson,³ a synonym of *Thraupis sayaca*, is also based on Marcgrave, and perfectly describes this species. Brisson, however, did not see this bird himself. Burmeister⁴ in 1856 lumps the species *Tanagra episcopus* Linnaeus, type locality *Brasilica*, from Guiana and northern Brazil and *T. cyanoptera* Vieillot from southeastern Brazil under *Tanagra sayaca* Wied. His description refers, however, entirely to *Tanagra cyanoptera* Vieillot now easily distinguished in the adult male by having the lesser wing coverts bright shining blue as in *T. cana* Swainson. Burmeister asserts that *T. sayaca* Wied is found in the campo region of central Brazil, westward to Paraguay and at the foot of the Cordillieres.⁵ The confusion probably arose through the superficial resemblance which the young of *Tanagra cyanoptera* bears to the adult of *T. sayaca* Linnaeus. In 1869 August von Pelzeln⁶ writes that *Thraupis sayaca* has been found in three distinct regions.

Under Pelzeln's heading of (1) Southern Fauna he says the species has been found from Parana in the south and from Curytiba and Ypanema in the west, northward to São Paulo and Rio Janeiro and its environs, and to the River Tiete.

(2) Central Fauna. The species ranges from the Rio Tiete at Ytu and the Rio Pardo in São Paulo, north to the environs of the Rio Parana and the Rio das Velhas in Minas Geraes to the Cidade of Goiaz and from there westward to the Rio Araguay on the boundary of Goyaz and Matto Grosso.

(3) Bolivian Brazilian Fauna. Specimens were recorded from the Rio Araguay westward through the Sertao to Cuyabá and

¹ Syst. Nat., I, p. 316.

² 1648, Marcgravius Bras., p. 193.

³ 1760, Briss. av., 3, p. 18.

⁴ Systematische Uebersicht, III, p. 176.

⁵ According to Dr. Hellmayr the ranges as given by Burmeister are very often purely imaginary.

⁶ Zur Orn. Bras., Part III, p. 208.

Caiçara Villa Bella de Matto Grosso and from there northward on the Rio Guaporé to the other side of the Forte do Principe de Beira, the present border of Matto Grosso. Pelzeln's range of the species agrees very well with the findings of more recent authors and also with my own.

The geographic distribution of forms which I have examined is as follows:

Thraupis sayaca sayaca is confined to Brazil and Paraguay, occurring from Matto Grosso to Ceara, Pernambuco and Bahia, in the states of Rio de Janeiro (Cantagallo, Rio de Janeiro, Sapitiba); Sao Paulo (S. Sebastiao, Piquete, Ytararé); Rio Grande do Sul (Taquara); central Brazil (S. Leopoldina on the Rio Araguay); southwest Brazil (Cuyabá, Eng. do Gama, Corumbá); Paraguay; Fort Wheeler, and Trinidad.

Thraupis sayaca obscura Naumburg, a new subspecies, inhabits the mountain region of Bolivia, in the departments of Cochabamba (Parotani, Todos Santos) and Santa Cruz (California), down to Argentina, in the departments of Tucuman (Tafi Trail) and Salta (Embarcacion) and of Santiago del Estero (Suncho Corral) and Buenos Aires (Barracas al Sur).

Thraupis cyanoptera is found in the southeastern Brazilian states of Espirito Santo (Victoria), Rio de Janeiro (N. Friburgo), São Paulo (Ypanema Iguape), Santa Catharina (Blumenau), and Rio Grande do Sul. It is also found in Argentina in the state of Misiones.

Thraupis episcopus ranges from Cayenne and Surinam to British Guiana, and is found there in the lowlands of Camacusa, Bartica Grove, and on Mt. Roraima, down to northern Brazil in the region of Pará.

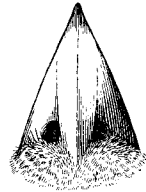
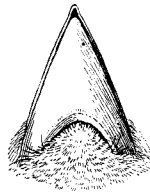
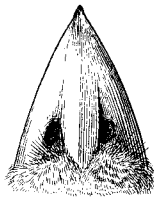
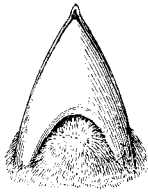
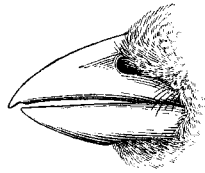
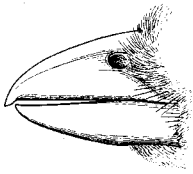
Dr. Cabanis in 1850¹ first pointed out the distinctness of *Thraupis sayaca* Vieillot from *Thraupis cyanoptera* Vieillot. In 1866² he declares that *Tanagra sayaca* Prince of Wied³ includes the species *sayaca* and *cyanoptera*, that Burmeister in 1856 was of the same opinion, while Sclater⁴ decided that *Tanagra sayaca* Wied was a

¹ Mus. Hein, I, pp. 28 and 29.

