

Article XVIII. — NOTES ON BIRDS OBSERVED IN YUCATAN.

By FRANK M. CHAPMAN.

Our knowledge of the bird-life of the peninsula of Yucatan is more complete than the literature relating specially to the subject would lead one to suppose. A bibliography of the papers on Yucatan ornithology contains few titles, but a catalogue of the existing collections of Yucatan birds would enumerate many thousand specimens.

By far the largest number of these have been collected by Dr. George F. Gaumer, formerly of Kansas, and now a practicing physician in Izamal, Yucatan, who, for the past eighteen years, has been a persistent and successful collector of the Yucatan flora and fauna.

During the early part of this period Dr. Gaumer's birds were secured by the commercial naturalist, Adolphe Boucard, of Paris; later his collections were disposed of to Messrs. Salvin and Godman. These naturalists also obtained the major portion of the specimens collected for Boucard. With the exception of a paper in the 'Proceedings' of the Zoölogical Society, and one or two minor publications, Dr. Gaumer's collections from the peninsula have never been separately reported upon. They have, however, been incorporated in the '*Biologia Centrali-Americana*,' to which work the student of Yucatan birds must refer.

The fact that Dr. Gaumer travelled extensively over the peninsula, in connection with the uniform character of the ground, renders it extremely probable that the list of Yucatan birds, at least of the permanent and summer resident species, is complete. Future work in this region, therefore, should increase our knowledge of the habits, local distribution, and especially the migrations of Yucatan birds. As a contribution to this end I present the following observations, including a 'local list'—the first list, I believe, to be published from one locality, the value of which lies chiefly in the fact of its showing the winter avifauna of a restricted territory.

The peninsula of Yucatan is a geologically recent addition to the mainland, of Pliocene and Postpliocene age. In some places the formation is entirely a shell conglomerate; in others it has become a hardened limestone.

With the exception of a range of hills in its central part, the peninsula is flat. The surface is composed largely of exposed rock, which is exceedingly uneven, being pitted, seamed and carved into innumerable small pot-holes, hollows, caves and minor irregularities. In the depressions and pockets there is a scanty deposit of earth.

The northern half of Yucatan has long been deforested, and the growth is now a dense scrub of trees and saplings, averaging one and a half to three and a half inches in diameter and fifteen to thirty feet in height. The earth will not support a crop for many successive plantings, and as a result old areas are abandoned and new ones cleared so frequently that throughout the region visited by me this scrubby wood is so alike in appearance as to deceive one into believing that it constitutes the true sylvia of the country. But Dr. Gaumer, to whom I am indebted for much valuable information, tells me that this condition is artificial, and that in the less populated, southern half of the peninsula, tropical forests, composed of heavy first-growth timber, exist. He also pointed out to me the remains of this forest in northern Yucatan in the shape of certain trees (sapote or sapodillo), which, because of the value of their sap, had been spared.

With one or two minor exceptions there are no surface streams in Yucatan. Water is therefore obtained from artificial or, for the most part, natural wells termed 'cenotes.' These correspond to the 'sinks' of middle Florida, but are generally larger and deeper. They seem to be supplied by subterranean streams. These cenotes are sometimes 80-100 feet in depth and 200 feet in diameter. They are circular in outline, the walls being occasionally perfectly perpendicular from top to bottom, or, when the earth has crumbled in about the edges, a sloping side is formed. The banks of cenotes of this character, through the presence of earth and moisture, support a fairly luxuriant vegetation, in strong contrast with that of the surrounding country. Naturally, large numbers of birds are attracted to these oases.

The dry and wet seasons in Yucatan are well defined, the former beginning about November and continuing until May or June. During this period rain is infrequent, and there is little or no dew. Most of the trees lose their leaves, and the woods as a whole assume a grayish brown tint with just enough of green to suggest the appearance of a fifteen-year-old second growth in the vicinity of New York City, about May 10. The fields are brown and parched, and the region seems comparatively arid and sterile. There is thus a much greater difference between the winter and summer vegetation than in those parts of the tropics where the deep rich soil holds moisture, and supports a vegetation which in turn condenses dew.

The animal life of the country is of course much affected by these conditions, and in no tropical country that I have visited has winter been so strongly suggested. This is particularly marked with the birds, and the most interesting fact developed in the study of Yucatan bird-life is the regular, bi-annual migrations of many breeding species.

Dr. Gaumer writes (P. Z. S., 1883, 436): "The birds disappeared as the dry season advanced, except a few of the common resident species, which lived about the ranchos and at the aguados, where water was to be found. On the 23d of May the first of the summer showers occurred, which was soon followed by daily showers at midday. All nature changed as if by magic; new leaves grew, and the forests were again populated with sweet songsters."

