

OBSERVATIONS ON THE BIRDS OF JAMAICA, WEST INDIES.

II. A LIST OF THE BIRDS RECORDED FROM THE ISLAND, WITH ANNOTATIONS.

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THE PURPOSE of the following list is to show as concisely as possible the actual species that are known to have occurred on the island of Jamaica, with some account of their habits and distribution, time of appearance if migratory, and place and time of breeding. During the short time, five months, that I spent on the island, I was able to gather much useful information, but this alone would have been quite inadequate to the purpose of this paper, and I am much indebted to a number of gentlemen of Jamaica for information, both written and verbal, which will be duly indicated where data so obtained are used.

To Mr. Charles B. Taylor of Rae Town, Kingston, Jamaica, who was for a time the acting curator for the Department of Zoölogy of the Jamaica Institute of Kingston, I am under great obligation for manuscript notes, the records of his own observations. I shall have frequently to quote these and shall refer to them without further comment as Mr. Taylor's notes.

Having had little time or facility for the study of the water birds, especially such as are migratory, I am obliged to use information already published, in order to make this list as complete as possible. At the same time care has been taken to exclude all species from the list save those that have been absolutely recorded from the island.

1. *Podilymbus podiceps* (Linn.). PIED-BILLED GREBE.—This is a resident on the island and both Philip Henry Gosse, Esq., and the late Richard Hill, Esq., of Spanishtown speak of it as "*Podilymbus carolinensis*?" or "Black-throated Grebe." Mr. Hill found the bird not rare on the River Cobre, but does not state at what season of the year he observed it.

The only individual that I met with during the past winter was taken on a small pond near Priestmans River, Portland Parish, on the 23d Jan-

uary, 1891. It is an adult female, No. 10574 of my catalogue, and is in almost full plumage. The bird was in company with a large number of *Colymbus dominicus* Linn.

The following in regard to this individual I copy from my field notes: "Priestmans River, 23d January, 1891. Secured today an adult female (10574) in full plumage, but much browner beneath than individuals from the United States. The ovaries are so much developed that I am inclined to believe that the species would soon have bred at this point."

From Mr. Taylor's notes I quote as follows: "On the Rio Cobre and Hunt Bay Rivers, as well as many of the larger canals that flow from them, this species is of common occurrence. During December, 1885, I visited the 'Dam' or headworks of the Rio Cobre Irrigation Canal, situated on the road to the north side of the island, at a point about four and a half miles above Spanish Town. On the large sheet of water termed the Dam, above the main intake, Grebes were numerous, swimming and feeding with Gallinules among the thick growth of surface weeds. I walked out along the viaduct on the river near where a few Grebes were swimming. They did not appear much alarmed, nor swim away, but if looked at intently for any time they submerged their bodies, sinking as they rested on the water, just as if they had been gently pulled under by the legs. I watched two or three dive and was surprised at the incredible length of time they remained under. Six eggs from this locality, taken on 14th July, 1888, show various stages of incubation. Some of the eggs are covered with small excrescences where the chalky covering appears unusually thick."

2. *Colymbus dominicensis* Linn. DIVER.—A common resident species in the small fresh water ponds of the Parish of Portland, and said to be plentiful in suitable localities throughout the island.

Philip Henry Gosse, Esq., says in his 'Birds of Jamaica,' page 440: "The ponds of the cattle-pens are the favorite resorts of this little Grebe." The cattle-pens of Jamaica, it may be explained, are estates given up to the breeding of cattle and to dairy purposes. The large open pastures, often many hundred acres in area, generally include shallow fresh water ponds of varying extent, and such sheets of water are the localities most affected by this species. Mr. Gosse found nests with four eggs in August, but as the birds had almost assumed their full breeding plumage in January, I conclude that the record of August nesting must be that of a second brood.

At Priestmans River, January 7, 1891, I found this a rather common species, apparently mated. A male taken in full plumage had the testes as large as the largest size of buckshot. At the same locality, 20th January, 1891, a male taken (No. 10485) is apparently in the plumage of the first year. No black about the throat and generally much lighter throughout in color than birds in full plumage. The testes were elongated in this individual, being about a third of an inch in length and one eighth of an inch in their smaller diameter. The irides were dull greenish yellow. At the same locality, 23d January, 1891, I took four individuals in a shallow pond,

Nos. 10570 to 10573 inclusive. Three were females and one a male. The females all appeared about to breed, but showed considerable individual variation in this respect. In one the egg yolk was almost or quite developed and the first egg would have been laid in a week at latest. The other two would have bred in the next four or five weeks. These four birds were all in full plumage. Many individuals were seen beside those that were secured, and the birds were abundant at this point, though of course local in distribution.