² 1866, J. f. O., p. 305.

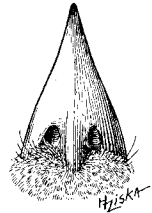
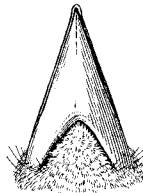
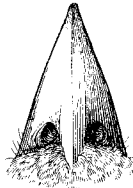
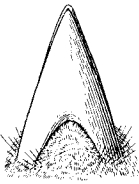
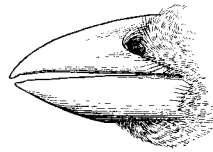
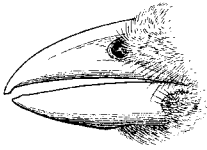
³ 1830, Beitr., III, p. 484.

⁴ 1886, Cat. B. B. Mus., II, p. 157.



Thraupis cyanoptera
156395

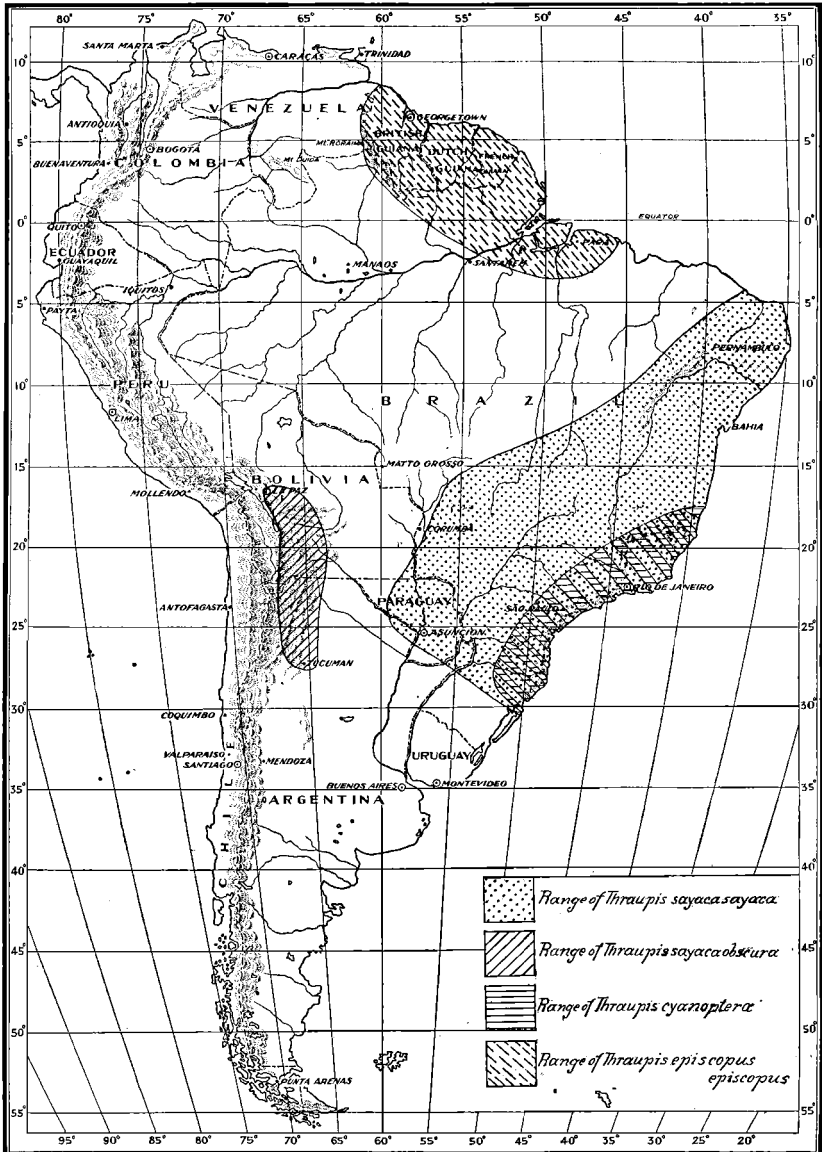
Thraupis sayaca sayaca
163588



Thraupis sayaca obscura
139791

Thraupis episcopus episcopus
126276

H. S. K.



Distribution of Thraupis sayaca and its allies

synonym of *Tanagra cyanoptera* Vieillot. Sclater finds that *Tanagra sayaca* and *cyanoptera* occur together, *sayaca* in the more northerly districts, *cyanoptera* in the more southerly areas. *Tanagra sayaca*, he writes, has the lesser wing coverts dull greenish blue, never reaching the bright shining blue lesser wing coverts of *T. cyanoptera*. Because the juvenal plumage of both is similar, *Thraupis sayaca* has frequently been considered the immature of *T. cyanoptera*.

Thraupis sayaca is the commonest species of the genus in Brazil. *Tanagra caelestis* Swainson¹ (but not of Spix) is the adult male of *Tanagra sayaca* Linnaeus. Some authors have taken *Tanagra caelestis* Swainson for *Tanagra cyanoptera* Vieillot in immature plumage, but the birds are easily distinguishable through their difference in the formation of the bill.

Thraupis sayaca has a more slender, more compressed bill, whereas *Thraupis cyanoptera* has a thicker and broader bill. Nevertheless *Thraupis sayaca sayaca* and *Thraupis cyanoptera* resemble each other more closely in the formation of the bill than they resemble *Thraupis episcopus episcopus* and *Thraupis sayaca obscura*. *Thraupis episcopus* especially has a much narrower and more slender bill.

Observations by Carl Euler on the nest and eggs of *Tanagra sayaca* are given in the Journal für Ornithologie (1867). He writes that it "is found in all open regions . . . I found nests every year in gardens, coffee plantations, or in trees surrounding my house. The principal building material is the stem of the blossom, *Lippia urticoides*. The dried blossoms are still