

XXII.—*A List of the Birds of the Islands of the Coast of Yucatan and of the Bay of Honduras.* By OSBERT SALVIN, M.A., F.R.S., &c.

DURING the last two years Mr. G. F. Gaumer, a gentleman well known for his zoological labours in Northern Yucatan, at the instigation of Mr. Godman and myself, has made several short visits to the islands off the coast of Yucatan, and spent a longer period on the Bay Islands, for the purpose of collecting, chiefly, the birds of those somewhat remote places. The islands visited were Meco and Holbox, off the northern coast of Yucatan, Muges Island, on the eastern coast near Cape Catoche; Cozumel Island, further south; and Ruatan Island and Bonacca Island, of the Bay Islands group, off the northern coast of the Republic of Honduras.

The birds obtained during these expeditions I propose to enumerate in the following paper, and to give at the end a summary bearing on the distribution of the birds of this portion of the American fauna.

It will be seen from what follows that a large number of species mentioned belong to the migratory birds which pass

and re-pass in spring and autumn between North America and their winter-quarters; and it is evident, from their numbers, that this line of coast, stretching, as much of it does, north and south, forms one of the lines of migration of such birds, and that the islands serve as so many resting-places in their journey. This part of the subject I propose to treat in more detail at the end of this paper, and also to examine the more difficult question involved in the relationship of the resident birds to those of the mainland and the Antilles.

Mr. Gaumer has now returned to his old quarters in Yucatan, where we hope that he will still find time to carry on the investigations he has hitherto pursued so successfully.

Of the islands visited, Cozumel alone had previously been examined, and the following papers refer to its bird-fauna:—

1. Description of some new Species of Birds from Cozumel Island, Yucatan. By Robert Ridgway. "Author's edition." Extracted from the Proc. Biol. Soc. Washington, iii., and distributed by Mr. Ridgway, 2nd March, 1885.

2. On a Collection of Birds from the Island of Cozumel. By Osbert Salvin. *Ibis*, April, 1885, pp. 185 *et seq.*

3. Catalogue of a Collection of Birds made on the Island of Cozumel, Yucatan, by the Naturalists of the U.S. Fish-Commission Steamer 'Albatross,' Capt. Z. L. Tanner, Commander. By Robert Ridgway. Proc. U.S. Nat. Mus. viii. pp. 560 *et seq.* (Sept. & Oct. 1885).

As the first of these papers only contains short preliminary descriptions, which are all given at greater length in the third, I have not thought it necessary to quote it; but to make the present paper complete as far as it goes, the others are referred to where required.

1. *TURDUS MUSTELINUS.*

Turdus mustelinus, Gm.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 9.

Mugeris I.; Cozumel I.

A migratory species from the north, and common in Cozumel Island. It has not been noticed in Northern Yucatan,

but it occurs in Cuba, though rarely. It is abundant in the winter months in Southern Mexico and Eastern Guatemala, the southern limit of its range being Northern Honduras.

2. *TURDUS FUSCESCENS.*

Turdus fuscescens, Steph.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 10; Salv. Ibis, 1885, p. 196.

Cozumel I.; Ruatan I.; Bonacca I. (September).

A migrant from the north, which has been recorded from Panama, but not elsewhere in Central America, though in South America it has been observed in Guiana and the Amazons valley, and in Matto Grosso. In Cuba it is common.

3. *TURDUS ALICIE.*

Turdus alicie, Baird; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 12; Salv. Ibis, 1885, p. 197.

Cozumel I.; Ruatan I.

A migrant from the north, which has, as yet, only been noticed in Central America in Costa Rica and the State of Panama, though in South America it spreads from Guiana in the east to Peru and Colombia in the west. It has been observed in Cuba and San Domingo.

4. *TURDUS GRAYI.*

Turdus grayi, Bp.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 18.

Meco I.; Mugeris I.; Cozumel I.

All these specimens are paler than the typical form from Guatemala, but in this respect agree fairly with examples from Northern Yucatan, and the passage between the two seems to be complete. The Mugeris Island bird is a trifle darker than that from Cozumel Island.

T. grayi is very common throughout Southern Mexico and Central America.

5. *GALEOSOPTES CAROLINENSIS.*

Galeoscoptes carolinensis (Linn.); Salv. & Godm. Biol.

Centr.-Am., Aves, i. p. 26 ; Ridgw. Proc. U.S. Nat. Mus. viii. p. 562.

Meco I. ; Holbox I. ; Muges I. ; Cozumel I. ; Ruatan I.

A common migratory species from the north, being found in winter in Eastern Mexico and Eastern Central America. It is hardly known to occur on the mountain-slopes towards the Pacific, and but some few wander as far as Panama.

In these islands it appears to be very abundant, as well as on the adjoining mainland and in Cuba.

6. MELANOPTILA GLABRIROSTRIS.

Melanoptila glabrirostris, Scl. ; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 27 ; Boucard, P. Z. S. 1883, p. 439 ; Ridgw. Proc. U.S. Nat. Mus. viii. p. 562.

Holbox I. ; Muges I. ; Cozumel I. ; Lighthouse and Glover's Reefs (May).

Mr. Gaumer has sent us a large series of this interesting bird, which appears to be very common on the island of Cozumel, and is probably found on most of the islands of this part of the coast, as well as on the mainland. Mr. Ridgway, in his table of distribution of Cozumel birds, states that *M. glabrirostris* had not then been recorded from Yucatan, but he has overlooked the statement in M. Boucard's list of its occurrence there.

7. HARPORHYNCHUS GUTTATUS.

Harporyhynchus guttatus, Ridgw. Proc. U.S. Nat. Mus. viii. p. 561.

Harporyhynchus melanostoma, Salv. Ibis, 1885, p. 167.

Cozumel I.

Mr. Gaumer has sent us a good series of specimens of this species, all bearing the characters whereby it may be distinguished from *H. longirostris*. There is some variation in the density of the spots on the under surface, but otherwise there is great uniformity in their plumage between specimens of the series.

8. MIMUS GILVUS.

Mimus gilvus (Vieill.) ; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 36.

Mimus gilvus gracilis, Ridgw. Proc. U.S. Nat. Mus. viii. p. 562.

Meco I.; Holbox I.; Mugerres I.; Cozumel I.

These island specimens do not materially differ from those from the mainland, the species being rather variable.

9. TROGLODYTES BEANI.

Troglodytes beani, Ridgw. Proc. U.S. Nat. Mus. viii. p. 563.

Cozumel I.

Many examples of this distinct species. Some of these have the jugulum tinged with brown, as described by Mr. Ridgway, but in the majority the underside is nearly uniform white, the flanks and crissum alone being brown, and the latter barred with black.

10. POLIOPTILA CÆSIOGASTER?

*Polioptila cærulea cæsiogaster**, Ridgw. Man. N. Am. Birds, p. 569?

Cozumel I.; Ruatan I.

Mr. Ridgway has recently described a bird from the Bahamas under the above name, adding to his localities Cozumel, with doubt. As he has birds from both localities before him, and I only the Cozumel one, I cannot speak positively as to their specific identity. The Cozumel bird has a darker greyer breast than the true *P. cærulea*, and in most cases the bill is wholly black. The latter character I take to be a seasonal one. In Northern Yucatan the true *P. cærulea* occurs.

Mr. Ridgway (Pr. U.S. Nat. Mus. viii. p. 561) includes *P. cærulea* in his list of Cozumel birds without further remark. We have some specimens from Mr. Gaumer's collection made in January that agree well with typical *P. cærulea*, but I am not sure that they are not winter-plumaged birds of the resident species.

Concerning *Polioptila* much has been written of late years, but I doubt if the right clue to the reason of the many complicated points of variation exhibited by many of the species has yet been discovered.

* Vox hybrida!

11. POLIOPTILA BILINEATA.

Polioptila bilineata, Bp.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 52.

Cozumel I.

Mr. Gaumer's collection contains two male specimens of this *Polioptila*. They are whiter beneath than the majority of our examples from other parts of Central America, but not more so than we find in birds from Western Ecuador. The white lores are very conspicuous, and are extended so as almost to form a white band across the base of the bill.

12. MNIOTILTA VARIA.

Mniotilta varia (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 110; Ridgw. Proc. U.S. Nat. Mus. viii. p. 563.

Holbox I. (December); Mugeris I. (December); Cozumel I. (January, April); Ruatan I.

This species reaches Colombia and Venezuela in its southern migration, being very common through the winter months in Mexico and Central America generally. It is also found in Cuba and other islands of the Antilles, as well as in Northern Yucatan.

13. PROTONOTARIA CITREA.

Protonotaria citrea (Bodd.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 111.

Cozumel I. (January); Ruatan I.

This species has occurred on the mainland of Northern Yucatan, but not further to the westward. It is known from Western Costa Rica, Panama, and the north coast of South America and is found in Cuba.

The Ruatan bird is an adult male, those from Cozumel females.

14. HELMINTHOTHERUS VERMIVORUS.

Helminthotherus vermivorus (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 112.

Cozumel I.; Bonacca I. (September).

A migratory species, well known and common in winter in Southern Mexico and Central America, and also found in Cuba and Jamaica.

15. HELMINTHOPHAGA PEREGRINA.

Helminthophaga peregrina (Wils.); Salv. & Godm., Biol. Centr.-Am., Aves, i. p. 117.

Cozumel I. (January); Ruatan I.; Bonacca I. (September).

A migratory species, specially abundant in the highlands of Guatemala in winter. It is hardly known in Cuba, but reaches Northern Colombia in its winter migration.

16. PARULA AMERICANA.

Parula americana (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 119.

Compothlypis americana, Ridgw. Proc. U.S. Nat. Mus. viii. p. 563.

Holbox I. (December); Mugeses I. (December); Cozumel I. (January and April); Ruatan I.; Bonacca I. (September).

A common migratory species in Southern Mexico and Eastern Guatemala, being also found in Cuba and several of the more northern islands of the Antilles.

17. DENDRÆCA ÆSTIVA.

Dendræca æstiva (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 124.

Holbox I. (December); Mugeses I. (December); Ruatan I.

Many specimens in all stages of plumage, the birds from Ruatan Island being perhaps the more heavily spotted beneath.

In Ruatan Island this appears to be the only species of this section of *Dendræca*. In the adjoining island of Bonacca we find *D. bryanti*, to the exclusion of *D. æstiva*.

18. DENDRÆCA PETECHIA.

Dendræca petechia rufivertex, Ridgw. Proc. U.S. Nat. Mus. viii. pp. 348, 563.

Cozumel I. (January, April).

Many specimens in various stages of plumage.

We do not possess a good series of the Jamaica bird, the true *D. petechia*, but, so far as I can see, there is nothing to

separate the Cozumel and Jamaica birds; the former is, perhaps, on an average a little smaller.

D. petechia is found in Cozumel Island, to the exclusion of *D. bryanti* and the migratory *D. æstiva*.

19. DENDRÆCA BRYANTI.

Dendræca vieilloti, var. *bryanti*, Ridgw. Am. Nat. viii. p. 606.

Dendræca bryanti, Ridgw. Proc. U.S. Nat. Mus. viii. p. 350.

Holbox I. (December); Bonacca I. (September).

These birds, of which I have a large series of examples before me in all stages of plumage, no doubt belong to Mr. Ridgway's *D. bryanti*, which I trace certainly to Western Costa Rica. The birds from Panama and Northern Colombia before me, which I take to be the true *D. vieilloti*, have the chestnut throat less sharply defined and blended with the streaks of the breast. *D. bryanti* is apparently the only *Dendræca* of this group found on Bonacca Island, but on Holbox *D. æstiva* is found along with it.

It seems to be quite exceptional to find more than one species of this group of *Dendræca* on any one island, and at present Holbox Island is the only one with two. The same rule applies to the West-Indian Islands, where *D. æstiva* is, I believe, unknown, even as a migrant.

20. DENDRÆCA CÆRULESCENS.

Dendræca cærulescens (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 126; Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Cozumel I. (January).

An adult specimen of each sex.

The species is unknown in Mexico, and very rare in Guatemala, but is found in several of the West-Indian Islands.

21. DENDRÆCA CORONATA.

Dendræca coronata (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 127.

Meco I. (December); Holbox I. (December); Cozumel I. (January); Ruatan I.

Many specimens, all in winter or immature plumage, several being birds of the year.

D. coronata reaches the State of Panama in its southern migration, being very abundant during the winter months throughout Mexico and Central America. It is also found in several of the West-Indian Islands.