From Mr. Taylor's notes I add the following: "I have never seen this species associating with the larger or Pied-billed Grebe, nor have I ever noted it on any waters, save those of the 'ponds' that occur on nearly all cattle 'pens.' On many of these miniature lakes, however, they are numerous, nesting among the rushes and rank growth at the margins. Three eggs in my possession were taken in the month of September, 1888, from a pond at 'New Works,' a pen near Linstead in St. Catherine."

3. *Æstrelata caribbæa* (Carte). JAMAICA PETREL. BLUE MOUNTAIN DUCK. DRY LAND BOOBY.—Dr. E. N. Bancroft in the 'Zoological Journal' (Vol. V, 1828, pp. 80, 81) speaks at some length of a bird, evidently a Petrel of some kind. There is no attempt at a description and no figure is given. He suggests at the end of his remarks that if it should be found to be a new species, the name *Procellaria jamaicensis* be applied to it. Though this name has been used by many authors in dealing with the species under discussion, it is clearly *nomen nudum*, and as such should be dispensed with. Dr. Alexander Carte in Proceedings of the London Zoölogical Society for 1866 (pp. 93-95) figures and carefully describes under the name of *Pterodroma caribbæa* the bird under consideration. This appears to be the first recognizable diagnosis. The types were two birds sent to the Royal Dublin Society by Mr. W. T. March, and the following notes were sent by the same gentleman to Dr. Alexander Carte, and are quoted in the paper above cited.

"It is a night-bird, living in burrows in the marly clefts of the mountains at the east and northeast end of the island.

"The burrows form a gallery 6 to 10 feet long, terminating in a chamber sufficiently commodious to accommodate the pair; from this they sally forth at night, flying over the sea in search of food (fishes), returning before dawn.

"It is often seen on moonlight nights and at sunrise running about the neighborhood of its domicile, and sometimes crossing the road regardless of the laborers going to their work. I know nothing of its nidification.

"The first specimen recorded was obtained by the late George Atkinson. The second by Sir Henry Barkly. The next, a pair,* were sent by me to the Royal Dublin Society."

The small number of individuals extant in collections is a commentary on its rarity, or perhaps on the difficulty of obtaining a bird that was common at points on the Island of Jamaica in very recent times.

* The types.

So careful and painstaking a worker as the late Philip Henry Gosse, Esq., only knew the bird by hearsay, and I quote as of interest the few words he devotes to it (*Birds of Jamaica*, p. 437), he in turn quoting from letters from his friend Richard Hill, Esq.

"In the Blue Mountains, high up toward their summits, is a curious BURROWING bird, which they call the Blue Mountain Duck. It is described as having webbed feet and a hooked parrot-bill. This description would indicate a species of *Alca*. It inhabits holes in the cliffs, and is said to burrow to the extent of ten feet. Nothing is known of its habits of feeding. E. M'Geachy, Esq., Crown Surveyor for the county of Surrey, first informed me of the existence of such birds. He had himself taken them from their burrows. These facts have also been assured me by other observers."

Gosse agrees with Mr. Hill that the bird "seems to be of the family *Alcedæ*," and speaks of a specimen "in the possession of George Atkinson, Esq., of Newcastle-on-Tyne."

The only specimens I saw were the two in the collection of the Jamaica Institute, referred to below by Mr. Taylor.

In regard to the present status of these birds on the island, I believe them to be nearly if not quite exterminated. The following details are from my field notes.

Mr. Herbert T. Thomas, Inspector of Jamaica Constabulary, Morant Bay, Jamaica, whose explorations in the little known parts of the Blue Mountains have added much to our knowledge, believes that certain notes heard by him while camped at night on high altitudes, are to be attributed to these birds. This he bases on the knowledge of his guides who assured him that they knew the peculiar sounds well. Mr. Thomas kindly gave me this information personally.