attached to the stem and used on the outside wall of the nest. They are beautifully and carefully woven in and out and are joined by many grasses and root fibers. The egg of this species is yellowish white with many brownish dots and spots, which are darker in parts. At the thick end of the egg there is a circle of fine black marks. The markings are so close that the ground color shows only occasionally."

¹ 1841, Birds of Brazil and Mexico, Tab. 41.

Thraupis sayaca Linnaeus.

Tanagra sayaca LINNAEUS, 1766, Systema Natura, I, p. 316 (type locality "Brasilia") by subsequent designation E. M. B. Naumburg, 1923, Pernambuco,¹ northeast Brazil.

Sayacu marcgraf MARCGRAVIUS, 1648, Historiae rerum naturalium Brasiliae.

Tanagra sayaca BURMEISTER, 1856, Syst. Ueb., III, p. 176.

Tanagra sayaca PELZELN, 1869, Orn. Bras., Part III, p. 208.

Tanagra sayaca EULER, 1867, J. f. O., p. 410 (nest and eggs).

Tanagra coelestis SWAINSON, 1841, Orn. Br. of Brazil, t. 4 (♂ ad.).

Tanagra inornata SWAINSON, 1841, loc. ignot.—juv.!

Tanagra sanhacu NATTERER, Catag. MS.

Tanagra swainsoni GRAY, 1849, Gen. Birds, II, p. 364 (ex Swainson "T. coelestis," pl. 41).

Thraupis sayaca CABANIS, 1850-51, Mus. Hein. Pt. I, p. 28, J. f. O., 1856, p. 305.

Subspecific characters.—Greenish gray above, paler below especially in the middle of the belly. Flanks pale greenish. Wings and tail blackish, edged with greenish blue; lesser wing coverts edged with greenish blue, culmen plumbeous. Feet brown.

Because it seems desirable to have a specified type locality for *Thraupis sayaca sayaca* a bird of considerably widespread range in Brazil, the author formally proposes Pernambuco, northeastern Brazil, from which locality the American Museum has no specimens. The foregoing description was made from No. 163589, ♂ ad.; Bahia, Brazil, May 8, 1916; R. H. Beck. Wing,² 94.5; tail, 70; exposed culmen, 13.5.

Specimens examined—Brazil: Bahia—6 ♂, 2 ♀; Matto Grosso, —Urucum, 4 ♂, 5 ♀, 1 im., Chapada, 36 ♂, 38 ♀, Palmiras, Rio Taquary, 1 ♀; S. Paulo,—S. Sebastiao, 1 ♀, La Raiz, foot of Organ Mts., 2 ♀. Paraguay: Trinidad, 1 ♂, 1 ♀; Fort Wheeler, 1 ♂. Bolivia: Trinidad, Rio Mamore, 1 ♂; Lower Beni River, 1 ♀.

