bulbiform, with very numerous small cylindrical glands disposed in a broad belt. The stomach is roundish or broadly elliptical, moderately compressed; its lateral muscles large, as are the tendons; the lower muscle prominent and thin; the upper of considerable size; the epithelium dense, and longitudinally rugous. The intestine is rather long, and of moderate width; the rectum considerably dilated; the cœca long, very slender, cylindrical, contracted at the base, with the tip blunt. The lobes of the liver are very unequal, the right being largest; there is no gall-bladder. The trachea is rather wide, flattened; its rings very numerous, narrow, cartilaginous, the lower ring large; two dimidiate rings. Bronchi rather wide, of from 15 to 20 half rings. Lateral muscles moderate, sending a slip to the last dimidiate ring.

THE PIPING PLOVER.

+*CHARADRIUS MELODUS*, *Ord.*

PLATE CCCXXI.—MALE AND FEMALE.

During the spring and summer months, this pretty little Plover is found on the sandy beaches of our extensive coasts, from the southern point of the Floridas to the confines of Maine. As you proceed towards Labrador, you find it in every suitable place, as far as the Magdeleine Islands, on the sands of which I saw many that were paired and had eggs on the 11th of June, 1833. It breeds on all parts of the eastern coast of the United States, wherever the locality is adapted to its habits. On the 3d of May, this bird was found with eggs on the Keys of the Floridas; about a month later, you may meet with it in the States of Maryland, New Jersey, and New York. Those which leave the south at the approach of spring, return to it about October; and during the whole winter you may find them on the sandy beaches, from South Carolina to the western coast of the Floridas. The species, therefore, may be considered as resident with us.

While migrating eastward, the Piping Plovers proceed in pairs; and should one of these on its way find a convenient place for breeding, and remain there, several others are often induced to take up their abode in the neighbourhood. In autumn, they go in flocks of twenty or thirty individuals,

and at times associate with other species, particularly the Turnstone, in whose company I have found them abundantly on the coast of Florida, in the winter months. They never proceed to any distance inland, even along the sandy margins of our largest rivers; nor are they seen along very rocky shores or places covered with deep mud.

The favourite breeding stations of this species are low islands, mostly covered with drifting sand, having a scanty vegetation, and not liable to inundation. In such a place many pairs may be found, with nests thirty or forty yards apart. The nest is sometimes placed at the foot of a tuft of withered grass, at other times in an exposed situation. A cavity is merely scooped out in the soil, and there are deposited in it four eggs, which are in a great measure hatched by the heat which the sand acquires under the influence of a summer sun; but in rough weather, and always by night, the female is careful to sit upon them. Her mate is extremely attentive to her during the period of incubation, and should you happen to stroll near the nest, you are sure to meet him at his station. The eggs, which are four, and have their points placed together, measure one inch and one-eighth by seven and a half eighths, are pyriform, broad, and flatly rounded at the larger end, and tapering directly to the smaller, which is also rounded. They are of a pale bluish-buff colour, sprinkled and lined nearly all over with dark red, brown, and black. Only one brood is raised in the season. The young, which go abroad immediately after they are hatched, run with remarkable speed, and, at the least note of the parent bird indicative of danger, squat so closely on the sand that you may walk over them without seeing them. Their downy covering is grey, mottled with brown; their bill almost black. If taken up in the hand, they emit a soft plaintive note resembling that of the old bird. The strange devices which their parents at this time adopt to ensure their safety, cannot fail to render the student of nature very unwilling to carry them off without urgent necessity. You may see the mother, with expanded tail and wings trailing on the ground, limping and fluttering before you, as if about to expire. It is true you know it to be an artifice, but it is an artifice taught by maternal love; and, when the bird has fairly got rid of her unwelcome visiter, and you see her start up on her legs, stretch forth her wings, and fly away piping her soft note, you cannot but participate in the joy that she feels.