During my stay in the vicinity of Priestmans River, a black man of great intelligence, some education, and a reputation for integrity not to be questioned, aided me in procuring certain of the rarer birds of the island. His name is William King, and he was recommended to me as a person familiar with the birds of the country, and as an expert woodsman and hunter. After employing him for some three months I feel bound to say in this connection that he did much to aid me in the work I was engaged in, and that I have rarely had so careful an observer as he proved to be, to assist me. Toward the last of my stay this man made two expeditions for me into the mountains in quest of the Petrel under consideration. The results of these two trips I summarize as follows:

On the 25th February, 1891, I sent King to Mooretown to see what he could learn in regard to the Jamaica Petrel, a bird which he had heard of and described to me in a general way. He returned on the night of the 27th with the following information. At Mooretown he learned of a man several miles from that place who, it was thought, might know of the birds. Finding him the next day the man told him of a bird which he called a "*dry land Booby*," which lived in holes in the cliffs and which had at one time been used by the people living in the mountains as an article

of food. This man said that not long before he had taken a pair of these birds from one of the holes and had eaten them. He described the noises they make at night and leaves little doubt in my mind as to their identity. Another man told him that these birds were called 'Blue Mountain Ducks.'

I sent King off again the next day with orders to go to the point where the birds burrowed and to try to get me some of them, offering a considerable reward in addition to his regular wages should he be successful. He was to hire the man spoken of to act as guide and to help in digging out the burrows. This time he was gone six days and reported on his return that he and two other men had gone to the roosting or breeding places of the 'dry land Boobies' and had dug out some twenty-five burrows, but had been unable to find a single bird. In many of the holes excavated they found the mongoose (*Herpestes griseus*), now so abundant throughout the island, and of which I hope to write in some detail later. It was the common opinion of the people in the vicinity that the birds and their eggs had been so preyed upon by the mongoose that the birds had about disappeared or at least become very rare. Numbers of different people had assured him that formerly there were plenty of these birds. Making all allowances possible, I am convinced that the information here given is substantially correct, and so record it, trusting it may be of aid to others who care to work personally in the matter.

From Mr. Taylor's notes on this bird I quote the following: "Since the introduction of the mongoose, the Blue Mountain Duck, or Booby Duck, as it is more frequently termed, appears to have been sadly reduced in numbers, and from *one* favorite locality, at least, it would appear they have been completely extirpated. On the slopes and ridges of the Blue Mountains, near Cinchona, where once their burrows were said to be abundant, and the birds themselves of frequent occurrence, they are no longer known. Two skins are in the Institute collection, ♂ and ♀. They are labelled 'Cinchona Plantations, St. Andrews, 17-11, '79. W. Nöck, collector,' and formed part of a collection of skins presented by Sir Edward Newton.

"Only recently, however, I have had indications of their occurrence in the 'John Crow Mountains,' a range of inaccessible limestone hills to the east of the Blue Mountains, where it is maintained the birds are still abundant. The information was furnished to Mr. W. Fawcett by an intelligent native resident in the district, who agreed to furnish specimens for the Museum of the Jamaica Institute.

"When at sea near the Morant Cays a Petrel passed close to the vessel which may have been this species."

4. *Oceanites oceanicus* (*Kuhl*). WILSON'S PETREL.—This species has been recorded from the coast of Cuba and Grenada, and it seems probable that it is the species referred to by Mr. Hill and quoted by Gosse (*Birds of Jamaica*, p. 437) as follows: "A curious bird of the family *Procellariidae* was found in the Rio Grande in Portland after the late storms (in the autumn of 1846)."

5. *Anous stolidus* (Linn.). NODDY.—This Tern is spoken of by Gosse (*Birds of Jamaica*, pp. 434-437) as being common at Pedro Cays. I did not meet with it at any point on the shores of Jamaica, but give Mr. Taylor's very full and interesting notes, as follows: "In April, 1890, I visited the Morant Cays, my main object being to acquire evidence as to the exact number of eggs normally deposited by the Noddy and Sooty Terns, concerning which, until lately, considerable doubt appears to have existed. I have all along believed that only a single egg is deposited by either species, and the information I have from time to time elicited from the egg-gatherers and others acquainted with the birds has always been in support of the assumption. On this occasion circumstances compelled me to leave the Cays before the general arrival of the birds, but the question has since been definitely settled by Captain Jas. B. Young of H. M. S. 'Pylades', whose observations, made during a visit to the Cays in June of the same year, form the subject of a communication appearing in the January number of 'The Ibis' for this year.