Data are lacking to show how regular this movement is, and whether it is closely dependent upon the periods of rain; but the fact remains that we have in Yucatan a large number of birds who migrate to and from their breeding grounds, and that in a tropical avifauna a class of summer residents has been formed through climatic influences.

Yucatan bird-life, as might be expected, has been derived from Mexico and Central America. With two exceptions, *Zenaida zenaida* and *Petrochelidon fulva*, the avifauna is without a West Indian element. The first of these birds occurs only on the coast, the second is a locally common resident. Both are birds of strong flight, and their presence in Yucatan cannot be considered

as evidence in support of the theory of a former land connection with Cuba.

The peninsularity of Yucatan, in connection with environmental conditions, has evidently resulted in the formation of some fifteen or twenty races, slightly differentiated from their Mexican or Central American derivatives. It has also apparently assisted in preserving some species whose range in Mexico or Central America is now restricted to the region bordering Yucatan. The most striking case of this kind is furnished by the Ocellated Turkey (*Agriocharis*¹ *ocellata*), which is found throughout Yucatan, and is elsewhere known only in British Honduras and Guatemala. By far the larger part of its range, therefore, is included in Yucatan. But both the geologic and natural history of Yucatan clearly show that this remarkably distinct bird could not have been evolved there, nor can we suppose that the comparatively small area it inhabits in British Honduras and Guatemala can have constituted its range prior to the formation of Yucatan. It therefore seems a fair assumption that while its continental range has been restricted, the conditions of peninsular existence have proved favorable to its increase.

This, with several similar cases, may aid us in explaining the presence in Yucatan of a number of birds which, as far as known, have no representatives in any other region. *Piranga roseigularis*, *Icterus auratus*, *Antrostomus yucatanicus*, *Melanerpes rubriventris*, with two or three others, compose this class. As with *Agriocharis ocellata*, these birds appear too distinct to have originated in Yucatan, and it seems probable that either they have become extinct in the adjoining regions, or have not as yet been discovered there.

Comparing the avifauna of Florida with that of Yucatan we find they possess several points in common. The peninsula of lower Florida is but slightly older, geologically, than Yucatan, and its bird-life has also been largely derived by immigration from the mainland to which it is attached. As in Yucatan, differentiation has resulted from peninsulation, and we have numerous races whose relationships are evident. There are also two birds, the Paroquet (*Conurus carolinensis*) and Ivory-billed Woodpecker (*Campephilus principalis*), whose ranges have become much re-

¹ New genus; see p. 288.

stricted during recent years and, with the exception of a few localities in the lower Mississippi valley, these birds are now confined to Florida. The time is not far distant when the Paroquet, at least, will exist only in southern Florida; then we shall have a case in distribution not unlike those found in Yucatan.

The relationship of the avifauna of Cozumel Island to that of Yucatan is exceedingly interesting. This island is about ten miles off the east coast of Yucatan, and is some twenty-five miles long and ten miles in width. Mr. Salvin remarks (*Ibis*, 1885, p. 185): "The geological formation appears to be similar to that of the adjoining coast, and consists of a porous limestone, through which all rain at once passes, so that there are no surface-streams or rivers anywhere in the district."

The exploration of Cozumel, some eleven years ago, by the naturalists of the Fish Commission, Mr. Devis, and Dr. Gaumer, resulted in the remarkable discovery of between fifteen and twenty forms peculiar to the island. As might be supposed, the larger number of these have been derived from the contiguous mainland, but one species has no close relative nearer than Panama; another is not represented, even generically, nearer than Vera Cruz, while several are representatives of genera peculiar to the West Indies.

It seems probable, therefore, that Cozumel has always been an island, and that, unlike the peninsula of Yucatan, it has received its avifauna not through direct contact with the mainland, but, because of its insulation, has been populated more or less fortuitously. Yucatan being the nearest land, has, as might be expected, contributed the largest share of Cozumel bird-life, but the fact that so great a number of birds may be restricted to a small island within sight of the mainland, shows how sedentary are many species of tropical birds. It does not follow, therefore, that proximity to Yucatan implies a fauna entirely derived from Yucatan. Islands are not populated by immigration, but by the more or less accidental occurrence in them of waifs and strays, generally from the surrounding regions, but sometimes from distant regions. In this way I would account for the Vera Cruz, West Indian, and Panama elements in the Cozumel fauna.

A LIST OF BIRDS OBSERVED AT CHICHEN-ITZA, YUCATAN, FROM
MARCH 3 TO 21, 1896.

Chichen-Itza is situated in north-central Yucatan. To reach it one takes the train from Progreso to Izamal *via* Merida. At Izamal a *volan coché* is procured for the journey of thirty-five miles to Oitas, from which place horses and mules convey one to Chichen, distant twelve miles.