22. *DENDRÆCA MACULOSA.*

Dendræca maculosa (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 129; Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Cozumel I. (January); Ruatan I.

A bird of the eastern parts of North America, but occurring in Eastern Mexico and Guatemala in winter and as far south as the State of Panama; also in Cuba and the Bahama Isles.

Several of the Ruatan examples are in full spring plumage.

23. *DENDRÆCA PENNSYLVANICA.*

Dendræca pennsylvanica (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 131.

Ruatan I.; Bonacca I. (September).

Specimens in all states of plumage.

A bird of the Eastern States, migrating southwards to the State of Panama. It has been noticed in the Bahama Islands, but not in any of the larger Antilles.

24. *DENDRÆCA CASTANEA.*

Dendræca castanea (Wils.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 132.

Ruatan I.

A bird of very rare occurrence in Mexico and Guatemala, but more common in the State of Panama. Not recorded from any of the West-Indian Islands.

25. *DENDRÆCA BLACKBURNIÆ.*

Dendræca blackburniæ (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 133.

Ruatan I.; Bonacca I.

One of the most widely ranging of the migratory Mniocer. V.—VOL. VI.

Itidæ, extending in winter to Peru, but to the Bahamas only of the West-Indian Islands.

26. *DENDRÆCA DOMINICA.*

Dendræca dominica (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 134.

Dendræca dominica albilora, Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Holbox I. (December); Mugeris I. (December); Cozumel I. (April); Ruatan I.; Bonacca I. (September).

Hardly any of the specimens from these islands have the lores pure white, a certain amount of yellow being visible in nearly all of them. Nor can I discover any differences of dimensions by which they can be distinguished from Jamaican examples, the true *D. dominica* (Linn.). In fact, I quite fail to appreciate *D. albilora* even as a race.

27. *DENDRÆCA VIRENS.*

Dendræca virens (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 137; Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Holbox I.; Cozumel I.

Specimens in all stages of plumage.

A widely spread migratory species, very common in Guatemala in the winter months, and spreading as far as the State of Panama. It also occurs in Cuba, Jamaica, and Dominica.

28. *DENDRÆCA DISCOLOR.*

Dendræca discolor (Vieill.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 142; Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Mugeris I. (December); Cozumel I. (January, *Benedict*); Bonacca I. (September).

This species, a winter visitor to the West-Indian Islands, is now known from several islands off the coast of the mainland. As I have already remarked, it can hardly fail to be found on the north coast of Honduras and the North-eastern portion of Yucatan.

The specimen from Mugeris Island is in adult plumage. Two from Bonacca are young.

29. DENDRÆCA PALMARUM.

Dendræca palmarum (Gm.) ; Sharpe, Cat. B. Brit. Mus. x. p. 317 ; Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Holbox I. (December) ; Mugerres I. (December) ; Cozumel I. (January) ; Ruatan I.

Several specimens in various states of plumage.

One of those from Cozumel has the under plumage strongly tinged with yellow, somewhat as in the race *D. p. hypochrysea*. The rest conformed to the more typical *D. palmarum*. The species has not yet been noticed on the mainland, but is common in several of the West-Indian Islands in the winter season.

30. PERISSOGLOSSA TIGRINA.

Perissoglossa tigrina (Gm.) ; Sharpe, Cat. B. Brit. Mus. x. p. 335.

Ruatan I.

Mr. Gaumer obtained a single specimen of this species in immature plumage. We also have, through M. Boucard's kindness, another from the north coast of Yucatan (*Gaumer*), so that the species must now be included amongst the migratory visitors to Central America. Its recognized winter domicile has hitherto been the West-Indian Islands.

31. SIURUS AURICAPILLUS.

Siurus auricapillus (Linn.) ; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 144 ; Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Meco I. (November) ; Holbox I. (December) ; Cozumel I. (January) ; Ruatan I. ; Bonacca I. (September).

Found in winter throughout Mexico, Central America, and many of the West-Indian Islands and Bermuda.

32. SIURUS MOTACILLA.

Siurus motacilla (Vieill.) ; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 147.

Ruatan I. ; Bonacca I. (September).

Generally distributed throughout Mexico and Central America in the winter season, being also found in several of the West-Indian Islands.

33. *SIURUS NOVEBORACENSIS.*

Seiurus noveboracensis (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 145.

Seiurus noveboracensis notabilis, Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Holbox I. (December); Cozumel I. (January); Ruatan I.; Bonacca I. (September).

A very abundant species in winter throughout Mexico and Central America, the West Indies, and northern portions of South America.

34. *OPORORNIS FORMOSA.*

Oporornis formosa (Wils.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 148.

Bonacca I. (September).

A single specimen in fully adult plumage.

A winter visitor to Mexico and Central America, and also found in Cuba.

35. *GEOTHYLPIS TRICHAS.*

Geothlypis trichas (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 150.

Geothlypis trichas occidentalis, Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Holbox I. (December); Mugerres I. (December); Cozumel I. (January); Ruatan I.

Many specimens in all stages of plumage.

Mr. Ridgway states that the Cozumel bird is of the western race of *G. trichas*. We have only a female from that island, but all the adults from the other islands mentioned above seem to belong to the eastern form.

G. trichas is very common all through Mexico and Central America in winter, and is also found in many of the West-Indian Islands.

36. *ICTERIA VIRIDIS.*

Icteria viridis (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 157.

Cozumel I. (January, April).

Two of these specimens have the bill almost as black as

northern examples, a character not seen in birds from Guatemala.

The species occurs commonly in Mexico and Guatemala, but more rarely further south, and has not been noticed in the West-Indian Islands.

37. MYIODIOCTES MITRATUS.

Myiodioctes mitratus (Gm.) ; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 167.

Sylvania mitrata, Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Holbox I. (December) ; Mugerres I. (December) ; Cozumel I. (January) ; Ruatan I. ; Bonacca I. (September).

Also a common winter visitor to Mexico and the whole of Central America, and found in Cuba and Jamaica.

38. SETOPHAGA RUTICILLA.

Setophaga ruticilla (Linn.) ; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 178 ; Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Holbox I. (December) ; Mugerres I. (December) ; Cozumel I. (January, May) ; Ruatan I.

Abundant throughout Mexico, Central America, the West-Indian Islands, and Northern South America in winter.

39. VIREO CALIDRIS.

Vireo calidris (Linn.) ; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 186.

Cozumel I. (May).

A single specimen of this West-Indian *Vireo*, whose winter migration extends to the northern parts of South America.

40. VIREO OLIVACEUS.

Vireo olivaceus (Linn.) ; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 188.

Ruatan I. ; Bonacca I. (September).

A migrant from the north, of very rare occurrence in Mexico and Cuba, but more common in Guatemala, and thence southwards to Colombia.

41. VIREO MAGISTER.

Vireo magister, Baird ; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 191.

Vireo cinereus, Ridgw. Proc. U.S. Nat. Mus. viii. p. 565.

Holbox I. (December) ; Mugerres I. (December) ; Ruatan I. ; Bonacca I. (September).

We have now a large series of specimens of this species. These show a considerable amount of variation, due, we believe, wholly to the age of the plumage of different individuals. These variations, as shown by birds from Cozumel Island alone, cover all the differences said to exist between *V. cinereus* and *V. magister*, and we do not see how the former can be maintained as distinct.

42. VIREO PHILADELPHICUS.

Vireo philadelphicus (Cassin) ; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 191.

Cozumel I. (January).

A common winter visitor to Guatemala, and thence southwards to Panama. It is not known from any of the West-Indian Islands.

43. VIREO FLAVIFRONS.

Vireo flavifrons, Vieill. ; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 194 ; Ridgw. Proc. U.S. Nat. Mus. viii. p. 565.

Cozumel I. (January, April).

A common winter visitor to Mexico and Central America, and also found at that season in Cuba and Colombia.

44. VIREO BAIRDI.

Vireo bairdi, Ridgw. Proc. U.S. Nat. Mus. viii. p. 565.

Cozumel I. (January, April).

Many specimens of this pretty and very distinct species.

45. VIREO NOVEBORACENSIS.

Vireo noveboracensis (Gm.) ; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 200 ; Ridgw. Proc. U.S. Nat. Mus. viii. p. 565.

Cozumel I. (January, April).

Apparently a common species on Cozumel Island during

the winter months. The species is very rare in Guatemala, but more common in Southern Mexico.

46. VIREO OCHRACEUS.

Vireo ochraceus, Salv. ; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 201.

Holbox I. (December) ; Mugeris I. (December) ; Ruantan I.

Many specimens, covering the variation between *V. ochraceus* and *V. semiflavus*. This species is widely, but sparingly, distributed in Yucatan and Guatemala.

Its absence from Cozumel Island is noteworthy ; perhaps *V. bairdi* there takes its place.

47. CYCLORHIS FLAVIVENTRIS.

Cyclorhis flaviventris, Lafr. ; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 211.

Meco I. (November).

These specimens agree with others from Northern Yucatan, the *C. f. yucatanensis*, Ridgw. (Proc. U.S. Nat. Mus. 1886, p. 519), a race we are not yet prepared to separate from *C. flaviventris*.

48. CYCLORHIS INSULARIS.

Cyclorhis insularis, Ridgw. Proc. U.S. Nat. Mus. viii. p. 566.

Cozumel I. (January, April).

A very distinct species, fully described by Mr. Ridgway.

49. AMPELIS CEDRORUM.

Ampelis cedrorum (Vieill.) ; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 215.

Cozumel I. (May).

Several specimens of this migratory species, which reaches Honduras in its southern migration, and visits the islands of Cuba and Jamaica.

50. PROGNE PURPUREA.

Progne purpurea (Linn.) ; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 223.

Cozumel I. (May).

Several young males and females of this species, which has already been recorded from Belize.

51. PETROCHELIDON PYRRHONOTA.

Petrochelidon pyrrhonota (Vicill.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 226.

Cozumel I.

A single specimen. The migrations of this species are not well known, for though it breeds in Western Mexico, its passage southwards has been very imperfectly traced. We have no previous record of it anywhere on this coast or in Guatemala.

52. HIRUNDO ERYTHROGASTER × SWAINSONI.

A single specimen, shot in May 1885 by Mr. Gaumer on Cozumel Island, we have little doubt is a hybrid between *Hirundo erythrogaster* and *Petrochelidon swainsoni*, as it curiously combines the characters of both birds. The forehead is the same in both species, but the ear-coverts and the collar are steel-blue, as in *H. erythrogaster*; the tail is also furcate, though to a less extent, and the lateral feathers have the characteristic white spots; the wings, too, are as long as those of *H. erythrogaster*, and the under tail-coverts are tinged with rufous. The characters it has with *P. swainsoni* are the colouring of the under surface, including the black gular patch; it also has the rump rufous grey.

Instances of hybrids between *H. erythrogaster* and *P. pyrrhonota* have been recorded, but this is the first we have met with in which *P. swainsoni* appears to have been one of the parents.

53. HIRUNDO ERYTHROGASTER.

Hirundo erythrogaster, Bodd.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 232.

Cozumel I. (April); Ruatan I.

Abundant in winter or during passage throughout Mexico, Central America, and the greater part of South America, as well as the West-Indian Islands.

54. TACHYGINETA ALBILINEA.

Tachycineta albilinea (Lawr.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 235.

Meco I. (November); Holbox I. (December).

Already recorded from the islands off this coast, where it is doubtless a resident species.

55. COTILE RIPARIA.

Cotile riparia (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 240.

Cozumel I. (May).

A single specimen of this widely ranging species. It has been recorded from a little further south at Yzabal, in Guatemala, and from South America.

56. CÆREBA CYANEA.

Cæreba cyanea (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 248.

Cozumel I. (January, April).

Several immature males and females. The species is common on the mainland, and occurs in Cuba.

57. CERTHIOLA CABOTI.

Certhiola caboti, Baird; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 251; Salv. Ibis, 1885, p. 189; Ridgw. Proc. U.S. Nat. Mus. viii. p. 564.

Holbox I. (December); Cozumel I. (January, April).

Many specimens of both sexes. The Holbox Island birds are both females, and agree with typical females from Cozumel Island.

58. EUPHONIA AFFINIS.

Euphonia affinis (Less.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 257.

Cozumel I. (January).

A pair of this species, agreeing with examples from Northern Yucatan and British Honduras, which are rather smaller than the birds of Nicaragua (typical), Guatemala, and Mexico, and the male of slightly deeper purple on the back.

59. PYRANGA RUBRA.

Pyranga rubra (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 287.