"At the time of my arrival at the Cays (2d April) there were no Sooty Terns there and very few Noddies, but these latter increased in numbers daily, until by the 19th April, the date of my departure, they had assembled in hundreds and were evidently preparing to lay, yet in two females taken two or three days after my arrival, the eggs in the ovaries were very small.

"Soon after sunset the birds came in to roost among the low bushes fringing the shore, and up to a late hour many kept arriving. They flew very swiftly, just skimming the surface of the water, and, standing on the shore at dusk (the time they began to arrive), it was rarely possible to see the birds coming until they were actually on the island. They alighted noiselessly and instantly on gaining the fringing bushes; later in the month, however, as their numbers increased, belated birds found difficulty in effecting an easy landing among the branches, those already in possession pecking right and left at all new comers and croaking harshly. Each day, as their numbers increased, they became more vociferous, until at last the melancholy wail of those flying overhead and the croak of the sitting birds was kept up without intermission all through the night. On moonlight nights they appeared unusually abundant and restless.

"I have watched them there until far into the night, as in scores they kept flying to and from the bushes. Although up and about before dawn on most mornings, I was seldom in time to watch the Noddies leave their roost. One morning, however, I got a good idea of their numbers. It wanted about an hour or so of daybreak, and the moon was still bright, when someone walking along the shore appeared to give a general alarm. Scores of birds got up and went swiftly out to sea, and for some little time a constant stream poured out from the bushes along the shores in every direction, as far as it was possible to see; flying before the wind, they went out of sight in an instant.

"They left the land always in the same manner in which they come in

to roost, dropping to the surface of the water immediately on clearing the shore. Notwithstanding their apparent abundance, the Noddies, in point of numbers, sink into comparative insignificance after the arrival of the Sooty Terns.

"I went the round of the bushes and examined the nests of the Noddies. Every available bush was covered with them. I found in one nest a last year's egg bleached perfectly white from exposure.

"The materials forming the nests were always the same: just a few dry twigs from the same bush, which the dung of the birds had in most cases cemented into a tolerably firm mat. Very little seaweed is used, only here and there a small clump of gulf-weed. Some of the nests are ridiculously small and very few showed any appreciable concavity. There were no remains of old nests on the ground.

"My first care on examining the nests was to look for traces of the broken shells (sea shells) 'speckled and spotted like the eggs,' said to be always found in the nests of the Noddies (Gosse, *Birds of Jamaica*, p. 436.) Very many nests, indeed, contained a few small shells (univalves) but these were always perfect, and, though of various species, quite devoid of the speckled and spotted appearance of a Noddy's egg. These shells I judged to be merely the discarded tenements of the hermit-crabs which infested the bushes and were constantly engaged in clambering among the branches and between the interstices of the nests. I must have examined scores of nests, many of them apparently old ones, but did not see *any* exceptionally large or at all approaching to the 'masses nearly two feet in height,' described by Audubon. For further notes respecting the nesting habits of this bird I am indebted to the kindness of Captain Cole, the lessee of the Cays, who writes me on the 2nd May as follows:

"The birds did not begin to arrive before the 26th (April) and are now beginning to lay. The Noddies like those you captured, i.e., brown-black, with white caps, are about one-half the number of birds arriving; the others are larger, brown-black on back and top of wings, all under body from beak to tail, white. . . . On their first arrival they are for the first two days flying about in great excitement choosing their mates (?); as soon as this is done the hen chooses her spot for laying, either in the bushes or on the ground (the dark Noddies in the bush, the large birds, white underneath, on the ground). The hen then keeps guard over every bit of material brought by the male for the nest, and if she does not keep a sharp lookout the others steal her sticks, dry seaweed, and bits of bush.'

"The Noddy has occurred in Kingston harbor. I once had one brought to me living, but in a very exhausted condition, as it was captured while seated on the bow of a small yacht moored near the shore at Rae Town. It lived for a few days, feeding eagerly on scraps of fish, etc. On a recent visit to Rackum Cay near Port Royal, two of these birds were seen and one was shot. The wind at the time was very high and squally, with occasional showers of rain; a state of weather, I have noticed, that invariably precedes the appearance near Kingston of most of the rarer examples of the *Laridæ*.