Chichen-Itza, famous for its impressive Maya edifices, is now the property of Mr. Edward H. Thompson, formerly American Consul at Merida, and well known for his archæological explorations in Yucatan. It was through Mr. Thompson's courtesy and the hospitality of his *mayordomo*, Don Santiago Bolio, that I was privileged to visit Chichen, and I desire to express here my thorough appreciation of the favors I received at the hands of these gentlemen.

In Izamal it was my fortune to be the guest of Dr. and Mrs. Gaumer, and I would thank the latter for her cordial hospitality as warmly as I do the former for his kindness in supplying me with much valuable information and practical assistance.

As a matter of convenience, the classification of the 'Biologia Centrali-Americana' has been followed.

1. *Polioptila cærulea* (Linn.). BLUE-GRAY GNATCATCHER.
—One to three were seen almost daily. No songs were heard.

2. *Thryothorus albinucha* (Cabot). CABOT'S WREN.—
A very common bird, resembling in its notes and actions *Thryothorus ludovicianus*.

3. *Thryothorus maculipectus canobrunneus* Ridgw.
TEMAX WREN.—Not quite so common as *T. albinucha*. The two birds resemble each other in their actions and choice of haunts, but differ markedly in notes, and evidently represent two different branches of their genus. The notes of *T. albinucha*, as before stated, agree with those of the more northern

T. ludovicianus, while the notes of *T. m. canobrunneus* are very much like those of the more southern *T. hyperythrus*.

4. **Hemiura brevicauda** (*Lawr.*). YUCATAN HOUSE WREN.—Common and occasionally heard singing, the song closely resembling that of *Troglodytes ædon*. Two birds of this species were found occupying a nest which, with little doubt, was that of *Rhynchocyclus cinereiceps*. The latter bird was not observed, and is evidently only a summer resident at Chichen. The known nests, however, of birds of this genus, are too characteristic to be mistaken. The nest of this species, discovered by Mr. C. C. Nutting, has been described by Mr. Ridgway,¹ and I have found several similar nests of *R. sulphurescens* in Trinidad.² The Wrens had relined their home with fine dry grasses, and after seeing them use it daily for over a week, I naturally supposed that they were nesting. But the ease with which one may reach a false conclusion was well illustrated when on the capture and dissection of these two Wrens they both proved to be females!

5. **Mniotilta varia** (*Linn.*). BLACK-AND-WHITE WARBLER.—Three were seen.

6. **Dendroica virens** (*Gmel.*). BLACK-THROATED GREEN WARBLER.—A female, taken March 12, was acquiring two lesser coverts in the left wing, but shows no other signs of molt in progress.

7. **Seiurus aurocapillus** (*Linn.*). OVEN-BIRD.—Seen on eight occasions.

8. **Geothlypis trichas** (*Linn.*). MARYLAND YELLOW-THROAT.—Two or three were seen daily. No notes were heard beyond the characteristic *chit*.

9. **Icteria virens** (*Linn.*). YELLOW-BREASTED CHAT.—Three Chats were seen, one of which was positively identified as *virens*.

¹ Proc. U. S. Nat. Mus., V, 1882, p. 395.

² Bull. Am. Mus. Nat. Hist., VI, 1894, p. 39.

10. *Granatellus sallæi boucardi* Ridgw. BOUCARD'S WARBLER.—A female (?) taken March 2, was the only bird of this species observed.

11. *Sylvania mitrata* (Gmel.). HOODED WARBLER.—Nine individuals were seen. A female, taken March 17, has no black on the throat or breast and only a faint indication of this color along the upper border of the yellow parts of the forehead and cheeks. A second female, taken March 18, has a throat patch of the usual size, composed of feathers which are mottled yellow and black. The feathers of the crown and those bordering the auriculars are black tipped with olive green. Neither specimen shows signs of a molt in progress.

12. *Setophaga ruticilla* (Linn.). REDSTART.—Seven individuals were observed.

13. *Vireo flavifrons* Vieill. YELLOW-THROATED VIREO.—Two singing birds were noted.

14. *Vireo noveboracensis* (Gm.). WHITE-EYED VIREO.—One or two were seen daily. Occasionally they were heard calling, and on March 2 a song was heard.

15. *Vireo ochraceus* Salv. OCHRACEUS VIREO.—Very common. Like the White-eyed Vireo, this bird frequents undergrowth. In notes, however, there is no resemblance between the two species.

16. *Cyclorhis flaviventris yucatanensis* Ridgw. YUCATAN CYCLORHIS.—Tolerably common. Its call resembles that of the Trinidad *C. flavipectus*, but seemed to me to possess one more note.

17. *Stelgidopteryx serripennis* (Aud.). ROUGH-WINGED SWALLOW.—Abundant. It roosted in holes and crevices of the ruins, appearing early in the morning, and again just before sunset.

