

The intestine of a male in the first winter is 6 feet 8 inches long, its greatest diameter half an inch, wider towards the rectum than at the upper part, where the diameter is 4 twelfths. Rectum $4\frac{1}{2}$ inches long, exclusive of the cloaca. Cæca $2\frac{1}{4}$ inches. Contents of stomach, remains of fishes and a great quantity of quartz fragments.

An adult female. Œsophagus $10\frac{1}{2}$ inches long; stomach 2 inches long; intestine 5 feet 3 inches; rectum $4\frac{1}{2}$; cæca $2\frac{2}{12}$. The trachea 9 inches long, of uniform diameter, 4 twelfths, with a very slight dilatation toward the lower part, and at the lower larynx contracted to 3 twelfths; the last ring is very large, laterally dilated, but symmetrical; the bronchi come off at the distance of 5 twelfths from each other, and are composed of 25 rings. The tracheal rings 150.

RED-BREASTED MERGANSER.

†*MERGUS SERRATOR*, Linn.

PLATE CCCCXII.—MALE AND FEMALE.

The range of the Red-breasted Merganser is of vast extent. In North America I have found it pretty generally dispersed during winter and even to a late period in spring, from Texas to Labrador; and in the Fauna Boreali-Americana Mr. SWAINSON describes a male killed on the Saskatchewan. No date is mentioned, nor is any thing said as to its habits, which would lead me to believe that it must be a rare bird in the Fur Countries. It is found on the western coast however, and has been shot not far from the mouth of the Columbia river by a gentleman of Boston engaged in the fur-trade, and who is well acquainted with the water-birds of our country. In winter it is to be met with throughout the Union, on almost every unfrozen stream; but when the cold increases so as to close the waters it removes southward until it finds a suitable place.

This species is by choice mostly dependent on fresh water for its sustenance; but when the winters are very severe it throws itself into the salt lagoons or bays, and there seeks for prey to which it is not well accustomed, and which is rather more difficult to be overtaken, than that which is confined in the narrow mountain-streams for which it shews a

natural predilection greater than even that of the Goosander, *Mergus Merganser*. It breeds in many parts of our Middle and Eastern States, and on two occasions I have found the female in charge of her brood in the lower parts of Kentucky. In the States of New York, Massachusetts and Maine it is by no means a rare occurrence to meet with the nest of this bird along the borders of small secluded lakes. It is as common at this season in the British provinces of New Brunswick and Nova Scotia, and it is still more plentiful on the islands of the Gulf of St. Lawrence, as well as on the streams of Newfoundland and Labrador.

The Red-breasted Merganser is best known throughout the United States by the name of "Shell-drake." It is, like all the species of its tribe, a most expert diver, and on being fired at with a flint-locked gun generally escapes by disappearing before the shot reaches the place where it has been. Its flight is similar to that of the Goosander, being strong, rapid, and remarkably well sustained when it is travelling to a considerable distance. Gluttonous in the extreme, it frequently gorges itself so as to be unable to rise. I have several times seen one of them obliged to eject a great part of the contents of its stomach and gullet before it could fly off, and some which I have kept a day or two in confinement have died in consequence of swallowing too many fishes.

The "Shell-drake," according to the latitude of the place which it has selected, and the degree of forwardness of the season, begins to form its nest from the first of March until the middle of May. Some nests which I examined in Labrador had not their full complement of eggs until about the 20th of June. In that country, as well as in several parts of the United States, where I have found the nests, they were placed within a very short distance of the margins of fresh-water ponds, among rank grasses and sedges, or beneath the low bushes. The nest bears a great resemblance to that of the Eider Duck, but is a good deal smaller, and better fashioned. It is made of dry weeds and mosses of various kinds, and is warmly lined with down from the breast of the female bird, for the male leaves her as soon as she has completed the laying of the eggs, the number of which I have never found to exceed ten, they being more frequently six or eight. It is a very remarkable fact that the eggs in this family of birds are usually even in number, whereas in most land birds they are odd. The eggs of the Red-breasted Merganser measure two and a half inches in length, an inch and five-eighths in breadth, resemble in form those of the domestic fowl, and are of a uniform plain dull yellowish cream-colour.

When one approaches the nest, the female usually slides or runs off a few paces, and then takes to wing. I have never observed the paths to the nests which some authors have described, and cannot well imagine why there

should be any such, as this bird is capable of taking flight as readily as any with which I am acquainted. It uses the greatest precaution in retiring to the nest; and on more occasions than one I have remained well concealed at a short distance for upwards of an hour before the bird came back to her eggs. Perhaps this may tend to shew that there is less necessity for keeping the eggs warm, even when they are about to be hatched, in this than in other species, which are known to resume incubation as soon as possible.

