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Notes on the BIRDS of Jamaica.

BY W. T. MARCH.

With remarks by S. F. BAIRD.

III.

ARDEIDÆ.

All the North American Ardeidæ are to be obtained in the Island of Jamaica. The Gaulins and Bitterns are of more frequent occurrence than the larger Herons, and are found at all seasons and in every part of the island where there is water,—at the cattle ponds, along the river courses, in the mangrove swamps, lagoons, and marshes, and in considerable numbers on the neighboring islets and kays during the breeding season. The Ardeidæ all build on trees; the nests are platforms, constructed of sticks filled in with leaves, trash, twigs and bark, forming a shallow bedding, on which the eggs are deposited. In the mangroves the nest is composed principally of the decaying pods of the black mangrove.

The eggs of all are emerald green, or rather, of the tint called aquamarine, varying in shade, and in dimensions according to the size of the bird; those of the Gaulins are four or five in number, measuring about 1 $\frac{13}{16}$ by 1 $\frac{5}{16}$ of an inch; the typical eggs rounded at both ends, though some are pointed at one end; a small kay off Old Harbor, known as Barebush Kay, is a favorite resort of all the Gaulins, Bitterns and Night Herons during the breeding season.

The larger Herons are not of so frequent occurrence as the Gaulins and other Ardeidæ during the late spring and summer months; but *Ardea herodias* and *Herodias egretta* are not uncommon during the autumn and winter; they are, however, more difficult of approach than the smaller species, being very wary and vigilant; their resort during the breeding season is usually to the deep recesses of the mangrove swamps and morasses. Their eggs are of similar form and color, but larger than those of the Night Heron. I have not often met with the nest of the larger Herons; but have notes of two,—one from Salt Island Creek, *Herodias egretta*, containing three eggs, and the other, *Ardea herodias* with four eggs from the Ferry Lagoon. On both occasions the nests were taken from the topmost branches of a Corkwood (*Anona palustris*). The Herons are generally in good condition from the fall of the year until the following spring, but, as with most of the fish-feeding birds, must be divested of the skin, which otherwise imparts a rank and unpleasant flavor to the flesh.

There are periods, but not of long continuance, in which the Egrets, particularly the White, are seen several together, in our marshes. The number may be twelve or twenty. They seem attracted by some prevalent living food on these occasions; ordinarily they feed singly, or at most in couples, in the shaded spots of our rivers above the water shoal. There are collected at the present time (January, 1864) at a sedgy pond near Spanish Town upwards of twenty, principally *Garzetta candidissima*, with a few of *Herodias egretta*, *Florida cærulea* and *Demiegretta ludoviciana* and *nivea*.

110. FLORIDA CÆRULEA.—The length of the Blue Gaulin or Florida Heron is about 22 inches, expanse 36$\frac{1}{2}$, flexure 11, leg 4, bill 3; occipital feathers lengthened, without a crest; prevailing color dark indigo blue, head and neck with a purplish tinge; dorsal plumes lengthened; wing feathers greyish beneath; iris yellow, orbits light blue, bill leaden blue; legs and feet black. The young are white with spots of blue about the wings and body;

iris whitish, orbits and base of the bill yellowish, bill light blue, legs dull yellowish, bill light blue, legs dull green.

109. GARZETTA CANDIDISSIMA.—I find the Snowy Heron of as frequent occurrence as the Red-Necked and Blue Gaulin. Color snowy white, with occipital and dorsal plumes loosely fibred and much lengthened. Iris yellowish, bill black, with the base and lower portion of the lower mandible and space round the eye yellow; legs black, feet yellow; length 26 inches, expanse $37\frac{1}{2}$, flexure $10\frac{1}{2}$, leg 4, bill $3\frac{1}{4}$, middle toe 3.

108. GARZETTA NIVEA.—Mr. Gosse's Common Gaulin has been supposed to be the immature "*Florida cærulea*," but I think, on careful examination and comparison, it is quite distinct,—the color is always pure white, without any blue feathers about the body or wings, or any distinct crest. The tips of the first six wing quills only are edged on both webs with greyish black. Iris pale yellow; orbits, cheeks and legs bluish green; bill bluish black, with the base and larger portion of the lower mandible yellow. Length 24 inches, expanse 39, flexure $10\frac{1}{2}$, leg 4, bill $3\frac{1}{4}$, tail $4\frac{1}{2}$.