Thraupis sayaca obscura, new subspecies.

Subspecific characters.—Similar to *Thraupis sayaca sayaca* of Bahia but larger, considerably darker above, somewhat darker below, lesser wing

¹ Through the kindness of Dr. Hellmayr, I have ascertained that the sole basis of *T. sayaca* is Marcgrave's account and he never visited the state of Bahia. His travels covered only the north central States, north of Sergipe.

² All measurements are given in millimeters and made with dividers, the wing retaining the curvature of its primaries as well as the bent position of the manus taken in drying.

coverts darker greenish blue as are also the edges of the wing and tail; wing and tail longer; culmen more slender and compressed.

Type.—No. 138334, Amer. Mus. Nat. Hist.; ♂ ad.; Parotani, Dept. Cochabamba, Bolivia; alt. 8800 ft.; June 28, 1915; Miller and Boyle. Wing, 102.5, tail, 77, exposed culmen, 11.

Specimens examined—Bolivia: Department of Cochabamba,—Parotani, 5 ♂, 6 ♀; Todos Santos, 1 ♂, 4 ♀, Tujma, 3 ♂, Vinto, 1 ♂, 1 ♀; Department of Santa Cruz,—Vermejo, 1 ♂, California, 1 ♂, 2 ♀, Valle Grande, 1 ♂, Chilon, 2 ♂, Valle Grande, 1 ♂; Department of Sucre,—Rio Cachimayo, 3 ♂, Rio Pilcomayo, 2 ♂, Pulque, 1 ♂; Apolobamba, 1 ♂, 1 ♀. Argentina: Province of Salta,—Embarcacion, 2 ♀; Province of Tucuman,—Tafi Trail, 2 ♂, 3 ♀, Sariemento, 2 ♂, above San Pablo, 4 ♂, 1 ♀; Province of Santiago del Estero,—Suncho Corral, 1 ♀; Province of Misiones,—Puerto Segundo, 1 ♂; Province of Buenos Aires,—2 ♂, Barracas al Sur, 1 ♀.

Thraupis cyanoptera (Vieillot).

Saltator cyanopterus Vieillot, 1817, Nouv. Dict. XIV, p. 104 (descr. orig. type ex "Bresil" in Mus. Paris) by subsequent designation E. M. B. Naumburg, Novo Friburgo, Prov. of Rio de Janeiro,¹ Brazil.

Tanagra prelatulus LESSON, 1831 ("du Bresil," Coll. Delalande in Mus. Paris).

Tanagra virens STRICKLAND, 1847.

Tanagra argentata GRAY, 1849 (ex Swainson, "T. episcopus," pl. 39).

Specific characters.—Plain pale bluish gray with a greenish tinge above, below much paler especially in the central portion of the abdomen. The wings and tail are blackish edged with greenish blue, lesser wing coverts bright shining blue. Substitute type, No. 156395, Amer. Mus. Nat. Hist.; ♂ ad.; Novo Friburgo, Prov. of Rio de Janeiro, southeast Brazil, Salvin and Godman Coll. (O. S. and F. D. G.), in the American Museum. The foregoing description was made from a specimen in the American Museum of Natural History which may be regarded as a substitute type.

Specimens examined—Brazil: Therezopolis, Organ Mts., 3 ♂, 2 ♀; Prov. of Rio de Janeiro, Novo Friburgo, 1 ♂.

The female is similar to the adult male and not always distinguishable though often less brilliant in color with lesser wing coverts greenish blue.

¹ Dr. Hellmayr has informed me that the type was obtained by Delalande, who worked only in the vicinity of Rio de Janeiro.

The difficulty has been to decide whether specimens should be referred to this species or to *T. sayaca*, especially Bolivian and Argentine examples, where the blue of the lesser wing coverts is not so bright as in specimens from southern Brazil. Upon close examination I now find the Bolivian and Argentine examples separable as shown before.

Thraupis episcopus episcopus Linnæus.

Episcopus Avis BRISSON, 1760, Orn., III, p. 40.

Tanagra Episcopus LINNÆUS, 1766, Syst. Nat., ed. XII, p. 316 (ex Brisson, hab. "Brasilia"¹ [according to Berlepsch, 1910, Revision der Tanageriden, Brasilia is an error and he has substituted Cayenne,² Mus. Réaumur]), by subsequent designation E. M. B. Naumburg, Pará, Brazil. *Gracula glauca* SPARRMANN (*patria non indic.*).