The young betake themselves to the water a few hours after birth, and are from the first so expert at diving as to be procurable only with great difficulty. Indeed, when they are about a fortnight old, they move with astonishing rapidity, whether on the surface, where they run with almost the speed of a greyhound, or in the water itself, in which they shew themselves as much at home as if they were seals or otters. The only means of catching them that I have found successful is to throw stones at them, whenever they rise, until becoming fatigued, they make for the shore, where they stretch themselves out and remain quite still, so that you may go up to them and take them with the hand.

At the approach of autumn they resemble the old females; but the sexes can easily be distinguished by examining the unguis or extremity of the upper mandible, which will be found to be white or whitish in the males, and red or reddish in the females. The young males begin to assume the spring dress in the beginning of February, but they do not acquire their full size and beauty until the second year.

The Red-breasted Merganser is a shy bird. The males especially are extremely suspicious and vigilant, after they have left the females incubating, and when they congregate in flocks of from five to twenty on some sequestered clear stream, to renew their plumage. The moult is completed in the end of July or beginning of August, and at that season I had the greatest difficulty in procuring them, for, being then almost unable to rise from the water, they seemed to dive with an alertness proportionally greater.

The flesh of this bird is tough, and has a fishy taste. I have represented a male and a female, along with a new species of *Sarracenia*, which is found abundantly from Pensacola to Georgia, as well as in some parts of South Carolina.

RED-BREASTED MERGANSER, *Mergus Serrator*, Wils. Amer. Orn., vol. viii. p. 91.

MERGUS SERRATOR, Bonap. Syn., p. 397.

MERGUS SERRATOR, *Red-breasted Merganser*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 462.

RED-BREASTED MERGANSER, Nutt. Man., vol. ii. p. 463.

RED-BREASTED MERGANSER, *Mergus Serrator*, Aud. Orn. Biog., vol. v. p. 92.

Male, 24½, 33. Female, 24, 34½.

From Texas westward to the Columbia river and northward. Common during autumn and spring. Also throughout the United States, and along the Atlantic shores. Breeds from New York to Labrador and the Fur Countries, as well as along the Great Lakes, and on the Rocky Mountains.

Adult Male.

Bill about the length of the head, straight, strong, tapering, higher than broad at the base, nearly cylindrical toward the end. Upper mandible with the dorsal outline sloping gently to the middle, then straight, along the unguis suddenly decurved; the ridge flattened at the base, and gradually becoming convex; the sides sloping rapidly at the base, convex toward the end, the edges serrated beneath; the unguis oblong, much curved, abruptly rounded at the end. Nasal groove elongated; nostrils sub-basal, linear, direct, pervious. Lower mandible with the angle very narrow, and extended to the unguis, which is obovate; the sides nearly erect in their outer half, with a long narrow groove, the edges serrate within.

Head rather large, compressed, oblong. Neck rather long and somewhat slender. Body full, depressed. Feet placed far behind, short, stout; tibia bare for about a quarter of an inch; tarsus very short, compressed, anteriorly covered with small scutella, and another row on the lower half externally, the sides reticulated, the hind part thin edged. Hind toe very small, with an inferior free membrane; anterior toes half as long again as the tarsus; second shorter than fourth, which is almost as long as the third, all connected by reticulated webs, which are deeply concave at the margin; the outer toe slightly margined, the inner with a broad marginal membrane. Claws rather small, very slightly arched, compressed, acute, that of the middle toe with a thin inner edge.

Plumage moderately full, dense, soft, glossy. Feathers of the head and upper part of the neck somewhat silky, blended, very narrow, elongated along the median line, so as to form a very conspicuous erectile crest, divided into two parts, those below the upper occipital region and the nape being shorter, leaving two long tufts. Feathers of the back rather compact, of the lower parts blended. Wings short, of moderate breadth, convex, acute; primaries narrow, tapering, the first longest, the second only half a twelfth shorter, the rest rapidly graduated; secondaries rather short, narrow, rounded, the inner elongated and tapering. Tail short, much rounded, of eighteen rounded sub-acuminate feathers.

