THE DOUBLE-CRESTED CORMORANT.

+*PHALACROCORAX DILOPHUS*, Swains.

PLATE CCCCXVI.—MALE.

The objects that more especially attract the notice of the voyager, as he draws near the south-west coast of Labrador, are the numerous low islands covered with countless multitudes of birds, that have assembled there for the purpose of reproduction. Some miles farther, you see a ridge of craggy and desolate cliffs, emerging from the sea, and presenting the appearance of a huge granite wall. This forms a partition between the waters of the great St. Lawrence and many fine harbours hidden here and there behind it, along with numerous inlets and bays, coves and small creeks, in which the bark of the adventurer may ride in comparative safety. From the hoary summit of this bulwark the view is grand beyond description; valleys richly carpeted with moss and thickets of low shrubs glow in tints of the richest green; clear blue lakes bear on their bosom numerous birds of varied wing, while around their margins the females are seated on their eggs or carefully leading about their young; banks of perennial snow arrest your eye for a moment, and perhaps produce an involuntary chill; onward towards the horizon, mountains heaped confusedly behind mountains, mingle their gloomy tints with those of the cold sky. In that land, man may for weeks, even months, seek for his kind in vain. The deep silence that reigns around him during a calm, seldom fails to bring sadness to his heart, as his eye grows dim with gazing on the wilderness. Should the northern gale issue from its snowy chambers, darkness follows in its train, and should its whole fury pour upon you, melancholy indeed must be your lot.

To the low islands above alluded to, the beautiful Cormorant represented in the plate before you, resorts each spring, for the purpose of breeding. It arrives from the south about the beginning of May, or as soon as the waters of the Gulf are sufficiently free of ice to enable it to procure food. The winter it spends on our eastern coasts, but it rarely proceeds farther south than the Capes of North Carolina, about which it meets its southern friend the Florida Cormorant, on whose dominions, however, it does not venture.

While with us, the Double-crested Cormorants are seen flying in long lines, sometimes forming angles, and passing low over the water, at no great

distance from the shore. They enter our large bays, rivers and creeks, going up as far as the tide, but are seldom or never seen fishing in fresh-water. Their stay along the Middle Districts continues from the beginning of October to the middle of April; farther east they are seen a month earlier, and disappear a fortnight later. A good number breed on the Seal Islands off the Bay of Fundy, but the greater part return to Labrador and Baffin's Bay, where Dr. RICHARDSON found this species. To that excellent man and intrepid traveller, we are indebted, among other valuable fruits of his labours, for the first good description of this bird. From his account and the information which I have received from Captain JAMES CLARK ROSS, I believe that it does not go much farther north than the place where it was observed by the first mentioned traveller; and no Cormorants were seen during the late voyage to the Arctic circle. It is probable that neither the Double-crested nor the Florida Cormorants occur in any part of Europe; at least, if they have been described as birds of that quarter of the globe, I can find no account sufficiently correct to enable me to recognise them.

A few miles from one of the entrances of the Harbour of Whapatiguan, is a low and flat island about a mile in length, on which the present species breeds. As we sailed past it, we could easily observe the birds on their nests, all over the rock, which was completely white-washed with their excrement, that emitted a disagreeable odour to a great distance. I had seen several islands near the Harbour of Great Macatina inhabited by these Cormorants, but being anxious to complete the examination of one subject at a time, and knowing that we should see a greater number as we approached the Straits of Belle Isle, I put off the investigation until I should have leisure to prosecute it satisfactorily.

My son, accompanied by the captain and four sailors, sailed for Cormorant Island, on which, however, they found great difficulty in landing, for the surf broke so fearfully as to call into requisition all the judgment and good management of Mr. EMERY. The moment they landed, almost all the birds of the island rose on wing, darkening the air, and alighted at some distance on the water in large bodies. They were so shy that it was not without considerable difficulty that ten of them were obtained. At the first shot, hundreds of young ones scrambled out of their nests, and huddled together in packs of fifteen or twenty. When the men approached them, they opened their bills, squeaked, hissed, and puffed in a most outrageous manner; and the noise produced by the multitudes on the island was not merely disagreeable, but really shocking. Some of the nests contained eggs, and the young were of all sizes, from the newly hatched up to those able to fly; none, however, even of the largest, attempted to gain the water, but all preferred hiding themselves in the fissures of the rocks, or behind the nests. It was

curious to see them crawl flat on the rock, assisting themselves with their bill, feet and wings, employing the first in the manner of Parrots, and the wings like the oars of a boat or the flappers of turtles. When approached, they curved and twisted their necks in the most curious manner, reminding one of the writhings of a snake, and when seized they muted so profusely as to excite disgust. A dozen or more of different sizes, however, were thrust into a bag, and carried on board the vessel. The materials and dimensions of the nests were noted on the spot, and a hatful of eggs was brought to me.