111. DEMIEGRETTA LUDOVICIANA.—The Red-necked Egret, or Gaulin, is one of the most common. The general color of the adult above is slatey blue, the feathers tipped with reddish; chin and a stripe down the throat and other under parts tawney white; breast and neck red, shaded into purplish. Iris yellowish white; space round the eye fulvous; bill brownish black, lower mandible clayish yellow beneath; legs yellowish green. Length $25\frac{1}{2}$ inches, expanse 37, flexure $10\frac{1}{2}$, bill and leg 4 each. The white occipital and colored dorsal plumes straight, fastigiate, the latter generally longer than the tail. The immature bird has the upper plumage reddish, mixed with blue.

DEMIEGRETTA RUFA.—The Reddish Egret or Gaulin is scarce, as I have only seen two specimens; it appears to be only an occasional visitor.

Adult.—General color greyish blue, paler beneath; head, neck and throat reddish chestnut. Dorsal plumes with yellowish tips, straight, fastigiate, and longer than the tail. Iris greyish white, space round the eye and bill dull flesh-color; the terminal half of the bill black, legs and feet blue, with blackish scales; claws blackish. Length 30 inches, expanse 43, flexure $12\frac{3}{4}$, leg $5\frac{3}{4}$, bill $3\frac{1}{2}$.

116. HERODIAS EGRETTA.—The White Egret or Heron is the most common of the larger species. The dimensions are, length 38 inches, expanse 55, or more, flexure 16, tail 5, bill more than 5, and leg nearly 6 inches. Color pure white; no occipital crest. Dorsal plumes with stiffened shafts, longer than the tail and pendant. Iris yellow; bill yellowish to the point, dusky above, legs and feet black.

163. ARDEA OCCIDENTALIS.—The Great White Heron is rare in the island; it is readily distinguished from the preceding by the larger size, the lengthened occipital feathers, and an absence of the dorsal plumes and some other peculiarities. The color is also pure white. Iris yellow, orbits yellowish green, bill yellow, greenish at the base; legs yellow, with olive tinge in front, claws light brownish. Length 45 inches, expanse 68, or more, flexure nearly 20, leg nearly 9 inches, bill $5\frac{1}{2}$.

115. ARDEA HERODIAS.—The Great Blue Heron is more abundant in some years than in others. The prevailing color is ashy blue, some feathers tinged reddish; crown feathers and scapulars elongated; chin and under tail coverts white; edge of wing and a patch on shoulder rufous and white; neck ashy cinnamon brown; color of throat white, streaked with black and reddish brown; plumes of the breast ashy and white; belly streaked black and

white; sides black. Wing quills blackish; thigh rufous; tail bluish. Iris yellowish, with hazel pupil; bill with lower mandible yellow, dark flesh-colored at the base; upper mandible reddish horn, lighter on the edges; tongue whitish, mouth deep rosy flesh-colored; leg, feet and claws black, scales with whitish edges; thighs, a short space from the knee, and a stripe back and front black, the rest tawny; palms dull clayish.

The dimensions of the adult male are, length 46 inches, expanse 74, flexure 19, bill $6\frac{1}{4}$, leg 7, thigh 9, middle toe $4\frac{3}{4}$.

This species is very variable, rarely agreeing exactly in the dimensions and in the coloring of the head and belly. The female and young male generally have the head black without the white center, and the breast and under tail coverts greyish, streaked with white and blackish. The sack or stomach of one shot at the river side near Spanish Town was filled with small river shrimps and water snails, intermixed with small pieces of river grass (*Ceratophyllum demersum*) evidently pulled up in taking the food; and in the gullet of another shot at Great Salt Pond was a mullet nearly eight inches in length.

275. Ardea Wurdemannii?—The White-crowned Heron is in the upper plumage very like the preceding, but has the crown and occipital elongated feathers white; the under parts white, streaked with black; the breast bluish black, with bluish grey or ashy on the sides. Length nearly 50 inches, expanse 75 or more, flexure 21, leg 8, middle toe about 13, thigh 9, bill $6\frac{1}{2}$. Greenish brown, yellowish beneath.

The fishermen and gunners on the coast say this is the male of the preceding species in summer plumage, but, from two specimens I have collected, I think they are quite distinct.

113. Ardetta exilis.—The Tortoise-shell Bittern is not uncommon among the mangroves and along the banks of streams. It is generally found solitary. Length $13\frac{1}{2}$ inches, expanse 17 to 18, flexure $4\frac{1}{2}$ to 5, bill and leg each nearly 2. The prevailing colors of this Bittern are dark glossy green and purplish cinnamon mixed with tawny. Iris and bill yellow, the latter darker at the tips, legs tawny. The head and back of the female are chestnut instead of green and cinnamon. The eggs are small.