Tanagra serioptera SWAINSON, 1838 (Demerara, Brit. Guiana).

Subspecific characters.—Head neck and underparts pale bluish gray, rather darker on back and scapulars, tinged with violet on rump and breast, wings and tail margined with blue-blackish in color, lesser wing coverts clear bluish white.

Substitute Type.—No. 128931, Amer. Mus. Nat. Hist.; ♂ ad.; Pará, Brazil, Oct. 9, 1905, coll. Emilia Snethlage. Wing, 88, tail, 65, exposed culmen, 13.5.

Specimens examined—British Guiana: Tumatumari, Potaro River, 2 ♂, 1 ♀, Rockstone, Essequibo River, 2 ♂; Minnehaha Creek, 1 ♂; Wismar, Demarara River, 1 ♂; Potaro Landing, 1 ♂. French Guiana, Approuague, 1 ♂; Brazil, Pará, 1 ♂; Faró on the Yamundá River, 1 ♀.

In the case of *Thraupis episcopus episcopus* I have also designated a substitute type as I have seen a specimen from Pará,³ Brazil.

I need not enumerate the advantages of fixing type localities, but how far are we privileged in doing so? In the case of this group, three species closely allied are found to have had Brasilia as their

¹ "Habitat in Brasilia, unde Missa ad. D. de Chavigny and D. de Vergene, qui D. de Reaumur dono dederunt."

² Dr. Hellmayr informs me that Berlepsch is no doubt right in assuming that the original locality "Bresil" was a mistake. Reaumur had not a single species from "Para" (which at his time was a perfect *terra incognita* ornithologically) in his collection but many from Cayenne, French Guiana. The first Para birds were obtained by Spix about 1820. Dr. Hellmayr thinks that Brisson's type did not come from Para.

³ Dr. Hellmayr has seen several.

MEASUREMENTS (EXTREMES AND AVERAGES)

	Wing	Tail	Exposed Culmen	Collection
<i>Thraupis sayaca sayaca</i> (males)				
Brazil: Bahia (6)	88.5-96. (91.9)	65. -70. (66.7)	12. -15. (13.1)	A. M. N. H.
" Matto Grosso, Urucum (4)	91. -64.5(93.)	63. -66.5(64.8)	12.5-14. (13.3)	"
" Matto Grosso, Chapada (36)	82.5-97. (88.6)	51. -68. (56.)	12. -14. (12.8)	"
Paraguay: Trinidad (1)	94.5	68.	12.5	"
" Fort Wheeler (1)	94.5	67.5	12.5	"
<i>Thraupis sayaca sayaca</i> (females)				
Brazil: Bahia (2)	90.5-92..(91.)	66. -69. (67.5)	14. -15. (14.2)	A. M. N. H.
" La Raiz, ft. of Organ Mts. (2)	91.5-925(91.7)	65. -65.5(65.2)	13.5-15. (14.5)	"
" Sao Paulo, S. Sebastiao (1)	88.5	65.	14.	"
" Matto Grosso, Urucum (5)	85. -91. (87.)	59. -64.5(62.4)	11. -14. (12.9)	"
" Matto Grosso, Palmiras (1)	88	63.5	14.	"
" Matto Grosso, Chapada (38)	83.5-94. (88.1)	55. -69.5(63.1)	12. -14. (12.9)	"
Paraguay: Trinidad (1)	92.	67.5	14.	"
<i>Thraupis sayaca obscura</i> (males)				
Bolivia: Dept. Cochabamba,				
" Parotani (5)	96. -102.5(97.6)	70. -77. (73.6) ¹	11.5-13. (12.)	A. M. N. H.
" Todos Santos (1)	93.	68.5 ²	12.	"
" Dept. Cochabamba,				
" Tujma (3)	99. -99. (99.)	71. -74.5(72.7)	13. -13.5(13.)	"
" Dept. Cochabamba, Vinto (1)	99.	72.	12.	"
" Dept. Santa Cruz (5) ³	95. -100. (97.5)	68. ² -73. (72.4)	12.5-13. (12.6)	"
Bolivia: Dept. Sucre (6) ⁴	94. -98.5(97.5)	70.5-76.5(73.3)	12. -13.5(12.5)	"
" Apolobamba (1)	97.5	71.5	15.	"
Argentina: Prov. of Tucuman, (8) ⁵	90.5-98.5(94.8)	70. -73.5(71.2)	12. -13. (12.1)	"
" Buenos Aires (3) ⁶	83.5-96. (91.3)	60. -73.5(67.6)	12. -14. (12.8)	"

¹ The tails of 3 specimens are very much worn, making them shorter.² Tail much worn.