18. Euphonia hirundinacea Bonap. BONAPARTE'S EUPHONIA.—A male of this species, taken March 18, was singing an exceedingly sweet and varied song, which was possessed of sufficient volume to be heard at a considerable distance. It was continuous, and included imitations of the notes of several birds, among others those of the White-eyed Vireo.

19. Piranga roseigularis Cabot. ROSE-THROATED TANAGER.—Not uncommon a mile or more from the hacienda, in the larger wooded growths, where it frequented the tops of the trees. All the males observed—and I have heard eight in a morning—were in song, but dissection showed little or no evidence of the approach of the breeding season. The song of this species is attractive and musical. It bears some resemblance to that of the Rose-breasted Grosbeak, but is shorter and not so loud. The song of an immature male was noticeably different from that of the adult. This bird, taken March 4, is indistinguishable from an adult female in color, evidently proving that at least two years are required for the acquisition of the full plumage.

20. Phoenicothera rubicoides (Laf.). ROSE TANAGER.—Not common. Found in the woods, generally near the ground. It is a rather shy, excitable bird, and, on being alarmed, utters a harsh, scolding, Wren-like note.

21. Saltator atriceps (Less.). BLACK-HEADED TANAGER.—Common about the borders of clearings, and sometimes seen feeding on the ground in neighboring pasture-lots. It is an active, rather suspicious bird, with a painfully sharp, steely alarm-note.

22. Cardinalis cardinalis yucatanicus Ridw. YUCATAN CARDINAL.—Common. In notes and habits this subspecies resembles *C. cardinalis*, but its brighter coloration is evident even at a distance.

23. Passerina ciris (Linn.). PAINTED BUNTING.—Seven individuals were observed. A male, taken March 5, is in the plumage of the female, but has several blue feathers on either side of the head.

24. *Arremonops rufivirgata striaticeps* Ridgw.

STRIPED-CROWNED SPARROW.—Abundant. Sometimes as many as fifty were seen in a morning. They are quite generally distributed in the undergrowth about the borders of clearings, where they pass much of their time on the ground. March 13 they began to sing, and within a few days they were singing in numbers. The song suggests that of the Field Sparrow, but is a much humbler effort.

25. *Amblycercus holosericeus* (Licht.). WEDGE-BILLED BLACKBIRD.—Tolerably common in and about the borders of the cornfields, where its loud, mellow whistle was occasionally heard. It is a bird of singular habits, suggesting both an Oriole and a Woodpecker. It hunts along limbs as patiently as a Creeper, tapping here and there or pounding vigorously in its efforts to secure food from cracks and crevices. In short flights it presents a laughable appearance. It progresses by jerky wing-beats, and at the end of each stroke the tail is thrown forward over the head.

26. *Callothrux robustus* (Cab.). RED-EYED COWBIRD.—Common about the corral and in the cornfields. A flock of about twenty birds visited the hacienda corral daily. At mid-day they retired to roost in a row on a stone fence beneath the shade of a thatched roof, but at other times they were walking actively about feeding. Occasionally one would rush up to another with a series of bouncing hops, but just as a collision seemed inevitable, the bird would stop and point its bill to the zenith in a most ludicrous manner. Occasionally, without apparent cause, they would all take wing, arising as one bird, and then, after a short flight over the corral, return to the ground where, after a moment's perfect stillness, they resumed feeding. The bright red eye of the adult birds gives them a peculiar, glaring expression. Immature birds have the iris brownish yellow.

27. *Icterus gairaudi* Cass. GIRAUD'S ORIOLE.—Orioles of three species were numerous in certain blossoming trees, and were also found feeding among the weedy growth in old clear-

ings. They were shy, active and musical, whistling their call-notes and parts of songs as they passed from place to place. The present species and *I. auratus* seemed to be equally common, while *I. gularis* was more numerous.

28. *Icterus auratus* Bonap. GOLDEN ORIOLE.—Apparently about as common as the preceding species, though their resemblance in color to one unfamiliar with them renders field identification rather uncertain. I secured two specimens of each species.

29. *Icterus gularis* (Wagl.). BLACK-BACKED ORIOLE.—More common than either of the preceding species, with which it was often found associated.

30. *Dives dives* (Licht.). PUEBLO BLACKBIRD.—This I found to be the most characteristic bird of Yucatan towns, where it is far more abundant than in the country. Their loud, rather musical, whistling calls, are among the first sounds to be heard in the early morning, as the birds, perched in the topmost branches of the higher trees, respond to one another's challenge or salute.

31. *Xanthoura guatemalensis* Bon. GUATEMALA GREEN JAY.

Xanthoura cyanocapilla AUCT. nec CAB.

Xanthoura luxuosa SALV. & GODM. Biol. Cent. Am. Aves, I, 502 (in part).

