COMMON SEA-DOVE.—LITTLE GUILLEMOT.

+MERGULUS ALLE, *Linn.*

PLATE CCCCLXIX.—MALE AND FEMALE.

This interesting little bird sometimes makes its appearance on our eastern coasts during very cold and stormy weather. It does not proceed much farther southward than the shores of New Jersey, where it is of very rare occurrence. Now and then some are caught in a state of exhaustion, as I have known to be the case especially in Passamaquoddy Bay near Eastport in Maine, and in the vicinity of Boston and Salem in Massachusetts.

In the course of my voyages across the Atlantic, I have often observed the Little Guillemots in small groups, rising and flying to short distances at the approach of the ship, or diving close to the bow and re-appearing a little way behind. Now with expanded wings they would flutter and run as it were on the surface of the deep; again, they would seem to be busily engaged in procuring food, which consisted apparently of shrimps, other crustacea, and particles of sea-weeds, all of which I have found in their stomach. I have often thought how easy it would be to catch these tiny wanderers of the ocean with nets thrown expertly from the bow of a boat, for they manifest very little apprehension of danger from the proximity of one, insomuch that I have seen several killed with the oars. Those which were caught alive and placed on the deck, would at first rest a few minutes with their bodies flat, then rise upright and run about briskly, or attempt to fly off, which they sometimes accomplished, when they happened to go in a straight course the whole length of the ship so as to rise easily over the bulwarks. On effecting their escape they would alight on the water and immediately disappear.

During my visit to Labrador and Newfoundland I met with none of these birds, although the codfishers assured me that they frequently breed there. I am informed by Mr. TOWNSEND that this species is found near the mouth of the Columbia river.

LITTLE AUK, *Alca Alle*, Wils. Amer. Orn., vol. ix. p. 94.

URIA ALLE, Bonap. Syn., p. 425.

LITTLE GUILLEMOT, *Uria Alle*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 479.

LITTLE AUK OR SEA-DOVE, Nutt. Man., vol. ii. p. 531.

LITTLE GUILLEMOT, *Uria Alle*, Aud. Orn. Biog., vol. iv. p. 304.

Male, $7\frac{1}{8}$, $14\frac{1}{4}$.

Rare and only during winter along the coast of the United States, from New York to Maine. More abundant along the coast of Nova Scotia, and far at sea. Breeds on the Arctic coasts.

Adult Male in summer.

Bill shorter than the head, stout, straightish, sub-pentagonal at the base, compressed towards the end. Upper mandible with the dorsal line convexo-declinate, the ridge convex, the sides sloping, the edges sharp and overlapping, the tip rather obtuse. Nasal depression short and broad; nostrils basal, oblong, with a horny operculum. Lower mandible with the angle long and wide, the dorsal outline very short, ascending and straight, the sides convex, toward the end ascending and flattened, the edges thin and inclinate, the tip acute, with a sinus behind.

Body full and compact; neck short and thick; head large, ovate. Feet short, rather stout; tibia bare for two-twelfths of an inch; tarsus very short, compressed, covered anteriorly with oblique scutella, behind with angular scales; hind toe wanting; anterior toes connected by reticulated webs, the inner much shorter than the outer, which is almost as long as the middle; the scutella numerous. Claws rather small, moderately arched, compressed, rather acute, that of the middle toe having its inner edge considerably expanded.

Plumage dense, blended, glossy. Wings of moderate length, narrow, pointed; primaries pointed, the first longest, the rest rapidly graduated; secondaries rounded. Tail very short, slightly rounded, of twelve feathers.

Bill black. Iris dark hazel. Feet pale flesh-coloured; webs dusky; claws black. Inside of mouth light yellow. The head, upper part of neck, and all the upper surface, glossy bluish-black. A small spot on the upper eyelid, another on the lower, several longitudinal streaks on the scapulars, and a bar along the tips of the secondary quills, white. The lower parts white; the feathers on the sides under the wings have the outer webs white, the inner dusky; lower wing-coverts blackish-grey.

