





opens perpendicularly, with prominent lips or jaws, that on the left side being of a fine blue colour, and the other red. At a short distance behind this, on each side, is a folded and slightly thickened membrane (*b*); and still further back, above, there is a more slender process on each side (the tentacles) (*c*); while rather below the first named, on the right side only, is a smaller red process, encompassed at its root with a bluish circle (reproductive orifice?) (*d*). The eye is small, scarcely to be discerned, and is situated near the root of the more posterior process of the two already named. The body, on which these processes are placed is of a decided yellow colour, and ends in an oval mantle of rather small dimensions, with a border that constitutes the gills; while the more extended lateral portion, which is of a lively yellow colour, is separated from the dorsal by a line or groove, which seems to form the line of distinction between it and the sexual organs. A border or separated fold of this lateral division, of a bright red colour, proceeds forward from the hindmost border of the mantle, where there appears to be an opening into the body, to end on the side, at about half its length. The foot (*e*) is of dark brown colour, a little the widest in front, and slightly projecting behind, where the lateral portion of the body also slopes down, a small portion of the latter having above it a curved line of separation. The whole of the body, with the exception of the mantle and foot, is marked with tints of red on the brilliant yellow surface.

Of the other example above referred to, the colours had all been resolved into a dull brown, and the foot was much puckered. I could not discover in the lips or jaws any roughness or firmness as of teeth; and the single lateral process at the side of the neck was absent. The internal plate (fig. 2) is in figure half an oval, 2 inches wide, thin, subcartilaginous, and marked with faint lines diverging from the straight border. Almost, but not exactly, at the middle of its upper portion was a slight prominence or projection, but so injured as not to be accurately defined. Its surface was very slightly tinged with brown.

6. On some Collections of Birds from Veragua.

By OSBERT SALVIN, M.A., F.L.S., F.Z.S., &c.—Part II.

(Plate XVII.)

Since my former communication* to the Zoological Society upon this subject, the same collector, Enrique Arcé, who furnished the materials for my paper, has been working industriously at the Ornithology of Veragua, and has accumulated so much material in my hands that I now deem it expedient to draw up a report on the additions made to my former list. Besides mentioning the species added to the catalogue of the birds of Veragua, I have again inserted

* P. Z. S. 1867, pp. 129-161.

into the present list the species concerning which fresh information, whether of distribution or classification, has been acquired. Although the greater number of species recorded in my former paper are here re-introduced, a considerable addition to our knowledge of their local distribution is made, and our information of the whole subject brought down to the most recent date in a complete form. Since 1867 Arcé has had the field to himself, no other naturalist having worked in his immediate district; though in the adjoining country of Costa Rica the Messrs. Carmiol and others have continued their assiduous labours. I have, then, nothing to add to the history of the literature of the birds of Veragua. The birds (of Arcé's collecting) described in these Proceedings since 1867 by Mr. Selater and myself will all be inserted in their places; so it is unnecessary to enumerate them here.

That no small success has attended Arcé's labours will be manifest on referring to the total number of species of birds now given as inhabitants of Veragua. Nor are the novelties few or insignificant. The result shows that even the most limited areas of this rich country, when diligently examined, seldom fail to reveal some striking novelty, the existence of which in some cases could have in no way been anticipated, every gap in the distribution of allied forms being apparently filled in. The whole number of new species described since 1867, together with those now given, amounts to nineteen. Their names are as follows:—*Thryothorus semibadius*, *Buthraupis arcai*, *Pyrranga testacea*, *Tachyphonus nitidissimus*, *T. chrysomelas*, *Chlorospingus punctulatus*, *C. hypophæus*, *Grallaria princeps*, *Leptotriccus superciliaris*, *Empidonax atriceps*, *Chiromachæris aurantiaca*, *Antrostomus saturatus*, *Chætura fumosa*, *Lophornis adorabilis*, *Selasphorus torridus*, *S. ardens*, *Eupherusa egregia*, *Chloronerpes simplex*, *Melanerpes chrysauchen*.

Besides these nineteen species, five others are now added to the Central-American fauna, viz. *Leistes guianensis*, *Pseudocolaptes boissoneauti*, *Thamnophilus immaculatus*, *Stenopsis cayennensis*, and *Urubitornis solitaria*.

The genera now first introduced into the Central-American fauna are *Buthraupis*, *Leptotriccus*, *Leistes*, *Pseudocolaptes*, *Stenopsis*, and *Urubitornis*.

My first paper on the birds of Veragua records the occurrence of 216 species of birds in that country*. This number Arcé has now exactly doubled, by having transmitted no less than 216 additional species, thus raising the whole number to 432. It is more than probable that this number will be considerably increased; for in Costa Rica 520 species are recorded as inhabitants of that country, whilst on the Panama Railway-line the number is about 400.

Of these 432 species, 113 are not included in the Costa-Rican list, and at least 70 more are found at Panama which have not as yet been recorded from either Veragua or Costa Rica. From these figures we

* The actual number is 220, from which 4 (viz. nos. 37, 93, 159, and 206) must be deducted, the species being now otherwise determined.

get 703 species as an approximate estimate of the number of species included in the whole bird-fauna of Central America south of the Lake of Nicaragua. Considering how imperfectly several orders must be represented, we shall certainly not be estimating the whole number too highly if we place it at 720 species.

The superficial area of Central America south of the Lake of Nicaragua is about 38,000 square miles, or an area about equal to two-thirds that of England and Wales; yet in this limited extent of country we find a considerably greater number of birds than in the whole of Europe; in fact, the number nearly equals that of the whole continent of America, north of Mexico.

The names of the places visited by Arcé in his collecting-expeditions are Calovevora, Calobre, Chitra, Boqueti de Chitra, Castillo, Laguna del Castillo, and Cordillera del Chucu. Many of these places are unmarked on the best map I can find, viz. that of Codazzi, published in Bogotá in 1864; but from Arcé's letters I gather they are all situated in one district, near Calobre and Santiago de Veraguas, and are in what is called El Mineral de Veraguas. I also infer that Arcé's collecting-ground has been almost, if not entirely, on the southern, or that slope of the main Cordillera which stretches towards the Pacific Ocean.

The later collections, which bear the localities Mina de Chorchá, Bugaba, and Volcan de Chiriqui, were all made since Arcé reached David, the principal village of the district of Chiriqui. These collections, too, were formed on the southern slope of the Volcano, the highest point reached being about 6500 feet above the sea-level.

I hope yet to be able to fill in, on the accompanying map (Plate XVII.), all the names of the places above mentioned. In the meantime, those already supplied will give the general position of the districts explored.

The publication by Mr. Lawrence of 'A Catalogue of the Birds found in Costa Rica' (Ann. Lyc. N. Y. ix. pp. 86-149) supplies an important addition to our knowledge of the isthmian avifauna, and enables me to review in a more complete manner the generalizations I ventured to make respecting the relationship the birds of Veragua bear to those of the surrounding countries.

In my former paper I stated that the portion of Veragua then explored showed that, as regards its birds, a rather stronger numerical affinity was exhibited towards Panama than towards Costa Rica, and a slightly closer connexion with the more northerly portions of Central America than with the adjacent southern continent. But, owing to the incompleteness of our knowledge at the time of the bird-fauna of Costa Rica, I somewhat mistrusted the result shown by the facts at my disposal. Partly owing to the exploration of the district of Chiriqui, and partly to the large amount of distributional knowledge acquired by the publication of Mr. Lawrence's list, the relationship between bird-life in Veragua and in the adjoining countries now assumes to a great extent a different aspect. The bonds of union with Costa Rica are drawn much more close;

and, further, it now appears that the connexion with the Isthmus of Panama is hardly greater than with the more northern portions of Central America. These results may be exhibited as follows in a tabular form:—

Total number of species found in Veragua, 432.

Number of Veraguan species also found in

South America	.....	179, or 41 per cent of the whole.
Panama	.....	238, or 55 " "
Costa Rica	.....	317, or 74 " "
Guatemala and Mexico	.....	210, or 49 " "
North America	.....	60, or 14 " "

I find that the number of birds which are not found outside the limits of Panama, Veragua, and Costa Rica, or that part of Central America included between the Isthmus of Darien and the Lake of Nicaragua, is altogether about 175 species; or, if we take the whole bird-fauna of this district, at say 720, 25 per cent. are peculiar.

These 175 species are distributed as follows:—

Number peculiar to

Panama	.....	15, or $3\frac{3}{4}$ per cent. of the ascertained fauna.
Veragua	.....	29, or 7 " "
Costa Rica	....	35, or 7 " "

79

Veragua and Costa Rica have in common	....	49 species
Veragua and Panama	," 	14 "
Veragua, Panama, and Costa Rica	," 	26 "
Costa Rica and Panama	," 	7 "

96

Add peculiar species..... 79

175

Thus, viewing this section of the Isthmus as a whole, we find that, without making any deductions whatever, no less than 25 per cent. of its bird-population is unrepresented specifically in any other portion of the adjoining regions. When, however, we take a portion of this country and compare it with the rest of the whole district, we find that the greatest amount of peculiarity does not exceed 7 per cent.; and the least amount reaches as low as $3\frac{3}{4}$ per cent.

The characteristic elements of the Central-American fauna consist not so much in the amount of generic peculiarity, which is very small, but in the fact that a very considerable portion of South-American forms are here represented, not as specifically identical, but, in a large number of instances, as definably distinct in degrees of varying value. The element of the Central-American bird-fauna to be traced to the northern continent, on the other hand, maintains a very different relationship to the bird-fauna of that continent. With the exception of a few species isolated in the mountains of the higher

portions of the Isthmus, and some others, we find that northern forms found in Central America are specifically identical with northern species, and that their presence is due in a great measure to migration during the winter season. As regards numbers, we find a gradual diminution as we proceed away from North America. These migrants, however, are everywhere present, some few passing still further south into the equatorial provinces of the southern continent.

Costa Rica and Veragua, with Panama, possess these characteristics of the Central-American fauna in the highest degree. It is here we find the greatest number of South-American genera represented; but the species are to a considerable extent not the same as the continental species.

We find, too, a considerable number of northern migrants, most of which are specifically identical with northern birds.

In endeavouring to account for the facts as we find them, by changes in past times in the physical features of the Isthmus, we seem to require:—1st. A union between Costa Rica, Veragua, and Panama with the southern continent, when those united lands possessed in common a much larger number of species specifically the same than at present. During this time the oceans may have been united north of Costa Rica. 2nd. The long duration of Costa Rica and Veragua as a “continental” island, during which time the union of the two oceans has been of greater extent. This period must be long enough to have established specific differences much as we now find them. 3rd. The emergence of the whole Isthmus in its present form.

These requirements seem to fall in fairly with what has been demanded in other branches of natural science. Dr. Duncan* requires a union in Miocene times between the oceans to account for the specific identity of certain corals; Dr. Günther†, too, requires a union between the oceans to account for the specific identity of 30 per cent. of the fish now found on both sides of the Isthmus.

The union here demanded will suit my first and second requirements, I only regulate the amount; and as for the period when it took place, the fixing it to Miocene times would seem to answer to the requirements of the birds.

That *all* the peculiar features of so varied a fauna can be accounted for by this theory I do not pretend to say. The changes in the physical features of the Isthmus indicated by the numerous minor modifications of existing species, belong to the most recent events in geological history. To account for the greater differences observable we must go deeper into the abyss of geological time, where light at present is barely perceptible.

Catharus griseiceps.

Chitra; Calovevora; Calobre.

1. CATHARUS MEXICANUS, Bp.; Scl. Cat. Am. B. p. 1.

Calovevora; Cordillera del Chucu.

* Quart. Journ. Geol. Soc. xix. 1863, p. 455.

† Trans. Zool. Soc. vi. p. 397.

Contrary to my expectations (P. Z. S. 1867, p. 132), it appears that this species is found in Veragua, as well as the next following, which is also met with in Costa Rica (Lawr. Ann. Lyc. N. Y. ix. p. 90). Arcé has sent us two specimens.

Catharus fuscater.

Calovevora; Cordillera del Chucu.

- 2. *TURDUS ALICIAE*, Baird, Rev. Am. B. p. 21.

V. de Chiriqui.

A single specimen from the southern slope of the Volcano of Chiriqui agrees accurately with a specimen thus named by Prof. Baird in our collection, received from the Smithsonian Institution. This Thrush has not as yet been noticed in Mexico or Guatemala; but in Costa Rica its occurrence is recorded (Lawr. Ann. Lyc. N. Y. ix. p. 91).

Turdus grayi.

Chitra; V. de Chiriqui.

Turdus tristis (Sw.); ScL. & Salv. Ex. Orn. p. 145. *T. leucauchen*, ScL.; Salv. P. Z. S. 1867, p. 132.