"Of the enormous number of eggs taken annually at the Morant and Pedro Cays, those of the Noddy form perhaps not more than a third part. They are usually longer than those of the Sooty Tern, and are also more pointed at the smaller end. The shell, too, has a rougher surface and is 'chalky' to sight and touch. Six specimens are now before me; they vary from dull white to buffy, sparsely blotched and spotted with dark brown and a few neutral tint markings, chiefly round the larger end, where they usually form a ring. Average measurements, 2 by 1.40 in."

6. *Hydrochelidon nigra surinamensis* (Gmel.). BLACK TERN.—Mr. Hill records this as one of the Terns frequenting the Cays. (Gosse, Birds of Jamaica, p. 437.)

Mr. Taylor says: "This species I have not met with. It is said to frequent the Morant and Pedro cays, where it is known to the egg gatherers as the 'Redshank.' It is described as breeding in small colonies on the sand apart from the Sooty Terns. I have some eggs, labelled 'Redshank,' sent to me from the Morant Cays in May of last year. Their size almost twice that of two specimens from Turks Island) alone renders their identity doubtful; yet the description of the bird (black with red legs) taken at the time will apply to no other species."

While this evidently does not relate to the species under consideration; I place it on record for the consideration of future workers in this field.

7. *Sterna anæthetus* Scop. BRIDLED TERN.—The following is from Mr. Taylor's notes: "During my stay at Port Henderson, small colonies of this species were noticed on three of the outlying cays in the group near Port Royal. On the smallest of them, a mere pile of loose coral rock, totally devoid of vegetation, there were about a score of birds. We did not know of their presence until in close proximity to the cay, when the greater number rose to flight. A few, however, remained sitting until a landing was effected. Almost immediately my companion found a young bird in down; it lay on a slab of the rock, uncovered.

"We judged, from the actions of the birds (which kept flying round overhead, crying plaintively), that incubation was still going on, especially as on looking among the rocks at one or two places, they showed unusual excitement, swooping down close to our faces and making attempts to alight. We failed to find eggs, though we searched long and carefully; if there were any, they were well concealed, and in many places the passages between the rocks reached down to more than an arm's length. We did not find so many birds on the next cay, not more than twelve or so perhaps. They all kept to the south and eastern sides where the shores were covered with the same loose coral rock; like the last colony they only flew off on our landing.

"One bird flew up almost from our feet, and after a little search I found the single egg under a slab of the rock, one end of which resting on another and higher piece of rock, and the other on the sand, formed a sloping roof that effectually concealed bird and egg. On South-east Cay, the outermost one of all, there was another and larger colony, and here too the birds showed great reluctance to leave the land, alighting again almost

immediately after our departure. I have never seen this Tern associating with any other species; on some mornings, soon after daybreak, a few were seen passing over to the harbor, but as a rule I rarely met with them away from the cays above mentioned. The egg in my possession, which was slightly incubated, measures 1.60 by 1.20 in. It is dull white, closely and uniformly covered with small brown and pale lavender markings. Taken 18th June, 1891, from Southern Cay, near Port Royal. Like the Sooty Tern, this species apparently lays only a single egg."

8. *Sterna fuliginosa* Gmel. SOOTY TERN. EGG BIRD.—Recorded by Gosse at Bluefields, Jamaica, and at Pedro Cays (Birds of Jamaica, p. 433).

From Mr. Taylor's notes I transcribe the following: "I have not met with this species in the harbor of Kingston or among the cays outside Port Royal, where probably it is replaced by *S. anæsthetus*. During severe storms many sea birds are blown inland, and in looking over my notes for 1887 I find the following passage: 'August 20. This morning a statement appeared in one of the newspapers to the effect that thousands of 'Boobies' were seen in an apparently exhausted condition, sitting around the large water tanks at Cavaliers. The island was visited during the previous night by a cyclone, and these birds may have been blown over from the Morant Cays or some other similar locality.' The birds are reported to have frequented the tanks for several days. I did not see them while they were there, but for many days after small flocks of Terns passed over towards the south; so far as I could see they were all Sooty Terns.