112. Butorides virescens.—The Crab Catcher is found as a solitary bird in almost every locality in which there is water. The dimensions are, length 17 to 20 inches, expanse 25 to 28, flexure 7 to 8, leg and bill 2 to $2\frac{1}{2}$. Head with crest glossy green, upper parts of body green, wing coverts edged with tawny brown; neck and sides of throat chestnut; chin white; line down the centre of throat white, intermixed with greenish and chestnut; under parts and sides leaden ash. Iris yellow; upper mandible black, lower mandible yellow, with black edge; legs and feets dusky greenish yellow. The mature male has two stripes on the side of the head towards the ear, with a white stripe streaked with black between them.

This species also builds on trees in the morasses and swamps, and on river banks overhanging the streams. The eggs are nearly as large as those of the Gaulins.

Butorides brunnescens.—A Cuban species is supposed to be found here, but I have not recognized it in any of my collections. From Gundlach's description this differs from the preceding in having the tip of the lower mandible greenish white; skin of face olive black; round the eye yellowish green; legs olive brown; lesser wing coverts and small quills dark metallic green, with rusty edges; large quills without white; lesser under coverts grey; Throat yellowish brown, dark grey at base; foreneck blackish, with metallic green lustre, rusty tips and pale yellowish lateral edges. It also wants the white and black streaked line from the angle of the mouth towards the ear

and the white on the throat and forepart of the neck, which are uniform with the rest of the neck.

117. BOTAURUS LENTIGINOSUS.—This Bittern is occasionally met with about the river banks, lagoons and swamps. Iris yellow; feet grayish yellow; bill yellowish green, blackish at the points. Length 26 inches, expanse 40, flexure 12. Prevailing color brownish yellow, mottled and shaded darker with reddish and brown and cinnamon brown; a black stripe on each side of the neck; chin and upper throat white, streaked with brown. I have not met with the nest.

114. NYCTIARDEA GARDENI.—The Night Heron or Quok is often met with about the lagoons and swamps. Length 25 to 30 inches, expanse 40 to 45, flexure 12 to 13, bill and leg a little more than 3 inches. Iris red, orbits green; bill black; legs and feet yellow, claws brown; head, crest, scapulars and back glossy metallic green; long feathers of occipital crest forehead and under parts white, passing into pale slaty blue; the wings and tail ashy blue. The young differ in having the green of the upper parts replaced by dull chocolate; the coverts spotted white; the neck and under parts streaked with dusky; the quills tinged with reddish chocolate, and tipped whitish.

120. NYCTHERODIUS VIOLACEUS.—The yellow-crowned Night Heron or Guinea-hen Quok, is also of frequent occurrence. Dimensions rather less than the preceding; the bill thicker and shorter. Iris reddish; bill dark or blackish green; legs greenish yellow above, greenish black below; the prevailing color greyish leaden blue, lighter below; top of the head and occipital feathers yellowish white, surrounded with bluish black; quills and tail dull lead color; the young has the upper parts greenish olive, with central streaks and terminal spots of brownish yellow; the under parts whitish, with yellowish brown streaks. The night Herons build lower than the other species of *Ardeidæ*. The eggs of the two species are alike, rounded at both ends.

TANTALIDÆ.

121. IBIS ALBA, the White Curlew. IBIS ——, the Black Curlew.—The haunts of these two (?) species of Ibis appear to be almost confined to the morass borders of the islets off Salt Island and Bushy Park Lands, formed by the growth of mangroves, and intersected by natural channels flowing between; the Curlews breed, and are to be found there at all seasons, only visiting the mainland in August and sometimes in September. The first species is pure white, with the first five wing quills tipped with greenish black. The other is also white, with the head, neck, wings, and tail of a glossy greenish black. The flesh is equal to that of the wild goose.*

119. IBIS RUBRA.—The red Curlew is a rare visitor on the south midland coast; but has been more frequently seen at the western end of the island. I have never met with it.

118. PLATALEA AJAJA.—The roseate Spoonbill is of very rare occurrence. I have only seen portions of one, shot by Mr. Maxwell in Saint Elizabeth, many years ago. †

143. PHÆNICOPTERUS RUBER.—The red Flamingo was formerly a frequent visitor at the west end of the island, but rarely seen on the south midland or eastern coast. ‡

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*(NOTE by Mr. Richard Hill.) It has not been mentioned by naturalists that the Curlew has the power of inflexing the upper bill, so as to run it along the groove of the lower mandible, and clean out whatever may be adhering there.

†(NOTE by Mr. Hill.) Occasionally specimens have been procured from the salinas of Old Harbour. Twice, specimens have been brought me, but so badly skinned as to be worthless for the cabinet. The color was of a delicate equally tinted rosy red.