Cozumel I. (April); Ruatan I.; Bonacca I. (September).

A migratory species, common in Northern Yucatan, but rare in the interior of Guatemala; more abundant again from Nicaragua to the State of Panama, and extending its migration as far south as Bolivia. It also occurs in Cuba and Jamaica.

60. PYRANGA ÆSTIVA.

Pyranga æstiva (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 289.

Cozumel I. (January, April); Ruatan I.

A common migratory species throughout the greater part of Mexico, the whole of Central America, and of Eastern Southern America as far as Peru. It also occurs during passage in Cuba and the Bahamas.

61. PYRANGA ROSEIGULARIS.

Pyranga roseigularis, Cabot; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 293; Ridgw. Proc. U.S. Nat. Mus. 1885, p. 568.

Meco I. (November); Mugerres I. (December); Cozumel I. (January, April).

These island specimens do not differ materially from those from the mainland of Northern Yucatan; but we notice that, as a rule, the red of the throat is more restricted, and that the rosy colour is hardly traceable on the abdomen and back. The Meco Island bird is somewhat intermediate, being nearer that from the mainland. That from Mugerres Island agrees with the Cozumel bird. In the island of Cozumel *P. roseigularis* appears to be common, so that this bird, once so rare, is now represented in our collection by a good series.

62. SPINDALIS BENEDICTI.

Spindalis benedicti, Ridgw. Proc. U.S. Nat. Mus. viii. p. 567.

Spindalis exsul, Salv. Ibis, 1885, p. 189, pl. 5.

Cozumel I. (January, April).

Mr. Gaumer has sent us a good series of both sexes of this pretty species, which at present has only been found on the island of Cozumel. There is a good deal of variation in the amount of white on the wing in both sexes.

63. *PHÆNICOTHRUPIS INSULARIS*, sp. n.

Supra griseo-rubescens, alis et cauda fusciscentioribus, illis olivaceo vix limbatis, crista verticali ruberrima nigro haud marginata; subtus pallide rubra, gutture clariore, pectore et hypochondriis griseo tinctis; rostro corneo, pedibus corylinis. Long. tota 7·8, alæ 4·0, caudæ 3·6, rostri a rictu 0·85, tarsi 1·0. ♀ supra cinnamomeo-brunnea fere unicolor, subtus sordide cinnamomea, gula et abdomine medio cervinis.

Hab. Meco I. (November); Muges I. (December) (*G. F. Gaumer*).

Obs. *P. salvini* proxima, sed colore maris supra multo pallidiore et magis griseo, subtus valdè dilutiore facile distinguenda. Femina quoque coloribus multo pallidioribus differt.

Mr. Gaumer's collection contains a male and two females from Meco Island, and several females from Muges Island. These differ so obviously from mainland specimens of *P. salvini* that it becomes necessary to separate them under another name. The male is paler than the males of any other species of the genus.

On the mainland the true *P. salvini* occurs, both in Northern Yucatan and in British Honduras, and though the males from the former country are rather pale, the difference is very slight.

64. *EUCOMETIS SPODOCEPHALA*.

Eucometis spodocephala (Bp.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 307, pl. 20, fig. 2.

Meco I.

Already noticed in Northern Yucatan and in British Honduras.

65. HEDYMELES LUDOVICIANUS.

Hedymeles ludovicianus (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 336.

Holbox I.; Cozumel I.; Ruatan I.

A common migratory species, well known in Mexico and Central America, and in South America as far south as Ecuador. It also occurs in Cuba and Jamaica.

66. CARDINALIS COCCINEUS.

Cardinalis saturatus, Ridgw. Descr. New Cozumel Birds, p. 4.

Cardinalis cardinalis saturatus, Ridgw. Proc. U.S. Nat. Mus. viii. p. 568.

Cardinalis virginianus, var. *coccineus*, Ridgw. Am. Journ. Sc. v. p. 39.

Cardinalis virginianus, Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 340.

Meco I. (November); Holbox I. (December); Muges I. (December); Cozumel I. (January, April).

We have now a large series of Cardinal Grosbeaks from these islands, besides several from the opposite mainland, and we altogether fail to see how they can be separated into the races proposed by Mr. Ridgway, viz. *C. v. coccineus*, *C. v. yucatanicus*, and *C. v. saturatus* (Man. N. Am. Birds, p. 442). The females appear to be always separable from those of the true *C. virginianus* by their blackish faces; and chiefly on this ground we admit the distinctness of *C. coccineus*, a name based upon South-Mexican birds. Mr. Ridgway makes some remarks on the supposed migrations of this bird in Mexico with reference to our quotation of Sumichrast on the subject. Our statement was made on the authority of that excellent observer, as we have never seen *Cardinalis* in a wild state.

Is it not just possible that a bird so sedentary as Mr. Ridgway says *Cardinalis* is in the United States may be migratory in other parts of its range? Otherwise Sumichrast has led us astray.

67. GUIRACA CÆRULEA.

Guiraca cærulea (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 344.

Cozumel I.

A common migratory species, well known throughout Mexico and Central America as far south as Costa Rica. It is also found in Cuba, though rarely, during passage.

68. GUIRACA PARELLINA.

Guiraca parellina (Bp.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 347.

Meco I.; Mugeris I.

Already noticed from the adjoining coast of Yucatan.

69. SPERMOPHILA MORELETI.

Spermophila moreleti, Bp.; Salv. & Godm. Biol. Centr.-Am., i. p. 352.

Meco I.; Mugeris I.

Immature birds of this species, which has already been noticed on the mainland of Yucatan.

70. PHONIPARA INTERMEDIA.

Phonipara olivacea intermedia, Ridgw. Proc. U.S. Nat. Mus. viii. p. 568.

Phonipara intermedia, Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 360.

Holbox I.; Cozumel I.

Many specimens, those from Holbox Island agreeing with typical Cozumel specimens.

71. CYANOSPIZA CYANEA.

Cyanospiza cyanea (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 364.

Passerina cyanea, Ridgw. Proc. U.S. Nat. Mus. viii. p. 568.

Cozumel I.; Ruatan I.

Many specimens in all stages of plumage. A common migratory species throughout Eastern Mexico and the whole of Central America to the State of Panama, and also occurring in Cuba and at the Bahamas.



72. *CYANOSPIZA CIRIS.*

Cyanospiza ciris (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 365.

Meco I.; Holbox I.; Mugerres I.; Cozumel I.; Ruatan I.

Apparently a very common bird during its migration on this coast, as well as on the mainland from Mexico to the State of Panama. It also occurs in Cuba and the Bahamas.

The series sent includes birds in all stages of plumage.

73. *SPIZELLA PINETORUM.*

Spizella pinetorum, Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 378, pl. 27. f. 3.

Ruatan I.

The wings and tail of this specimen are rather shorter than in the type from the mainland, but otherwise it does not differ. The bill is, however, nearly black, a characteristic of breeding-dress.

74. *PASSERCULUS SANDWICHENSIS.*

Passerculus sandwichensis (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 380.

Holbox I. (December); Mugerres I. (December); Cozumel I. (January).

Several specimens, agreeing with others from the mainland of Guatemala.

75. *COTURNICULUS PASSERINUS.*

Coturniculus passerinus (Wils.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 384; Salv. Ibis, 1885, p. 190.

Coturniculus savannarum passerinus, Ridgw. Proc. U.S. Nat. Mus. 1885, p. 568.

Cozumel I. (January).

A species of wide range in Mexico and Central America as far south as Costa Rica, occurring also in the larger Antilles.

76. *EMBERNAGRA VERTICALIS.*

Embernagra verticalis, Ridgw.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 414.

Meco I. (November).

Two specimens, one of which agrees with *E. verticalis* from the mainland, the other seems closer to *E. chloronota*! This seems to raise the question as to the relationship of these birds, and to suggest that there may be differences of sex not hitherto suspected.

77. *SPIZA AMERICANA.*

Spiza americana (Gm.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 416.

Czumel I.; Ruatan I.

Apparently a very common bird on these islands, probably during migration. In its southern range it reaches Colombia and Venezuela, but is not known in the Antilles.

78. *CHRYSOMITRIS MEXICANA.*

Chrysomitris mexicana (Sw.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 431.

Mugeres I.

An adult male and a female of this species.

79. *DOLICHONYX ORYZIVORA.*

Dolichonyx oryzivora (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 448; Salv. Ibis, 1885, p. 191.

Cozumel I. (April).

It is the eastern typical bird which occurs on the islands of this coast. Its southern migration extends to Paraguay, and includes several of the West-Indian Islands.

80. *AGELÆUS PHÆNICEUS.*

Agelæus phæniceus (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 453.

Cozumel I. (May).

A common resident species in suitable places in Mexico and Guatemala, its range extending southwards to Western Costa Rica.

81. *ICTERUS SPURIUS.*

Icterus spurius (Linn.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 464.

Holbox I. (December); Cozumel I. (April); Ruatan I.

Many specimens, including adult birds of both sexes. The

species is widely distributed in winter over the whole of Mexico and Central America to the Isthmus of Darien, and occurs sparingly in Cuba.

82. *ICTERUS GIRAUDI.*

Icterus giraudi, Cass.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 469.

Meco I. (November); Ruatan I.

This species does not appear to occur in the Island of Cozumel, but Mr. Gaumer has sent us specimens from Tuloom, on the mainland immediately opposite.

I. giraudi spreads southwards to Colombia and Venezuela.

83. *ICTERUS CUCULLATUS.*

Icterus cucullatus, Sw.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 471; Ridgw. Proc. U.S. Nat. Mus. viii. p. 570.

Meco I. (November); Holbox I. (December); Mugerres I. (December); Cozumel I. (May, June).

Many examples, the males showing every stage of plumage from the blood-stained tint, the *I. c. igneus* of Ridgway, to the ordinary yellow type of *S. cucullatus*.

British Honduras seems to be the extreme southern limit of the range of this bird. It has been recorded from Cuba.

84. *ICTERUS AURATUS.*

Icterus auratus, Bp.; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 473.

Meco I. (November).

Two specimens, one of them an adult male, which has a little more black on the forehead than *I. auratus* from the mainland; but as it has the characteristic yellow back, I place it here.

85. *ICTERUS GULARIS.*

Icterus gularis (Wagl.); Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 475.

Cozumel I. (January, May).

Many examples agreeing with mainland birds.

86. *QUISCALUS MACRURUS*.

Quiscalus macrurus, Sw. ; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 482 ; Ridgw. Proc. U.S. Nat. Mus. viii. p. 570.

Mugerres I. (December) ; Cozumel I. (April) ; Ruatan I.

Many examples. The females are rather darker, and the males somewhat smaller, than mainland examples.

Mr. Gaumer informs us that *Q. macrurus*, though very common on Ruatan Island, is not found on the neighbouring island of Bonacca.

87. *CYANOLYCA YUCATANICA*.

Cyanolyca yucatanica (Dubois) ; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 498, pl. 35.

Meco I. (November) ; Mugerres I. (December).

A species peculiar to Yucatan and the adjoining portions of British Honduras.

88. *XANTHURA LUXUOSA*.

Xanthura luxuosa (Less.) ; Salv. & Godm. Biol. Centr.-Am., Aves, i. p. 502.

Cozumel I. (January).

Two specimens with the abdomen clear yellow, as in the bird of the opposite mainland.

[To be continued.]

XXXVI.—*A List of the Birds of the Islands of the Coast of Yucatan and of the Bay of Honduras.* By OSBERT SALVIN, M.A., F.R.S., &c.

[Continued from 'The Ibis,' 1888, p. 265.]

89. MYIOPAGIS PLACENS.

Elainea placens, Scl. ? ; Ridgw. Proc. U.S. Nat. Mus. viii. p. 571 ; Scl. Cat. B. Brit. Mus. xiv. p. 148.

Myiopagis placens, Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 26.

Mugeris I. (December) ; Cozumel I. (January, April).

Many specimens, agreeing with a large series from the mainland of Central and South America.

90. ORNITHION IMBERBE.

Camptostoma imberbe, Scl. P. Z. S. 1857, p. 203.

Ornithion imberbe, Scl. Cat. B. Brit. Mus. xiv. p. 126 ; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 29.

Cozumel I. (January, April).

This little bird is now known to have a very extended range, being found from Texas to South Brazil. It is probably resident wherever it occurs.

91. ELAINEA MARTINICA.

Elainea martinica (Linn.) ? ; Ridgw. Proc. U.S. Nat. Mus. viii. p. 571 ; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 36.