Xanthoura guatemalensis BON. Consp. Av. I, 1850, 380.

Not uncommon about the borders of clearings and in the corn-fields. Its notes recall the *jay, jay* of *Cyanocitta cristata*, but are not so loud and are less often uttered.

In a series containing forty specimens of this species and the Mexican *luxuosa* I find no indication of intergradation. Eight specimens of *luxuosa* from Tehuantepec closely agree with twenty from the lower Rio Grande, and differ markedly from the yellow-bellied *guatemalensis*, of which I have seven specimens from Yucatan and two from Guatemala.

Cabanis's name *cyanocapilla* (Fauna Peruana, II, 233) has generally been applied to the Central American and Yucatan birds. Cabanis evidently described a specimen from Jalapa, which, both

from his description ("Die Unterseite ist stark hellgrün angeflogen") and the locality (there is a specimen of *luxuosa* from Jalapa in the Museum), was evidently *luxuosa*, of which the name *cyanocapilla* is apparently a pure synonym.

32. *Psilorhinus mexicanus* (Wagl.). BROWN JAY.—Rather uncommon. It was found in pairs and trios in the woods, and was rather shy and suspicious. Its call-note resembles the Blue Jay's (*Cyanocitta cristata*) imitation of a Red-shouldered Hawk's scream, but is louder and harsher.

33. *Cissolopha yucatanica* (Du Bois). YUCATAN BLUE JAY.—This was the most abundant bird observed. It was generally found in small flocks of six to twelve individuals, which seemed to have their headquarters in certain parts of the woods where they could always be found. They were especially numerous in old cornfields, forty or fifty being seen daily scattered about one cornfield near the hacienda. An intruder on their preserves is at once greeted by a chorus of harsh cries and a variety of quite indescribable calls. The birds in the immediate vicinity of the hacienda were comparatively wary, but those seen in the depths of the woods were surprisingly tame. Their curiosity was evidently much aroused by my appearance, and perching within six or eight yards, they would lean down and inspect me in an almost human way, all the time uttering their peculiar notes.

Current descriptions of this bird, including that in the 'Biologia,' ascribe the differences shown by certain individuals in the color of the bill and tail to sex, the male being stated to have a black bill and tail, while the female is said to have the bill yellow and the tail tipped with white. My series of twelve specimens shows that this variation is not sexual, but is evidently due to age. Thus I have males and females with black bills and tails, and also examples of both sexes in which the bill is yellow and the tail tipped with white. The series also contains intermediates between the two extremes.

How long a time is required for the acquisition of the adult plumage remains to be determined. Apparently at least two years, for each group of Jays had several yellow-billed individuals, about one in every four birds giving evidence of immaturity.

34. *Myiozetetes texensis* (Giraud). GIRAUD'S FLY-CATCHER.—Observed on seven occasions.

35. *Megarhynchus pitangua* (Linn.). LARGE-BILLED TYRANT.—Not uncommon.

36. *Empidonax minimus* Baird. LEAST FLYCATCHER.—Not uncommon. No call-note was heard.

37. *Contopus brachytarsus* (Sch.). SHORT-LEGGED PEWEE.—Tolerably common. Its note is a low, rolling or trilled twitter, entirely unlike that of *Contopus virens*, which this species so much resembles in color.

38. *Myiarchus cinerascens* (Lawr.). ASH-THROATED FLYCATCHER.—Two of the three birds seen were secured. The call of a male resembled in form that of *M. crinitus*, but differed sufficiently to be at once distinguished as belonging to another species.

39. *Myiarchus yucatanensis* Lawr. YUCATAN FLY-CATCHER.—Common. Its call-note is a complaining, whistled *whirt*, which is sometimes followed by a rather rapid musical roll. Three males, taken March 18 and 20, had the testes much enlarged, and the breeding season was evidently near at hand.

Comparison of my six specimens with Mr. Lawrence's type of *yucatanensis* from Merida, prove them to be typical of that species. Further comparison with twenty April to June specimens of *M. lawrencei* from Tamaulipas and Nuevo Leon in Mr. Sennett's collection, show well-marked differences between these two birds. As before pointed out by several writers, *lawrencei* has a slightly broader and decidedly more depressed, flatter bill, but there is also a readily apparent difference in color. This is best shown in the crown, which approaches clove brown (*cf.* Ridgway's Nomenclature of Colors) in *lawrencei* but is redder and nearer prouts brown in *yucatanensis*. In the latter, also, the back is less greenish and the belly averages paler, but this is apparent only upon comparing a series. In size, *yucatanensis* averages slightly the smaller.

40. *Tyrannus melancholicus Vieill.* MEXICAN KING-BIRD.—A male, taken March 20, was the only one observed.