MEASUREMENTS (EXTREMES AND AVERAGES)

	Wing	Tail	Exposed Culmen	Collection
<i>Thraupis sayaca obscura</i> (females)				
Bolivia: Dept. Cochabamba, Parotani (6)	91. -95. (93.8)	66. -72.5 (69.8)	12. -12.5 (12.4)	A. M. N. H.
" Todos Santos (4)	86.5-92.5 (89.7)	62.5-68.5 (66.3)	11.5-13.5 (12.7)	"
" Vinto, (1)	96.5	70.	13.	"
" Dept. Santa Cruz, Cali-fornia (2)	92. -93. (92.5)	68. -70. (69.)	13. -13.5 (13.3)	"
" Dept. Sucre, Rio Cachimayo, (4)	92. -96.5 (94.3)	70.5-72. (71.2)	12. -12.5 (12.2)	"
" Apolobamba, (1)	94.	67.	15.	"
Argentina: (7) ⁷	87. -93.5 (90.3)	63.5-70. (67.2)	12. -13. (12.6)	"
" Buenos Aires, Barracas al Sur (1)	91.5	66.5	13.	"
<i>Thraupis cyanoptera</i>				
Brazil: Therezopolis, Organ Mts. (3 ♂)				
" Prov. of Rio de Janeiro, Novo Friburgo (1 ♂)	94. -99. (95.8)	70. -72. (70.2)	13.5-15. (14.5)	A. M. N. H.
" Therezopolis, Organ Mts. (2 ♀)	81. -91.5 (86.2)	67. -67.5 (67.7)	13.5-14	"
<i>Thraupis episcopus episcopus</i> (males)				
British Guiana, (7) ⁸	90. -98. (94.1)	64. -67. (65.5)	13. -14.5 (13.7)	A. M. N. H.
French Guiana, Appronague, 1 ♂	90.5	61.5	13.	"
Brazil, Pará 1 ♂	88.	65.	13.5	"
British Guiana, Tumatumari R. 1 ♀	88.5	63.	14.5	"
Brazil, Faró on the Yamundá, 1 ♀	85.5	59.5	12.5	"

⁷ Tañ Trail, and above San Pablo (Tucuman); Embarcacion (Salta);
Suncho Corral (Santiago del Estero).

⁸ Rio Cachimayo, Rio Pilcomayo and Pulque.

⁵ Tañ Trail, Sacramento and above San Pablo.

⁶ Buenos Aires, Puerto Segundo and Los Talas.

Creek, Wismar, Demarara R., and Potaro Ldg.

type locality. *Thraupis sayaca* and *Thraupis cyanoptera* still have the type locality Brasilia, while *Thraupis episcopus* described from Brazil by Linnaeus has had its type locality changed to Cayenne by Berlepsch ('Revision of Tanagers') who considered Brazil an error. Is he justified in considering this an error when he himself gives the species as occurring in Pará, Brazil? Another point, —in recent years certain authorities have designated "Colombia", for example, as a type locality, but such an indefinite designation seems to me worse than useless.

There are decided advantages in designating and in having types to work with. They are definite individual specimens for comparison. One may say this is only an imaginary advantage, but it certainly helps to solve our problems more accurately. On the other hand, in many cases, tophotypes are better than a faded type for which we have only a sentimental interest and which may confuse us considerably, particularly when brown feathers have turned reddish brown through age. The idea came to me while working on this group that it might well be advisable to have two characters of types, the true type and the substitute type. There might be a classification of types¹ as well as of species in ornithology and a specimen subsequently selected as a type might be called a substitute type.

American Museum of Nat. Hist., New York.

A NOTE ON THE JAPANESE QUAIL.

BY NAGAMICHI KURODA, C. F. A. O. U.

I. INTRODUCTION.

It has hitherto been believed by most ornithologists that there occur two forms of the Quail in Japan, viz., *Coturnix coturnix coturnix* (Linn.) and *C. coturnix japonica* Temm. & Schl. The

¹ This matter has been discussed at length by zoologists in the past. The most comprehensive classification is, perhaps, that of Schuchert and Buckman (Science, June 9, 1905, pp. 899-901, where some twenty kinds of types are proposed.—EDITOR.