Meco I. (November) ; Mugerres I. (December) ; Holbox I. (December) ; Cozumel I. (April) ; Half-Moon Cay (May, O. S.).

Most of these birds are very grey beneath, and if *E. pagana* is to be kept separate from *E. martinica*, they must be placed with the latter rather than with the former. This has already been done by Mr. Ridgway, though with some hesitation. The Cozumel birds are the most typical, the more northern ones being slightly tinged with yellow. In Mr. Sclater's recent Catalogue the Cozumel skins are all called *E. pagana*, without comment, and the reference to Mr. Ridgway's note is omitted.

E. martinica has already been traced to Grand Cayman Island.

92. PITANGUS DERBIANUS.

Pitangus derbianus (Kaup) ; Scl. Cat. B. Brit. Mus. xiv. p. 175 ; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 43.

Meco I. (November) ; Mugerres I. (December) ; Cozumel I. Precisely like the mainland birds.

93. MYIOBIUS SULPHUREIPYGIUS.

Myiobius sulphureipygius (Scl.) ; Scl. Cat. B. Brit. Mus. xiv. p. 200 ; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 57.

Cozumel I.

A single specimen agreeing accurately with mainland birds.

94. PYROCEPHALUS RUBINEUS.

Pyrocephalus rubineus (Bodd.) ; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 60.

Pyrocephalus mexicanus, Scl. Cat. B. Brit. Mus. xiv. p. 213. Cozumel I.

Many examples agreeing with birds from the mainland, where the species is found in many parts of Mexico, Yucatan, and the pine-districts of British Honduras.

95. EMPIDONAX ACADICUS.

Empidonax acadicus (Gm.) ; Scl. Cat. B. Brit. Mus. xiv. p. 228 ; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 70.

Ruatan I.

Several specimens of this bird agree with others from Washington bearing the name *Empidonax acadicus*. We have no record of the occurrence of the species in Guatemala, but an example from Costa Rica in our collection seems undoubtedly referable to it.

96. *EMPIDONAX MINIMUS*.

Empidonax minimus, Baird; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 72.

Empidonax gracilis, Ridgw. Proc. U.S. Nat. Mus. viii. p. 571.

Holbox I. (December); Mugeris I. (December); Cozumel I.

Several examples agreeing accurately with typical North-American birds.

E. gracilis was founded on a single alcoholic specimen, its grey tints doubtless due to the method of preservation.

97. *CONTOPUS VIRENS*.

Contopus virens (Linn.); Sel. Cat. B. Brit. Mus. xiv. p. 238; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 84.

Ruatan I.

All the birds from Ruatan are large and agree best with northern skins of *Contopus virens*. The species has also been obtained on the opposite coast of Honduras at San Pedro.

98. *CONTOPUS BRACHYTARSUS*.

Contopus brachytarsus (Sel.); Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 86.

Contopus schottii, Lawr. ?; Ridgw. Proc. U.S. Nat. Mus. viii. p. 571.

Cozumel I.

Mr. Gaumer's collection contains many specimens of this small *Contopus*.

Contopus schottii, of Yucatan, is now generally admitted to be the same as *C. brachytarsus*.

99. *MYIARCHUS MAGISTER*.

Myiarchus magister (Ridgw.); Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 89.

Myiarchus mexicanus, Sel. Cat. B. Brit. Mus. xiv. p. 250.

Cozumel I.; Ruatan I.

We have lately written at some length upon this bird, which is the same as that found in the Rio Grande valley, the State of Vera Cruz, Yucatan, &c. It has often been called *M. cooperi* and *M. mexicanus*, but neither of these names can, in our opinion, be used for it. We have therefore employed Mr. Ridgway's title, *M. magister*, for it, which is, however, more strictly applicable to a larger form found in Arizona and North-western Mexico.

100. MYIARCHUS YUCATANENSIS.

Myiarchus yucatanensis, Lawr. ; Sel. Cat. B. Brit. Mus. xiv. p. 260 ; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 93.

Cozumel I.

Two specimens, having the upper surface, especially the head, slightly darker than a third from Northern Yucatan, which has been compared and found identical with the type of *M. yucatanensis*.

The species is a fairly definite one, but is very like *M. lawrencii* of Eastern and North-eastern Mexico.

101. MYIARCHUS LAWRENCII.

Myiarchus lawrencii (Giraud) ; Sel. Cat. B. Brit. Mus. xiv. p. 256 ; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 94.

Myiarchus lawrencii olivascens, Ridgw.

Myiarchus platyrhynchus, Ridgw. Proc. U.S. Nat. Mus. viii. p. 570.

Cozumel I. ; Ruatan I.

Many examples. A very common but variable bird in Mexico and Central America, as well as on the mainland of Yucatan, from which these island-birds present no tangible differences ; but I notice that the throat is a trifle paler than in Guatemalan examples.

Mr. Ridgway kindly sent me his type of *M. platyrhynchus* for examination, and I came to the conclusion that it belonged to *M. lawrencii*, the normal yellow colour of the plumage having been removed by alcohol.

102. TYRANNUS PIPIRI.

Tyrannus pipiri, Vicill. ; Sel. Cat. B. Brit. Mus. xiv. p. 267 ; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 97.

Cozumel I. ; Ruatan I.

Apparently common on both these islands. We likewise observed it on some of the coral islands off the coast of British Honduras and at Yzabal on the mainland in September. It is also common in Northern Yucatan in April and May. In the interior of Guatemala this Tyrant seldom occurs, but we have an example from Retalhuleu, on the coast-lands bordering the Pacific. Its southern range extends to Ecuador, Peru, Bolivia, and the Amazons valley.

103. TYRANNUS GRISEUS.

Tyrannus griseus, Vieill. ; ScI. Cat. B. Brit. Mus. xiv. p. 271 ; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 98.

Tyrannus dominicensis (Gm.), Ridgw. Proc. U.S. Nat. Mus. viii. p. 570.

Cozumel I. (*Benedict*).

Mr. Gaumer's collection does not contain specimens of this species. Besides the Larger Antilles, this bird occurs on the mainland on the Isthmus of Panama and in Northern Colombia.

104. TYRANNUS MELANCHOLICUS.

Tyrannus melancholicus, Vieill. ; ScI. Cat. B. Brit. Mus. xiv. p. 273 ; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 101.

Tyrannus melancholicus couchi, Ridgw. Proc. U.S. Nat. Mus. viii. p. 570.

Meco I. (November) ; Holbox I. (December) ; Mugerres I. (December) ; Cozumel I.

Many examples agreeing with the mainland bird, where the species is most abundant.

105. TYRANNUS MAGNIROSTRIS.

Tyrannus magnirostris, d'Orb. ; ScI. Cat. B. Brit. Mus. xiv. p. 273 ; Salv. & Godm. Biol. Centr.-Am., Aves, ii. p. 103.

Mugerres I. (Feb. 25, 1886).

This is the first instance recorded of the occurrence of this species on this coast. Cuba is its recognized domicile, but it has also been noticed on the Bahama Islands.

106. *PIPRA MENTALIS*.

Pipra mentalis, Scl. Cat. B. Brit. Mus. xiv. p. 295.

Meco I. (November); Muges I (December).

These specimens agree accurately with mainland birds. The species has a wide range from Southern Mexico to Panama.

107. *HADROSTOMUS AGLAIÆ*.

Hadrostomus aglaiaë (Lafr.); Scl. Cat. B. Brit. Mus. xiv. p. 335.

Holbox I.; Cozumel I.

The female I left undetermined from Mr. Devis's collection is placed by Mr. Sclater with this species. Nevertheless it has a bill much larger than typical examples of *H. aglaiaë*. Examples from Northern Yucatan have bills larger than usual, and the males are of a rather pale colour. With my present materials I think it best to adhere to Mr. Sclater's determination.

108. *ATTILA COZUMELÆ*.

Attila cozumelæ, Ridgw. Proc. U.S. Nat. Mus. viii. p. 572.

Attila, sp.?, Salv. Ibis, 1885, p. 191.

Cozumel I.

Many examples.

This seems to be a species distinct from *A. citreopygius*.

109. *ATTILA CITREOPYGIUS?*

Attila citreopygius (Bp.); Scl. Cat. B. Brit. Mus. xiv. 361.

Meco I.; Holbox I.; Muges I.

The birds from these more northern islands agree better with those of the mainland than with the Cozumel birds. They have paler rumps, and several of them a slight wash of olivaceous over the chest. I do not at present understand the variations found in several forms of *Attila*, *A. citreopygius* amongst them, so that I am obliged to leave the accurate determination of them for the present.

110. *DENDRORNIS FLAVIGASTER*.

Dendrornis flavigaster (Sw.).

Dendrornis eburneirostris (Less.); Scl. Cat. Am. B. p. 164.

Tuloom, E. coast of Yucatan; Meco I.

A widely ranging mainland species.

111. DENDROCINCLA HOMOCHROA.

Dendrocincla homochroa (Scl.); Cat. Am. B. p. 162.

Meco I.; Mugerres I.

A species abundant on the opposite mainland.

112. THAMNOPHILUS DOLIATUS.

Thamnophilus doliatus (Linn.) et *T. affinis*, Cab. & Heine; Scl. Cat. Am. B. p. 175.

Meco I.

Very common throughout Central America, and also in Northern South America.

113. LAMPORNIS PREVOSTI.

Lampornis prevosti (Less.); Gould, Mon. Troch. ii. pl. 75.

Lampornis thalassinus, Ridgw. Descr. New Sp. B. Cozumel, p. 3.

Lampornis prevosti thalassinus, Ridgw. Proc. U.S. Nat. Mus. viii. p. 573.

Meco I.; Holbox I.; Mugerres I.; Cozumel I.; Bonacca I.

With a series of sixteen island specimens (14 ♂, 2 ♀) before me, I cannot distinguish this form from the common mainland bird, which extends from Southern Mexico to Costa Rica, and is abundant in British Honduras.

114. TROCHILUS COLUBRIS.

Trochilus colubris, Linn.; Gould, Mon. Troch. iii. pl. 131; Ridgw. Proc. U.S. Nat. Mus. viii. p. 573.

Holbox I.; Cozumel I.

115. DORICHA ELIZÆ.

Thaumastura elizæ (Less. & Delattre); Gould, Mon. Troch. iii. pl. 155.

Holbox I.

This Mexican species is found sparingly in Northern Yucatan.

116. AMAZILIA CINNAMOMEA.

Amazilia cinnamomea (Less.); Elliot, Syn. II. Birds, p. 219.

Amazilia corallirostris (Bourc. & Muls.); Gould, Mon. Troch. v. pl. 307.

Holbox I.

Also not uncommon in Northern Yucatan, and found over a large area in Central America.

117. CHLOROSTILBON CANIVETI.

Chlorostilbon caniveti (Less.); Gould, Mon. Troch. v. pl. 351.

Ruatan I.; Bonacca I.

Birds from these islands seem inseparable from *C. caniveti* from the mainland. The rectrices, however, seem unusually broad, the central pair not so short, so that the tail is not so deeply forked as in *C. caniveti*. These points seem hardly constant enough to justify the separation of these Bay-Island birds. There is a marked contrast between them and the Cozumel-Island bird as regards the elongation of the outer rectrices.

118. CHLOROSTILBON FORFICATUS.

Chlorostilbon forficatus, Ridgw. Proc. U.S. Nat. Mus. viii. p. 574.

Chlorostilbon caniveti, Salv. Ibis, 1885, p. 191.

Mugeres I.; Holbox I.; Cozumel I.

These birds are exceedingly like *C. auriceps*, and I have long hesitated whether to keep them separate or not. The uncertainty as to the true domicile of *C. auriceps* added to my doubts. This point has now been settled, as Mr. Smith's collection from the State of Guerrero contains a single example of the true *C. auriceps*, which, though not quite adult, is sufficiently advanced in plumage to leave no room for doubt as to its name.

It now appears that *C. forficatus* can generally be distinguished by its greener, less golden crown, and rather broader lateral rectrices.

Some of the specimens from Holbox Island have the outer rectrices much shorter than others, and are thus hardly to be separated from the mainland *C. caniveti*. Mr. Devis's specimen, called by me *C. caniveti*, is a fragment, and most of the tail-feathers are wanting.

119. CHÆTURA GAUMERI.

Chætura gaumeri, Lawr. Ann. New York Ac. Sc. ii. p. 246.

Chætura yucatanica, Lawr. loc. cit. iii. p. 156 (?).

Cozumel I. (April).