"Whether the Sooty Tern retires to rest at night, and where, are points I cannot decide with any certainty. It is a common belief, however, among the egg gatherers, that this species never alights except during incubation.

"The melancholy wailing cries that I used to hear at the cays long after the Noddies had settled to roost may have been those of this species, and on questioning the men they answered me that they were the cries of the 'egg-birds.'

"During all the time I spent at the cays no living example of this bird came under my observation, except when, almost out of sight of land on the passage to Kingston, small flocks were noticed fishing in company with Noddies and Boobies. Yet they must frequently be in the near vicinity of the cays, for on more than one occasion I have found remains of freshly killed birds, the work, doubtless, of the Duck Hawks, a pair of which birds were resident on one of the smaller cays.

"Eggs vary from dull bluish white, through all shades of cream to a deep rich buff, and exhibit an almost endless variety of markings, from small and uniform dark brown spots to bold, rich, sienna-colored blotches, with numerous underlying marks of lavender and neutral tints. Average measurements, 2 by 1.50 in.

"The yolk is bright orange-red, in marked contrast to that of the egg of the Noddy Tern, which is dull pale yellow, a circumstance that appears to have escaped the notice of most observers."

9. *Sterna antillarum* (Less.). LEAST TERN.—Recorded by Mr. Hill in Kingston Harbor. (Gosse, Birds of Jamaica, p. 437.) Mr. Taylor has not met with this species, nor have I personally observed it.

10. *Sterna dougalli* Mont. ROSEATE TERN.—There are records of this species from the coast of Cuba, Porto Rico, and a number of the smaller islands. Small Terns seen off Port Royal, which I was unable to obtain, I thought to be this form. Mr. Taylor says: "I believe this species to have been shot during one of my visits to Rackum Cay in June last."

11. *Sterna hirundo* Linn. COMMON TERN.—Mr. Taylor says: "I have the skin of a Tern, shot at Rackum Cay, that I can ascribe to no other species than *Sterna hirundo* Linn. This bird occurred frequently among a small flock of other Terns that daily resorted to the spit of sand forming the cay. Several were shot. Skin, ♂, 11 July, 1891."

12. *Sterna sandvicensis acufflava* (Cabot). CABOT'S TERN.—Mr. Taylor's record below seems to be the first absolute information of the occurrence of this species from Jamaica. Mr. Cory gives its distribution in the West Indies as "Bahamas and Antilles" (Cory, Birds of the West Indies, p. 277).

Mr. Taylor says: "*Sterna sandvicensis acufflava* is perhaps the most abundant species among the cays and in the harbor of Kingston, where great numbers may be seen at most times perched on the stakes marking the ship's channel."

13. *Sterna maxima* Bodd. ROYAL TERN.—Mr. Taylor says: "This species is common at Port Royal Cays and in Kingston Harbor. Said to breed at the Morant Cays."

He adds: "Among the Terns shot at Port Royal I feel tempted to include *Sterna elegans*, but having no specimens now in my possession, its notice here is open to question." This is more probably *Sterna tschegrava* Lepech.

14. *Larus atricilla* Linn. LAUGHING GULL.—Observed near Port Royal. "Frequents the Kays" (Gosse, Birds of Jamaica, p. 437).

Mr. Taylor says this species was shot at Rackum Cay and is not uncommon and breeds at the Morant Cays.

15. *Phaëthon æthereus* Linn. RED-BILLED TROPIC BIRD.—I did not meet with this species though it was described to me by fishermen on the north side of the island, so as to be readily recognizable. They said it was seen generally late in the summer or early in the autumn after severe storms. Gosse speaks of it as a "constant frequenter of the Pedro Kays" (Birds of Jamaica, p. 431).

16. *Phaëthon flavirostris* Brandt. YELLOW-BILLED TROPIC BIRD. BOOBY.—Common resident on the north shore of Jamaica. Breeds in February. For detailed account of the occurrence and habits of this species see Auk, Vol. VIII, No. 3, pp. 249-256.

17. *Sula piscator* (Linn.). RED-FOOTED BOOBY.—Recorded by Gosse. (Birds of Jamaica, p. 418.) Mr. Taylor says: "I have not seen *Sula piscator* (Linn.) alive. A mounted specimen in the collection of birds at the Museum of the Jamaica Institute is labelled Pedro Cay (no date), Coll. J. J. Bowen."