Calovevora; Calobre; Boquete de Chitra; V. de Chiriqui.

A typical specimen from Bullock's Mexican collection, marked "*Turdus tristis*" in Swainson's MS., now in the Museum of the University of Cambridge, fully confirms the view taken (Ex. Orn.) as to the bird called *T. assimilis*, Cab., being identical with *T. tristis* of Swainson.

Turdus obsoletus.

The acquisition of additional specimens from Costa Rica tend to confirm Mr. Lawrence's view that the sexes of this species are similar in plumage, and that the bird is allied to *T. grayi* rather than to the section containing such species as have the male black and the female brown.

3. *TURDUS NIGRESCENS*, Cab. J. f. Orn. 1860, p. 324.

V. de Chiriqui.

Evidently a highland species. It has hitherto only been noticed in the woods of the Volcano of Yrazu, in Costa Rica, and similar localities. Arcé has forwarded a pair. The sexes, as marked by him, are quite similar in coloration.

Rhodinocichla rosea.

Calovevora; Chitra; Mina de Chorchá.

4. *MYIADESTES MELANOPS*, Salv. P. Z. S. 1864, p. 580, t. 36.

Calovevora; Cordillera del Chucu.

5. *THRYOTHORUS FASCIATOVENTRIS*, Lafr.; ScL. & Salv. P. Z. S. 1864, p. 346.

Bugaba.

This fine species is also found in Costa Rica (Lawr. Ann. Lyc. N. Y.

ix. p. 92). Arcé obtained several specimens, in some of which the cross markings on the under parts are almost obsolete.

6. *THRYOTHORUS SEMIBADIUS*, sp. n.

Supra intense castaneus, fronte et capitis lateribus albis, plumis singulis nigro marginatis: alis et cauda nigris extus badio transfasciatis, tectricibus alarum minoribus albo transvittatis: subtus albus, a pectore usque ad caudam nigro transfasciatus, gula pure alba, hypochondriis postice castaneo lavatis: rostro corneo mandibula pallidior; pedibus nigricantibus: long. tota 5.3 poll. angl., alæ 2.6, caudæ 2.0, rostri a rictu 0.9, tarsi 0.9.

Fem. *Omnino mari similis.*

Hab. Bugaba (Arcé).

Obs. Species distincta, *T. nigricapillo* Scl. forsan affinis, sed pileo nigro carens.

This species belongs to the section *Thryophilus*, Baird, having an open and not operculated nostril. It has no very near allies, but somewhat resembles *T. nigricapillus* and *T. castaneus*, Lawr., both of which, however, are black-headed species, and have the under parts less densely and regularly marked. Arcé has forwarded us both sexes of this Wren from the district of Chiriqui.

7. *THRYOTHORUS MODESTUS*, Cab. J. f. Orn. 1860, p. 409.

Bugaba.

Specimens from this locality resemble the Panama race (Baird, Rev. Am. B. p. 131).

Thryothorus rufalbus.

Calovevora; Chitra; Castillo.

Thryothorus rutilus.

Boqueti; Calovevora; Bugaba.

This species, though common in Veragua, has not yet been met with in Costa Rica.

Henicorhina leucosticta.

Boqueti de Chitra; Cordillera del Chucu.

8. *HENICORHINA LEUCOPHRYS* (Tsch.). *Heterorhina leucophrys*, Baird, Rev. Am. B. p. 118.

Calovevora; Chitra; Cordillera del Chucu; Mina de Chorchá.

Prof. Baird (*l. c.*) recognizes two races of this form; but after a close examination of our series of specimens, which includes examples from Bogota, I confess I do not think he has established his case. In all the differential characters brought forward I find variation in different individuals, so that the nine specimens before me, if separated, cannot be grouped in a definite manner. It is true, I may not have the species called by Baird *H. leucophrys*; but a single Costa-Rica skin, and several from Veragua, seem to agree very well with his description. Our Guatemalan specimens are darker on the head than others from Bogota; the Veraguan examples are variable in this respect, as also in the amount of dark striations on the throat.

Baird, with some doubt, refers Mexican and Guatemalan specimens to *Merulaxis griseicollis*, Lafr. (R. Z. 1840, p. 103), a species Sclater considers, with Lafresnaye himself, to be a *Scytalopus* (Cat. Am. B. p. 168), and to belong to the *Pteroptochidæ*. Though not altogether satisfactory, I must say I think Lafresnaye's description suits the *Scytalopus* better than the *Henicorhina*, no mention whatever being made of the conspicuous markings on the sides of the head in the present bird. Taking Baird's list of localities, the evidence afforded by the distribution of this Wren is all in favour of there being but one species.

9. *CISTOTHORUS ELEGANS*, Scl. & Salv. ? ; Baird, Rev. Am. B. p. 146.

Bugaba.

A single specimen in abraded plumage seems to belong to this species. The bill, however, is very robust, and the head exhibits none of the longitudinal light markings to be seen in *C. elegans*. As regards the colouring of the lower back and uropygium, the chief distinguishing character between *C. elegans* and *C. palustris*, this skin agrees very fairly with the former. The specimen is not in a condition good enough to enable me to determine it satisfactorily.

10. *POLIOPTILA SUPERCILIARIS*, Lawr. ; Baird, Rev. Am. B. p. 71.

Bugaba.

Mniotilta varia.

Calovevora ; Cordillera del Chucu ; V. de Chiriqui.

11. *PARULA INORNATA*, Baird, Rev. Am. B. p. 171.

Boqueti de Chitra ; V. de Chiriqui.

12. *PARULA GUTTURALIS* (Cab.), J. f. Orn. 1860, p. 329 ; Baird, Rev. Am. Birds, p. 172.

V. de Chiriqui.

Arcé's last collection contains three specimens of this beautiful species, which are the first I have ever seen. According to Arcé's dissections, both sexes have the interscapular region black ; but in the female this character is neither so extensive nor so regular in form as in the male.

Helminthophaga chrysoptera.

Calovevora.

Helminthophaga peregrina.

Calovevora ; V. de Chiriqui.

Dendræca pennsylvanica.

Chitra ; Calovevora ; V. de Chiriqui.

13. *DENDRÆCA VIRENS* (Gm.) ; Baird, Rev. Am. B. p. 182.

V. de Chiriqui.

14. *DENDRÆCA CÆRULEA* (Wils.); Baird, Rev. Am. B. p. 191.
Calovevora.

Dendræca blackburniæ.

Calovevora; Chitra; Calobre; Cordillera del Chucu; V. de Chiriqui.

Dendræca æstiva.

Calovevora; Chitra; Calobre; Cordillera del Chucu; Bugaba.

15. *MYIODIOCTES PUSILLUS* (Wils.); Baird, Rev. Am. B. p. 240.

V. de Chiriqui.

16. *HENICOCICHLA NOVEBORACENSIS* (Gm.); Baird, Rev. Am. B. p. 215.

Calovevora.

17. *HENICOCICHLA LUDOVICIANA* (Aud.); Baird, Rev. Am. B. p. 217.

Bugaba.

18. *HENICOCICHLA AUROCAPILLA* (L.); Baird, Rev. Am. B. p. 214.

V. de Chiriqui.

Basileuterus mesochrysus.

Chitra; Calobre.

19. *BASILEUTERUS CULICIVORUS* (Licht.); Baird, Rev. Am. B. p. 245.

Calovevora.

20. *BASILEUTERUS BIVITTATUS* (Lafr. & D'Orb.), Salv. Ibis, 1870, p. 108. *B. melanotis*, Lawr. Ann. Lyc. N. Y. ix. p. 95.

Cordillera del Chucu.

21. *BASILEUTERUS MELANOGENYS*, Baird, Rev. Am. B. p. 248.

V. de Chiriqui.

A very well marked and distinct species, hitherto only known from the highlands of Costa Rica.

Basileuterus uropygialis.

Bugaba.

Setophaga ruticilla.

Calovevora; Chitra.

22. *SETOPHAGA AURANTIACA*, Baird, Rev. Am. B. p. 261; Salv. Ibis, 1869, p. 313.

Calovevora; V. de Chiriqui.

This species is exceedingly closely allied to *S. verticalis* (D'Orb. & Lafr.), the under surface of which, however, is lemon- rather than

orange-coloured. This difference is well shown by a very bright-coloured specimen from Chiriqui, which has also the forehead and sides of the crest deep black, instead of plumbeous, the other distinctive character pointed out by Prof. Baird.

23. *HIRUNDO HORREORUM*, Barton ; Baird, Rev. Am. B. p. 294.

Calobre ; V. de Chiriqui.

24. *ATTICORA CYANOLEUCA*, Vieill. *A. cyanoleuca*, var. *montana*, Baird, Rev. Am. B. p. 310.

Calovevora.

25. *STELGIDOPTERYX FULVIPENNIS* (Scl.) ; Baird, Rev. Am. B. p. 316 ; Salv. Ibis, 1870, p. 108.

Calovevora.

Two examples, agreeing with Costa-Rican and Guatemalan specimens.

26. *STELGIDOPTERYX UROPYGIALIS* (Lawr.). *S. fulvigula*, Baird, Rev. Am. B. p. 317.

Chitra.

Agrees with Panama specimens.

Vireosylvia flavoviridis.

Chitra ; Mina de Chorchá ; Bugaba.

27. *VIREOSYLVIA PHILADELPHICA*, Cass. ; Baird, Rev. Am. B. p. 340.

Chitra.

28. *VIREOSYLVIA FLAVIFRONS* (Vieill.) ; Baird, Rev. Am. B. p. 346.

Calovevora ; V. de Chiriqui.

29. *HYLOPHILUS OCHRACEICEPS*, Scl. ; Baird, Rev. Am. B. p. 376.

Bugaba.

Hylophilus viridiflavus.

Bugaba.

Hylophilus decurtatus.

Castillo ; Chitra ; Calovevora.

30. *VIREOLANIUS PULCHELLUS*, Scl. & Salv. Ex. Orn. p. 13, t. 8. Calovevora.

31. *CYCLORHIS SUBFLAVESCENS*, Cab. J. f. Orn. 1860, p. 405 ; Baird, Rev. Am. B. p. 388.

V. de Chiriqui.

32. *PTILOGONYS CAUDATUS*, Cab. J. f. Orn. 1860, p. 402 ; Scl. & Salv. Ex. Orn. p. 11, t. 6.

V. de Chiriqui.

Arcé has sent two fine male specimens of this bird from the southern slope of the volcano of Chiriqui, a new and more southern locality for this beautiful species.

33. *DIGLOSSA PLUMBEA*, Cab. J. f. Orn. 1860, p. 411.

V. de Chiriqui.

As in the case of the last-mentioned species, the occurrence of *Diglossa plumbea* in the Chiriqui volcano indicates a more southern range for this hitherto purely Costa-Rican bird.

The female of *D. plumbea*, as might have been anticipated, is not distinguishable from that of *D. baritula*, Wagl. It is olivaceous brown above, with dark ochraceous edgings to the wing-coverts and secondaries ; beneath it is light brown, with an olive tinge over the breast and sides.

34. *DACNIS VENUSTA*, Lawr.

Bugaba.

35. *DACNIS CAYANA* (Linn.) ; Scl. Cat. Am. B. p. 50.

Mina de Chorcha.

I can detect no differences whatever between an adult male from this locality and a specimen from Pebas, Upper Amazons, which has been called *D. cayana* (Scl. & Salv. P. Z. S. 1867, p. 977). Two immature males from Chepo are somewhat intermediate between *D. cayana* and *D. ultramarina*, Lawr., inclining rather to the former. I should have expected that *D. ultramarina* would have alone represented this form in Central America, but such does not appear to be the case.

Chlorophanes guatemalensis.

Calovevora ; Boqueti de Chitra ; Bugaba.

Cæreba carneipes.

Calovevora ; Castillo ; Chitra ; Cordillera del Chucu ; Bugaba.

Cæreba lucida.

Bugaba.

Certhiola luteola.

Cordillera del Chucu ; Bugaba.

36. *CHLOROPHONIA CALOPHRYS* (Cab.) ; Scl. & Salv. Ex. Orn. p. 135, t. 68.

Calovevora ; Cordillera del Chucu ; V. de Chiriqui.

A highland species, hitherto only observed in Costa Rica.

37. *EUPHONIA ELEGANTISSIMA*, Bp. ; Scl. Cat. Am. B. p. 56.

Calovevora.

38. *EUPHONIA MINUTA*, Cab. ?; Scl. Cat. Am. B. p. 57. *E. minuta*, Scl. & Salv. Ibis, 1860, p. 275.

Calovevora; Bugaba.