Many specimens, varying from 3·9 inches to 4·6 in the length of the wing.

Mr. Lawrence has described a second species of *Chætura*, allied to his *C. gaumeri*, under the name of *C. yucatanica*, its differences being stated to consist in its smaller size (wing 3·9 instead of 4·25), more ashy throat, darker abdomen, blacker tail, and more tapering tail-feathers.

It appears from the series before me that the recorded measurements of *C. gaumeri* and *C. yucatanica* completely overlap; and as there is some diversity in the coloration, I feel doubtful whether there are really two species in Yucatan distinct from one another and from *C. vauxi*.

Regarding the latter species, Mr. Lawrence refers a specimen shot by me near Dueñas on February 6, 1860, and sent to the Smithsonian Institution as *C. vauxi*, to his *C. gaumeri*. But two specimens before me, shot at the same place and on the same afternoon out of the same flock, seem to me to be inseparable from *C. vauxi*, of which I have several specimens before me so named by Mr. Henshaw. These are generally larger than the Cozumel bird, and not nearly so dark on the abdomen.

The extent to which the spines of the tail-feathers are worn in our series of *C. gaumeri* varies very much. In some they are long and perfect, in others worn to the webs of the feathers, so that no specific character can be drawn from this source.

In our collection we have a specimen from Chiriqui differing in no way from the Cozumel birds, showing that this Swift has really a very wide range.

120. CHÆTURA PELAGICA.

Chætura pelagica (Linn.) ; Baird, Brew., & Ridgw. N. Am. B. ii. p. 432.

Cozumel I. (April).

Four specimens sent by Mr. Gaumer agree accurately with examples from North America, including one from Washington sent us by the late Professor Baird. We have also a skin from Jalapa, Mexico, in our collection. These, with those now sent from Cozumel, give some indication of the winter abode of this species, concerning which we have hitherto known hardly anything.

121. NYCTIBIUS JAMAICENSIS.

Nyctibius jamaicensis (Gm.); Sci. Cat. Am. B. p. 278.

Ruatan I.

Two specimens of this widely ranging species, of which we have others from several places on the mainland, the most northern being the neighbourhood of Mazatlan, Western Mexico.

122. CHORDEILES TEXENSIS.

Chordeiles texensis, Lawr.; Baird, B. N. Am. p. 15 t, pl. 44.

Chordeiles acutipennis, var. *texensis*, Baird, Brew., & Ridgw. N. Am. B. ii. p. 406.

Cozumel I.; Ruatan I.

Many specimens of both sexes agreeing with our series from Mexico and Central America bearing this name. We trace the same bird as far south as the State of Panama.

123. NYCTIDROMUS ALBICOLLIS.

Nyctidromus guianensis (Gm.); Sci. Cat. Am. B. p. 281.

Mugres I.; Cozumel I.

A bird of very wide distribution in tropical America from the Rio Grande valley to Paraguay.

124. DRYOBATES SCALARIS.

Picus scalaris, Wagl.; Salv. Ibis, 1885, p. 191.

Dryobates scalaris parvus (Cabot); Ridgw. Man. N. Am. B. p. 284.

Cozumel I.

The birds obtained by Mr. Devis are the only ones we have seen from Cozumel. These agree with specimens from the mainland called *Picus parvus* by Dr. Cabot, the *D. scalaris parvus* of Mr. Ridgway.

125. CENTURUS RUBRIVENTRIS.

Centurus rubriventris pygmaeus, Ridgw. Proc. U.S. Nat. Mus. viii. p. 576.

Melanerpes pygmaeus, Ridgw. Man. N. Am. B. p. 293.

Cozumel I. ; Bonacca I. (September).

Mr. Gaumer has sent us a good series of this species from Cozumel Island and four specimens from Bonacca Island ; we have also several from the mainland of Northern Yucatan. The average size of the island birds is rather small and the plumage rather dark, but the difference is very slight, and I have no difficulty in selecting a Cozumel bird with a wing as long as one from the mainland or others not to be distinguished in colour. The central tail-feathers in the island birds have a little more white towards the base ; this seems to be especially the case in the specimens from Bonacca Island.

All that can be said of this Woodpecker is that in Cozumel and Bonacca Islands it has a tendency to become smaller, to assume darker plumage, and to have whiter bases to the rectrices. If those that bear these characters are to be separated by name, others living with them in the same woods with normal plumage must be called simply *C. rubriventris*. I cannot think this a desirable plan to adopt.

C. rubriventris, Mr. Gaumer says, is found on Bonacca Island to the exclusion of *C. canescens*.

126. CENTURUS DUBIUS.

Picus dubius, Cabot, Journ. Bost. Soc. N. H. v. p. 91.

Centurus dubius, Salv. Ibis, 1885, p. 192.

Centurus aurifrons dubius, Ridgw. Proc. U.S. Nat. Mus. iv. p. 108.

Centurus leei, Ridgw. Descr. New Sp. B. Cozumel, p. 3.

Centurus dubius leei, Ridgw. Proc. U.S. Nat. Mus. viii. p. 575.

Melanerpes leei, Ridgw. Man. N. Am. B. p. 293.

Meco I. (November) ; Cozumel I.

A specimen from Meco has a nearly pure white rump, with only the shafts of the longer coverts dark, and exactly corresponds with mainland specimens. The Cozumel bird

has a decided tendency to acquire a barred rump (*M. leei*, Ridgw.); but in the series before me I find every gradation to the typical form. As the extreme varieties of this Woodpecker occur together on one small island, a trinomial for it seems out of place. A distinct binomial, again, for one extreme form is not sufficient, without admitting the other extreme as coexisting in the same area, and then we have the further difficulty of dealing with the intermediate forms which are neither the one nor the other. The only way out of the difficulty is to call them all by the comprehensive name *C. dubius*.

The range of *C. dubius* is very extensive. Recent Mexican collections contain specimens from Teapa and from as far west as Playa Vicente, in the State of Vera Cruz. Here it almost touches the range of *C. santacruzii*, which is found near the town of Vera Cruz, at Atoyac, on the railway to the interior, and thence northwards along the coast to Tampico. In the Eastern Sierra Madre, near Victoria, *C. aurifrons* occurs, the prevalent species of the Rio Grande valley and the interior of Northern Mexico.

127. CENTURUS CANESCENS, sp. n.

C. dubio affinis, sed fasciis albis corporis superioris et alarum latioribus, remige tertio ad basin distincte albo fasciato, genis et corpore toto subtus plerumque albicantioribus, ut videtur, distinguendus.

Hab. Ruatan I., Bay of Honduras (*G. F. Gaumer*).

Mr. Gaumer's collection from Ruatan Island contains a large number of specimens of this Woodpecker, which, though closely allied to *C. dubius*, seems separable as an island-form, the characters, taken together, being sufficient to distinguish it. The pale colour of the cheeks and under plumage, compared with that of *C. dubius*, at once strikes the eye as a distinctive character, but we have a specimen or two from the mainland nearly, if not quite, as pale. The bar at the base of the third primary is more certain, this feather being nearly black in *C. dubius*.

This Woodpecker being restricted to the island of Ruatan, the slight characters by which it can be distinguished are of

more value than if it lived on the mainland, in which case I should not have ventured to separate it.

128. *EUMOMOTA SUPERCILIARIS.*

Prionites superciliaris, Sandbach, Rep. Brit. Assoc. 1837, p. 99.

Crypticus superciliaris, Jard. & Selb. Ill. Orn. iv. pl. 18*.

Eumomota superciliaris, Boucard, P. Z. S. 1883, p. 453.

Meco I. (December).

According to Mr. Gaumer this species is very common in Yucatan. It was originally described from specimens obtained in Campeche.

129. *CERYLE ALCYON.*

Ceryle alcyon (Linn.); Sharpe, Mon. Alced. p. 79, pl. 23. Cozumel I.; Ruatan I.

Also found on the opposite mainland at Belize and Omoa.

130. *CERYLE SUPERCILIOSA.*

Ceryle superciliosa (Linn.); Sharpe, Mon. Alced. p. 93, pl. 28.

Cozumel I.

A single specimen of this widely ranging South-American species, which is also generally distributed throughout the low lands of Central America.

131. *TROGON MELANOCEPHALUS.*

Trogon melanocephalus, Gould, Mon. Troch. ed. 2, pl. 27; Boucard, P. Z. S. 1883, p. 454.

Meco I.

According to Mr. Gaumer, this species is not common in Yucatan. It is, however, widely distributed in Central America, and ranges northwards to the Mexican frontier State of Tamaulipas.

* Published before Jan. 1841 (see Jardine, Ann. & Mag. N. II. vi. p. 321). The first part of the first volume of the 'Illustrations of Ornithology' was issued in 1837, and contained six plates, and was to be followed by successive similar parts at intervals of six weeks or two months. Plate 18, if this course was followed, would have been published in 1838.

132. CROTOPHAGA ANI.

Crotophaga ani, Linn.; Ridgw. Proc. U.S. Nat. Mus. viii. p. 577.

Ruatan I.; Cozumel I.

This, the common Antillean species of *Crotophaga*, is not found on the mainland north of the State of Panama.

133. CROTOPHAGA SULCIROSTRIS.

Crotophaga sulcirostris, Sw.; Boucard, P. Z. S. 1883, p. 454. Holbox I.; Mugerres I.; Cozumel I.

The common species of *Crotophaga* in Central America, being abundant in Yucatan.

134. PIAYA CAYANA.

Piaya cayana (Linn.); Boucard, P. Z. S. 1883, p. 454. Meco I.; Holbox I.; Mugerres I.

The birds from these islands agree with the common mainland form of *P. cayana*, having dark tail-feathers.

135. COCCYZUS AMERICANUS.

Coccyzus americanus (Linn.); Baird, Brew., & Ridgw. N. Am. B. ii. p. 477.

Cozumel I.; Ruatan I.

These specimens vary slightly in size and stoutness of the bill, and perhaps represent both the eastern *C. americanus* and the western *C. a. occidentalis*, Ridgw.

In its southern migration *C. americanus* reaches the Argentine Republic. Cf. Scf. & Huds. Arg. Orn. ii. p. 37.

136. COCCYZUS MINOR.

Coccyzus minor (Gm.); Baird, Brew., & Ridgw. N. Am. B. ii. p. 482; Ridgw. Man. N. Am. B. p. 274.

Cozumel I.; Ruatan I.

Several specimens of this *Coccyzus*, which is seldom met with on the mainland of Central America. It has been recorded, however, from Honduras, and we have lately received specimens from the Mexican State of Guerrero, from Tampico, and from Buctzotz, in Northern Yucatan, the latter collected by Mr. Gaumer.

137. *COCCYZUS ERYTHROPTHALMUS.*

Coccyzus erythrophthalmus (Wils.); Baird, Brew., & Ridgw. N. Am. B. ii. p. 484; Ridgw. Man. N. Am. B. p. 274.

Cozumel I.

A single specimen.

138. *RHAMPHASTOS CARINATUS.*

Rhamphastos carinatus, Sw.; Gould, Mon. Rhamph. ed. 2, pl. 2; Boucard, P. Z. S. 1883, p. 455.

Meco I.

A single specimen.

A well-known bird of the lowlands of the forests of the eastern side of Central America.

139. *CONURUS ASTEC.*

Conurus astec, Souancé; Finsch, Papag. i. p. 522; Salv. Ibis, 1871, p. 93; Boucard, P. Z. S. 1883, p. 455.

Holbox I.

A common species in Yucatan.

140. *CHRYSOTIS AURIPALLIATA.*

Chrysotis auripalliata (Less.); Finsch, Papag. ii. p. 568; Salv. Ibis, 1871, p. 99.

Ruatan I.

Mr. Gaumer's collection contains several specimens of this species, which are the first we have received from any place on the eastern side of the Central-American Cordillera. On the western side of the forests bordering the Pacific *C. auripalliata* is a common species.

141. *CHRYSOTIS AUTUMNALIS.*

Chrysotis autumnalis (Linn.); Finsch, Papag. ii. p. 547; Salv. Ibis, 1871, p. 98.

Ruatan I.

Not uncommon on the adjoining mainland. Its northern extension reaches to the middle of the Mexican State of Tamaulipas.

142. *CHRYSOTIS XANTHOLORA.*

Chrysotis xantholora, G. R. Gray; Finsch, Papag. ii. p. 528; Salv. Ibis, 1871, p. 97, 1874, p. 327, 1885, p. 192; Sel.