Bill deep carmine, dusky along the ridge, the unguis yellowish. Iris carmine. Feet bright red, claws greyish-yellow. Head and upper part of neck greenish-black, glossy, with bright green reflections along the sides, and purplish on the crest. On the middle of the neck is a broad ring of white; and on its lower part a broad band of light brownish-red, longitu-

dinally streaked with dusky, each feather being laterally margined with that colour. The lower parts are pure white, excepting the sides of the body and rump, which are transversely undulated with greyish-black, and the larger wing-coverts, which are ash-grey. The fore part of the back, and the inner scapulars, are deep black; the feathers at the shoulder, or anterior to the wing, white, with a broad margin of black; some of the anterior wing-coverts ash-grey; the other small wing-coverts, the outer scapulars, and the terminal half of the secondary coverts, pure white; the basal portion of the latter, the primary coverts, and primary quills, black, the latter tinged with brownish-grey; the secondaries white, with their base and the outer margin of most black, which colour predominates on the inner. The middle and hind part of the back ash-grey, undulated with white and dusky; the tail brownish-grey.

Length to end of tail $24\frac{1}{2}$ inches; to end of wings $22\frac{1}{2}$; to end of claws $25\frac{1}{2}$; extent of wings 33; bill along the ridge $2\frac{3}{12}$; wing from flexure $9\frac{1}{2}$; tail $3\frac{6}{12}$; tarsus $1\frac{7}{12}$; hind toe $\frac{7\frac{1}{2}}{12}$, its claw $\frac{2}{12}$; inner toe $1\frac{10\frac{1}{2}}{12}$, its claw $\frac{4\frac{1}{2}}{12}$; middle toe $2\frac{4}{12}$, its claw $\frac{4\frac{1}{2}}{12}$; outer toe $2\frac{5}{12}$, its claw $\frac{3\frac{1}{2}}{12}$. Weight 2 lbs. 8 oz.

Adult Female.

The female, which is of about the same size, differs in having the crest shorter, and in wanting the broad abruptly-terminated feathers anterior to the wing. The bill and feet are of a paler tint; the head and fore part of the neck light reddish-brown, the throat and all the under parts white, excepting the sides of the body and rump, and the larger wing-coverts, which are brownish-grey. The hind neck, back, tail-coverts, tail, scapulars, and wing-coverts are brownish-grey, the feathers margined with paler. The wings are greyish-black, with a large white patch, formed by the terminal portions of the secondary coverts, and the greater part of some of the outer secondaries.

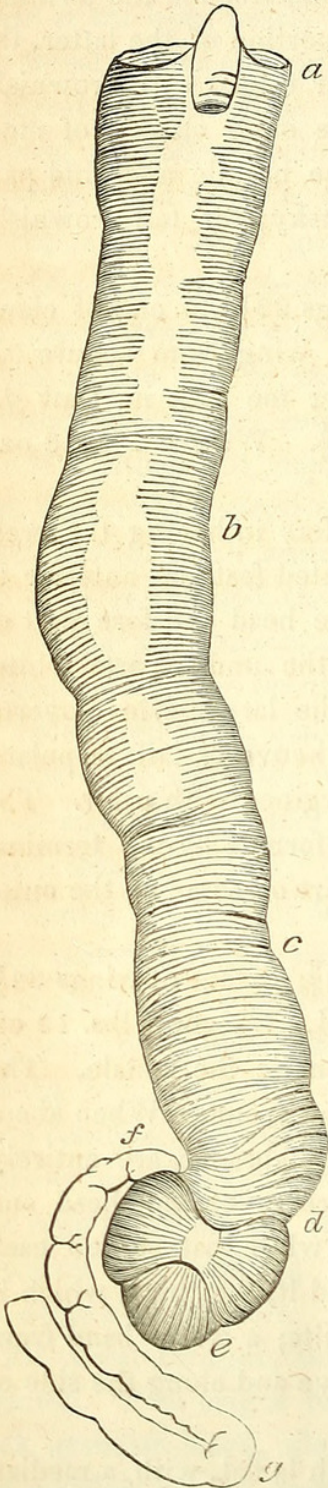
Length to end of tail 24 inches, to end of claws $24\frac{3}{4}$; extent of wings $34\frac{1}{2}$, bill along the ridge $2\frac{2}{12}$; wing from flexure $9\frac{1}{2}$; tail $3\frac{1}{2}$. Weight 2 lbs. 13 oz.

The young of both sexes when fully fledged resemble the female. The males assume the plumage of the adult at their second moult. When about a fortnight old, the young, such as I found them in Labrador, are entirely covered with soft down, which is dusky reddish-brown on the head and hind neck, greyish-brown on the back, with three white patches on each side, one terminating the wing, another a little behind it, the third, which is larger, behind the leg. The lower parts greyish-white; a white band from the eye to the bill, a reddish-brown band under the eye and along the side of the neck.