Two adult male specimens sent by Arcé agree accurately with the single example I obtained at Coban in 1859. The yellow forehead is rather darker in colour and greater in extent than in a Bogotan specimen of *E. minuta*. In the white crissum, in the markings of the tail-feathers, and in the tint of the upper surface, I can trace no difference, and therefore think it best not to describe the bird under a new name, believing that did I do so I should only be adding to the confusion introduced into the group by Cabanis, whose descriptions of the Costa-Rican species, being in several instances based upon immature birds, are very unsatisfactory and perplexing.

39. *EUPHONIA GRACILIS* (Cab.); J. f. Orn. 1860, p. 333.

Bugaba; V. de Chiriqui.

The original specimens upon which Cabanis founded this species were all immature. We now have what I believe to be the adult, of which I give the following description:—

Supra cum gutture toto cærulescenti-nigra: alis extus viridi-æneo tinctis: fronte, pilei dimidio antico et corpore subtus luteis: cauda nigra immaculata: long. tota 3·8, alæ 2·3, caudæ 1·3, tarsi 0·65.

Obs. E. concinnæ affinis, sed fronte lutea nec nigra et colore supra cærulescentiore facile distinguenda.

40. *EUPHONIA LUTEICAPILLA* (Cab.); J. f. Orn. 1860, p. 332.

Boquete de Chitra; Bugaba.

A very pretty and distinct species, of which we have received several specimens, both from Veragua and also from Panama (Paraiso Station). The female may be described as follows:—

Supra olivacea: alis caudaque nigris, extus olivaceo limbatis: subtus flava, medialiter clarior, hypochondriis olivaceo indutis.

Euphonia crassirostris.

Chitra; Boqueti de Chitra; Calovevora.

The undetermined specimen (No. 37 of my previous list) is an immature bird of this species.

Euphonia annæ.

Cordillera del Chucu; Calovevora.

41. *EUPHONIA GOULDI*, Scl. Cat. Am. B. p. 60.

Bugaba; V. de Chiriqui.

Calliste icterocephala.

Calovevora; Boqueti de Chitra; Cordillera del Chucu; V. de Chiriqui.

Calliste gyroloides.

Calovevora; Boqueti de Chitra; Cordillera del Chucu; Bugaba; V. de Chiriqui.

Calliste franciscæ.

Calovevora ; Chitra ; Laguna del Castillo ; Mina de Chorchá ; Bugaba.

42. CALLISTE DOWII, Salv. P. Z. S. 1863, p. 168 ; Scl. Ibis, 1863, p. 451, t. 12.

Cordillera del Chucu.

The sexes of this species, as marked by Arcé, hardly differ. The male is somewhat brighter in plumage than the female.

43. CALLISTE GUTTATA, Bp. ; Sclater, Mon. Calliste, t. 10.

V. de Chiriqui.

44. BUTHRAUPIS ARCÆI, Scl. & Salv. P. Z. S. 1869, p. 439, t. 31.

Cordillera del Chucu.

Tanagra diaconus.

Calovevora ; Chitra.

Ramphocælus dimidiatus.

Calovevora ; Chitra ; Castillo ; Cordillera del Chucu ; Mina de Chorchá.

The last-mentioned locality, in the neighbourhood of Chiriqui, seems to be the most northern limit of the range of this species, as in Costa Rica it has not yet been observed.

Ramphocælus passerinii.

Mina de Chorchá ; Bugaba.

This species, on the other hand, seems to attain its most southern limit in the neighbourhood of Chiriqui.

45. PYRANGA RUBRA (L.).

Calovevora.

Pyranga æstiva.

Calovevora ; Chitra ; Boqueti de Chitra ; Cordillera del Chucu.

Pyranga testacea, Scl. & Salv. P. Z. S. 1868, p. 388. *P. hepatica*, Salv. P. Z. S. 1867, p. 139.

Calovevora ; Chitra ; Boqueti de Chitra.

This species has also been found in the vicinity of Belize, British Honduras (Ridgway, Pr. Ac. Phil. 1869, p. 133).

46. PYRANGA ERYTHROMELÆNA (Licht.).

Calovevora ; V. de Chiriqui.

47. PYRANGA BIDENTATA, Sw.

V. de Chiriqui.

Phænicothraupis vinacea, Lawr. Proc. Ac. Phil. 1867, p. 94 ; Ann. Lyc. N. Y. ix. p. 99. *P. rubica* ?, Salv. P. Z. S. 1867, p. 139.

Calovevora ; V. de Chiriqui.

Lanio leucothorax.

Calovevora ; Chitra ; Cordillera del Chucu ; Bugaba ; V. de Chiriqui.

Eucometis spodocephala.

Bugaba ; Mina de Chorchá.

With two adult specimens of this species, Arcé has sent a bird that I for some time considered to be an undescribed member of this genus, as the head and throat are of precisely the same tinge of olivaceous as the back, instead of being plumbeous as in adult birds of *E. spodocephala*. As I can detect no other differences whatever, except smaller dimensions, and the bird shows some signs of immaturity, I now think that it may be a young individual of the above species. The sex is not marked ; but it cannot be the normal adult female of *E. spodocephala*, as we have dissected specimens both of that species and *E. cristata*, which have shown that the sexes do not differ in coloration in this group.

48. *TACHYPHONUS NITIDISSIMUS*, sp. n.

Nitenti-niger, crista aurantiaca, tectricibus alarum minoribus et subalaribus albis: rostro nigro, mandibulæ basi albicante, pedibus fuscis.

Fem. *Olivacea, subtus flavescentior: alis et cauda fuscis, extus olivaceo limbatis: long. tota 5·5, alæ 2·8, caudæ 2·4, tarsi 0·75.*

Hab. Bugaba (*Arcé*).

Obs. Affinis *T. delattrii* et *T. luctuoso*, sed ab hoc colore nitentiore et subalaribus albis, ab illo crista aurantiaca differt.

A very distinct species, curiously combining the characters of the two species above mentioned. In size it is also intermediate, being smaller than *T. delattrii* and larger than *T. luctuosus*. Arcé has sent several specimens, all from the district of Chiriqui.

49. *TACHYPHONUS CHRYSOMELAS*, Scl. & Salv. P. Z. S. 1869, p. 440, t. 32.

Cordillera del Chucu.

50. *CHLOROSPINGUS PUNCTULATUS*, Scl. & Salv. P. Z. S. 1869, p. 440.

Cordillera del Chucu.

51. *CHLOROSPINGUS HYPOPHÆUS*, Scl. & Salv. P. Z. S. 1868, p. 389.

Calovevora ; Chitra ; Boqueti de Chitra.

52. *CHLOROSPINGUS ALBITEMPORALIS*, Lafr. ; Scl. & Salv. P. Z. S. 1868, p. 630.

V. de Chiriqui.

Arremon aurantirostris.

Cordillera del Chucu ; Mina de Chorchá ; Bugaba.

Buarremon crassirostris.

Cordillera del Chucu.

53. BUARREMON CHRYSOPOGON (Bp.).

Castillo ; V. de Chiriqui.

Buarremon brunneinuchus.

Calovevora ; V. de Chiriqui.

54. PEZOPETES CAPITALIS, Cab. J. f. Orn. 1860, p. 415.

V. de Chiriqui.

This appears to be a rare species, as none of the collectors of the Smithsonian Institution have yet met with it. When in Costa Rica, Arcé was fortunate enough to obtain two specimens in the Volcan de Cartago ; these are the only others I have seen. With the exception of the tarsi and toes being rather stronger, *Pezopetes* does not differ from *Buarremon*, in which genus it might be very properly included.

Saltator magnöides.

Calovevora ; Chitra ; Mina de Chorchá ; Bugaba ; V. de Chiriqui.

Saltator isthmicus.

Chitra.

55. HEDYMELES LUDOVICIANUS.

V. de Chiriqui.

56. PHEUCTICUS TIBIALIS, Lawr. Ann. Lyc. N. Y. viii. p. 478.

Calovevora ; Chitra ; Boqueti de Chitra ; Calobre.

Guiraca concreta.

Calovevora ; Boqueti de Chitra ; Bugaba.

Oryzoborus funereus.

Calovevora.

57. SPERMOPHILA INTERMEDIA, Cab. Mus. Hein. i. p. 149. *S. schistacea*, Lawr. Ann. Lyc. N. Y. viii. p. 10.

Bugaba.

Agrees with specimens in Sclater's collection from Cayenne, Venezuela, and Bogotá.

Spermophila semicollaris.

Bugaba.

A specimen from this locality is without the white collar across the throat ; others, from Calovevora, Chitra, and Mina de Chorchá, have this collar, but to a variable extent : I suppose these last should be called *S. collaris*, Lawr. One of the Chitra specimens has the rump quite white. Judging from seven specimens before me, and seeing that the amount of white forming the collar is variable, I find great difficulty in assigning my specimens to the species described by Mr. Lawrence as *Spermophila hicksi*, *S. semicollaris*, *S. collaris*, and *S. fortipes*, all of which are found on the Panama Railway-line or at Chiriqui. Concise diagnostic characters of these four birds would be useful, and would afford a better opportunity of judging

whether the grounds for their separation are based upon sufficiently constant characters.

From Mr. Lawrence's descriptions I gather that *S. semicollaris* has a white patch on each side of the neck, but no collar interrupting the uniform black of the chin, throat, and breast. *S. collaris* has a narrow white collar. *S. hicksi* has the throat white and a collar uniting with it. *S. fortipes* has a white patch on each side of the neck connected with a narrow collar, and thus differs from *S. semicollaris*, but resembles *S. collaris*, with which it is not compared.

Have we here really more than one variable species?

Volatinia jacarina.

Chitra.

Phonipara pusilla.

Chitra.

Cyanospiza ciris.

V. de Chiriqui.

58. CYANOSPIZA CYANEA (Linn.); *Scl. Cat. Am. B.* p. 107.

Calovevora.

59. ZONOTRICHIA PILEATA (Bodd.).

Calovevora; Chitra; V. de Chiriqui.

Embernagra striaticeps.

Calovevora; Chitra; Bugaba.

Euspiza americana.

Chitra.

60. CHRYSOMITRIS MEXICANA (Sw.); *Scl. Cat. Am. B.* p. 124.

This species ranges as far south as Panama (*Scl. & Salv. P. Z. S.* 1864, p. 353). The presence of *C. columbiana*, Lafr. (*Lawr. Ann. Lyc. N. Y.* ix. p. 103) in Costa Rica is at present hypothetical.

Ocyalus wagleri.

Chitra; Calobre.

61. OSTINOPS CRISTATUS.

Bugaba.

This is the most northern locality yet recorded for this wide-ranging species. It is found at Panama but not in Costa Rica.

Cacicus microrhynchus.

Bugaba.

Cassiculus prevosti.

Calovevora; Calobre.

Icterus baltimorensis.

Calobre.

Icterus gairaudi.

Chitra; Castillo.

62. *LEISTES GUIANENSIS* (Linn.) ; *Scl. Cat. Am. B.* p. 138.

This common South-American species has not hitherto been noticed in Central America. Arcé's specimens differ in no way from Guiana and Bogotá examples.

63. *MOLOTHRUS ÆNEUS* (Wagl.) ; *Scl. Cat. Am. B.* p. 135.

Chitra ; Calobre.

A Central-American species occurring in Costa Rica, but not yet noticed at Panama.

64. *QUISCALUS MACRURUS*, Sw. ?

Calovevora ; Calobre.

Two males sent by Arcé are smaller than Guatemalan specimens attributed to this species, but do not otherwise differ. They agree in dimensions with a specimen from Panama in our collection.

Sturnella ludoviciana.

Castillo ; Calovevora ; V. de Chiriqui.

65. *CASSIDIX ORYZIVORA* (Gm.) ; *Scl. Cat. Am. B.* p. 142.

Calovevora ; Chitra ; Calobre.

This common species has not yet been sent from Costa Rica. In Guatemala it is abundant in the lowland forests of Vera Paz in the vicinity of the clearings.

66. *CYANOCORAX AFFINIS*, v. Pelz. ; *Scl. Cat. Am. B.* p. 145.

Calobre ; Bugaba.

The only member of the *Corvidæ* in Veragua and Panama. Its range does not extend to Costa Rica.

Sclerurus mexicanus.

Calovevora.

This species, now found to inhabit portions of the southern continent as well as Mexico, will almost certainly occur in Costa Rica, where, however, its presence has not yet been discovered.

67. *SYNALLAXIS ERYTHROPS*, *Scl. P. Z. S.* 1860, p. 66 ; *Lawr. Ann. Lyc. N. Y.* ix. p. 105.

V. de Chiriqui.

The four specimens forwarded by Arcé all agree with one another, and with Selater's type specimens, with which I have compared them. We possess a specimen of *Synallaxis* from Costa Rica (*Carmiöl*), which agrees accurately with Mr. Lawrence's description of his *S. rufigenis* (*Ann. Lyc. N. Y.* ix. p. 105). The bird is in immature plumage, and may possibly turn out to be a young state of *S. erythroops*, though I hardly think so. Still the immature plumages of *Synallaxis* are so perplexing that I throw out this suggestion to induce a further examination should additional specimens come to hand.