41. *Tityra personata Jardine & Selby.* MEXICAN TITYRA.—Three of four specimens, observed on March 20 and 21, were secured. The testes of two males were much enlarged, while the ovaries of a female were slightly developed.

42. *Dendrocincla anabatina ScL.* WOOD-HEWER.—A male was taken March 17.

43. *Dendrocincla homochroa (ScL).* WOOD-HEWER.—A male was taken March 14.

44. *Dendroornis flavigastra Sw.* WOOD-HEWER.—Tolerably common.

45. *Thamnophilus doliatus mexicanus Allen.* MEXICAN ANT-THRUSH.—Not common. Its song, while differing from that of *T. doliatus* in Trinidad, is nevertheless sufficiently like it to show the relationship between the two birds.

46. *Chlorostilbon caniveti (Less.).* CANIVET'S HUMMING-BIRD.—Not uncommon. A female taken March 4 had much enlarged ovaries.

47. *Lampornis prevosti (Less.).* PREVOST'S HUMMING-BIRD.—A female taken March 12 had slightly enlarged ovaries.

48. *Amazilia cinnamomea*¹ *(Less.).* CINNAMON HUMMINGBIRD.—A male, taken March 13, had much enlarged testes.

49. *Amazilia yucatanensis (Cabot).* CABOT'S HUMMING-BIRD.—A female taken March 18 had much enlarged ovaries.

The condition of the sexual organs in the four species just mentioned renders it evident that with Hummingbirds the breeding season was at hand.

50. *Nyctidromus albicollis merrilli* Senn. MERRILL'S PARAUQUE.—Common, its call of *ker-wèe-you*, being heard each night and early morning. I was surprised to learn how rapidly these birds can run. On one occasion two lit within a few feet of me when it was light enough to distinguish their movements. They crouched close to the earth, sometimes running quickly and with unexpected ease for a few steps, then turned their heads sharply from side to side as though looking for insects. They would also spring suddenly fifteen feet into the air to catch a passing insect.

Three males from Yucatan, including one taken in June, on comparison with a series of twenty specimens of *merrilli* from Texas, are obviously to be referred to this form.

51. *Melanerpes rubriventris* (Sw.). SWAINSON'S WOODPECKER.—Tolerably common.

52. *Melanerpes dubius* (Cabot). UXMAL WOODPECKER.—Common.

53. *Dryobates scalaris parvus* Ridgw. CABOT'S WOODPECKER.—The few individuals observed of this species were exceedingly shy. Their call-note is a sharp *peek* resembling that of *Dryobates pubescens*.

54. *Ceophlæus scapularis* (Vig.). DELATTRE'S WOODPECKER.—Not uncommon.

55. *Eumomota superciliaris* (Sw.). RED-BACKED MOTMOT.—About ten individuals were observed. Its note is well described by Dr. Gaumer as *tah*.

56. *Crotophaga sulcirostris* (Sw.). GROOVE-BILLED ANI.—Common about the pastures, where it was often seen picking ticks from the cattle. It seems less sociable than *C. ani*, and single birds were often observed; whereas, in my experience, it is unusual to find an individual of *C. ani* alone. Its note is a prolonged *chee-wyyah*, easily distinguishable from the single whining whistle of *C. ani*.

57. *Amazona albifrons* (Sparrrm.). WHITE-FRONTED PARROT.—Not uncommon, from two to five birds generally being associated.

58. *Conurus aztec* Souancé. AZTEC PAROQUET.—Common in small flocks of from two or three to twenty individuals.

59. *Glaucidium phalænoides* (Daud.). FERRUGINOUS PIGMY OWL.—Common; resembling in notes and habits individuals of the same species observed in Trinidad.

60. *Falco ruficularis* (Daud.). RED-THROATED FALCON.—A pair of these birds made their headquarters at one of the cenotes. Both were adult, but one was observed bringing food to the other. Their call-note was a high, rapidly-repeated squeal, somewhat suggesting the Sparrow-Hawk's call.

61. *Falco sparverius* (Linn.). SPARROW-HAWK.—Six or eight individuals were observed, two of which were secured.

62. *Rupornis ruficauda* (ScL. & Salv.). RUFOUS-WINGED HAWK.—Not uncommon. Its note is a single sharp squeal, repeated at short intervals.

63. *Herpetotheres cachinnans* Vieill. CRYING HAWK.—Common. The notes of this Hawk are more human and weird in character than those of any bird I have ever heard. The first individual I observed was perched on a tree growing from the top of a Maya temple. From this lookout it mocked me with a truly maniacal laugh until I had almost reached shooting distance, when, with a loud chuckle, it flew away. I did not hear this call again, but an even more uncanny one was heard each night and morning from several birds of this species living near the ruins. This is described in my journal as resembling a call of a man in great pain, and ending in an agonized wail. It was gruesome beyond description, and finally became so unpleasant that I would gladly have turned every *Herpetotheres* within sound of the hacienda into a museum specimen.