An adult male examined. The roof of the mouth is flat, with a median prominent line; the upper mandible with about 35 conical, compressed,

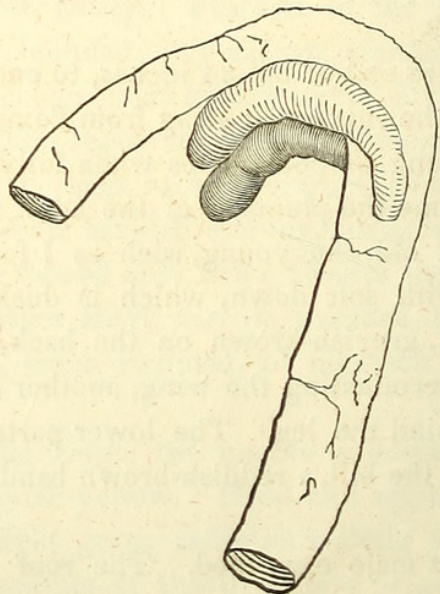
recurved, tooth-like lamellæ on each side; the lower with about 60. The aperture of the mouth is dilatable to $1\frac{1}{2}$ inches, but in its ordinary state measures only 9 twelfths across. The tongue is narrow, tapering, 1 inch 8 twelfths long, with numerous papillæ at the base, and lateral series of recurved bristles. The aperture of the ear, as in all the diving piscivorous

Fig. 1.



birds, is extremely small, being only $\frac{1}{2}$ twelfth in diameter, and in this respect resembling that of the Seals among the Mammalia. This kind of ear forms the extreme contrast to that of the nocturnal rapacious land birds. In the Ducks and Geese it is also small, but much superior in size to that of the Mergansers. The œsophagus, *a b c d*, is 12 inches long, its diameter at the upper part $1\frac{1}{2}$ inches, farther down 1 inch and 7 twelfths, within the thorax 1 inch 4 twelfths, at the proventriculus $1\frac{1}{2}$ inches. It is thus extremely wide, like that of other diving piscivorous birds. The stomach, *d e*, is roundish, of moderate size, 1 inch 8 twelfths in length, 1 inch 11 twelfths in breadth. Its lateral muscles are of moderate thickness, its epithelium tough, with two grinding surfaces of a roundish form, and thus resembling that of Ducks. The contents of the stomach are remains of fishes and a great quantity

Fig. 2.



of gravel. The inner surface of the œsophagus is very smooth when extended, plicate when contracted, with longitudinal series of mucous crypts with wide apertures, which become more numerous and close toward the proventriculus. The glandules of the latter organ are irregularly distributed, forming a belt $1\frac{1}{2}$ inches in breadth. They are cylindrical, the largest being $\frac{1}{4}$ inch long, and $1\frac{1}{2}$ twelfths broad. The duodenum, *fg*, has a diameter of $7\frac{1}{2}$ twelfths, but beyond its curve contracts to $3\frac{1}{2}$ twelfths. The intestine is convoluted into numerous folds; its length is 5 feet 2 inches, its diameter about 3 twelfths; but that of the rectum $4\frac{1}{2}$ twelfths. The cœca, Fig. 2, which come off at the distance of 4 inches from the extremity, are 11 twelfths long, $2\frac{1}{2}$ twelfths in their greatest diameter, and obtuse at their extremity.

The trachea is $11\frac{1}{2}$ inches long, and is remarkable for a large dilatation above the middle, 2 inches in length and 11 twelfths in breadth, below which the tube becomes $\frac{1}{4}$ inch in diameter, afterwards enlarges to $4\frac{1}{2}$ twelfths, then continues 4 twelfths, and ends in an enormous dilatation of an irregular form, of which the greatest diameter is 2 inches. It is composed of a bony frame, with two lateral membranous spaces. The rings of the trachea, 152 in number, are broad and firmly ossified, but about 30 at the lower part are very narrow in their anterior half; about ten are incorporated with the dilatation; the contractor muscles are very large, expand over the sides of the dilated part, and continue downwards, becoming narrower, and ending at the commencement of the tympanum. There is a pair of very large cleido-tracheal muscles, and another of sterno-tracheal; but there are no inferior laryngeal muscles properly so called, the slip from the contractor ending without reaching the last ring. The bronchi come off at the distance of 9 twelfths from each other, and are short, but wide, and composed of about 20 half rings.

In the trachea of a female, which is of a nearly uniform diameter throughout, the number of rings is 150, with 10 united rings, 5 of which extend beyond the bone of divarication, forming the lower larynx, which has no remarkable dilatation. The bronchial half rings are 20.



Red-breasted Merganser
1. Male. 2. Female.



Audubon, John James. 1843. "Red-Breasted Merganser, *Mergus serrator*, Linn. [Pl. 412]." *The birds of America : from drawings made in the United States and their territories* 6, 395–401. <https://doi.org/10.5962/p.319525>.

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