The Double-crested Cormorant forms its nest of sea-weeds, some sticks, moss, and clods of earth, with grass adhering to them, which it piles up into a solid mass, often as high as three feet from the rock, with a diameter of fifteen or eighteen inches at the top, and of two and a half feet at the base. The whole has an appearance of solidity seldom seen in the nests of water-birds. The nests are placed as near each other as the nature of the ground will permit, and a great number which appeared to have stood out against the winter storms, had been enlarged and repaired that season. Many, however, lay scattered over the rocks, having been demolished by heavy gales or the breaking of the surf during tempests. The whole surface of the rock resembled a mass of putridity: feathers, broken and rotten eggs, and dead young, lay scattered over it; and I leave you to guess how such a place must smell in a calm warm day. The eggs are three or four, average two and a half inches in length by one inch and four and a half eighths in breadth, and have an elongated form. They are covered with a calcareous coating, which is more or less soiled with filth, but when carefully scraped, shews a fine light greenish-blue tint.

The young when just hatched, are of a bluish-black colour, tinged with purple, and look extremely odd. They remain blind for several days, and for about a fortnight are fed by the parents with the greatest care, the food being regurgitated into their open throats. They appear to grow rapidly, for in the course of eight or ten days we found some the size of a pullet, which, when marked, were scarcely half that size. They are covered with long down of a brownish-black colour, and do not leave the nest, unless they are intruded on, until they are able to fly, when their parents, who long before had ceased to feed them by dropping the fish into their bill, and had merely placed it on the ground near them, leave them to shift for themselves. By the middle of August all these birds remove southward, along Newfoundland, by Cape Breton Island, and the shores of Nova Scotia, scarcely any remaining on the coast of the first during winter, when indeed not many are seen farther east than the Bay of Halifax.

The fishermen and eggers never gather their eggs, they being unfit for being eaten by any other animals than Gulls or Jagers; but they commit

great havoc among the young, which they salt for food or bait. The old birds are too shy to be killed in great numbers, otherwise their feathers, although they smell strongly of fish, might be turned to account. I have never eaten Cormorant's flesh, and intend to refrain from tasting it until nothing better can be procured.

The flight of this species is strong and well sustained, although not so rapid as that of the Florida Cormorant. It sails at times in a beautiful manner, and at a great height above the waters. Like other species, the Double-crested Cormorants are fond of sunning themselves, with their wings spread out. They walk awkwardly, and cannot run without the aid of their wings. In order to arise from the water, in which they sink so as nearly to be covered when swimming, they are obliged to run and beat the surface for many yards, before they get fairly on wing. Their food consists of shrimps, lents, capelings, codlings, and other fishes, scarcely any kind coming amiss unless too strong or of too great a size. Of the codlings especially they devour vast numbers, they being in astonishing shoals on the coast of Labrador at the time when the Cormorants are breeding, and indeed remaining until the departure of the birds, when they retire to deeper water. I never saw a Cormorant plunge from the air after its prey, but should be much gratified by such a sight, which, if we trust compilers, is nothing uncommon; nor have I ever seen a bird of this species perched on anything higher than the top of the low island on which the nest is placed, none having been observed by me on any of the high rocks on which the common species breeds in America.

I have given the figure of a beautiful male in its perfect spring plumage. This is probably the only representation of the bird yet presented to the public, and the same remark applies to the Florida Cormorant.

PELECANUS (CARBO) DILOPHUS, *Double-crested Cormorant*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 473.

DOUBLE-CRESTED CORMORANT, Nutt. Man., vol. ii. p. 483.