68. *AUTOMOLUS PALLIDIGULARIS*, Lawr. ; Scl. & Salv. P. Z. S. 1864, p. 354.

Boqueti de Chitra ; Bugaba.

69. *PSEUDOCOLAPTES BOISSONEAUTI* (Lafr.) ; Scl. Cat. Am. B. p. 156.

Cordillera del Chucu.

A single immature specimen from the above locality agrees fairly with Bogotá specimens of this species. It is not improbable, however, that, when we see adult examples, differences may be found.

70. *ANABAZENOPS VARIEGATICEPS*, Scl. Cat. Am. B. p. 159.

V. de Chiriqui.

A Mexican and Guatemalan species, found also in Costa Rica, and here at probably the southern limit of its range.

71. *ANABAZENOPS SUBALARIS*, Scl. ; Salv. Ibis, 1870, p. 110. *A. lineatus*, Lawr. Ann. Lyc. N. Y. viii. p. 127, et ix. p. 106.

Calovevora.

72. *XENOPS HETERURUS*, Cab. ; Scl. Cat. Am. B. p. 159 ; Salv. Ibis, 1869, p. 319.

V. de Chiriqui.

This species hardly differs from the Brazilian *X. rutilus*, Licht. It also occurs in Costa Rica (Salv. *l. c.*).

Xenops mexicanus.

Calovevora ; Bugaba.

Margarornis brunnescens.

Chitra ; Cordillera del Chucu.

Costa-Rican agree with Veraguan specimens of this bird and with the type in Selater's collection.

73. *SITTASOMUS OLIVACEUS* (Max.). *S. sylvioïdes*, Lafr. et auct. ; Lawr. Ann. Lyc. N. Y. ix. p. 106.

Calovevora ; V. de Chiriqui.

We have already given (Scl. & Salv. P. Z. S. 1868, p. 630) our reasons for uniting the Central-American with the Amazonian and Brazilian species described by Prince Max under the above name.

74. *GLYPHORHYNCHUS PECTORALIS*, Scl. & Salv. P. Z. S. 1864, p. 354.

Bugaba ; Mina de Chorchá ; V. de Chiriqui.

75. *DENDROMANES ANABATINUS*, Scl. Cat. Am. B. p. 161.

Bugaba.

A Mexican and Guatemalan species, but not yet observed in Costa Rica. A single example sent by Arcé agrees fairly with Guatemalan skins ; it is, however, rather darker in general tint, somewhat larger, and has the bill blacker.

76. *DENDROMANES HOMOCHROUS*, Scl. Cat. Am. B. p. 162.

V. de Chiriqui.

This species, in Guatemala at least, is frequently found associating with the last on the same tree, where they assemble, perhaps half a dozen together, to feed on ants.

77. *DENDROMANES ATRIROSTRIS* (Lafr. & D'Orb.); Scl. & Salv. P. Z. S. 1864, p. 355.

Chitra.

Also found in Costa Rica, but not further north.

Dendrocolaptes sancti-thomæ.

Bugaba.

78. *DENDRORNIS NANA*, Lawr.; Scl. & Salv. P. Z. S. 1864, p. 355.

Calovevora; Bugaba.

Agrees with Panama specimens referred to this species.

Dendrornis lacrymosa.

Bugaba; V. de Chiriqui.

Dendrornis erythropygia.

Calovevora; Boqueti de Chitra; Cordillera del Chucu; Bugaba, V. de Chiriqui.

79. *PICOLAPTES COMPRESSUS*, (Cab.) J. f. Orn. 1861, p. 243; Salv. Ibis, 1869, p. 314.

Mina de Chorchá; Bugaba.

This lowland forest species is distributed over the whole of Central America, from Mexico to this point; it is not, however, found at Panama. This species was formerly considered by writers on Central-American ornithology (except Cabanis) to be the *P. lineaticeps* of Lafresnaye (see Cabanis, *l. c.*).

80. *PICOLAPTES AFFINIS* (Lafr.); Scl. Cat. Am. B. p. 166.

V. de Chiriqui.

This species, unlike the last, frequents only the forests of the upland districts of Central America and the forest-belts of the higher volcanoes. It occurs at intervals from Mexico to Veragua, keeping, however, its specific characters with great constancy.

81. *XIPHORHYNCHUS PUSILLUS*, Scl. P. Z. S. 1860, p. 278.

Boqueti de Chitra.

Three specimens of this curious form sent by Arcé agree with the type of *X. pusillus* in Sclater's collection, and present none of those perplexing variations observable in *X. trochilirostris* and its allies. *Xiphorhynchus pusillus* may be readily recognized by its dark coloured bill, which is not red, as in some allied species, nor black as in *X. procurvus*, Temm. The plumage, too, is dark-coloured, and the elongated stripes are narrow. The species is not smaller than

some other members of the genus, as its name would imply, but even exceeds Bogotá specimens of *X. trochilirostris* in our collection. The sexes, as determined by Arcé, are quite alike.

82. *OXYRHYNCHUS FRATER*, Scl. & Salv. Ex. Orn. p. 131, t. 66.

Calovevora ; Chitra.

For a full account of this bird see our plate, *l. c.*

Cymbilanius lineatus.

Calovevora ; Calobre ; Mina de Chorchá.

83. *THAMNOPHILUS IMMACULATUS*, Lafr. ; Salv. Ibis, 1870, p. 114.

Calobre ; Calovevora ; V. de Chiriqui.

This species, of which Arcé has sent both sexes, is also found in Costa Rica as well as in New Granada. It has not yet been noticed at Panama.

84. *THAMNOPHILUS PUNCTATUS*, Cab. J. f. Orn. 1861, p. 241.

Mina de Chorchá, Bugaba, V. de Chiriqui.

Originally described from Costa Rica, whence we have a single skin collected by Carmiol. The bird appears to be commoner in the district of Chiriqui, where Arcé has obtained us a good supply of specimens.

85. *THAMNOPHILUS RADIATUS*, Vieill.

Chitra ; Calovevora.

Specimens from these localities agree with others from Panama ascribed to this species (see Scl. & Salv. P. Z. S. 1864, p. 355.).

Thamnophilus affinis, Cab. *T. doliatus*, Scl. P. Z. S. 1856, p. 141. Bugaba.

Specimens agreeing with this northern race having been sent from the district of Chiriqui, it follows that Bridges's specimens must also be ascribed to the same race.

Thamnophilus bridgesi.

Mina de Chorchá ; Bugaba.

On reaching the Chiriqui district, the original *habitat* of this species, Arcé at once obtained specimens. The same species also occurs in Costa Rica (Lawr. Ann. Lyc. N. Y. ix. p. 107).

86. *THAMNISTES ANABATINUS*, Scl. & Salv. P. Z. S. 1860, p. 299.

Calovevora ; Bugaba.

Arcé's determination of the sexes of this species confirms the view originally taken, that the individuals which possessed the ferruginous dorsal spot were males. Costa-Rican and Veraguan specimens agree with the types from Vera Paz.

Dysithamnus semicinereus.

Calovevora ; Chitra ; Calobre ; V. de Chiriqui.

Myrmotherula menetriesi.

Calovevora; Chitra; Bugaba; V. de Chiriqui.

The undetermined species, no. 93 of my previous list, is, I think, a female of this species, which is the only member of the genus *Arcé* has yet sent us from Veragua. Mr. Lawrence enumerates four species of this genus as found in Costa Rica, two of which I have not yet seen; the two others are also found at Panama, and may therefore belong to Veragua, but have hitherto escaped notice. I may also mention that we possess a skin collected by Carmiol in Costa Rica, which does not differ from these Veraguan birds, to which we have applied the above name.

87. *FORMICIVORA BOUCARDI*, *Scl. Cat. Am. B.* p. 183.

Bugaba.

Ramphocænus rufiventris.

Calobre; Bugaba.

Ramphocænus semitorquatus.

Calovevora.

Cercomacra tyrannina.

Mina de Chorchá; Bugaba.

88. *MYRMECIZA IMMACULATA*, *Scl. & Salv. P. Z. S.* 1864, p. 357.

Bugaba.

Agrees with Panama specimens. The species is also found in Costa Rica (*Lawr. Ann. Lyc. N. Y.* ix. p. 109).

89. *PITHYS BICOLOR*, *Lawr.; Scl. & Salv. P. Z. S.* 1864, p. 257.

Bugaba.

This species is also found in Costa Rica (*Lawr. l. c.*). *Arcé's* specimens agree with others from Panama, whence the types were obtained.

90. *GYMNOCICHLA NUDICEPS*, *Cass.; Scl. & Salv. P. Z. S.* 1864, p. 356, et 1869, p. 417.

Mina de Chorchá; Bugaba.

Specimens, including examples of both sexes, from the district of Chiriqui, agree with Panama skins of the true *G. nudiceps*, *Cassin.* A little further north, in Costa Rica, the race *Selater* and I described as *G. chiroleuca* is found, which extends onwards into Honduras.

91. *FORMICARIUS HOFFMANNI* (*Cab.*); *J. f. Orn.* 1861, p. 95; *Salv. P. Z. S.* 1866, p. 75.

Bugaba.

This bird seems to be much more abundant at Panama than further to the northward, as no additional specimens have been obtained in Costa Rica since the original examples were sent to Berlin by Dr. Hoffmann.

Grallaria princeps, Scl. & Salv. P. Z. S. 1869, p. 418. *G. guatemalensis*, Salv. P. Z. S. 1867, p. 146.

Calovevora; V. de Chiriqui.

Since describing this species, Arcé has sent us another specimen, agreeing accurately with the two from which our characters were drawn (*l. s. c.*).

Grallaria perspicillata.

Mina de Chorchá; V. de Chiriqui.

Pittasoma michleri.

Calovevora.

Grallaricula costaricensis.

Calovevora; Chitira.

Attila sclateri.

Calovevora; V. de Chiriqui.

92. *PLATYRHYNCHUS ALBOGULARIS*, Scl. P. Z. S. 1860, p. 68, et Cat. Am. B. p. 207; Salv. Ibis, 1869, p. 314.

Calovevora; Chitira; Calobre.

A specimen from Costa Rica (*Carmioli*) and others from the above localities agree accurately with Sclater's types of this species. As yet the bird has not been seen at Panama.

Platyrrhynchus superciliaris.

Bugaba.

Todirostrum cinereum.

Calovevora; Calobre; Mina de Chorchá; Bugaba.

93. *ONCOSTOMA CINEREIGULARE*, Scl. P. Z. S. 1856, p. 295, et Cat. Am. B. p. 208.

Bugaba.

Here, as in Costa Rica, the northern race of this form prevails. At Panama we find *O. olivaceum*, Lawr.

94. *EUSCARTHUS SQUAMICRISTATUS* (Lafr.); Scl. Cat. Am. B. p. 209.

Calobre; Chitira; Boqueti de Chitira; V. de Chiriqui.

This species, abundant in Veragua, appears to be equally common in Costa Rica, though at Panama it does not seem to occur.

95. *LEPTOTRICCUS SUPERCILIARIS*, Scl. & Salv. P. Z. S. 1868, p. 389.

Chitira; Calovevora.

As yet Arcé has not sent any additional specimens of this species.

96. *MIONECTES OLIVACEUS*, Lawr. Ann. Lyc. N. Y. ix. p. 111; Salv. Ibis, 1869, p. 314.

Calovevora; Chitira; Boqueti de Chitira; V. de Chiriqui.

Mionectes oleagineus.

Calovevora; Boqueti de Chitira; Bugaba.

97. *LETOPOGON PILEATUS*, Cab. J. f. Orn. 1865, p. 414. *L. amaurocephalus*, Scl. & Salv. Ibis, 1860, p. 399.

Calovevora.

98. *LETOPOGON SUPERCILIARIS*, Cab. in Tsch. F. P. p. 161, t. 10. f. 2; Scl. Cat. Am. B. p. 214.

Calovevora; Bugaba; V. de Chiriqui.

Specimens of this species have also been sent us from Costa Rica. They do not differ from Ecuadorean examples in Sclater's collection, which he has referred to this species, though Cabanis (Mus. Hein. ii. p. 55) has separated the New-Granadan bird as *L. poliocephalus*, without having reexamined Peruvian examples.

99. *CAMPTOSTOMA FLAVIVENTRE*, Scl. & Salv. P. Z. S. 1864, p. 358.

Bugaba.

A single specimen agrees with our Panama types. At Realejo, in Nicaragua, I found the more northern *C. imberbe*, Scl.

Tyranniscus parvus.

Calovevora; Chitra; Boqueti de Chitra; Bugaba; V. de Chiriqui.