‡(NOTE by Mr. Hill.) In 1841 a fine rose-tinted bird was shot at Passage Fort. The bird was forwarded by Mr. Kirkpatrick, but never came to hand. Some of the feathers were separately sent and received

Many species of Plovers and Snipes are regular annual visitors; they come in considerable numbers with the autumnal rains, in the early part of October, (some are rather earlier in their advent,) and depart, many, before the end of the year; whilst others remain until February, or later in the succeeding year. On the arrival of the migratory flocks in autumn, they range all over the island where water is to be found. Some species are found during the entire year, the number depending apparently on the signs of the coming seasons; during the dry summer of 1863 they were more abundant than in 1861 or 1862; some of the summer residents breed in the high lands, but the greater number of them are found on the plains and near the coast.

CHARADRIIDÆ.

ÆGIALITES MELODUS.—The Piping Plover is, according to Gosse, an annual visitor, but I have not met it in any of my collections. Mr. Gosse may possibly have mistaken the following species for it.

103, 260 ÆGIALITES WILSONIUS.—The Thick-billed Plover is easily recognised by the bill; it is one of the permanent residents, and, I think, is more numerous during the summer than any of the other species of *Aegialites;* the migrants generally arrive in September, and depart in the early part of the following year, leaving, however, numbers widely distributed inland, as well as on the coast. It lays on the bare sand like the *Chordeiles*, sometimes, but not often, near the cover of some low shrub. I have not met with more than three eggs in a nest; they are in form like the Quails, stone color, splashed all over with small spots of bistre and vandyke brown, and measuring $1\frac{1}{2}$ by $1\frac{1}{8}$. Several species of *Aegialites* are said to breed in Saint Elizabeth and Westmoreland. *A. vociferus* and *tenuirostris* may be among them.

102, 256. ÆGIALITES SEMIPALMATUS.—The Ring Plover is also a summer resident, but is not so numerous as the last species. I have collected specimens through the spring and summer months, but I have never met with the eggs, though they must certainly breed here, as one of my sons took from one spot in July last, at Great Salt Pond, a broken egg perfectly shelled; it was dark grey apparently without, or with only minute dots.

The other Plovers, visiting the island in autumn and winter, are—

105, 204. CHARADRIUS VIRGINICUS.—The Golden Plover.

99. ÆGIALITES VOCIFERUS.—The Kildeer Plover.

106, 203. SQUATAROLA HELVETICA.—The Squatting Plover.

182. LIMOSA?—The Horse-eyed Plover.

I have not met with any of these during the summer in the south midland district; the three first are constant annual visitors; the last is only obtained occasionally.

HÆMATOPODIDÆ.

107, 257. STREPSILAS INTERPRES.—The Turnstone is the most abundant of the Grallæ found here at all seasons, and I have met with their eggs more frequently than those of any other species—at the seaside—on the plains—in the mountains. I have found eggs at Healthshire, Great Salt Pond, Passage Fort, and in St. John, St. Thomas in the Vale, and on the bank of the Rio Grande, near Millbank in Portland. The eggs are deposited on a few dried leaves under low growing shrubs, (on the coast generally under the *Surianna Maritima;*) they are yellowish, or olive green, coarsely marked and streaked with dark and light brown, and slatey grey spots intermixed.

RECURVIROSTRIDÆ.

141. HIMANTOPUS NIGRICOLLIS.—I have found the Stilt Plover about the salinas along the coast from Port Royal to Old Harbour, during the entire year; they are often seen about the flashes made by the inroad of the Rio Cobre at Passage Fort and the Salt Pans, and Salina at Hanson's or Great Salt Pond, (and I make no doubt they breed throughout the island.) The eggs are generally found in a tussock of grass; from recollection they are stone color, splashed all over with vandyke brown and pale bistre spots.

RECURVIROSTRA AMERICANA.—The American Avoset has been identified by Mr. Hill; it must be a rare visitor, as I have never met with it.

SCOLOPACIDÆ.

242, 255. ACTODROMAS MINUTILLA.—The little Sand-pipers are found at all seasons, though most abundant in the late autumn and early winter months; they are not, however, uncommon during the spring and summer. They breed on the salinas and sandy beach, laying three or four eggs on the bare sand; these are yellowish, splashed with reddish brown and greyish spots principally about the large end. I have had eggs from Great Salt Pond and Passage Fort.

129, 131. CALIDRIS ARENARIA.—The Sanderling is a regular annual visitor. I have a pair shot at Great Salt Pond on the 20th August, 1863.