P. Z. S. 1875, p. 157, pl. 26; Ridgw. Proc. U.S. Nat. Mus. viii. p. 577.

Cozumel I.

Many specimens, including both sexes and immature birds.

This is apparently the only Parrot found on Cozumel Island.

143. *CICCABA VIRGATA*.

Ciccaba virgata, Cass.

Syrnium virgatum, Sharpe, Cat. B. Brit. Mus. ii. p. 273.

Meeco I.

A single specimen, not differing from many mainland examples.

144. *GLAUCIDIUM PHALÆNOIDES*.

Glaucidium phalænoides (Daud.).

Glaucidium ridgwayi?, Sharpe, Cat. B. Brit. Mus. ii. p. 205.

Cozumel I.

Several specimens in very varied plumage (the rufous phase predominating), especially as regards the markings of the tail.

145. *PANDION HALIAETUS*.

Pandion haliaetus (Linn.); Sharpe, Cat. B. Brit. Mus. i. p. 449; Salv. Ibis, 1885, p. 186.

Holbox I.; Cozumel I. (*Devis*); Ruatan I.

Mr. Gaumer's collection contains specimens of the Osprey from Holbox and Ruatan Islands. Mr. Devis also noticed the bird on Cozumel Island. The species is not uncommon on this coast, where it breeds (*cf.* Salv. Ibis, 1864, p. 385).

146. *ASTURINA PLAGIATA*.

Asturina plagiata, ScL.; Sharpe, Cat. B. Brit. Mus. i. p. 204.

Ruatan I.

147. *ASTURINA RUFICAUDA*.

Asturia ruficauda, ScL. & Salv. P. Z. S. 1869, p. 133; Ex. Orn. p. 175, pl. 88; Boucard, P. Z. S. 1883, p. 456.

Rupornis gracilis, Ridgw. Proc. U.S. Nat. Mus. viii. p. 94.

Rupornis magnirostris gracilis, Ridgw. Proc. U.S. Nat. Mus. viii. p. 578.

Meco I. ; Holbox I. ; Cozumel I. ; Ruatan I. ; Bonacca I.

We have a good many specimens from Cozumel Island, showing, on an average, rather less barring on the thighs than is usual in birds from the mainland ; some, however, are not to be distinguished in this or any other respect.

The Ruatan Island and Bonacca Island birds are darker than usual, with dark chests and tails, but none of them are in quite adult plumage, so that at present I feel only justified in calling attention to the fact.

We now possess seventy specimens of this form of *Asturina* or *Rupornis* from Mexico and Central America, the most northern point reached being Presas de Aldama, near Tampico, in the State of Tamaulipas.

148. URUBITINGA ANTHRACINA.

Urubitinga anthracina (Nitzsch) ; Sharpe, Cat. B. Brit. Mus. i. p. 215 ; Salv. Ibis, 1885, p. 193 ; Ridgw. Proc. U.S. Nat. Mus. viii. p. 581.

Cozumel I.

149. GERANOSPIZIAS NIGRA.

Geranospizias niger (DuBus) ; Sharpe, Cat. B. Brit. Mus. i. p. 82.

Meco I.

150. HYPOTRIORCHIS COLUMBARIUS.

Falco columbarius, Linn. ; Sharpe, Cat. B. Brit. Mus. i. p. 408.

Mugeres I. ; Cozumel I. ; Ruatan I.

151. HYPOTRIORCHIS RUFIGULARIS.

Hypotriorchis rufigularis (Daud.).

Falco albigularis, Daud. ; Sharpe, Cat. B. Brit. Mus. i. p. 401.

Ruatan I.

152. CATHARTES AURA.

Cathartes aura, Linn.

Enops aura, Sharpe, Cat. B. Brit. Mus. i. p. 25.
Cozumel I.

C. aura, Mr. Gaumer writes, is found in both Ruatan and Bonacca Islands, to the exclusion of *C. atratus*.

PELECANIDÆ.

Specimens of the following species of Pelecanidæ were obtained on Cozumel Island :—

- 153. FREGATA AQUILA.
- 154. PELECANUS FUSCUS.
- 155. PHALACROCORAX MEXICANUS.
- 156. PHALACROCORAX FLORIDANUS.
- 157. PLOTUS ANHINGA.

ARDEIDÆ.

The following Ardeidæ were found on Cozumel Island :—

- 158. ARDEA EGRETTA.
- 159. ARDEA CANDIDISSIMA.
- 160. ARDEA RUFÆ.
- 161. ARDEA PEALI.
- 162. ARDEA LUDOVICIANA.
- 163. ARDEA CÆRULEA.
- 164. BUTORIDES VIRESCENS (also on Ruatan).
- 165. TIGRISOMA CABANISI.
- 166. NYCTICORAX VIOLACEUS (also on Ruatan).
- 167. CANCROMA COCHLEARIA.

CICONIIDÆ.

- 168. TANTALUS LOCULATOR.
- Cozumel I.

PLATALEIDÆ.

- 169. EUDOCIMUS ALBUS.
 - 170. PLATALEA AJAJA.
- Both on Cozumel I.

ANATIDÆ.

Three species of Ducks were found on Cozumel Island,
viz. :—

171. *DENDROCYGNA AUTUMNALIS*.

172. *CAIRINA MOSCHATA*.

173. *QUERQUEDULA DISCORS*.

COLUMBIDÆ.

174. *COLUMBA LEUCOCEPHALA*.

Columba leucocephala, Linn. ; Salv. Ibis, 1885, p. 193.

Cozumel I. ; Ruatan I.

Apparently a common bird in both the above islands.

175. *ZENAIDURA CAROLINENSIS*.

Zenaidura carolinensis (Linn.) ; Baird, Brew., & Ridgw. N.
Am. B. iii. p. 383.

Cozumel I.

A single specimen.

176. *ZENAIDA AMABILIS*.

Zenaida amabilis, Bp. ; Boucard, P. Z. S. 1885, p. 458.

Holbox I. ; Muges I.

Many specimens, not differing from the typical form of
this widely spread West-Indian species. It also occurs on
the adjoining mainland.

177. *MELOPELIA LEUCOPTERA*.

Melopelia leucoptera (Linn.) ; Boucard, P. Z. S. 1883,
p. 459.

Muges I. ; Cozumel I.

A well-known species on the mainland.

178. *CHAMÆPELIA PASSERINA*.

Chamæpelina passerina (Linn.).

Columbigallina passerina, Ridgw. Proc. U.S. Nat. Mus. viii.
p. 581.

Holbox I. ; Muges I. ; Cozumel I.

Many specimens.

179. CHAMÆPELIA RUFIPENNIS.

Chamæpelis rufipennis, Bp. ; Boucard, P. Z. S. 1883, p. 459.
Columbigallina rufipennis, Ridgw. Proc. U.S. Nat. Mus.
 viii. p. 581.

Cozumel I.

180. ENGYPTILA JAMAICENSIS.

Engyptila jamaicensis (Linn.) ; Salv. Ibis, 1885, p. 193.
 Holbox I. ; Mugeris I. ; Cozumel I.
 Many specimens, agreeing with others from Jamaica, the
 chest being a little darker and not quite so grey.

CRACIDÆ.

181. CRAX GLOBICERA.

Crax globicera, Linn. ; ScL. & Salv. P. Z. S. 1870, p. 513 ;
 Boucard, P. Z. S. 1883, p. 459 ; Ridgw. Proc. U.S. Nat. Mus.
 viii. p. 581.

Cozumel I.

Three females, agreeing with specimens of that sex of
C. globicera, the common *Crax* of the adjoining mainland.

182. ORTALIS VETULA.

Ortalida vetula, Wagl. ; ScL. & Salv. P. Z. S. 1870, p. 538.
Ortalis vetula, Boucard, P. Z. S. 1883, p. 460.
Ortalis vetula pallidiventris, Ridgw. Man. N. Am. B. p. 209.
 Meco I. ; Holbox I.

These birds agree with those of the mainland, and there-
 fore belong to the race recently described by Mr. Ridgway.

RALLIDÆ.

Specimens of the following Rallidæ, all from Cozumel
 Island, are in the collection, viz. :—

183. ARAMIDES ALBIVENTRIS.

184. PORZANA CAROLINA.

185. PORZANA RUBRA.

186. PORPHYRIO MARTINICA (also from Ruatan I.).

187. GALLINULA GALEATA.

188. FULICA AMERICANA.

189. ARAMUS GIGANTEUS.

LIMICOLÆ.

Mr. Gaumer's collection contains representatives of the following nineteen species of Limicolæ, most of them from Cozumel Island, viz. :—

190. *PARRA GYMNOSTOMA*.
191. *ÆGIALITIS VOCIFERA*.
192. *ÆGIALITIS WILSONI*.
193. *ÆGIALITIS SEMIPALMATA*.
194. *STREPSILAS INTERPRES*.
195. *HÆMATOPUS PALLIATUS*.
196. *HIMANTOPUS NIGRICOLLIS* (also from Ruatan I.).
197. *MACRORHAMPHUS GRISEUS*.
198. *TRINGA FUSCICOLLIS*.
199. *CALIDRIS ARENARIA*.
200. *EREUNETES PETRIFICATUS*.
201. *SYMPHEMIA SEMIPALMATA*.
202. *TOTANUS FLAVIPES* (also from Holbox I.).
203. *TOTANUS SOLITARIUS* (from Ruatan I. only).
204. *ACTITURUS LONGICAUDA* (from Ruatan I. only).
205. *TRYNGITES RUFESCENS* (from Ruatan I. only).
206. *TRINGOIDES MACULARIUS* (also from Ruatan I.).
207. *LIMOSA FEDOA*.
208. *NUMENIUS LONGIROSTRIS*.

LARIDÆ.

The following Terns and Gull are also from Cozumel :—

209. *RHYNCHOPS NIGRA*.
210. *STERNA MAXIMA*.
211. *STERNA CANTIANA*.
212. *LARUS ATRICILLA*.

PODICEPIDIDÆ.

213. *PODICEPS DOMINICUS* (Linn.) is represented by several immature specimens from Cozumel Island.

[To be continued.]

IX.—*A List of the Birds of the Islands of the Coast of Yucatan and of the Bay of Honduras.* By OSBERT SALVIN, M.A., F.R.S., &c.

[Conclusion*.]

ADDENDA.

BEFORE proceeding to analyse the foregoing lists, I have to add the names of the following species accidentally omitted therefrom :—

147 A. BUTEOLA BRACHYURA.

Buteola brachyura (Vieill.); Sharpe, Cat. B. Brit. Mus. i. p. 201.

Buteo brachyura, Ridgw. Proc. U.S. Nat. Mus. viii. p. 578. Cozumel I.

Included by Mr. Ridgway in his list, but not represented in Mr. Gaumer's collection. The species has a wide range in tropical America, but is rare on the mainland of Central America.

147 B. ICTINIA PLUMBEA.

Ictinia plumbea (Gm.); Sharpe, Cat. B. Brit. Mus. i. p. 364.

Ruatan I.

A species of wide range in tropical America and not uncommon in Central America, especially in the pine-forests of the lowlands.

I have further to state that, until recently, I have always looked upon *Vireo olivaceus* as a winter visitor to Mexico and Central America. We have, however, recently received, both from Mr. W. B. Richardson and Mr. Blancaneaux, eggs of this species along with the parent birds; so that its residence in Eastern Mexico and British Honduras is proved, and almost certainly extends to the Bay Islands, whence skins have been sent us.

* For preceding parts see 'Ibis,' 1888, pp. 241-265; 1889, pp. 359-379.

SUMMARY.

The apparent number of species found in the islands under consideration thus becomes 215, but from these must be deducted No. 52, *Hirundo erythrogaster* × *swainsoni*, to all appearance a hybrid; the total thus becomes 214.

In the list of 214 species, as thus amended, we find the names of 79 which belong to birds which annually migrate from North America to Mexico, Central or South America, or the West-Indian Islands, and either reside during the winter months on the islands now under consideration, or rest there during passage in autumn and spring. The only point which I propose to notice in connexion with these migratory species is that we find several that occur here at almost, if not quite, the western limit of their range. The following species come under this category:—*Turdus fuscescens*, *T. aliciae*, *Protonotaria citrea*, *Dendræca cærulescens*, *D. discolor*, *D. palmarum*, and *Perissoglossa tigrina*. The remaining migratory species are birds of wider range, which spread much further westwards in their spring and autumn flight; their presence therefore on these islands is of no special interest.