Elainea subpagana.

Chitra.

100. *ELAINEA FRANTZII*, Lawr. Ann. Lyc. N. Y. viii. p. 173.

V. de Chiriqui.

Two specimens of this *Elainea* agree with a typical specimen received from the Smithsonian Institution.

101. *ELAINEA PLACENS*, Scl. P. Z. S. 1859, p. 46, et Cat. Am. B. p. 217.

Calovevora; Chitra; Boqueti de Chitra.

Legatus albicollis.

Chitra; Bugaba.

Myiozetetes columbianus.

Calovevora; Chitra; Bugaba.

Rhynchocyclus brevirostris, Cab. Orn. Not. i. p. 249; Scl. Cat. Am. B. p. 220. *R. griseimentalis*, Lawr. Ann. Lyc. N. Y. ix. p. 112.

Calovevora; Bugaba; V. de Chiriqui.

I am quite unable to detect any tangible differences between Cost Rican, Veraguan, and Guatemalan specimens of this form. Whether *R. mesorhynchus*, Cab. J. f. Orn. 1865, p. 414, is really separable from *R. brevirostris* of Mexico, I have no materials to determine. There is a curious feature in the formation of the first primary in this group of the genus, which is not shared by the *R. sulphurescens* section: the shafts of the outer web are slightly recurved and pointed, and form a stiff pectinated edge. The determination of the sexes in our specimens is not very satisfactory; but as I find that a

number of specimens have the outer web of the ordinary type, I conclude that this peculiar feature is an attribute of the male only.

Rhynchocyclus flavo-olivaceus.
Calovevora.

Myiodynastes nobilis.
Chitra; Calobre; Bugaba.

102. HYPERMITRIS HEMICHRYSUS, Cab. J. f. Orn. 1861, p. 246.

Myiodynastes superciliaris, Lawr. Ann. Lyc. N. Y. viii. p. 470.
Chitra; Calovevora; Calobre.

Muscivora mexicana.
Calovevora; Mina de Chorchá; V. de Chiriqui.

Myiobius sulphureipygius.
Calobre; Bugaba; V. de Chiriqui.

103. MYIOBIUS ATRICAUDUS, Lawr. Ibis, 1863, p. 183.
Calovevora.

This species, as well as the last mentioned, occur in Veragua. A single specimen from the above locality quite agrees with Panama specimens.

Myiobius nævius.
Calovevora.

Myiobius erythrurus.
Bugaba.

104. MITREPHORUS AURANTIIVENTRIS, Lawr. Ann. Lyc. N. Y. viii. p. 174.
Calovevora.

105. EMPIDONAX ATRICEPS, sp. n.

Supra fuscus: uropygio et collo postico paulo dilutioribus, pileo toto nigro: alis et cauda nigro-fuscis, secundariis et tectricibus alarum majoribus sordide albo marginatis, rectricibus utrinque extimis extus albo limbatis: subtus ochraceo-fuscus, gula et ventre imo albicantibus, loris et macula postoculari albidis: campterio et subalaribus sordide albis: rostri maxilla nigra, mandibula flava, pedibus nigris: long. tota 4.5, alæ 2.3, caudæ 2.0, tarsi 0.6.

Hab. Volcan de Chiriqui (Arcé).

Obs. Species distincta, pileo nigro facile dignoscenda.

Arcé's collection from Chiriqui contains two specimens of this species, which, though a true *Empidonax*, is quite distinct in its coloration from any species I am acquainted with.

106. EMPIDONAX FLAVESCENS, Lawr. Ann. Lyc. N. Y. viii. p. 133.

Calovevora; V. de Chiriqui.

This species is closely allied to *E. bairdi*, ScL., but differs in

having a larger bill, and in the more ochraceous tinge of the upper and under plumage. The markings on the wings, too, are ochre, and not olivaceous as in *E. bairdi*.

107. *EMPIDONAX FLAVIVENTRIS*, Baird ; Scl. Cat. Am. B. p. 229.
Calovevora.

108. *CONTOPUS BRACHYTARSUS* (Scl.) ; Cat. Am. B. p. 231.
Calovevora.

109. *CONTOPUS RICHARDSONI* (Sw.) ; Scl. Cat. Am. B. p. 231.
Calovevora ; Bugaba ; V. de Chiriqui.

This species has been recorded as occurring both in Costa Rica and Panama. I am not sure that I am right in referring these Veraguan specimens to *C. richardsoni*. The confusion in which these sombre-coloured *Contopodes* are involved makes their determination very unsatisfactory.

110. *CONTOPUS BOREALIS* (Sw.) ; Scl. Cat. Am. B. p. 230.
Calobre.

111. *MYIARCHUS PANAMENSIS*, Lawr. Ann. Lyc. N. Y. vii. p. 295 ; Scl. & Salv. P. Z. S. 1864, p. 360.

Calovevora.

A single specimen agreeing with Panama skins.

Myiarchus nigricapillus.

Chitra.

Tyrannus melancholicus.

Calovevora ; Castillo ; Calobre.

Milvulus tyrannus.

Calovevora ; Castillo ; Calobre.

Tityra personata.

Calovevora ; Bugaba.

112. *TITYRA FRASERI*, Kp. ; Scl. & Salv. P. Z. S. 1867, p. 757.
Bugaba.

113. *PACHYRHAMPHUS ALBOGRISEUS*, Scl. P. Z. S. 1857, p. 78.

Calovevora ; Bugaba.

Specimens of both sexes, agreeing with Sclater's types.

Pachyrhamphus cinereiventris.

Calovevora ; Bugaba.

Lipaugus unirufus.

Bugaba.

Lipaugus holerythrus.

Calovevora ; Chitra ; Boqueti de Chitra ; V. de Chiriqui.

114. *HETEROPELMA VEREPACIS*, Scl. & Salv. P. Z. S. 1860, p. 300.

Castillo; Calovevora; Bugaba; V. de Chiriqui.

Rather darker in colour than Guatemalan specimens (typical), but not otherwise distinct.

115. *PIPRA MENTALIS*, Scl.

Mina de Chorchá; Bugaba.

Pipra leucocilla.

Calovevora; Chitra; Boqueti de Chitra.

Pipra leucorrhœa.

Calovevora; Laguna del Castillo; Bugaba; V. de Chiriqui.

Pipra cyaneocapilla.

Bugaba; V. de Chiriqui.

Chiroxiphia lanceolata.

Castillo; Calovevora; Chitra; Boqueti de Chitra; Calobre; Mina de Chorchá.

116. *CHIROMACHÆRIS AURANTIACA*, sp. n.

Supra olivacea, pileo toto, interscapulio et alis nigris, collo postico et corpore subtus late aurantiacis, primariis extus et cauda olivaceo indutis: rostro nigro, pedibus carneis.

Fem. olivacea, uropygio et corpore subtus dilutioribus: long. tota 3·8, alæ 1·8, caudæ 1·2, tarsi 0·75.

Hab. Mina de Chorchá et Bugaba (*Arcé*).

Obs. *C. vitellinæ* similis, sed statura minore, ventre aurantiaco nec olivaceo, et colore subtus saturatiore aurantiaco facile dignoscenda.

In the distribution of its colours this species much resembles *C. vitellina* (Gould); but the distinctions given above suffice to show that it must be considered a different species.

That a distinct race of *Chiromachæris* should now be found in Veragua is remarkable, seeing that in Costa Rica we find the Central-American *C. candæi*, whilst at Panama *C. vitellina* occurs.

Arcé has sent a sufficient number of specimens to prove that the characters given above are quite constant.

117. *COTINGA AMABILIS*, Gould?

Bugaba.

I doubt whether an immature specimen of a *Cotinga* from Chiriqui is really referable to *C. amabilis*; but as that species is stated to be found both in Costa Rica and at Panama, it is more than probable that it should also occur at Chiriqui.

This specimen is much darker than a female example of *C. amabilis* from Vera Paz; and the edgings of the feathers both above and below are pale cinnamon-colour, instead of grey. The tail, too, is tipped with the same colour.

Chasmorhynchus tricarunculatus.

Calovevora.

Cephalopterus glabricollis.

Calovevora; Calobre.

Momotus lessoni.

Chitra; Mina de Chorchá; Bugaba; V. de Chiriquí.

Momotus martii.

Calobre.

Ceryle amazona.

Calovevora; Chitra.

Ceryle cabanisi.

Calovevora; Calobre.

Galbula melanogenia.

Mina de Chorchá; Bugaba; V. de Chiriquí.

The southern range of this species does not seem to pass the district of Chiriquí. Arcé has not sent a single specimen from Calobre or any of the neighbouring localities.

118. MALACOPTILA PANAMENSIS, Lafr. R. Z. 1847, p. 79.

Mina de Chorchá; Bugaba; V. de Chiriquí.

After comparing together about forty specimens of *Malacoptilæ* from various parts of Central America and Western Ecuador, Mr. Selater and I have come to the conclusion that it is not possible to distinguish more than two species within these limits. As already hinted in our paper on Panama Birds (P. Z. S. 1864, p. 363), the paler-plumaged birds (*M. inornata*, Du Bus, and *M. poliopsis*, Scl.) are females of the rufous forms which we have hitherto referred to *M. veræpaci*s and *M. panamensis*.

In the northern form, for which the term *inornata* is the oldest and must be adopted, the male is distinguishable by the rufous colouring extending nearly uniformly over the whole surface below, being slightly paler on the lower belly, and bearing very slight traces of dark markings on the margins of the feathers. In the southern form, for which the name *panamensis* must be retained, the breast alone is clear ferruginous, and is succeeded below by strongly mottled plumage, formed by the black lateral margins of each feather; the lower belly is pale fulvous, nearly white. These characters are still more strongly marked in the specimens from Western Ecuador in Selater's collection. The females of the two forms are so exactly alike that it is not possible to distinguish them.

Of the northern form (*M. inornata*) all the specimens we have seen are from Guatemala. The birds from Costa Rica, Veragua, Panama, and Western Ecuador all belong to the southern form (*M. panamensis*), to which it seems *M. costaricensis* (Cab. J. f. Orn. 1862, p. 172) must be united.

119. BUCCO DYSONI, G. R. Gray; Scl. Cat. Am. B. p. 269.

Mina de Chorchá; Bugaba.

This species, though recorded both from Guatemala and Panama, has not yet appeared in the Costa-Rica lists.

Trogon caligatus.

Castillo; Calovevora.

120. TROGON BAIRDI, Lawr. Ann. Lyc. N. Y. ix. p. 119; Salv. Ibis, 1869, p. 316.

Bugaba.

We have now both sexes of this fine species, of which the male only appears to have been previously known. The female I now describe as follows:—

Schistaceo-nigra, alis caudaque paulo obscurioribus et extus, nisi in rectricibus quatuor mediis, albo transfasciatis: ventre et crisso coccineis.

121. TROGON PUELLA, Gould.

V. de Chiriqui.

Though found in Costa Rica, this is the most southern locality yet recorded for the occurrence of this species.

Trogon aurantiiventris.

Calovevora; Castillo.

The range of this species, which is abundant in the eastern parts of Veragua (Calovevora &c), quite overlaps that of *T. puella*, a few individuals occurring as far north as Vera Paz. The two species are only to be distinguished by one having the underparts red, the other orange-yellow.

Trogon atricollis.

Calovevora; Chitra; Bugaba; V. de Chiriqui.

Trogon clathratus.

Calovevora.

The range of this species is now shown to extend to Costa Rica (Lawr. Ann. Lyc. N. Y. ix. p. 119).

Trogon massena.

Bugaba; V. de Chiriqui.

*Pharomacrus mocinno.**Pharomacrus costaricensis*, Cab. J. f. Orn. 1869, p. 313.

Calobre; Calovevora; V. de Chiriqui.

In an editorial note to Dr. v. Frantzius's paper on Costa-Rica birds, Dr. Cabanis proposed the separation of the Costa-Rican from the Guatemalan Quezal, and gave the former the name *P. costaricensis*. One of the distinctions pointed out consists in the number of elongated tail-coverts, the Guatemalan bird having, as stated, six, the Costa-Rican four. The former, too, is said to be of a more golden tinge on the upperside in certain lights, the latter being rather bluish. There can be little doubt that the tail-coverts attain a greater length and breadth in the Guatemalan bird; but the number which exceed the length of the rectrices is never more than four, though another pair of elongated feathers sometimes reach as far as the extremity of the tail. The length of these plumes varies much;

indeed their growth is seldom quite symmetrical; and therefore this character cannot be relied on as specific in every case. As regards the colour, I notice the difference pointed out in some instances, but not in all; so that this character, too, is untrustworthy. It is true that the general tendency of the Costa-Rican race is to have shorter and narrower caudal plumes than the Guatemalan; but this is all that can be said, and I do not think it possible to give unfailing characters by which the two races can be distinguished with certainty.