205, 254. MICROPALAMA HIMANTOPUS.—The Stilt Sandpiper is not uncommon during the spring and summer. I have not met with the egg, though I am sure it must breed here, as I have specimens of birds collected in April, June and August of 1863.

130. SYMPHEMIA SEMIPALMATA.—The Willet, known here as the Spanish Plover, is not uncommon in some years during and after the autumnal rains. I have never seen it in summer, though it is said to breed in Saint Elizabeth.

124. RHYACOPHILUS SOLITARIUS.—The Solitary or Pond Snipe is never seen in company—a single bird or pair only is found usually about the cattle ponds. The eggs are laid on the bare ground. I have taken several nests, but have no certain recollection of the eggs.

128. TRINGA CANUTUS.—The Knit or White-bellied Snipe is also found in solitary loneliness on river banks, or marshy borders of ponds or fresh water streams, at all seasons of the year, but I have not yet met with the eggs.

127. GALLINAGO WILSONI.—The Jack Snipe is common from the end of September till December, and thence till April becomes almost solitary; in the latter months at early dawn, after a moonlight night, a single specimen is sometimes found, on the dry pastures of salt ponds, mistaking, no doubt, for water the glittering appearance caused by the moonlight on patches of parched, low grass. In some years they are abundant, in others scarce; for the last two or three years, 1861, 1862, 1863, they have been the latter in the south midland plains, but have been abundant in the highlands. When they first arrive they lie in considerable numbers along the borders of ponds, or margins of marshy lands, in every part of the island. Many years ago, early in October, in company with the late Captain St. John, then Island Engineer, we shot more than seventy brace in three days over a small Guinea cornfield of about six acres; the land had been previously burnt off, and the corn was then only a few inches high; the water from the then recent heavy rains lying in the intervals and in puddles about the field, which adjoined woodland on two sides.

ACTITURUS BARTRAMIUS?—The Short billed Snipe is an occasional visitor. I

have a specimen shot in October, 1863, from the ridge of a house top at Reed's Pen;—the dimensions are, length 12 inches, expanse nearly 24, flexure $6\frac{1}{2}$; tail, graduated, $3\frac{1}{2}$; bill $1\frac{1}{2}$; thigh $2\frac{1}{4}$; leg not quite 2; middle toe with claws $\frac{1}{4}$ of an inch, hind toe small. Bill dark brown, lower mandible yellow, except at the point; legs greenish yellow; upper plumage dark brown, feathers edged with tawny, lower part of the back and rump without the edging; central tail feathers same as the upper plumage; side feathers tawny, with blackish transverse bars, and irregular subterminal blotches; chin and stripe over the eye white; throat with blackish marblings, under parts yellowish white, clearer on the belly; breast and sides with transverse bars of brownish black; wing quills blackish brown, banded on the inner webs with dull white; shaft of the first quill white, under wing coverts white, with narrow bands of brownish black.

Mr. Gosse gives *Tringoides macularius* as found on the island.

126. GAMBETTA MELANOLEUCA.—The Tell-tale.

125. " FLAVIPES.—The Yellow-shanks.

122, 123. EREUNETES PETRIFICATUS. (*E. pusillus.*)—The Sandpiper.—These three Snipes are also annual visitors, arriving in considerable numbers in the autumn, but I have not met with any during the summer.

120. NUMENIUS LONGIROSTRIS.—The brown Curlew is often found in pairs among the mangrove swamps on the coast during the entire year, but more frequently on the small sandy kays to the west of Healthshire and near Old Harbour, where is also the common haunts of the two species of the Ibis. They breed in the reeds, rushes and tall marsh grass on the borders of the creeks and swamps; the eggs are four, larger at one end and obtusely pointed at the other, measuring $2\frac{7}{16}$ by $1\frac{1}{16}$; they are greenish or olive green, with blotches and splashes of dark umber and greenish brown.*

There is another bird found in the mountains, which I take to be a Curlew; it is much smaller than the preceding, and has a short bill; the upper plumage is also darker, and the under parts rusty white. It is prevalent in the north eastern parishes, about the mountain streams. (Perhaps *N. borealis.*)

In November, 1826, I had a specimen of a Woodcock, shot on the race-course near Spanish Town, but I have not since met with it. It was supposed to be *Philohela minor*. I have only a slight recollection, and the following note of it:—Length not quite 12 inches; wing rounded; bill straight, enlarged at the end; general color pale rufous, shaded ashy and darker rufous.

RALLIDÆ.