The native name of this bird is 'Koss.' Its notes should cause it to figure prominently in Indian folk-tales.

64. *Cathartes aura* (Linn.). TURKEY VULTURE.—Three or four were seen daily.

65. *Catharista atrata* (Bart.). BLACK VULTURE.—Somewhat less numerous than the Turkey Vulture.

66. *Columbigallina passerina pallescens* (Baird). MEXICAN GROUND DOVE.—Common.

67. *Columbigallina rufipennis* (Bonap.). RUFOUS GROUND DOVE.—Common, fifty or more sometimes being seen feeding together in the cornfields. March 25 a pair of these birds was nesting in an orange-tree in Dr. Gaumer's garden.

68. *Melopelia leucoptera* (Linn.). WHITE-WINGED DOVE.—Abundant. In early morning and late afternoon these birds could be found in large numbers in the old cornfields. They were also seen feeding on the seeds of certain pod-bearing trees. During the middle of the day they frequented the banks of the cenotes, which they doubtless visited for shade as well as water.

Their flight is accompanied by a loud whistling sound, louder than that produced by *Zenaidura macroura* when flying. Their call is a loud, long crowing, which may be written: *Cookeree-cookeree-coo-rec-coo, crow-co-er-coo, crow-co-er-coo*. It suggests the first efforts of a young cock.

69. *Leptotila fulviventris brachyptera* (Salvad.). WHITE-FRONTED DOVE.—Abundant. This bird's call is a short, soft *coo*. Its flight is usually noiseless, but is sometimes accompanied by a whistling sound.

70. *Columba flavirostris* Wagl. RED-BILLED PIGEON.—Not common. Its call is a fine, loud *coo—whoo-er-whoo*.

71. *Agriocharis ocellata* (Temm.). OCELLATED TURKEY.—This magnificent bird was apparently common. It was not as yet calling, and the only means I had of determining its numbers was by actual observation. The flesh of the birds is, however,

so highly prized by the Indians, who doubtless have always hunted it, that it has become one of the wariest birds I have ever collected. At the best, therefore, its capture is a difficult matter, and my ignorance of both the bird and its haunts were serious handicaps. It was not until a week after my arrival that I succeeded in shooting one of these Turkeys. During this period I made their capture my chief object, doing no general collecting near the old cornfields until I had ascertained whether Turkeys were present. As a result I saw from one to six daily.

The only note I heard was a low *pūt*, but Dr. Gaumer writes (P. Z. S., 1883, p. 461) that "during the breeding season, which is in May and June, the male makes a peculiar drumming noise, very deep and sonorous; after this he utters his peculiar song, which resembles the rapid pecking of a distant Woodpecker or the song of the great Bull Toad."

The marked differences in color and form which exist between the Ocellated Turkey and the members of *Meleagris gallopavo* group, seem to me of more than specific value.

The differences in the form and distribution of the warty excrescences of the head and neck, and in the character of the erectile appendages of the forehead,¹ the more highly graduate tail and more rounded rectrices, the absence of a beard in the male and presence of rudimentary spurs in the female are all characters which entitle *ocellata* to generic distinction, and I would suggest, therefore, that it be placed in a new genus, for which I propose the name *Agriocharis*.²

72. *Ortalis vetula pallidiventris* Ridgw. YUCATAN CHACHALACCA.—Common. Each morning at about 7 o'clock these birds were heard calling. They evidently call in pairs, one bird beginning and the other soon joining. Their voice is very loud and strongly suggests the *clanging* of a Wild Goose's *honk*, a trumpet-like tone it may derive from the elongation of the trachea. Once started, the call was taken up and repeated two

¹ These are described from fresh specimens by Dr. Gaumer (Trans. Kans. Acad. Sci., VIII, 1883, p. 60) as follows: "There are twenty-four fleshy processes arranged in two rows on the front part of the neck, and about twenty more of the same kind form two rows over the head; many smaller ones are scattered over the head. At the point of union of the bill with the head, there is a long fleshy process capable of much erection and distension. Behind this the fleshy scalp is permanently elevated so as to form a flat topped pyramid, with its greatest length from bill to occiput." (See also plate of head in P. Z. S., 1861, pl. xl.)

² *αγριος*, wild. *χάρις*, grace.

or three times by pair after pair, and beginning thus far off it would gradually draw nearer and then pass into the distance, not to be heard again that day.

At the time of my visit Chachalaccas were feeding on the ripening fruit of the sapote or sapodillo. This they ate while it was still attached to the twig from which it grew and also after it had fallen. They are, however, arboreal rather than terrestrial, and pass by far the greater part of their time in the trees. Here they are very active, craning their neck from side to side, raising their crest and flirting their tail. When on the wing they do not appear to advantage, and with outstretched neck flap heavily and then sail a short distance.