Length to end of tail $7\frac{1}{8}$ inches, to end of claws $7\frac{7}{8}$, to end of wings $6\frac{7}{8}$, to carpal joint $2\frac{7}{8}$; extent of wings $14\frac{1}{4}$; wing from flexure $4\frac{7}{8}$; bill along the ridge $\frac{4\frac{1}{8}}{8}$, along the edge of lower mandible 1; tarsus $\frac{3}{4}$; middle toe 1, its claw $\frac{1}{4}$; outer toe 1, claw $\frac{1\frac{1}{2}}{8}$; inner toe $\frac{5}{8}$, its claw $\frac{1\frac{1}{2}}{8}$. Weight $8\frac{1}{2}$ oz.

Adult Female in winter.

In winter, the throat and the lower parts of the cheeks are white; the

sides and fore part of the neck white, irregularly barred with blackish-grey; the upper parts of a duller black than in summer.

There is nothing very remarkable in the anatomy of this bird, beyond what is observed in the Auks and Guillemots. The ribs extend very far back, and, having the dorsal and sternal portions much elongated, are capable of aiding in giving much enlargement to the body, of which the internal, or thoracic and abdominal cells are very large. The sub-cutaneous cells are also largely developed, as in many other diving and plunging birds.

The roof of the mouth is flat, broad, and covered with numerous series of short horny papillæ directed backwards. The tongue is large, fleshy, 10 twelfths of an inch long, emarginate at the base, flat above, horny on the back. The heart is large, measuring 10 twelfths in length, $8\frac{1}{2}$ twelfths in breadth. The right lobe of the liver is $1\frac{3}{12}$ inches in length, the left $1\frac{1}{12}$; the gall-bladder is elliptical. The kidneys are very large.

The œsophagus, Fig. 1, *a b c*, is 3 inches 10 twelfths long, its walls very

Fig. 1.

Fig. 2.

Fig. 3.

thin, its inner or mucous coat thrown into longitudinal plates; its diameter at the middle of the neck 5 eighths, diminishing to 4 twelfths as it enters the thorax. It then enlarges and forms the proventriculus, *c e*, which has a diameter of 8 twelfths; the glandules are cylindrical, very numerous, and arranged in a complete belt, half an inch in breadth, in the usual manner, as seen in Fig. 2, *b c*. The stomach, properly so called, Fig. 1, *d g*, is oblong, 11 twelfths in length, 8 twelfths in breadth; its muscular coat moderately thick, and disposed into two lateral muscles with large tendons; its epithelium, Fig. 2, *c d e*, thick, hard, with numerous longitudinal and transverse rugæ, and of a dark reddish colour. The duodenum, *f g h*, curves in the usual manner at the distance of $1\frac{1}{4}$ inches, ascends toward the upper surface of the right lobe of the liver for 1 inch and 10 twelfths, then forms 4 loops, and from above the proventriculus passes directly backward. The length of the intestine, *f g h i*, is $16\frac{1}{2}$ inches, its diameter $2\frac{1}{4}$ twelfths, and nearly uniform as far as the rectum, which is $1\frac{1}{4}$ inches long, at first 3 twelfths in diameter, enlarged into an ovate cloaca of great size, Fig. 3, *b*; the cœca *a, a*, $4\frac{1}{2}$ twelfths long, cylindrical, $\frac{1}{2}$ twelfth in diameter, obtuse.

The trachea, Fig. 1, *k, l*, is very wide, flattened, its rings unossified, its length $2\frac{9}{12}$ inches, its breadth 3 twelfths, nearly uniform, but at the lower part contracted to 2 twelfths. There are 75 rings, with 5 inferior blended rings, which are divided before and behind. The bronchi, Fig. 1, *m, m*, are wide and rather elongated, with about 25 half rings. The contractor muscles are extremely thin, the sterno-tracheal slender; there is a pair of inferior laryngeal attached to the first bronchial rings.