The Coot, in common with the two Gallinules, is found abundant in the lagoons, marshes and ponds in all parts of the island, highlands as well as lowlands; particularly where there is a thick growth of reeds, rushes and water plants to afford them cover. The nidification of the three is very similar; a platform of sticks, filled in and lined with decaying leaves, rushes, water grass (*ceratophyllum*) and other water weeds, constructed in the tall reeds and vegetable growth on the margin of the water. In the lagoons the platform is often built on the interwoven roots of the black mangrove, and composed principally of the decaying pods of the same tree; they breed twice and probably oftener in the year, commencing in March; the eggs of all vary considerably in size, but are pretty regular in form and measure, from 2 to $2\frac{1}{4}$, by $1\frac{3}{8}$ to $1\frac{5}{8}$ of an inch. (The flesh of all makes excellent game soup, if divested of the skin, which, when left on, gives the dish a rank or fishy flavor).

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*(By Mr. Hill.) I am not sure whether the brown Curlew is not the bird that inflexes the upper bill, *Numenius*, and not *Ibis*.

140. FULICA AMERICANA.—The Ivory-billed Coot lays from six to eight or more eggs, oval, pointed at one end, greyish stone color, splashed all over with small bistre brown spots and dots; the ground color, when first laid, is very pale, but becomes darker by contact with the damp nest.

139. GALLINULA GALEATA.—The Scarlet-fronted or Florida Gallinule lays five to eight eggs, at first clayish white, splashed sparsely with small spots of sepia brown. By contact with the damp nest, the ground color of these eggs often changes to different shades of drab. I have now, February, 1864, unfledged young of this species in a pond near Spanish Town.

210. GALLINULA MARTINICA.—The Purple Gallinule, Sultana or Plantain Coot, lays six to eight eggs, which are of a pale burnt sienna or yellowish drab, splashed all over with small spots and dots of burnt umbre. *

138. The CARPENTER COOT is supposed to be the immature Plantain Coot; but I am inclined to think that, on a more careful observation, it will be found distinct; the nestlings, so far as I have been able to examine them, are quite different.

133. RALLUS ELEGANS.—The Mangrove, or Marsh Hen, is very common in its usual haunt in the mangrove swamps. It is considered the highest game-flavored bird in the island, and makes excellent game soup; it builds a platform of sticks, lined with softer materials, on low mangrove trees, sometimes just on the surface of the water. I have never found more than two eggs in any nest, but they are said to lay seven or eight; the eggs are clear white, measuring $1\frac{1}{8}$ by 13-16ths. †

RALLUS ? VIOLACEUS.—I have often seen this species in the ferry lagoon, but never succeeded in procuring a specimen. The habits appear to be very similar to those of the preceding. In February, 1863, Mr. Colchester obtained one, a female, from the same locality. The dimensions and description given by the collector are, length $11\frac{1}{4}$ inches, expanse $15\frac{5}{8}$; bill $1\frac{3}{4}$; middle toe $1\frac{15}{16}$. The general plumage olive black, with olive brown wing coverts and spotted all over with white; iris red; bill pea green, orange at the base; legs rosy pink; gizzard muscular, and contained water snails with their shells.

134. RALLUS CONCOLOR.—I have never found the Red Rail or Water Partridge in the salt swamps, but always near fresh water at the foot of the hills, or more commonly at the sedgy mountain ponds and streams. The eggs are white, and rather smaller than those of the Mangrove Hen.

135. PORZANA CAROLINA.—The common Rail is very variable in plumage; it is found at all seasons and in all waters, fresh or salt. I have never met with the eggs of this or either of the two next species.

137. PORZANA JAMAICENSIS.—The Jamaica, or Little Black Rail, is also of frequent occurrence about marshy lands, and on the savannahs and open pastures in the vicinity of water. The cry of this species is chi chi-cro-croo-croo several times repeated in sharp, high-toned notes, and heard at a considerable distance.

136. PORZANA MINUTA.—This little Rail is not uncommon in the savannahs and open pastures, and it has the same habits as the *P. Jamaicensis*; but I have never heard it cry. The two last build in savannahs and open pastures, forming a chamber in a tussock of grass, with galleries on opposite sides.

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*(By Mr. Hill.) The brilliancy of the plumage varies with the year, the more or less prevalence of the iridescent bronze, with the cerulean and purple, being the variation.

†This can hardly be the *Rallus elegans* of American authors, the eggs being entirely different.—S. F. BAIRD.

COLYMBIDÆ.

184. PODILYMBUS PODICEPS.—The Black Gorget Grebe is often met with on Rio Cobre in its entire course, and is sometimes, though rarely, seen on the Cattle Ponds in the lowlands; it, however, abounds in the highland lakes, ponds and sedgy portions of mountain streams.