122. *NYCTIBIUS JAMAICENSIS* (Gm.); *Scl. P. Z. S.* 1866, p. 129.

A fine specimen of this species agrees with Jamaican examples in Sclater's collection, but is somewhat smaller than the Guatemalan skin, whose dimensions are given by Sclater (*l. c.*). Cabanis (*J. f. Orn.* 1869, p. 314, note) seems to consider *N. cornutus*, Vieill., distinct from *N. jamaicensis*, but assigns no reasons. Sclater places the former name as a synonym of *N. jamaicensis*, and looks upon the Jamaican and continental birds as one and the same species. As the dimensions of several specimens are given in Sclater's monograph, I add the measurement of this specimen: long. tota 15·0, alæ 11·0, caudæ 8·0, lat. rostri 2·2. It will be seen that these measurements almost exactly correspond with those of one of the Jamaican skins before referred to.

123. *CHORDEILES POPETUE*, Vieill.

Calovevora.

A single skin agrees with North-American examples. The species likewise occurs at Panama (*Scl. & Salv. P. Z. S.* 1864, p. 364).

124. *ANTROSTOMUS CAROLINENSIS* (Gm.); *Scl. P. Z. S.* 1866, p. 136.

V. de Chiriqui.

Also found in Guatemala and Costa Rica, but not southward of the point here recorded.

125. *ANTROSTOMUS SATURATUS*, sp. n.

♂. *Nigricans, rufo maculatus: alis nigris, extus solum rufo notatis, speculo alari nullo: subtus niger, rufescente transfasciatus, vitta gulari alba nulla, maculis albidis in medio ventre positis: cauda nigra rufo transfasciata: rectricibus tribus utrinque externis albo late terminatis, setis rectalibus longissimis: long. tota 8·5, alæ 6·1, caudæ 4·8.*

Hab. V. de Chiriqui (*Arce*).

Obs. *A. nigrescenti* (Cab.) (*Scl. P. Z. S.* 1866, p. 138) affinis, sed rectricibus latiore albo terminatis, vitta quoque gulari et speculo alari absentibus, distinguendus.

This species, although I have compared it to *A. nigrescens*, belongs to section A of the *Antrostomi*, according to Sclater's arrangement (*l. c.* p. 136), having no white bar nor markings of any sort on the wing. It is of about the same size as *A. nigrescens*. The single skin sent does not show any white bar upon the throat but

there are slight indications of white markings, so that it is possible this band may be found in other examples.

126. *STENOPSIS CAYENNENSIS* (Gm.), *Scl. P. Z. S.* 1866, p. 140.

Calovevora.

A pair of Goatsuckers sent by Arcé agree fairly with the specimens thus named in Sclater's collection. The coloration of the tail, however, of the male exhibits rather less white than the Tobago specimen.

127. *NYCTIDROMUS GUIANENSIS* (Gm.); *Scl. P. Z. S.* 1866, p. 144.

Calovevora; Mina de Chorchá; Bugaba.

128. *CHÆTURA ZONARIS* (Shaw); *Scl. P. Z. S.* 1865, p. 609.

Chitra; Calovevora.

The occurrence of this species here was to be expected. No Swifts are recorded as found either in Costa Rica or Panama, though doubtless this species, *C. rutila*, Vieill., and the species I now describe may all be met with.

129. *CHÆTURA FUMOSA*, sp. n.

Fumido-nigra, abdomine paulo dilutiore, uropygio et gula cinerascens fuliginosis, cauda nigra: long. tota 4·5, alæ 4·1, caudæ 1·75.

Hab. Bugaba (Arcé).

Obs. *C. cinereiventris* similis, sed corpore subtus fuliginoso nec cinerascens distinguenda.

This species has a black tail like *C. spinicauda* and *C. cinereiventris*, but differs from both in the colour of the uropygium, which is smoky-brown, whereas in *C. cinereiventris* this portion of the plumage is clear ashy, and in *C. spinicauda* it is white. It is also darker beneath than either of these birds (see *Scl. P. Z. S.* 1865, p. 612).

Eutoxeres salvini, Gould, *Ann. N. H.* 4th ser. i. p. 455 (1868).

E. aquila, Salv. *P. Z. S.* 1867, p. 152.

Calovevora.

Arcé has sent specimens of this singular species in some numbers. The grounds on which Mr. Gould seeks to establish three species of this form, it must be confessed, are very slight; but as far as I can see (and I have examined a number of specimens), the characters given are quite constant. The present bird is the same as that figured in the 'Monograph of the *Trochilidæ*' under the name *E. aquila*.

130. *GLAUCIS RUCKERI*, Gould, *Mon. Troch.* i. t. 11, *Intr.* p. 39.

Mina de Chorchá.

This appears to be a rare species in Veragua, though more abundant

on the Panama Railway and in Costa Rica, the northern limit of its range.

131. *PHAËTHORNIS LONGIROSTRIS* (Delatt.); Gould, Mon. Troch. i. t. 19, Intr. p. 42.

Bugaba.

Two specimens of this common Central-American species have at last been obtained by Arcé. The bird seems also to be rare in Costa Rica, from which country I have received specimens since I wrote the note on *P. emiliæ* (P. Z. S. 1867, p. 152).

Phaëthornis emiliæ.

Calovevora; Boqueti de Chitra; Cordillera del Chucu.

132. *CAMPYLOPTERUS HEMILEUCURUS* (Licht.); Gould, Mon. Troch. t. 45, Intr. p. 52.

Calovevora; Chitra; Cordillera del Chucu.

By no means an uncommon species in Veragua. The specimens sent by Arcé differ in no way from Guatemalan and Mexican examples.

Phæochroa curvieri (Delatt. et Bourc.); Gould, Mon. Troch. t. 52, Intr. p. 55.

Bugaba.

A single specimen only. The bird is common on the Panama Railway-line and about the eastern shores of the gulf of Nicoya in Costa Rica. In Guatemala this species is replaced by *P. roberti*, which, however, is only found in the forest-region of northern Vera Paz.

Oreopyra calolæma.

Calovevora; Cordillera del Chucu; V. de Chiriqui.

Oreopyra leucaspis.

V. de Chiriqui.

On reaching the volcano of Chiriqui, the locality whence Warszewicz obtained the original specimen of this species, Arcé procured an interesting series of skins of it. He writes me word that the females are like the females of *Oreopyra calolæma*, and have the breast cinnamon. If this view is correct, we should have three species with females very closely resembling one another, viz. *O. leucaspis*, *O. cinereicauda*, and *O. calolæma*; and then the true *O. castaneiventris* (*Anthocephala? castaneiventris*, Gould) will in all probability be the female of *O. leucaspis*. A close examination of a number of specimens of the so-called *O. castaneiventris* shows that Chiriqui specimens are of a brighter green above, and have the uropygium coloured uniformly with the back. In districts where *O. calolæma* alone occurs, specimens of the so-called *O. castaneiventris* have the back of a duller green, and the uropygium tinged with bluish; the bill, too, appears to be somewhat shorter. So far as our present knowledge extends, the geographical distribution of the three species is as follows:—*Oreopyra leucaspis* is restricted to the volcano of Chiriqui, *O. cine-*

reicauda is found only in the mountainous district round Cartago in Costa Rica, while *O. calolæma* embraces the range of both these species, and extends beyond into the district of Calobre in Veragua. Thus, if the females of these species closely resemble one another, we *ought* to find two varieties both around Cartago and Chiriqui, but only one in the vicinity of Calobre; and such to some extent appears to be the case. How far the females of *O. leucaspis* and *O. cinereicauda* differ, I have no means of showing; but I think that the differences pointed out above define the females of *O. leucaspis* and *O. calolæma*. On this view the birds which have been called *castaneiventris* must be assigned as follows:—

O. LEUCASPIS, Gould, P. Z. S. 1860, p. 312; Mon. Troch. iv. t. 264, Intr. p. 141. *Trochilus castaneiventris*, Gould, P. Z. S. 1850, p. 163. *Anthocephala castaneiventris*, Gould, Mon. Troch. iii. t. 203, Intr. p. 115. *Metallura castaneiventris*, Reich.

V. de Chiriqui.

According to the strict law of priority this bird should bear the name *O. castaneiventris*; but as this title applies only to the female, about which so much uncertainty exists, the more recent appellation *leucaspis* is much preferable.

The different stages of plumage of young males of *O. leucaspis* are very interesting. In some the white throat is only partially developed, the rest of the gorget being dark bronzy black. In others a few blue feathers are scattered over the white, but are more frequently seen, even in more adult birds, round the edge of the throat. Others, again, have green feathers rather thickly dispersed over the white, while the feathers of the crown show every shade from dull green to the brilliant coronet of the adult bird. According to Arcé's dissections, not one of these birds is a female; and I believe he is right, and that the young males, just as in *Eustephanus stokesi*, never assume, not even in the earliest dress, the female garb.

O. CINEREICAUDA, Lawr. Ann. Lyc. N. Y. viii. p. 485, et ix. p. 125. *O. castaneiventris*, Lawr. Ann. Lyc. N. Y. ix. p. 124 (? partim).

Mountains of Costa Rica (*Carmiöl*).

The female of this species probably resembles that of *O. leucaspis* very closely. I have not seen any specimens of it as yet. Without examining all the Costa-Rica skins which have been called *O. castaneiventris*, it would be impossible to say whether females of the two Costa-Rica species have been confounded to constitute a third species; but I think it is not improbable. This point can only be settled by a reexamination of the skins in question.

O. CALOLÆMA, Salv. P. Z. S. 1864, p. 584, 1867, p. 153; Lawr. Ann. Lyc. N. Y. ix. p. 125. *O. venusta*, Lawr. Ann. Lyc. N. Y. viii. p. 484. *O. castaneiventris*, Salv. P. Z. S. 1867, p. 153; Lawr. Ann. Lyc. N. Y. ix. p. 125 (? partim).

V. de Cartago, Candelaria, Costa Rica; V. de Chiriqui, Cordillera de Tolé, Calovevora, Cordillera del Chucu, Veragua.

In the view I here adopt, all the cinnamon-breasted birds from Calobre &c. belong to this species. Whether all those collected in Costa Rica belong to the same remains to be seen. We have only two males as yet from the volcano of Chiriqui.

Lampornis veraguensis.

Calobre; Cordillera del Chucu.

This Humming-bird has a very restricted range, answering nearly to that of *Chloromachæris aurantiaca* described above. At Panama the common *L. mango* (Linn.) is found, and in Costa Rica the Guatemalan *L. prevosti* (Less.), *L. veraguensis* occupying a small area between the two.

Heliodoxa jacula.

Calovevora; Boqueti de Chitra.

Thalurania venusta.

Calovevora; Chitra; Boqueti de Chitra.

Microchera albo-coronata.

Cordillera del Chucu.

133. *LOPHORNIS DELATRII* (Less.); Gould, Mon. Troch. t. 121, Intr. p. 84.

Castillo; Laguna del Castillo.

Apparently common at certain seasons in this locality.

134. *LOPHORNIS ADORABILIS*, sp. n.

Supra nitenti-virescens: dorso postico albo, uropygio purpureo tincto: alis brunneo-nigris: cauda rufa extus viridescente limbata et rectricibus mediis eodem colore terminatis: fronte et pileo medio albis, plumis illius erectis et cupreo terminatis, plumis hujus elongatis in fila productis et cristam albam formantibus: subtus gulæ totius viridescens plumis lateralibus longissimis, supra dorsum retroductis; pectore albo, ventre et crisso rufis, illo antice viridescens mixto: rostri basi carnea, apice fusco, pedibus fuscis: long. tota 2·7, alæ 1·55, caudæ rectr. med. 1·0, rectr. lat. 0·9, rostri a rictu 0·55.

Fem. capite et regione auriculari nigris: gula tota alba viridiæneo parum punctata: cauda fascia lata subapicali nigra transvittata, rectricibus mediis medialiter viridescens tinctis: long. caudæ rectr. med. 0·8, lat. 0·65.

Hab. Bugaba; V. de Chiriqui (Arcé).

This beautiful species is singularly distinct from any of its congeners, but perhaps belongs rather to the *L. magnifica* group than to that containing *L. helenæ*. In the whole genus, however, no other member has the erectile feathers on the forehead, the thread-like white plumes of the crest, or the long pointed feathers of the throat, which all combine to render this bird most distinct when compared with its allies.

The first specimen obtained by Arcé was a female, which, though

evidently belonging to a distinct species, I hesitated to describe. This specimen was shot at Bugaba. The last collection includes the male, which Arcé tells me his brother David obtained high up on the volcano of Chiriqui. That so fine a bird should have remained so long undiscovered seems singular; but the fact, I think, shows that the range of the species is extremely limited.