Of the remaining 135 species, 27 are birds which frequent the sea-coast or marshes adjoining, and are of very wide range, so that their presence also is of no special significance.

This leaves 108 species, belonging to no less than 84 genera, the distribution of which I propose to examine. They are given in the annexed table (pp. 86–89).

Before analysing the list in detail, it is necessary to examine the 32 birds which form the resident fauna of Meco Island. In the first place we find here no less than 9 genera, represented by as many species, which are not found on any of the other islands. All of these genera are characteristic of the fauna of the mainland. Of the species, *Phœnicothraupis insularis* alone is an island race, and is also found on Mugerres Island. The only species that has any special West-Indian affinity is *Elainea martinica*, and this is of very doubtful value.



Islands, Mainland, and West Indies.	Islands and Main- land.	Islands and West Indies.	Islands only.		Meco.	Holbox.	Mugeres.	Cozumel.	Ruatan.	Bonacca.
†	...	...	...	1. <i>Turdus</i>	†	...	†	†		
	*	...	...	1. <i>grayi</i>	*	...	*	*		
	†	...	...	2. <i>Melanoptila</i>.....	...	...	...	†
	*	...	...	2. <i>glabirostris</i> .....	...	...	...	*
	†	...	...	3. <i>Harporhynchus</i> .....	...	...	...	†
	...	...	*	3. <i>guttatus</i> .....	...	...	...	*
†	...	...	...	4. <i>Mimus</i>	†	†	†	†		
†	...	...	...	4. <i>gilvus</i>	*	*	*	†		
	...	...	...	5. <i>Polioptila</i> .....	...	...	...	†	†
	*	...	...	5. <i>cæsiogaster</i> .....	...	...	...	*	*
	...	...	...	6. <i>Troglodytes</i> .....	...	...	...	†
	...	...	*	7. <i>Dendroeca</i> .....	...	...	...	*
	...	...	...	8. <i>petechia</i> .....	...	...	...	†	...	†
	*	...	...	9. <i>bryanti</i>.....	...	...	...	*	...	*
†	...	...	...	8. <i>Vireo</i> .....	...	†	†	†	†	†
*	...	...	...	10. <i>calidris</i>.....	...	...	...	*	*	*
	*	...	...	11. <i>olivaceus</i> .....	...	...	...	*	*	*
	*	...	...	12. <i>magister</i> .....	...	*	*	*	*	*
	...	...	*	13. <i>bairdi</i> .....	...	...	...	*	*	*
	†	...	...	14. <i>ochraceus</i>.....	...	*	*	...	*	*
	*	...	...	9. <i>Cyclorhis</i> .....	†	...	...	†
	*	...	...	15. <i>flaviventris</i> .....	*	...	...	*
	...	...	*	16. <i>insularis</i> .....	...	...	...	*
	†	...	...	10. <i>Tachycineta</i> .....	†	†	...	...
	*	...	...	17. <i>albilinea</i> .....	*	*	...	...
†	...	...	...	11. <i>Cœreba</i> .....	...	...	...	†
*	...	...	...	18. <i>cyanea</i> .....	...	...	...	*
†	...	...	*	12. <i>Certhiola</i> .....	...	†	...	†	
	...	...	...	19. <i>caboti</i> .....	...	*	...	*	
†	...	...	...	13. <i>Euphonia</i> .....	...	...	...	†
	*	...	...	20. <i>affinis</i> .....	...	...	...	*
	...	...	...	14. <i>Spindalis</i> .....	...	...	...	†
	...	...	*	21. <i>benedicti</i> .....	...	...	...	†
†	...	...	...	15. <i>Pyrranga</i>	†	...	†	†		
	*	...	...	22. <i>roseigularis</i>	*	...	*	*		
	†	...	...	16. <i>Phœnicotheraupis</i>	†	...	†	...		
	...	...	*	23. <i>insularis</i>	*	...	*	...		
	†	...	...	17. <i>Eucometis</i> .....	†	...	...	...
	*	...	...	24. <i>spodocephala</i> .....	*	...	...	...
	†	...	...	18. <i>Cardinalis</i>	†	†	†	†		
	*	...	...	25. <i>coccineus</i>	*	*	*	*		
	†	...	...	19. <i>Guiraca</i>	†	...	†	...		
	*	...	...	26. <i>parellina</i>	*	...	*	...		
	†	...	...	20. <i>Spermophila</i>	†	...	†	...		
	*	...	...	27. <i>moreleti</i>	*	...	*	...		
†	...	...	...	21. <i>Phonipara</i>.....	...	†	...	†	
	...	...	*	28. <i>intermedia</i> .....	...	*	...	*	
3	15	2	8	Carried forward.....	10	8	9	19	4	3

Islands, Mainland, and West Indies.	Islands and Main- land.	Islands and West Indies.	Islands only.		Meco.	Holbox.	Mugeris.	Cozumel.	Ruatan.	Bonaca.
3	15	2	8	Brought forward	10	8	9	19	4	3
	†	...	...	22. <i>Spizella</i> .....	...	...	...	...	†
	*	...	...	29. <i>pinetorum</i> .....	...	...	...	...	*
	†	...	...	23. <i>Embernagra</i>	†					
	*	...	...	30. <i>verticalis</i>	*					
†	...	...	...	24. <i>Chrysomitris</i> .....	...	...	†	
	*	...	...	31. <i>mexicana</i> .....	...	...	*	
†	...	...	...	25. <i>Agelaius</i> .....	...	...	†	
	*	...	...	32. <i>phoeniceus</i> .....	...	...	*	
†	...	...	...	26. <i>Icterus</i>	†	†	†	†	†	
	*	...	...	33. <i>giraudi</i> .....	*	...	...	...	*
	*	...	...	34. <i>cucullatus</i>	*	*	*	*		
	*	...	...	35. <i>auratus</i>	*					
†	...	...	...	36. <i>gularis</i> .....	...	...	...	*
	†	...	...	27. <i>Quiscalus</i> .....	...	...	†	†	†
	*	...	...	37. <i>macrurus</i> .....	...	...	*	*	*
	†	...	...	28. <i>Cyanolyca</i>	†	†				
	*	...	...	38. <i>yucatanica</i>	*	*				
	†	...	...	29. <i>Xanthura</i> .....	...	...	...	†
	*	...	...	39. <i>luxuosa</i> .....	...	...	...	*
	†	...	...	30. <i>Camptostoma</i> .....	...	...	...	†
	*	...	...	40. <i>imberbe</i> .....	...	...	...	*
†	...	...	...	31. <i>Elainea</i>	†	†	†	†		
	*	...	...	41. <i>martinica</i>	*	*	*	*		
†	...	...	...	32. <i>Myiopagis</i> .....	...	...	†	†
	*	...	...	42. <i>placens</i> .....	...	...	*	*
†	...	...	...	33. <i>Pitangus</i> .....	...	...	†	†
	†	...	...	43. <i>derbianus</i> .....	...	...	*	*
	*	...	...	34. <i>Myiobius</i> .....	...	...	...	†
	†	...	...	44. <i>sulphureipygius</i> .....	...	...	...	*
	*	...	...	35. <i>Pyrocephalus</i> .....	...	†	†	†	
†	...	...	...	45. <i>rubineus</i> .....	...	*	*	*	
	*	...	...	36. <i>Contopus</i> .....	...	...	...	†
	†	...	...	46. <i>brachytarsus</i> .....	...	...	...	*
	*	...	...	37. <i>Myiarchus</i> .....	...	...	...	†	†
	...	...	...	47. <i>magister</i> .....	...	...	...	*	*
	*	...	...	48. <i>yucatanensis</i> .....	...	...	...	*
	*	...	...	49. <i>lawrencii</i> .....	...	...	...	*	*
†	...	...	...	38. <i>Tyrannus</i>	†	†	†	†		
	*	...	...	50. <i>melancholicus</i>	*	*	*	*		
	...	...	...	51. <i>griseus</i> .....	...	...	...	*
	*	...	...	52. <i>magnirostris</i> .....	...	...	*	
	†	...	...	39. <i>Pipra</i>	†	†				
	*	...	...	53. <i>mentalis</i>	*	*				
†	...	...	...	40. <i>Hadrostomus</i> .....	...	†	...	†	
	*	...	...	54. <i>aglaiae</i> .....	...	*	...	*	
	†	...	...	41. <i>Attila</i>	†	†	†	†		
	*	...	...	55. <i>cozumelæ</i> .....	...	...	...	*
	...	...	...	56. <i>citriopygius</i>	*	*	*			
4	39	4	9	Carried forward	19	16	20	37	9	3

Islands, Mainland, and West Indies.	Islands and Main- land.	Islands and West Indies.	Islands only.		Meco.	Holbox.	Mugeres.	Cozumel.	Ruatan.	Bonacca.
4	39	4	9	Brought forward	19	16	20	37	9	3
	†	...	...	42. Dendroornis	†					
	*	...	...	57. eburneirostris	*					
	†	...	...	43. Dendrocincla.....	†	...	†			
	*	...	...	58. homochrous.....	*		*			
	†	...	...	44. Thamnophilus	†					
	*	...	...	59. doliatus	*					
†	...	...	...	45. Lampornis.....	†	†	†	†	...	†
*	...	...	...	60. prevosti	*	*	*	*	...	*
†	...	...	...	46. Doricha .....	...	†			
*	...	...	...	61. elizæ.....	...	*				
	†	...	...	47. Amazilia .....	...	†			
	*	...	...	62. cinnamomea .....	...	*			
	†	...	...	48. Chlorostilbon .....	...	†	†	†	†	†
	...	...	*	63. forficatus.....	...	*	*	*		
	*	...	...	64. caniveti .....	...				*	*
†	...	...	...	49. Chaetura .....	...			†	
	*	...	...	65. gaumeri .....	...			*	
†	...	...	...	50. Nyctibius .....	...				†
*	...	...	...	66. jamaicensis .....	...				*
	†	...	...	51. Nyctidromus.....	...		†	†		
	*	...	...	67. albicollis .....	...		*	*	
	†	...	...	52. Dryobates .....	...			†	
	*	...	...	68. scalaris.....	...			*		
†	...	...	...	53. Centurus	†			†	†	†
	*	...	...	69. rubriventris.....	...			*	...	*
	*	...	...	70. dubius	*			*		
	†	...	*	71. canescens.....	...				*	
	*	...	...	54. Eumomota.....	†					
	...	...	...	72. superciliaris.....	*					
†	...	...	...	55. Ceryle .....	...			†	†
*	...	...	...	73. alcyon .....	...			*	*
	*	...	...	74. superciliosa .....	...			*	
	†	...	...	56. Trogon	†					
	*	...	...	75. melanocephalus	*					
†	...	...	...	57. Crotophaga .....	...	†	†	†	†
*	...	...	...	76. ani .....	...			*	*
	*	...	...	77. sulcirostris .....	...	*	*	*	
	†	...	...	58. Piaya	†	†	†			
	*	...	...	78. cayana	*	*	*			
†	...	...	...	59. Coceyzus .....	...			†	†
*	...	...	...	79. minor .....	...			*	*
	†	...	...	60. Rhamphastos	†					
	*	...	...	80. carinatus	*					
†	...	...	...	61. Conurus .....	...	†			
	*	...	...	81. astec .....	...	*			
†	...	...	...	62. Chrysotis .....	...			†	†
	*	...	...	82. auripalliatu8 .....	...				*
	*	...	...	83. autumnalis .....	...				*
	*	...	...	84. xantholora .....	...			*	
10	59	4	11	Carried forward.....	28	23	26	50	17	6