The above account of the digestive organs of this bird will be seen to be very different from that given by Sir EVERARD HOME, who has, in all probability, mistaken the species. "There is still," says he, "one more variety in the structure of the digestive organs of birds, that live principally upon animal food, which has come under my observation; and with an account of which I shall conclude the present lecture. This bird is the *Alca Alle* of Linnæus, the Little Auk. The termination of the œsophagus is only known by the ending of the cuticular lining, and the beginning of the gastric glands; for the cardiac cavity is one continued tube, extending considerably lower down in the cavity of the abdomen, and gradually enlarging at the lower part: it then turns up to the right side, about half-way to the origin of the cavity, and is there connected to a small gizzard, the digastric muscle of which is strong, and a small portion of the internal surface on each side has a hard cuticular covering. The gastric glands at the upper part are placed in four distinct longitudinal rows, becoming more and more numerous towards the lower part of the cavity, and extend to the bottom, where it turns up. The extent of the cavity in which the gastric

glands are placed, exceeds anything met with in the other birds that live upon fish; and the turn which the cavity takes almost directly upwards, and the gizzard being at the highest part instead of the lowest, are peculiarities, as far as I am acquainted, not met with in any other birds of prey. This mechanism, which will be better understood by examining the engraving, makes the obstacles to the food in its passage to the intestines unusually great; and enables the bird to digest both fishes and sea-worms with crustaceous shells. It appears to be given for the purpose of economizing the food in two different ways,—one retaining it longer in the cardiac cavity, the other supplying that cavity with a greater quantity of gastric liquor than in other birds. This opinion is further confirmed by the habits of life of this particular species of bird, which spends a portion of the year in the frozen regions of Nova Zembla, where the supplies of nourishment must be both scanty and precarious.”

With respect to this statement and the reasonings founded upon it, it will be seen from the description and accompanying figures above, taken directly from nature, and without the least reference to the dissections or theories of any person, that the œsophagus and stomach of the Little Auk or Guillemot, *Alca Alle* of Linnæus, are very similar to those of other Auks, Guillemots, Divers, and fish-eating birds in general. The cardiac or proventricular cavity forms no curve; and the gizzard with which it is connected, is not small, nor has it merely a small portion of the internal surface on each side covered with a hard cuticular lining; for the epithelium covers its whole surface, and is of considerable extent. The gastric glands are not at all disposed as represented by Sir E. HOME, but are aggregated in the form of a compact belt half an inch broad, Fig. 2, *b*, *c*. As to the ingenious reasoning by which the economy of the Little Auk is so satisfactorily accounted for, it is enough here to say, that having no foundation, it is of less than no value. But were there such a curvature as that in question, there could be no propriety in supposing that it presented any great obstacle to the passage of the food, or retained it longer than usual. Nor is the statement as to scanty and precarious supply of nourishment correct; for the Arctic Seas, to which this bird resorts in vast numbers, are represented by navigators as abounding in small crustacea, on which chiefly the Little Auk feeds, and that to such an extent as to colour the water for leagues. Besides, if there were such a scarcity of food in Nova Zembla, why should the birds go there? In short, the whole statement is incorrect; and the many compilers, from Dr. CARUS to the most recent, who have pressed it into their service, may, in their future editions, with propriety leave it out, and supply its place with something equally ingenious.

The egg of this species measures one inch and nearly five-eighths in

length, one inch and an eighth in its greatest breadth. It is remarkably large for the size of the bird, and of a dull uniform pale greenish-blue.

GENUS V.—URIA, *Lath.* GUILLEMOT.

Bill generally shorter than the head, stout, compressed, tapering, acute; upper mandible with the dorsal line slightly arched; the ridge narrow, broader at the base, the sides sloping, the edges sharp and inflected, the tip a little decurved, with a slight notch; nasal groove broad, feathered; nostrils at its lower edge, sub-basal, lateral, longitudinal, linear; lower mandible with the angle rather long, narrow, the dorsal line ascending and straight, the back very narrow, the sides nearly flat, the edges sharp and inflected, the tip acute. Head large, oblong; neck short and thick; body stout, elongated, rather depressed. Feet short, placed far behind; the greater part of the tibia concealed, its lower part bare; tarsus short, stout, compressed, anteriorly scutellate; toes three, of moderate length, middle toe longest, outer little shorter, scutellate, connected by entire webs. Claws small, slightly arched, compressed, rather acute. Plumage dense, very soft, blended. Wings rather short, narrow, acute; primary quills curved, tapering, the first and second longest; secondaries short, rounded. Tail very short, rounded, of twelve or more feathers.

Little Auk. Sea dove.

1. Male. 2. Female.

Drawn from Nature by J. J. Audubon, F.R.S. &c.

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