I have not had the same opportunities of observing the habits of this species as I have had with the common Diver; but their general habits and nidification appear to be much alike. The nest of both species is a floating platform or mass of sticks, leaves and water weeds 15 to 20 inches wide, and the same in height, flattened at the top, with a slight depression in the middle, on which three or four oval eggs are deposited. These are chalky white, with a glaucous tinge beneath, though usually discolored by the damp materials of the nest. The dimensions are $1\frac{7}{8}$ by $1\frac{3}{8}$.

185. PODICEPS DOMINICUS.—The Diver frequents the ponds on the Cattle Pens, in all parts of the island. The nest is similar in construction and materials, but rather smaller than that of the Grebe. The eggs are usually four, oval, or oval-elongated, and measure $1\frac{1}{2}$ to $1\frac{5}{8}$ by rather less than an inch. This species breeds from April to December, rearing several broods. Soon after they are hatched, the young leave the nest and are carried about the pond under the wings of the parent birds, where they are securely held in swimming and diving. I once shot an old bird passing on the wing from one pond to another, and found a young bird with it, which must have been carried on its back. The same nest is used during the season, with slight additions after each brood; and is always pulled to pieces by the old birds when they have done with it.

ANATIDÆ.

ANSER HYPERBOREUS and BERNICLA CANADENSIS are occasional visitors in connection with a severe winter on the continent.

144. DENDROCYGNA ARBOREA.—The Whistling Duck is a permanent resident, breeding in the lagoons and morasses on mangrove stools and in clumps of reeds and rushes, laying ten or twelve eggs. It is easily domesticated, but it is necessary to take off the first pinion of one wing to prevent it joining the passing wild flocks. They breed more than once during the year, as numbers of them are taken before they become fully fledged, and brought into the towns for sale from May to December. In 1834 and 1835, at a pen on the St. John's Road, where there is a large pond, some Whistling Ducks were kept among the domestic poultry; they frequently brought into the poultry yard, in the early dawn, small parties of the Wild Duck, which accompanied the tame ones without any shyness or alarm into the poultry house, and were thus secured. They feed by night as well as by day. Their whistling cry is often heard passing over head at night. I have frequently, on moonlight nights in January and February, shot them in numbers, whilst feeding in the guinea cornfields.

I have had the eggs from Passage Fort, but I find no note of them, and my recollection of them is too uncertain to venture upon their description.

145. DENDROCYGNA AUTUMNALIS.—I have been told that the Red-legged Whistling Duck is sometimes met with in some of the eastern parishes, but I have never met with any others than those imported into Kingston from the Spanish Main; and I have not seen any of these for several years.

146. ANAS MAXIMA.—The Green-back Mallard, whether a hybrid or a variety of *A. boschas*, is apparently a permanent resident in the island, almost restricted to the deep recesses of the morasses and lagoons at the west end of the island. I have never seen a specimen of this duck, but there have been

several well authenticated specimens of it, besides Gosse's and those referred to by Robinson, obtained, however, from the same vicinage.* In the summer of 1863, a nest of eleven eggs, taken from a platform of rushes floating in the large lake at Rio Hio near Walton, in the Moneague District of St. Ann's, were brought to the Rev. Mr. Mais, master of Walton School. These eggs are supposed to belong to the Mallard; they are oily white, and measure $2\frac{3}{4}$ by $1\frac{7}{8}$ of an inch.

Many years ago I saw some eggs supposed to be one of the large migratory ducks; they were taken from the lake near Dry Harbor; they were yellowish oily green, very like some eggs of the English Duck, but I could not obtain any information respecting them; they may have belonged to the Shoveller,† which I was told had been found in those waters during the same summer; or, possibly, an English Duck from Dry Harbor, or one of the neighboring pens.

148. QUERQUEDULA INORNATA.—The plain Blue-winged Teal is also a permanent inhabitant of Jamaica, breeding in the interior lagoons and morasses. It is, I think, quite distinct from *Q. discors*. During the months of May and June individuals are sometimes shot at the Cattle Ponds in the lowlands, but they come down in September in flocks of considerable numbers, and are common a month or more before the arrival of the Lunate Teal; and in no instance have I ever seen or heard of a specimen with the white crescent having been found here in the summer, or previous to the month of November. The eggs are bluish chalky white.

147. QUERQUEDULA DISCORS.—I have never seen the Lunate Blue-wing earlier than the month of November; the usual period of their arrival is towards the end of the month, and they again appear in March and April on their return to the continent, when they are usually in full summer livery.

The other species of Anatidæ which are constant in their annual visits to the island are—

159, 158. SPATULA CLYPEATA.—The Shoveller—always in considerable numbers.