Islands, Mainland, and West Indies.	Islands and Main- land.	Islands and West Indies.	Islands only.		Meco.	Holbox.	Muger.	Cozumel.	Ruatan.	Bonacca.
10	59	4	11	Brought forward	28	23	26	50	17	6
	†	...	...	63. Ciccaba .....	†	...	...	...	...	...
	*	...	...	85. virgasa .....	*	...	...	...	...	...
†	...	...	...	64. Glaucidium .....	...	...	...	†	...	...
	*	...	...	86. phalaenoides.....	...	...	...	*	...	...
	†	...	...	65. Asturina	†	†	...	†	†	†
	*	...	...	87. plagiata .....	...	...	...	...	*	*
	*	...	...	88. ruficauda .....	*	*	...	...	*	*
	†	...	...	66. Buteola .....	...	...	...	†	...	...
	*	...	...	89. brachyura .....	...	...	...	*	...	...
†	...	...	...	67. Urubitinga.....	...	...	...	†	...	...
	*	...	...	90. anthracina .....	...	...	...	*	...	...
	†	...	...	68. Geranospizias .....	†	...	...	...	...	...
	*	...	...	91. nigra .....	*	...	...	...	...	...
	†	...	...	69. Hypotriorechis .....	...	...	...	...	†	...
	*	...	...	92. rufigularis .....	...	...	...	...	*	*
	†	...	...	70. Ictinia .....	...	...	...	...	†	...
	*	...	...	93. plumbea .....	...	...	...	...	*	...
†	...	...	...	71. Cathartes .....	...	...	...	†	...	...
*	...	...	...	94. aura .....	...	...	...	*	...	...
	†	...	...	72. Tigrisoma .....	...	...	...	†	...	...
	*	...	...	95. cabanisi .....	...	...	...	*	...	...
†	...	...	...	73. Dendrocygna.....	...	...	...	†	...	...
	*	...	...	96. autumnalis .....	...	...	...	*	...	...
	†	...	...	74. Cairinia .....	...	...	...	†	...	...
	*	...	...	97. moschata .....	...	...	...	*	...	...
†	...	...	...	75. Columba .....	...	...	...	†	†	...
*	...	...	...	98. leucocephala .....	...	...	...	*	*	...
†	...	...	...	76. Zenaida .....	...	†	†	...	...	...
*	...	...	...	99. amabilis .....	...	*	*	...	...	...
†	...	...	...	77. Chamæpelia .....	...	†	†	†	...	...
*	...	...	...	100. passerina .....	...	*	*	*	...	...
	*	...	...	101. rufipennis .....	...	...	...	†	...	...
†	...	...	...	78. Engyptila .....	...	†	†	*	...	...
*	...	...	...	102. jamaicensis .....	...	*	*	*	...	...
	†	...	...	79. Crax .....	...	...	...	†	...	...
	*	...	...	103. globicera .....	...	...	...	*	...	...
	†	...	...	80. Ortalis .....	†	†	...	...	...	...
	*	...	...	104. vetula.....	*	*	...	...	...	...
	†	...	...	81. Aramides .....	...	...	...	...	...	...
	*	...	...	105. albiventris .....	...	...	...	†	...	...
†	...	...	...	82. Porzana .....	...	...	...	†	...	...
	*	...	...	106. rubra .....	...	...	...	*	...	...
†	...	...	...	83. Aramus .....	...	...	...	†	...	...
*	...	...	...	107. giganteus .....	...	...	...	†	...	...
†	...	...	...	84. Parra .....	...	...	...	*	...	...
*	...	...	...	108. gymnostoma .....	...	...	...	*	...	...
17	76	4	11	Totals	32	28	29	67	22	7

I think therefore that Meco, so far as its birds are concerned, should be considered an integral part of the mainland of Northern Yucatan*.

This removes 9 genera and as many species from the list, and leaves 75 genera and 99 species to be examined.

Of the 75 genera, *Melanoptila* is the only genus found in the islands and the adjoining mainland to the exclusion of the rest of Central America, and *Spindalis* is the only genus belonging to the West Indies to the exclusion of the continent. Forty-three genera are common to the islands, the continent, and to some one or more of the West Indies. The remaining 30 (or 31, including *Melanoptila*) are shared by the islands and mainland to the exclusion of the West Indies.

It will thus be seen that the relationship of the islands to the mainland is very much closer than it is to the West Indies, so far as regards genera, though *Spindalis* is a remarkable exception.

Next, as regards species, of which there are 99 to be considered (*i. e.* 108, less 9 belonging only to Meco). Of these 17 are common to the islands, the mainland, and one or more of the West Indies; 67 (*i. e.* 76, less 9 Meco birds) are common to the islands and the mainland to the exclusion of the West Indies; 4 are common to the islands and West Indies to the exclusion of the mainland; and 11 are peculiar to the islands alone.

Of the 67 species found on the islands and mainland to the exclusion of the West Indies, 10 are found nearly exclusively on the mainland immediately adjoining the islands; the remaining 57 are of wider range. The 10 species are the following:—

- | | |
|--------------------------------------|-----------------------------------|
| 1. <i>Melanoptila glabrirostris.</i> | 6. <i>Cyanolyca yucatanica.</i> |
| 2. <i>Vireo magister.</i> | 7. <i>Myiarchus yucatanensis.</i> |
| 3. <i>Pyrrhuloxia roseigularis.</i> | 8. <i>Centurus dubius.</i> |
| 4. <i>Spizella pinetorum.</i> | 9. <i>Centurus rubriventris.</i> |
| 5. <i>Icterus auratus.</i> | 10. <i>Chrysotis xantholora.</i> |

* I have not been able to find any trace of Meco Island on the chart; but there is a place marked as El Meco on the mainland near the coast opposite Muges Island. Mr. Gaumer's labels, however, give Meco

The four species found in the islands and the West Indies to the exclusion of the mainland are :—

1. *Polioptila cæsiogaster*?, Cozumel, Ruatan, and Bahamas.
2. *Dendræca petechia*, Cozumel and Jamaica.
3. *Elainea martinica*, several islands and Lesser Antilles.
4. *Tyrannus magnirostris*, Mugeses and Cuba.

Besides these the following species, though also found on the mainland, belong rather to the West-Indian fauna :—

Vireo calidris, Cozumel and most of the West-Indian islands.

Tyrannus griseus, Cozumel and all the more northern Antilles.

*Crotophaga ani**, Cozumel, Ruatan, and the Antilles generally.

Zenaida amabilis, Holbox, Mugeses, and most of the Antilles.

Engyptila jamaicensis, Holbox, Mugeses, Cozumel, and Jamaica.

To complete the list of birds with special West-Indian affinities, the following peculiar species must be added :—

Certhiola caboti, Holbox and Cozumel, nearest to *C. bahamensis* of the Bahamas.

Spindalis benedicti, Cozumel, nearest to *S. pretrii* of Cuba and *S. zena* of the Bahamas.

Lastly, the species peculiar to the islands are 11 in number, viz. :—

1. *Harporhynchus guttatus*, Cozumel.
2. *Troglodytes beani*, Cozumel.
3. *Vireo bairdi*, Cozumel.
4. *Cyclorhis insularis*, Cozumel.

Island so distinctly, that I infer that the place he visited was some small island or cay that has escaped the cartographers. It must, however, be well wooded to harbour such birds as species of *Eucometis*, *Embernagra*, *Cyanolyca*, *Pipra*, *Attila*, *Dendrornis*, *Thamnophilus*, *Trogon*, *Rhamphastos*, &c., &c.

* It seems proper to consider this species as West Indian, so far as the islands now under consideration are concerned. It is, however, the prevalent species at Panama.

5. *Certhiola caboti*, Holbox and Cozumel.
6. *Spindalis benedicti*, Cozumel.
7. *Phaenicothraupis insularis*, Meco, Mugerres.
8. *Phonipara intermedia*, Holbox, Cozumel.
9. *Attila cozumelæ*, Cozumel.
10. *Chlorostilbon forficatus*, Holbox, Mugerres, Cozumel.
11. *Centurus canescens*, Ruatan.

All of these are of mainland affinities, except *Certhiola caboti* and *Spindalis benedicti*.

It will be seen from the foregoing lists that the affinities of the birds of these islands, as a whole, as might have been expected from their position, are largely on the side of those of the mainland. Still there is a West-Indian element, only just to be traced in Northern Yucatan by the presence of such birds as *Petrochelidon fulva* (not yet noticed on the Yucatan islands), *Zenaida amabilis*, and *Engyptila jamaicensis*, which is more strongly developed in the islands. At the same time it is clear that the West-Indian birds found on them are either specifically identical or so closely related as to be separable only by some slight modification of colour.

These differences being so slight, it is hardly possible that the West-Indian element in these islands can be due to any ancient land-connexion with the West Indies. For, from Prof. Agassiz's contour map of the Caribbean Sea ("Three Cruises of the 'Blake,' " i. p. 98, fig. 57), it will be seen that the whole of Northern Yucatan and the islands adjoining are separated from Cuba by a depth of over 1000 fathoms, and the Bay Islands from Jamaica by over 500 fathoms, and that all the islands themselves lie within the 100-fathom line of the mainland coast. If there had been any recent land-connexion, a supposition which the similarity of the birds alone would justify, the mainland, as well as the West Indies, would hardly fail to show such a connexion in a much more pronounced manner, and we should find, not the strong contrast that exists between the faunas of Cuba and Jamaica and the mainland, but a large number of features in common.

The alternative supposition to account for the West-Indian

element in these islands is that the birds have reached them at no distant date by flight. When we consider that the trade-wind blows almost continuously over Cuba and Jamaica in the direction of Yucatan and this coast for several months in the year, it is hardly a matter of wonder that some West-Indian birds do stray so far west.

We should, however, expect to find more of them on the mainland. That this is not the case may be due to the imperfect way in which nearly the whole of this coast has been explored. No collections whatever have been made from any point between Belize and Cape Catoche, and the coast of British Honduras has only been touched in a very imperfect way.

I anticipate therefore that as our knowledge of the immediate mainland becomes more advanced, the peculiarities of these islands as regards their West-Indian element will diminish, if not altogether disappear.

I have hitherto treated of these coast-islands as a whole, but on examining them in detail they split up naturally into three groups. Leaving Mecó out of the question, Holbox and Mugerés may be classed together, Cozumel by itself, and the Bay Islands of Ruatan and Bonacca by themselves.

HOLBOX and MUGERES.—The bird-fauna of these islands closely resembles that of the mainland. Of the 70 recorded specimens, 26 are migrants, 1 has a very wide range, and 43 form the more localized resident fauna. Of these 43 species, the following 6 are more or less associated exclusively with the West Indies:—(1) *Certhiola caboti* (also found on Cozumel), a peculiar species, but very closely allied to *C. bahamensis*; (2) *Phonipara intermedia* (also found on Cozumel), very close to *P. olivacea* of the West Indies and to *P. pusilla* of the mainland; (3) *Elainea martinica* (also found on several other islands), a common species of the Lesser Antilles, but very closely allied to *E. pagana* of the mainland; (4) *Tyrannus magirostris*, identical with the Cuban bird. The remaining two are (5) *Zenaida amabilis* and (6) *Engyptila jamaicensis*, both also found on the mainland. Of the 37 mainland forms, *Phænicothraupis insularis* and *Chloro-*

stilbon forficatus alone can at present claim to be peculiar, but both of them are also found on other islands. Holbox and Mugerres therefore have a very decided mainland affinity as regards their birds, a very slight peculiarity, and a West-Indian element, due most probably to quite recent or not distant casual immigration.

COZUMEL.—The larger size of Cozumel and the greater time spent over the examination of its fauna gives us a total of 159 species as found within its limits. Of these 65 are migrants and 27 birds of very wide range. This leaves 66 as the number of resident species, with more or less restricted limits; 52 of these are also characteristic of the mainland, 4 are shared with other islands, 4 are strictly West-Indian, and 6 are peculiar. Of the latter, *Spindalis benedicti* is the only one with West-Indian affinity, the others are modified mainland forms. *Harporhynchus ocellatus*, one of these, is remarkable as representing a genus not found nearer than the State of Vera Cruz or the northern shore of the Gulf of Mexico. Its presence in Cozumel must be attributed to casual introduction at a somewhat remote date, due perhaps to the severe northern storms which prevail in this region during the winter months.

Thus Cozumel would seem to have been separated from the mainland for a considerable period, during which time it has received casual immigrants from the West Indies, from North America, and from the mainland, some of them at dates sufficiently long ago to allow of their modification.

RUATAN and BONACCA.—These islands are very different in their physical features from those just mentioned. They are high, attaining an elevation of about 1200 feet, and have the upper portion covered with pines, instead of being low islands of recently elevated coral limestone. Mr. Gaumer's collections from these islands include specimens of 72 species, of which 42 are migrants, and 5 are of very wide range. The remaining 25 also belong almost exclusively to the mainland; but there is a decided element amongst these, with an affinity to the coast of Yucatan and its islands rather than to the coast immediately opposite. This is shown by the

presence of *Vireo magister*, *V. ochraceus*, *Centurus rubri-ventris*, and *C. canescens*. *Crotophaga ani* is the only West-Indian representative, and also belongs to Cozumel. It is difficult to account for this northern element, unless it be due to the northerly gales already mentioned. The trade-winds that strike the Bay Islands blow over the widest part of the Caribbean Sea and bring no stragglers from the West Indies.