DOUBLE-CRESTED CORMORANT, *Phalacrocorax dilophus*, Aud. Orn. Biog., vol. iii. p. 420; vol. v. p. 629.

Male, 33, 51.

Common as far south as the coast of Maryland, in winter. Breeds in Newfoundland and Labrador, as well as on the Saskatchewan.

Adult Male at the commencement of the breeding season.

Bill about the length of the head, rather slender, somewhat compressed, straight, with the tip curved. Upper mandible with the dorsal line slightly concave, until near the tip, when it is curved, the ridge convex, and separated from the sides by a narrow groove, the sides erect, convex, the edges sharp and straight as far as the unguis, which is strong, convex above,

incurved, acute. No external nostrils. Lower mandible with the angle long and very narrow towards the end, filled by an extensive membrane, which extends a short way down the throat, its dorsal line a little convex, the sides erect and convex, the edges sharp and inflected, the tip compressed and obliquely truncate.

Head rather small, oblong, narrowed before. Neck long and rather slender. Body full, depressed. Feet short, stout, placed far behind; tibia feathered in its whole length; tarsus very short, strong, much compressed, covered all round with scales, of which the anterior and lateral are large and sub-hexagonal, the posterior very small and roundish. Toes all placed in the same plane, and connected by reticulated webs, covered above with very numerous oblique scutella; first toe smallest, fourth longest. Claws rather small, strong, compressed, acute.

Plumage of the head, neck, lower parts and posterior portion of the back glossy, blended and silky, of the fore part of the back and wings compact, the feathers with loose glossy margins. From behind the eye to the length of an inch and a half on each side, an elongated tuft of long slender, loose recurved feathers. Space around the eye, and to a large extent along the base of the bill, together with the small gular sac, bare. Wings rather small; primaries very strong, curved, rather narrow, tapering and obtuse, second longest, third almost equal, first longer than fourth; secondaries decurved, broad, broadly rounded, the inner narrower. Tail of moderate length, very narrow, much rounded or cuneate, of twelve narrow, rounded feathers, having extremely strong shafts.

Upper mandible dusky, along the edges greyish-yellow; lower yellow, irregularly marked with dusky towards the edges. Iris bright green, margin of eyelids, bare space on the head, and gular sac, rich orange. Feet and claws black. All the silky part of the plumage is greenish-black, at a distance appearing black, but at hand in a strong light green. The imbricated feathers of the back and wings greyish-brown, their fringe-like margins greenish-black; primary quills brownish-black; secondary like the other feathers of the wing. Tail black, the shafts of all the feathers black.

Length to end of tail 33 inches, to end of wings 29, to end of claws 33; extent of wings 51; wing from flexure 13; tail $6\frac{3}{4}$; bill along the back $2\frac{8}{12}$, along the edge of lower mandible $3\frac{8}{12}$; tarsus $2\frac{7}{12}$; outer toe $3\frac{3}{4}$, its claw $\frac{4\frac{1}{2}}{12}$. Weight 5 lbs. 7 oz.

The Female is somewhat smaller, but in other respects is similar to the male.

The Young, after the first moult, have the head and neck mottled with greenish-black and greyish-brown; the other parts as in the adult, but the tufts on the head wanting.

The Double-crested and the Florida Cormorants are very nearly allied, their forms, and the structure of their plumage, being precisely similar. There is, however, a very considerable difference in size, as will be seen on comparing their measurements and average weights as given by me. The bills are similar in form, but their colours differ, as do those of the eyelids; but in the breeding season these birds may readily be distinguished by the temporary tufts or crests behind the eyes, which in *P. floridanus* consist of a mere line of single feathers curved downwards, while in *P. dilophus* they are of considerable breadth, and composed of about forty recurved feathers. In the absence of the crests, the difference in size affords the principal means of distinguishing them.