155. MARECA AMERICANA.—The American Widgeon—in all its forms and variety of plumage.

164, 165. FULIX AFFINIS.—The little Black-head also comes in considerable numbers and varied forms.

153. DAFILA ACUTA.—The Pintail, in numbers and in varied plumage.

The occasional vistors are—

PÆCILONETTA BAHAMENSIS.—Ilathera Duck (rare.)

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*(NOTE by Mr. Richard Hill.)—In the October season of 1846 there had been wild, stormy rains. The winds had blown from the west with that broad, steady force which renders our tempests in the latter season as fierce as hurricanes, though not rotatory storms; prodigious numbers of ducks were blown before the winds from the continent to the islands,—that is, from the Mexican Gulf to the Carribean Sea. The birds arrived at the west end of Jamaica so exhausted and beaten by the rain that in attempting to alight they fell, and many were picked up in the streets of Montego Bay. Among several ducks that reached our garden just out of the town, was what seemed a Mallard of extraordinary size. In bulk of body it appeared as large as a Muscovy Duck, (*Cairina moschata*,) but its shape was essentially a Mallard, (*Anas boschas*.) It was taken up helpless from fatigue. Teal had been taken up at the same time in the same state of exhaustion. My sister, Mrs. Clemetson, caged the extraordinary duck, and had it for two seasons. It was a female. I saw it in the spring of 1847, and directed that it should be shipped to London for the Zoological Society. Before it could be dispatched, it died in full plumage, and full flesh. It had laid infertile eggs in the previous spring, and was again laying infertile eggs, the sexual instinct being intensely strong; and something like uterine inflammation, if we may so speak, had supervened, and the bird perished in the act of egg-laying. The duck exactly resembled in plumage Mr. Gosse's *Anas maxima*.

† Scarcely the Shoveller—eggs of which are creamy white.—S. F. B.

AIX SPONSA.—The Summer Duck (very rare.)

157. NETTION CAROLINENSIS.—The Green Wing Teal; sometimes in autumn, but generally in the spring.

156. CHAULELASMUS STREPERUS.—The Gadwall; sometimes abundant, but not annual.

ANAS OBSCURA.—The Dusky Duck (rare.)

263. ANAS BOSCHAS.—The Mallard (rare.)

ŒDEMIA PERSPICILLATA.—Surf Duck (very rare.)

161. AYTHYA AMERICANA.—The Pochard (not uncommon.)

FULIX COLLARIS.—The Tufted Duck (rare.)

NYROCA LEUCOPTHALMA.—White-eyed Duck (very rare.)

160. AYTHYA VALISNERIA.—The Canvass Back is sometimes found in company with the Pintail.

The Muscovy is the species commonly kept in poultry yards, and in some localities the English Duck is also kept. The two are often crossed. The mongrels are held in higher estimation, as the young have the advantage of arriving at maturity much earlier than those of either parent, and are considered of superior flavor to either, particularly when raised on the duck ant and guinea corn.

NOTE by Mr. Hill.—The habitat of the Muscovy Duck is the Lake of Nicaragua. There all travellers see them at all times, either in small breeding coteries or large flocks. In the wild state their plumage is dark without any admixture of white. They were originally procured from the Mosquito shore, the country of the Muysca Indians, (see Humboldt's researches,) and hence is derived the name of Musco Duck, corrupted into Muscovy Duck. The West Indian Islanders had early naturalized them, for, on the discovery of Columbus, they speak of "ducks as large as geese," that they found among the Indians.

A critical Review of the Family PROCELLARIDÆ: Part I., embracing the PROCELLARIEÆ, or Stormy Petrels.

(Based principally on specimens in the Museum of the Smithsonian Institution.)

BY ELLIOTT COUES, M. D.

Having occasion to puhlish descriptions of several new species of Procellaridæ, which I find in the museum of the Smithsonian Institution, the present seems a fitting opportunity to embody in a review of the family the results arrived at in an investigation in which I have been for some time engaged. The present paper is the first of a series in which will be considered the entire family. It embraces the section Procellaricæ, an interesting and somewhat extensive group of which the common "Mother Carey's Chicken"—*Procellaria pelagica*—may be considered as typical. I have attempted to elucidate the specific characters of the components of the group, as well as their most natural generic disposition; and to discuss fairly such questions of synonymy as may arise. It will be perceived that in my generic arrangement, I have closely followed Prince C. L. Bonaparte, whose ideas of a genus, as set forth in his later writings, agree most nearly with my own. I have derived most assistance, as regards specific characters, from the very valuable monograph recently published by Dr. H. Schlegel, though of course it is quite impossible for me to agree with him on any points of systematic