No less than two other species of *Lophornis* are found in this portion of Central America, viz.:—*L. helenæ*, the Mexican and Guatemalan bird, which is also to be met with in Costa Rica; and the southern *L. delatirii*, which seems to be abundant about Calobre and on the Isthmus of Panama.

Gouldia conversi.

Calovevora.

135. *TROCHILUS COLUBRIS*, L.; Gould, Mon. Troch. t. 131, Intr. p. 86.

V. de Chiriqui.

Though this species is found sparingly in Costa Rica, this is quite the most southern locality yet recorded for it, being doubtless the furthest point reached by a few individuals in their winter migration. Arcé has sent us a male in abraded plumage, and three females.

136. *SELASPHORUS TORRIDUS*, sp. n.

Supra virescens: alis purpurascenti-nigris: loris rufis, regione parotica rufa, nigro commixta: subtus gula tota nitente lilacino-rubra, plumis lateraliter elongatis: pectore, ventre medio et crisso albis, hypochondriis viridescente lavatis: cauda nigra, rectricibus lateralibus intus fere ad apicem rufo marginatis, rectrice extima utrinque macula parva in pogonio interno prope apicem rufa notata, rectricibus mediis viridescente lavatis: rostri maxilla nigra, mandibulæ basi carnea, pedibus fuscis: long. tota 2·7, alæ 1·6, caudæ 1·1, rostri a rictu 0·65.

Fem. pileo obscuriore, plumis singulis totius gulæ fusco medialiter punctatis; hypochondriis rufescentibus: cauda nigra, basi rufa, rectricibus tribus lateralibus albo terminatis, tertia et quarta extus rufo marginatis, mediis omnino viridescens.

Hab. V. de Chiriqui (Arcé).

The coloration of the throat of this species is peculiar, having a somewhat faded appearance. The tint is not brilliant red as in *S. scintilla*, nor does it resemble the gorget of *S. platycercus*, but is altogether of a more lilac hue. However, six males, sent by Arcé, are all so exactly alike that I cannot but suppose that the normal colour of the throat is shown. The lateral plumes of the throat, too, are elongated, reminding one of *Atthis heloisæ*, and thus render the species distinct from all *Selasphori* except *S. scintilla*, from which it differs widely in other respects. The most nearly allied species appears to be *S. flammula*, Salv. (P. Z. S. 1864, p. 586), which, however, has a differently coloured throat, as well as distinctive characters in the tail.

137. SELASPHORUS ARDENS, sp. n.

Supra viridescens: loris et regione parotica rufis, hac nigro mixta: subtus gula læte nitente rubra, sicut in Selasphoro platycercus: pectore toto, ventre medio et crisso albis: cauda sicut in specie præcedente, rectricibus mediis purpurascenti-nigris rufo limbatis solum exceptis: rostro toto nigro: long. tota 2·8, alæ 1·55, caudæ 1·15, rostri a rictu 0·65.

Mas hornot. gula fusco maculata: cauda nigra, basi rufa et rectricibus quatuor externis rufo terminatis, mediis viridescens, rufo marginatis.

Hab. Calovevora et Castillo (Arcé).

This species has the throat coloured just as in *S. platycercus*, which is in other respects a very different species. Its nearest allies, however, are *S. flammula* and *S. torridus*, described above; but it differs from both in the coloration of the throat, and also in having the central tail-feathers black, edged with rufous instead of green; this latter distinction is more conspicuous when the tail is compared with that of *S. flammula*. The wholly black bill and the absence of the elongated gular feathers distinguish it from *S. torridus*.

The male sent by Arcé is not in quite perfect plumage, but is so far satisfactory as to show a few faded feathers on the throat. These are bronzy, and quite different in colour from the gorget-feathers of either *S. flammula* or *S. torridus*.

Selasphorus scintilla.

V. de Chiriqui.

The original specimens of this species were obtained by Warszewicz in this locality, where Arcé seems to have found the bird occurring abundantly.

138. DORICHA BRYANTÆ, Lawr. Ann. Lyc. N. Y. viii. p. 483, et ix. p. 123.

Castillo; Laguna del Castillo; Cordillera del Chucu; V. de Chiriqui.

This fine species seems to be more abundant about Castillo than in the district of Chiriqui. Judging from the specimens sent by Arcé, the males are much more numerous than the females.

Clais merritti (Lawr.), Ann. Lyc. N. Y. vii. p. 110. *C. guimeti*, Salv. P. Z. S. 1867, p. 155.

Castillo; Calovevora; Chitra; Laguna del Castillo; Bugaba; V. de Chiriqui.

Mr. Gould tells me that he now considers the Central-American form of this bird to be distinguishable from southern examples. The distinction is indeed slight; but, so far as I can see, southern examples always have the blue of the head and throat considerably deeper in tint.

Heliothrix barroti.

Boqueti de Chitra; Bugaba; V. de Chiriqui.

I fail to detect amongst the species forwarded by Arcé from the above localities any specimens answering to the species described by

Gould as *H. violifrons* (*H. barroti*, Mon. Troch. t. 217; *H. violifrons*, Intr. p. 122), and conclude that Carthagena, and not Veragua, must be its proper habitat.

139. PETASOPHORA CYANOTIS (Bourc.); Gould, Mon. Troch. t. 228, Intr. p. 125. *P. cabanisi*, Lawr. Ann. Lyc. N. Y. ix. p. 126.

Calovevora; Chitra; V. de Chiriqui.

The differences pointed out by Cabanis and Lawrence between Costa-Rican and New-Granadan specimens of this bird appear to me to be exceedingly slight; and, so far as a considerable series of specimens show, the points of distinction are not so constantly present as seems requisite for the recognition of specific difference between the two races.

140. PETASOPHORA DELPHINÆ (Less.); Gould, Mon. Troch. t. 229, Intr. p. 125.

Calovevora.

This species is sparingly distributed throughout Central America, as far north as Coban in Vera Paz.

Heliomaster longirostris.

Calovevora; Chitra; Laguna del Castillo; Cordillera del Chucu.

Thaumantias chionurus.

Calovevora; V. de Chiriqui.

Amazilia riefferi.

Calovevora; Cordillera del Chucu.

Erythronota niveiventris.

Calovevora; Chitra; Cordillera del Chucu; V. de Chiriqui.

The range of this species seems almost entirely restricted to Veragua. We have a single specimen which was collected on the Panama Railway-line by the late Mr. J. M'Leannan.

141. EUPHERUSA EGREGIA, Sci. & Salv. P. Z. S. 1868, p. 389; Lawr. Ann. Lyc. N. Y. ix. p. 146.

Since the above species was described we have received numerous specimens, both from Costa Rica and Veragua. The adult bird is exceedingly like *E. eximia* of Guatemala, but seems to differ constantly in the greater amount of white on the rectrices. Mr. Lawrence has given (*l. c.*) a carefully drawn account of the specific differences between the two species.

142. EUPHERUSA NIGRIVENTRIS, Lawr. Proc. Ac. Phil. 1867, p. 232.

Cordillera del Chucu.

Arcé procured specimens of both sexes of this remarkable species in the above locality. The female, which has not yet been characterized, may be described as follows:—

Supra viridescens, pileo paulo obscuriore: subtus sordide alba, hy-

pochondriis vix viridescente tinctis : alis purpurascenti-nigris, secundariis ad basin rufis : cauda sicut in mari.

143. *CHRYSURONIA ELICLÆ* (Bourc. & Muls.).

Chitra ; Bugaba.

144. *DAMOPHILA JULIÆ* (Bourc.).

Calovevora.

145. *DAMOPHILA AMABILIS*, Gould.

Bugaba ; V. de Chiriqui.

Specimens from these places differ from Costa-Rica and Panama skins in having a longer bill, and apparently in the greater brilliancy of the lustrous crown. These differences are hardly sufficient to justify a separation of the species.

Sapphironia cæruleigularis.

Castillo ; Laguna del Castillo ; Calobre ; Cordillera del Chucu.

Chlorolampis assimilis.

Castillo ; Calovevora ; Cordillera del Chucu ; V. de Chiriqui.

Diplopterus nævius.

Calovevora ; Chitra ; Mina de Chorchá.

Piaya mehleri.

Castillo ; Calovevora.

146. *CROTOPHAGA SULCIROSTRIS*, Sw. ; Scl. Cat. Am. B. p. 320.

Calovevora ; Castillo.

147. *CROTOPHAGA ANI*, L. ; Scl. Cat. Am. B. p. 320.

Mina de Chorchá.

With the exception of the Antilles, this is the most northern locality yet recorded for this species.

Ramphastos carinatus.

Chitra.

148. *RAMPHASTOS TOCARD*, Vieill. ; Scl. Cat. Am. B. p. 325.

Bugaba ; V. de Chiriqui.

149. *PTEROGLOSSUS FRANTZII*, Cab. J. f. Orn. 1862, p. 333.

Bugaba ; V. de Chiriqui.

This Toucan seems to be a very distinct species. Specimens sent by Arcé agree with others from Costa Rica. Can the bird called *P. erythropygius* by Mr. Lawrence, in his 'Catalogue of Hicks's Chiriqui Collection' (Ann. Lyc. N. Y. viii. p. 179), be the same species?

Selenidera spectabilis.

Calovevora.

Aulacorhamphus cæruleogularis.

Calovevora.

150. *CAPITO BOURCIERI* (Lafr.); Salv. Ibis, 1870, p. 111.

V. de Chiriqui.

Arcé has forwarded two specimens of this species, one of which is marked as a male.

151. *PICUMNUS OLIVACEUS*, Lafr.; Malh. Mon. Pic. t. 120; Sundev. Consp. Av. Pic. p. 104.

? *P. granadensis*, Lawr. Ann. Lyc. N. Y. vii. p. 333 (Panama).

Mina de Chorchá; Bugaba.

Both sexes of this species have been obtained by Arcé. These skins, and one we have from Panama, agree with New-Granadan (Bogotá) examples, which seem to answer fairly to Lafresnaye's description.

Campephilus hæmatogaster.

Calovevora.

Campephilus malherbii.

Calovevora.

152. *PICUS JARDINII*, Malh.; Sundev. Consp. Av. Pic. p. 17.

V. de Chiriqui.

Chloronerpes caboti.

Cordillera del Chucu.

153. *CHLORONERPES CANIPILEUS* (Lafr. & d'Orb.); Scl. Cat. Am. B. p. 339; Sundev. Consp. Av. Pic. p. 69.

Cordillera del Chucu; V. de Chiriqui.

Specimens from Veragua agree better with New-Granadan than with Costa-Rican and Guatemalan examples.

154. *CHLORONERPES SIMPLEX*, sp. n.

♀. *Oleagineo-virescens*: pileo, gula et pectore paulo obscurioribus, nucha rubra: pectore viridi-albido guttato: abdomine pallide virescente, nigricante transfasciato: alis castaneis, extus dorso concoloribus, primariorum et secundariorum apicibus nigris, remigibus omnibus nigro transfasciatis: cauda nigra extus dorso concolori: tectricibus subalaribus castaneis: rostro et pedibus plumbeis: long. tota 6·7, alæ 4·3, caudæ 2·6, rostri a rictu 0·95, tarsi 0·7.

Hab. Bugaba (Arcé).

Obs. *C. aurulento* affinis quoad alarum picturam, sed capitis coloribus valde distinctus.

This species, of which Arcé has as yet sent only a single female specimen, belongs to the same section as *C. aurulentus* (Licht.), inasmuch as the chestnut markings of the wing-feathers are interrupted by black bands (in this species, however, hardly reaching across the feathers). The absence of the yellow throat, the red rictal spot, and the yellow band stretching backwards from the base of the bill under the eye, render further comparison with that species unnecessary.

Judging from Mr. Lawrence's description of *C. callopterus* (Ann. Lyc. N. Y. vii. p. 476), this species would seem to be allied to the bird there described; but the characters given, such as the presence of "a yellow band from the bill, along the side of the head, under the eye, below which is a band of olive-brown; throat pale fulvous with dusky spots, and lower part of abdomen and under tail-coverts pale rufous," seem to preclude the possibility of the bird I now describe being the female of *C. callopterus*.

Chloronerpes ceciliæ.

Mina de Chorchá.

155. *MELANERPES CHRYSAUCHEN*, sp. n.

Supra niger, dorso medio et uropygio albis, illo nigro maculato: loris, fronte et nucha flavis, pileo medio coccineo: alis nigris, intus albo notatis, cauda nigra: subtus albidus, flavo lavatus, ventre medio coccineo, hypochondriis et crisso nigro transfasciatis: rostro et pedibus plumbeis: long. tota 6·5, alæ 4·5, caudæ 2·5, rostri a rictu 1·1, tarsi 0·7, dig. med. cum ung. 0·95.

Fem. mari similis, sed pileo medio vitta nigra transfasciata, colore coccineo absente.