The flight of this Plover is extremely rapid, as well as protracted. It passes through the air by glidings and extended flappings, either close over the sand, or high above the shores. On the ground, few birds are swifter of foot. It runs in a straight line before you, sometimes for twenty or thirty yards, with so much celerity, that unless you have a keen eye, it is almost sure to become lost to your view. Then, in an instant it stops, becomes

perfectly motionless, and if it perceives that you have not marked it, squats flat on the sand, which it so much resembles in colour, that you may as well search for another, as try to find it again.

Their notes, which are so soft and mellow as nearly to resemble those of the sweetest songster of the forest, reach your ear long before you have espied the Piping Plover. Now and then, these sounds come from perhaps twenty different directions, and you are perplexed, as well as delighted. At the approach of autumn, this species becomes almost mute, the colour of the plumage fades; and it is then very difficult for you to perceive one that may be only a few yards off, until it starts and runs or flies before you. At this season they are less shy than before.

During winter they are generally in good condition, and their flesh is very delicate and savoury, although, on account of their small size, they seldom draw the sportsman after them. Their food consists of marine insects, minute shell-fish, and small sand-worms.

RING PLOVER, *Charadrius Hiaticula*, Wils. Amer. Orn., vol. v. p. 30.

CHARADRIUS MELODUS, Ord, Bonap. Syn., p. 296.

PIPING RING PLOVER, Nutt. Man., vol. ii. p. 18.

PIPING PLOVER, *Charadrius melodus*, Aud. Orn. Biog., vol. iii. p. 154; vol. v. p. 578.

Male, $7\frac{1}{2}$, $15\frac{1}{2}$.

From Texas, along the whole coast, to the Magdeleine Islands, Gulf of St. Lawrence, breeding everywhere. Common. Great numbers spend the winter from South Carolina to the mouths of the Mississippi.

Male in summer.

Bill half the length of the head, straight, somewhat cylindrical. Upper mandible with the dorsal line straight to the middle, then bulging a little and curving to the tip, which projects beyond that of the lower mandible, the sides flat and sloping at the base, convex towards the end, the edges sharp and overlapping. Nasal groove extended to the middle of the bill, filled with a bare membrane; nostrils basal, linear, in the lower part of the membrane, open, and pervious. Lower mandible with the angle rather short, rounded, the sides at the base sloping outwards and flat, the dorsal line ascending and slightly convex, the edges sharp and inflected.

Head of moderate size, oblong, compressed, the forehead rounded. Eyes large. Neck short. Body rather slender, ovate. Wings long. Feet of moderate length, slender; tibia bare a little above the joint; tarsus rather compressed, covered all round with reticulated angular scales; toes slender; the hind toe wanting; third or middle toe longest, outer toe considerably longer than inner, all scutellate above and marginate, the outer connected

with the middle by a short membrane; claws small, compressed, obtuse, the rather blunt inner edge of the middle claw a little dilated.

Plumage soft and blended; the feathers rounded, those on the back somewhat distinct. Wings long and pointed; primary quills tapering, the first longest, the second a little shorter, the rest rapidly graduated; inner secondaries tapering and elongated, so as nearly to equal the longest primaries. Tail of moderate length, slightly rounded, of twelve rather narrow feathers, which taper a little towards their rounded extremities.

Bill orange in its basal half, the rest black. Iris reddish-brown; margins of eyelids orange. Feet brownish-yellow; claws dusky. Forehead, sides of the face, throat, and the whole under parts, pure white. Upper parts pale brownish-grey. A black band across the upper part of the forehead, another surrounds the lower part of the neck, broad on the sides, but narrow above and below, where it is formed merely by the tips of some of the feathers. Above this is a white band over the hind neck, also very narrow above. Primaries dusky, each with a large white patch on a portion of the outer, and on the greater part of the inner web; secondaries of a lighter brown, white on the inner webs, some of those nearest the body entirely white; the five innermost like the back; most of the quills are more or less tipped with white, the primary and secondary coverts more distinctly so. The tail-feathers may be described as white; the second has a brown spot on the inner web towards the end, the third a larger spot or band on both webs, and the colour enlarges on the rest, until the middle feathers are nearly all dusky-brown.