Female. The mouth of this bird, and those of the other Cormorants, differ from those of all the birds hitherto examined and described in these volumes, in having the posterior aperture of the nares placed much farther forward, commencing nearly opposite the anterior angle of the eye, and in this species only 10 twelfths long, with a very prominent ridge on each side, running backwards over the hind part of the palate, which is flattened. The width of the mouth is 1 inch 4 twelfths; but the lower jaw can be dilated to 2 inches, there being a joint on each side at the base, as in Herons. The tongue is a very diminutive ovato-lanceolate, thin, strongly carinate body, $\frac{1}{2}$ inch in length, 3 twelfths in its greatest breadth, with two basal knobs placed close together. Œsophagus 16 inches long, at its commencement $2\frac{1}{2}$ inches in width, afterwards 2 inches; contracting to $1\frac{1}{2}$ inches as it enters the thorax, and again dilated into a sac $2\frac{1}{4}$ inches in width, *a b*, which is directly continuous with the stomach, that organ seeming to form its fundus. Its muscular fibres are very distinct, the external being transverse, the internal longitudinal; the inner coat is thrown into prominent longitudinal plicæ. The stomach, *b c d*, is of a roundish form, 2 inches 2 twelfths in diameter; its muscular coat extremely thin, being reduced to a single series of slender muscular fibres; the inner coat quite smooth and soft, as is that of the pyloric lobe, *d*, which is $\frac{1}{2}$ inch in diameter. The proventricular glands, which are very numerous, form a belt, of which the greatest breadth is 1 inch 9 twelfths, but at one place only $1\frac{1}{4}$ inches. The lobes of the liver are extremely unequal, the right being 4 inches, the left only 2; the gall-bladder 1 inch 9 twelfths in length, oblong, 4 twelfths in breadth. The duodenum, *d e f g*, which is $3\frac{1}{2}$ twelfths in breadth, curves upwards at first to the length of 9 twelfths, *d e*, then bends round the stomach, ascends on the left side to the upper part of the proventriculus for the length of $6\frac{1}{2}$ inches, retraces the same course until it reaches the liver, then passes down the right side, and is convoluted, forming twelve turns in all. It measures 5 feet 10 inches in length; its width in the duodenal part is $4\frac{1}{2}$ twelfths,

afterwards 3 twelfths; the cœca, *i i*, 6 twelfths long, 3 twelfths broad, 4 inches from the extremity; the rectum, *i j k*, for 3 inches has a width of $4\frac{1}{2}$ twelfths, and terminates in a globular cloaca, *k*, 1 inch 10 twelfths in width.

The trachea is 11 inches long, from $5\frac{1}{2}$ twelfths to $4\frac{1}{2}$ twelfths in breadth, considerably flattened; its rings moderately firm, broad, 138, with 2 additional half rings. Bronchi of moderate width, one with 20, the other with 22 half rings. Lateral muscles large, as are the sterno-tracheal slips.

This species has a slender trigonal bone $10\frac{1}{2}$ twelfths in length, articulated to the crest of the occipital bone. The anterior part of the cerebrum tapers to a point much in the same manner as in the Turkey Buzzard, forming a similar lobe, 4 twelfths in height at its base, from the extremity of which comes off the olfactory nerve, which is about the 5th part of a twelfth in breadth, runs a course of half an inch along the septum of the eyes, and is distributed to the membrane of the nasal cavity, which is of a triangular form, 6 twelfths in length, 5 twelfths in breadth, with a single large turbinated bone. The external aperture of the nostrils is completely obliterated, its place being filled by bony matter. The large branch of the 5th pair of nerves passes in its usual direction to the anterior part of the upper mandible.

THE FLORIDA CORMORANT.

† PHALACROCORAX FLORIDANUS, *Aud.*

PLATE CCCCXVII.—MALE.

The Florida Cormorant seldom goes far out to sea, but prefers the neighbourhood of the shores, being found in the bays, inlets, and large rivers. I never met with one at a greater distance from land than five miles. It is at all seasons gregarious, although it is not always found in large flocks. The birds of this species never suffer others of the same genus to resort to their breeding places, although they sometimes associate with individuals belonging to different genera. The *P. Carbo* appropriates to itself the upper shelves of the most rugged and elevated rocks, whose bases are washed by the sea; *P. dilophus* breeds on flat rocky islands at some distance from the shores of the mainland; and the Florida Cormorant nestles

C.P.

Double-crested Cormorant

Male.

Audubon, John James. 1843. "The Double-Crested Cormorant, *Phalacrocorax dilophus*, Swains. [Pl. 416]." *The birds of America : from drawings made in the United States and their territories* 6, 423–430. <https://doi.org/10.5962/p.319529>.

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