18. *Sula sula* (Linn.). BOOBY.—Recorded by Gosse as common at Bluefields Bay. (Birds of Jamaica, pp. 417, 418.)

Mr. Taylor says: "*Sula sula* (Linn.) was seen in numbers at sea between Kingston and the Cays. Mounted specimens in the Institute collection are labelled 'Pedro Cay, collector J. J. Bowen, Esq.' No date."

19. *Sula cyanops* (Sundev.). BLUE-FACED BOOBY.—"West Indies." (Cory, Birds of the West Indies, p. 272.) There are records from San Domingo and the species probably occurs with the others at Pedro Cays.

20. *Pelecanus fuscus* Linn. BROWN PELICAN.—Common resident species and generally distributed in suitable localities about the island. I saw many off Port Royal, and at Port Antonio noted them several times. At Priestmans River I frequently observed this species passing along the coast in flocks varying from three to sixty individuals. Mr. Taylor says: "*Pelecanus fuscus* Linn. is an abundant species. In October last Capt. Young, of H. M. S. 'Pylades,' found young in the nests among the mangroves at Drunkenman Cay near Port Royal."

21. *Fregata aquila* (Linn.). MAN-O'-WAR BIRD.—A common resident. I saw these birds at Port Royal, at Port Antonio, at Priestmans River, and at many other points along the coast of the island. I have been unable to ascertain at what point these birds breed but it can not be distant, as the birds are present the year around.

Mr. Taylor says this species is "Common, though not so often seen as the Pelican. Just behind Fort Augusta in the harbor is a dense isolated clump of mangroves forming a small island some little distance from the shore. It is a favorite roosting place of Frigates and Pelicans; in fact, the only one near Kingston resorted to by the former. Passing this island one morning, I counted more than eight Frigates and twice as many Pelicans sitting on the overhanging branches; they allowed a very near approach before taking flight. I have been unable to gather any reliable particulars relating to the breeding of this bird near Kingston"

22. *Anas boschas* Linn. MALLARD.—"Accidental in Jamaica." (Cory, Birds of the West Indies, p. 262.) Recorded by Richard Hill, Esq. (Gosse, Birds of Jamaica, p. 408).

23. *Anas obscura* Gmel. BLACK DUCK.—Recorded from Jamaica by Mr. Cory. (Birds of West Indies, p. 262.) Mr. Cory adds, "It is uncertain whether the Dusky Duck, which, it is claimed, occurs in Jamaica, is *Anas fulvigula* Ridgw. or this species."

24. *Anas strepera* Linn. GADWALL.—Probably a regular winter visitor to the island.

25. *Anas maxima* Gosse. GREEN-BACKED MALLARD.—Gosse refers to this as "well known to the negro gunners" at a point "near Savanna le Mar," and did not consider it a hybrid. (Gosse, Birds of Jamaica, pp. 399, 400.)

26. *Anas americana* Gmel. BALDPATE.—There are several records of this species occurring in winter in Jamaica. (See Cory, Birds of the West Indies, p. 264.) From Mr. Taylor's notes: "This species is said to be accidental in winter in the West Indies (Cory, B. W. I., p. 264). I

examined several examples of this species that were offered for sale in Kingston in the winter of last year, when they appeared to be almost as numerous as *Anas discors*."

27. *Anas carolinensis* *Gmel.* GREEN-WINGED TEAL.—Recorded from the Island by Gosse (*Birds of Jamaica*, p. 408).

28. *Anas discors* *Linn.* BLUE-WINGED TEAL.—Common in the town markets in the winter, according to Gosse (*Birds of Jamaica*, p. 401). I did not meet with the species or see it exposed for sale. Mr. Taylor says it is "abundant in certain favored places during the winter months and is the most common species brought in to Kingston for sale. It is probably resident."

29. *Spatula clypeata* (*Linn.*). SHOVELLER.—Apparently casual or accidental in winter. I did not observe it.

30. *Dañila acuta* (*Linn.*) PINTAIL.—There are numerous records of its occurrence on the island.

31. *Aix sponsa* (*Linn.*). WOOD DUCK.—Said to be of regular occurrence in Jamaica in winter, but is apparently rare.