Hab. Bugaba (Arcé).

Obs. *M. flavifronti* Vieill. similis, sed loris et nucha flavis, ventre imo solum coccineo facile distinguendus.

This well-marked species, of which Arcé has sent specimens of both sexes, seems certainly more nearly allied to the Brazilian *M. flavifrons* than to its nearer neighbours *M. cruentatus* and *M. rubrifrons*. From *M. flavifrons* it may be easily distinguished by the broader black band behind the eye, and by the lores being entirely yellow instead of black. Moreover in the present bird the throat is not so clear a yellow, and the red is confined to the lower belly and does not spread over the whole central portion of the abdomen.

156. *MELANERPES FORMICIVORUS* (Sw.); *Sci. Cat. Am. B.* p. 341.

V. de Chiriqui.

A single male specimen agrees with Costa-Rican, Guatemalan, and Mexican skins. Sundevall (*Consp. Av. Pic.* p. 51), following Malherbe, gives Panama as a locality for *M. flavigularis*, *Sci.* This I conceive to be an error, as no specimen of it has been yet sent by the collectors on the Isthmus; moreover this form of *Melanerpes* is only found in the highlands, *M. formicivorus* seldom descending below an elevation of 5000 feet above the sea-level.

Centurus tricolor.

Calovevora; Castillo; Chitra.

157. *ARA MILITARIS* (L.); *Finsch, Papag. i.* p. 396.

Calovevora.

158. *CONURUS OCULARIS*, Scl. & Salv. P. Z. S. 1864, p. 367.

Calobre.

The receipt of a number of specimens of this *Conurus* from Panama and Veragua shows that the species described (*l. c.*) as distinct from *C. pertinax* is, in these localities at least, quite constant in coloration. Admitting the difficulty in separating all the forms on which *C. pertinax*, *C. chrysogenys*, &c. are founded, I think that Dr. Finsch (Papag. i. p. 506) has gone too far in the opposite direction in uniting them all, even *C. xantholæmus*, Scl., under *C. pertinax*.

159. *CONURUS HOFFMANNI*, Cab.; Scl. & Salv. Ex. Orn. p. 161, t. 81; Finsch, Papag. i. p. 553.

V. de Chiriqui.

160. *BROTOGERYS TOVI* (Gm.); Finsch, Papag. ii. p. 99.

Bugaba; V. de Chiriqui.

161. *CHRYSTOTIS GUATEMALÆ*, Hartl.; Finsch, Papag. ii. p. 562, t. 4.

Bugaba; V. de Chiriqui.

162. *CHRYSTOTIS DIADEMATA*, Spix.

Calovevora; Bugaba.

Pionus menstruus.

Calobre; Mina de Chorchá; Bugaba.

163. *IBYCTER AMERICANUS*.

Mina de Chorchá.

164. *MILVAGO CHIMACHIMA* (Vieill.).

Calobre.

No member of this genus has hitherto been found so far north as Veragua, though we possess a specimen of the same species as the present from Chepo on the Isthmus of Panama, where it was shot by Arcé in 1864.

165. *HERPETOTHERES CACHINNANS* (L.).

Boqueti de Chitra; Calobre.

166. *URUBITORNIS SOLITARIA* (Tsch.), F. P. p. 94, t. 2; Verreaux, P. Z. S. 1856, p. 145.

Calobre.

The acquisition of an immature skin of this species makes another important addition to the *Accipitres* of Central America. The specimen is not in good condition and is an immature bird, but it agrees well with the bird described by J. Verreaux as in the immature dress of *Urubitornis solitaria*.

167. URUBITINGA ANTHRACINA (Nitzsch).

Chitra ; Bugaba.

Spizaetus ornatus.

Calovevora.

168. SPIZAËTUS TYRANNUS (Max.).

Calobre.

Leucopternis ghiesbreghti (Du Bus) ; Scl. & Salv. Ex. Orn. p. 121.

Calovevora ; Chitra ; Bugaba.

169. BUTEO BOREALIS (Gm.).

Chitra ; Calobre ; V. de Chiriqui.

170. BUTEO ALBICAUDATUS, Vieill. ; Strickl. Orn. Syn. p. 35.

Calovevora ; Chitra.

171. BUTEO PENNSYLVANICUS, Wils.

Boqueti de Chitra ; Calovevora ; Calobre ; V. de Chiriqui.

172. BUTEO BRACHYURUS, Vieill. *Asturina brachyura*, Strickl. Orn. Syn. p. 42.

Calovevora.

Two specimens in adult (black) plumage. This species belongs to *Buteo* rather than to *Asturina*, the wings being longer and more pointed than those of typical *Asturinae*.

Asturina ruficauda, Scl. & Salv. Ex. Orn. p. 175, t. 88. *A. mag-nirostris*, Salv. P. Z. S. 1867, p. 158.

Calovevora ; Bugaba.

173. HYPOTRIORCHIS COLUMBARIUS (Linn.) ; Strickl. Orn. Syn. p. 92.

Calobre ; V. de Chiriqui.

This northern species also ranges into South America, and has been found both in Venezuela and New Granada.

174. HYPOTRIORCHIS DEIROLEUCUS (Temm.) ; Pl. Col. 348.

Bugaba.

Arcé has sent a fine adult male specimen of this rare species, which, however, occurs both in Costa Rica and Guatemala.

Hypotriorchis rufigularis.

Calovevora ; V. de Chiriqui.

Tinnunculus sparverius.

Calobre ; V. de Chiriqui.

175. ACCIPITER BICOLOR (Vieill.) ; Scl. & Salv. Ex. Orn. p. 137, t. 69.

Chitra ; Boqueti de Chitra ; Calovevora ; V. de Chiriqui.

176. ACCIPITER FUSCUS (Gm.).

V. de Chiriqui.

177. ISCHNOSCELES NIGER (Du Bus); Strickl. Orn. Syn. p. 125.

Mina de Chorchá.

All Central-American specimens of this form that I have seen have the dark plumage described under the above name.

178. MICRASTUR GUERILLA, Cass.; Sci. & Salv. P. Z. S. 1869, p. 367.

Calovevora.

179. MICRASTUR SEMITORQUATUS (Vieill.); Sci. & Salv. P. Z. S. 1869, p. 365.

Mina de Chorchá.

180. CYMINDIS CAYENNENSIS (Gm.); Strickl. Orn. Syn. p. 128.

Bugaba.

Ictinia plumbea.

Calovevora; Calobre.

Elanoides furcatus.

Calovevora.

181. CIRCUS HUDSONICUS (L.).

V. de Chiriqui.

182. BUBO VIRGINIANUS (Gm.).

Chitra.

183. SCOPS NUDIPES (Vieill.); Sci. & Salv. Ex. Orn. p. 102.

Calobre.

A specimen of this rare species from the above locality agrees accurately with the Costa-Rican specimen referred to in our article on this genus.

184. SCOPS BRASILIANUS (Gm.); Sci. & Salv. Ex. Orn. p. 102.

Calovevora; Chitra; Calobre.

Lophostrix stricklandi.

Bugaba.

185. PULSATRIX TORQUATA (Daud.).

Chitra; Castillo; Bugaba.

186. CICCABA VIRGATA (Cass.).

Chitra; Calovevora; Calobre; Bugaba.

187. CICCABA NIGROLINEATA, Sci. Trans. Z. S. iv. p. 268, pl. 63.

Boqueti de Chitra.

Two specimens, agreeing with others from Guatemala.

Glaucidium phalænoides, Vieill.
Calobre.

188. COLUMBA ALBILINEA, G. R. Gray.

Chitra ; Boqueti de Chitra ; Calovevora ; Calobre ; V. de Chiriqui.
Agrees with New-Granadan and Costa-Rican specimens.

Columba rufina.

Calovevora ; Chitra ; Bugaba.

189. COLUMBA SPECIOSA (Gm.).

Bugaba.

190. COLUMBA SUBVINACEA, Lawr. Ann. Lyc. N. Y. ix. p. 135.
Calovevora.

191. COLUMBA NIGRIROSTRIS, Scl.

Bugaba.

Though these two species are found together in both Costa Rica and Veragua, they seem to be quite distinct, *C. subvinacea* being much more rufescent than *C. nigrirostris*.

192. ZENAIDURA CAROLINENSIS (L.).

Calobre.

Chamæpelia rufipennis.

Chitra ; Calobre ; Bugaba ; Mina de Chorchá.

193. PERISTERA CINEREA (Temm.).

Calovevora ; Mina de Chorchá ; Bugaba.

194. LEPTOPTILA CASSINI, Lawr.

Bugaba ; V. de Chiriqui.

Leptoptila verreauxi.

Calobre ; Bugaba.

Geotrygon chiriquensis, Scl. ; Scl. & Salv. Ex. Orn. p. 123, t. 62.
Castillo ; Calovevora ; Calobre ; V. de Chiriqui.

195. GEOTRYGON MONTANA (Linn.).

V. de Chiriqui.

Chamæpetes unicolor, Salv.

Calovevora.

Ortalida cinereiceps, G. R. Gray, List Gall. in Brit. Mus. p. 12 (1867). *Ortalida poliocephala*, Scl. & Salv. P. Z. S. 1864, p. 371 ; Salv. P. Z. S. 1867, p. 161 ; Lawr. Ann. Lyc. N. Y. vii. p. 333, ix. p. 139.

Castillo.

Odontophorus leucolæmus.

Calovevora.

196. ODONTOPHORUS MARMORATUS, Gould; Scl. & Salv. P. Z. S. 1864, p. 371.

Bugaba.

Agrees with Panama specimens.

197. ODONTOPHORUS GUTTATUS, Gould.

V. de Chiriqui.

Tinamus robustus.

Bugaba.

198. CRYPTURUS MESERYTHRUS, Scl.; Scl. & Salv. Ex. Orn. p. 93, t. 47.

Chitra.

199. ARDEA CÆRULEA, L.

Castillo.

200. EGRETTA CANDIDISSIMA (Gm.).

Castillo.

201. BUTORIDES VIRESCENS (L.).

Chitra; Calobre.

202. TIGRISOMA CABANISI, Heine; Scl. & Salv. Ex. Orn. p. 95, t. 48.

Laguna del Castillo.

203. CANCROMA COCHLEARIA, L.

Mina de Chorchá.

Eurypyga major.

Cordillera del Chucu; V. de Chiriqui.

Parra melanopygia, Scl. P. Z. S. 1856, p. 283.

Calobre; Castillo.

204. PARRA HYPOMELENA, Gray & Mitch. Gen. B. t. 159; Scl. P. Z. S. 1856, p. 283.

Calobre.

Both these species have been sent by Arcé. They are much more nearly allied than appears at first sight. Some specimens of *P. hypomelana* show purple-brown feathers on the back, and thus indicate a tendency to the assumption of an intermediate state of plumage leaning towards *P. melanopygia*. I think it probable that a large series of specimens would show every gradation of plumage between *P. hypomelana* and *P. melanopygia*, including also *P. intermedia* (described in Sclater's paper, *l. c.*).

In Costa Rica the true *P. gymnostoma*, Wagl., occurs, which may at once be distinguished by the frontal caruncle being divided posteriorly into three lobes, and by the total absence of the rictal caruncle.

205. PORZANA CAROLINA (L.); *Scl. & Salv. P. Z. S.* 1868, p. 450.
V. de Chiriqui.

206. FULICA AMERICANA, Gm.; *Scl. & Salv. P. Z. S.* 1868, p. 468.
Laguna del Castillo.

207. ÆGIALITES VOCIFERUS (L.).
V. de Chiriqui.

208. GAMBETTA MELANOLEUCA (Gm.).
Chitra.

209. RHYACOPHILUS SOLITARIUS (Wils.).
Castillo; V. de Chiriqui.

210. GALLINAGO WILSONI (Temm.).
Chitra.

211. QUERQUEDULA DISCORS (L.).
Laguna del Castillo.

212. FULIGULA AFFINIS (Forst.).
Castillo.

213. PHALACROCORAX BRASILIANUS (Gm.).
Phalacrocorax, sp.?, *Salv. Ibis*, 1866, p. 200.
Castillo.

214. PLOTUS ANHINGA (Linn.).
Castillo.

215. PODILYMBUS PODICEPS (Linn.).
Castillo.

216. PODICEPS DOMINICUS (L.).
Castillo; Chitra.

April 28, 1870.

John Gould, Esq., F.R.S., V.P., in the Chair.

The Secretary called the attention of the Society to the following additions to the Menagerie during the month of March:—

1. A male specimen of *Sclater's Impeyan* (*Lophophorus sclateri*), presented by Major Montagu, Bengal Staff Corps, and received March 12th.

2. A male *Blyth's Tragopan* (*Cerionis blythi*), presented by the same gentleman, and received on the same date.