73. *Colinus nigrogularis* (Gould). YUCATAN BOB-WHITE.—Abundant; resembling in notes and habits *Colinus virginianus*. It was exceedingly interesting to hear Bob-whites so unlike our *virginianus* in appearance singing and calling in a manner so nearly like our northern species that the casual listener would appreciate no difference in the voice of the two birds, though the voice of the Yucatan bird is not so loud as that of *C. virginianus*. This observation, in connection with Lieutenant Robinson's description of the notes of *Eupsychortyx sonnini*, which he states are like those of *C. virginianus*, suggests that the calls of these birds are older than the birds themselves, and that they have been inherited from a common ancestor.

74. *Ardea herodias* Linn. GREAT BLUE HERON.—The only water bird observed at Chichen was a Great Blue Heron, which was seen at a cenote, March 19.

LIST OF PRINCIPAL PAPERS RELATING TO YUCATAN BIRDS.

1843. CABOT, S., JR.(?)—Memorandum for the Ornithology of Yucatan. *Incidents of Travel in Yucatan*. By John L. Stephens. Harper Brothers, New York City. Vol. II, pp. 469-476.

1845. CABOT, S., JR.—Further Account of Some of the Birds of Yucatan. *Journ. Bost. Soc. Nat. Hist.*, V, pp. 90-93, pl. xii.

1852. SCLATER, P. L.—Ornithological Observations. IX. On Birds from Yucatan described by Dr. Cabot in the Journal of the Boston Natural History Society. *Jard. Contrib. Orn.*, 1852, p. 96.

[December, 1896.]

1869. LAWRENCE, G. N.—List of a Collection of Birds from Northern Yucatan. *Ann. Lyc. Nat. Hist. New York*, IX, 1869, pp. 198-210.

1881. NEHRKORN, A. — Beschreibung yucatanischer Eier. *Journ. für Orn.*, 1881, pp. 65-69.

1882. LAWRENCE, G. N.—Description of a New Species of Swift of the genus *Chatur*, with Notes on two other little-known Birds. *Ann. N. Y. Acad. Sci.*, II, 1882, pp. 245-248.

1882. LAWRENCE, G. N.—Description of two New Birds from Yucatan, of the families Columbidae and Formicariidae. *Ann. N. Y. Acad. Sci.*, II, 1888, pp. 287, 288.

1883. BOUCARD, A.—On a Collection of Birds from Yucatan. With Notes by Osbert Salvin. *P. Z. S.*, 1883, pp. 434-462.

Based on Dr. Gaumer's collections and observations, and by far the most important publication relating to the birds of the peninsula of Yucatan.

1883. GAUMER, G. F.—Notes on *Meleagris ocellata* Cuvier. *Trans. Kans. Acad. of Sci.*, VIII, 1883, pp. 60-62.

1883. GAUMER, G. F.—Notes on the Habits of Certain Motulidae. *Trans. Kans. Acad. of Sci.*, VIII, 1883, pp. 63-66.

1885. LAWRENCE, G. N.—Descriptions of Supposed New Birds of the Families Tyrannidae, Cypselidae and Columbidae. *Ann. N. Y. Acad. Sci.*, III, 1885, pp. 156-158.

1885. LAWRENCE, G. N.—Description of a New Species of Bird of the genus *Engyptila*, with Notes on Two Yucatan Birds. *Ann. N. Y. Acad. Sci.*, III, 1885, pp. 271-273.

1885. LAWRENCE, G. N.—Characters of Two Supposed New Species of Birds from Yucatan. *Ann. N. Y. Acad. Sci.*, III, 1885, pp. 273, 274.

1885. RIDGWAY, R.—Descriptions of Some New Species of Birds from Cozumel Island, Yucatan. *Proc. Biol. Soc. of Washington*, III, 1885, pp. 21-24.

1885. SALVIN, O.—On a Collection of Birds from the Island of Cozumel. *Ibis*, 1885, pp. 185-194, 1 pl.

1885. RIDGWAY, R.—Catalogue of a Collection of Birds made on the Island of Cozumel, Yucatan, by the Naturalists of U. S. Fish Commission Steamer 'Albatross,' Capt. Z. L. Tanner, Commander. *Proc. U. S. Nat. Mus.*, VIII, 1885, pp. 560-583.

1888-90. SALVIN, O.—A List of the Birds of the Islands of the Coast of Yucatan and Bay of Honduras. *Ibis*, 1888, pp. 241-265; 1889, pp. 359-379; 1890, pp. 84-95.

1890. STONE, W.—On Birds Collected in Yucatan and Southern Mexico. *Proc. Acad. Nat. Sci. Phila.*, 1890, pp. 201-218.