32. *Aythya americana* (*Eyton*). REDHEAD.—An uncommon winter visitant.

33. *Aythya vallisneria* (*Wils.*). CANVAS-BACK.—"Recorded from Jamaica" (Cory, *Birds of the West Indies*, p. 207).

34. *Aythya affinis* (*Eyton*). LESSER SCAUP DUCK.—"Recorded from Jamaica" (Cory, *Birds of the West Indies*, p. 266).

35. *Aythya collaris* (*Donov.*). RING-NECKED DUCK.—"Jamaica in Winter" (Cory, *Birds of the West Indies*, p. 267).

36. *Oidemia perspicillata* (*Linn.*). SURF SCOTER.—"Claimed to have occurred in Jamaica" (Cory, *Birds of the West Indies*, p. 268).

37. *Erismatura rubida* (*Wilson*). RUDDY DUCK.—Though this bird is said to be of regular winter occurrence in Jamaica, I think that it must be quite uncommon, and that the following species has been confounded with it.

38. *Nomonyx dominicus* (*Linn.*). MASKED DUCK. QUAIL DUCK.—In the ponds about Priestmans River I met with this species on two occasions, and from native hunters learned that it was not at all uncommon, especially early in the Fall.

At Priestmans River, 9th February, 1891, I took an adult male, No. 11000, of *Nomonyx dominicus*. The bird was in a small and very shallow pond, and did not attempt to fly away upon being approached, but tried to hide in some thin grass growing where an old stump of a tree projected from the water, and remained so motionless as almost to escape notice, though not more than twenty feet away. It was killed with a light load of dust shot.

This bird differs from the general descriptions that I have found in having the black of the head unbroken by chestnut bars, and in having in the angle of the lower mandible a conspicuous though small triangular white spot.

At the same locality, 26th February, 1891, I took a male apparently of

the first or second year, No. 11284, which differs from the bird of Feb. 9 (No. 11000) in having the black of the head broken by mottled bars of black and chestnut, one above and one below the eye, and has no white patch in the angle of the lower mandible. The black of the head is not so intense as in No. 11000. This bird was shot in a shallow pond just above the house where I had not been for some days. A boy told me there were at least three small Ducks in this pond and he thought four. He had seen them two or three times in the last few days. On going to the pond, one end of which has a dense growth of rushes, two Ducks were seen, but only one killed, the other escaping wounded into the grass. The testes of the bird taken were rather more than a quarter of an inch long and an eighth of an inch in the smaller diameter. These little Ducks do not seem at all rare on the Island, and have much the habits of the Grebes, frequenting small fresh water ponds and depending rather on hiding in the grass or diving than on flight to escape pursuit. They are said by the native gunners to breed at various points on the island.

39. *Chen hyperborea* (Pall.). LESSER SNOW GOOSE.—“Accidental in Jamaica.” (Cory, Birds of the West Indies, p. 259.)

40. *Branta canadensis* (Linn.). CANADA GOOSE.—“Recorded from Jamaica.” (Cory, Birds of the West Indies, p. 260.)

41. *Dendrocygna arborea* (Linn.). BLACK-BELLIED WHISTLING DUCK.—Said to be common at points on the island and to breed in the mangrove swamps. (Gosse, Birds of Jamaica, pp. 395-399.)

42. *Dendrocygna autumnalis* (Linn.). BLACK-BELLIED TREE DUCK.—“The Red-billed Whistling Duck (*D. autumnalis*) though much less common in Jamaica than the preceding (*D. arborea*) is found there in some seasons as an autumnal visitant from the Spanish-Main.” (Gosse, Birds of Jamaica, p. 398.)

43. *Phœnicopterus ruber* Linn. AMERICAN FLAMINGO. RED FLAMINGO.—The visits of Flamingoes to the coast of Jamaica are now very rare, and, so far as I was able to ascertain, none breed at present on the island. Formerly the visits of these birds seem to have been of regular occurrence.

[To be continued.]

TERTIARY FOSSILS OF NORTH AMERICAN BIRDS.

BY R. W. SHUFELDT, M. D.

UPON examining a collection of fossil birds from the Silver Lake Region of Southwestern Oregon, recently submitted to me by Professors E. D. Cope and Thomas Condon for description,