Length to end of tail $7\frac{1}{4}$ inches, to end of claws 7, to end of wings $6\frac{3}{4}$; extent of wings $15\frac{1}{2}$; wing from flexure $4\frac{1}{2}$; tail $2\frac{2}{12}$; bill along the back $\frac{1}{2}$, along the edge of lower mandible $\frac{7}{12}$; tarsus $\frac{9\frac{1}{2}}{12}$; middle toe $\frac{7\frac{1}{2}}{12}$, its claw $\frac{2}{12}$. Weight 3 oz.

Female in summer.

The female is considerably smaller, but resembles the male in colouring, only the dark bands on the forehead and neck are narrower, and of a dusky-brown tint.

Length to end of tail 7 inches, extent of wings $14\frac{1}{4}$.

The young, previous to their first moult, have the bill black, the feet flesh-coloured, with dusky claws. The colours of the plumage are nearly the same as in the adult, but there is no dark band on the forehead, and that on the lower neck is merely indicated by a brownish-grey patch on each side. The neck is surrounded by a collar of downy white feathers, and the tips and margins of the feathers of the head and back are pale ochre.

In this species the upper mandible is more concave than in any of the preceding; but the structure of the mouth is similar. Its width is 4

twelfths. The tongue is 5 twelfths long, deeply concave above, fleshy, the tip rounded, thin-edged, and horny. The œsophagus is $2\frac{1}{2}$ inches long, 2 twelfths in width, its inner coat longitudinally plicate, as in all the other species. Proventriculus 3 twelfths in breadth, its belt of glandules 5 twelfths. The stomach rather small, elliptical, $7\frac{1}{2}$ twelfths long, 6 twelfths in breadth; the lateral muscles large, the epithelium with 24 longitudinal rugæ. Intestine 12 inches long, narrow; the duodenum $1\frac{1}{4}$ twelfths in width, the rest uniform, the rectum only being a little enlarged. Cæca 1 inch 1 twelfth from the extremity, 1 inch 2 twelfths in length, and $\frac{3}{4}$ twelfth in breadth. Trachea 1 inch 10 twelfths long, $1\frac{3}{4}$ twelfths in breadth, contracting to 1 twelfth; its rings about 70, cartilaginous. Bronchial half rings about 15. Muscles as in the last species. Male.

GENUS II.—APHRIZA, *Aud.* SURF-BIRD.

Bill a little shorter than the head, rather stout, compressed, tapering, straightish, being recurvate in a slight degree; upper mandible with the dorsal line straight, and a little declinate as far as the middle, then concave, and towards the end convex, the nasal grooves extending to near the end, the ridge rather broad and flattened, the tip compressed and bluntish; lower mandible with the angle rather long and narrow, the dorsal line ascending, and slightly convex, the sides grooved for half their length, convex toward the end, the tip narrowed, but blunt. Nostrils sub-basal, linear, near the margin. Head rather small, ovate, rounded in front; neck of ordinary length; body rather full. Feet of moderate length, rather stout; tibia bare at the lower part, and reticulated; tarsus roundish, with small angular scales all round, those on the fore part larger; toes four, with numerous scutella, the first very small, and placed higher, the anterior toes free to the base, distinctly margined on both edges, flat beneath, the inner considerably shorter than the outer. Claws rather small, curved, compressed, blunted. Plumage full, soft, rather dense, on the neck and lower parts blended. Wings very long, narrow, and pointed; first primary longest, inner secondaries much elongated. Tail rather short, even, of twelve moderately broad feathers. Name from *Ἀφρίζα*, foam; and *ζῶω*, to live.

Piping Loon.
1. Male. 2. Female.

Drawn from Nature by J. L. Audubon. F.R.S.E.L.S.

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