lower extremity, the cuticular lining thick, very hard, and denticulate on one side. The intestine seven feet long, the cæca twelve inches, and placed at the distance of one foot from the anus.

SNOW GOOSE.

ANSER HYPERBOREUS, Gmel.

PLATE CCCLXXXI.—ADULT MALE AND YOUNG FEMALE.

The geographical range of the Snow Goose is very extensive. It has been observed in numerous flocks, travelling northward, by the members of the recent overland expeditions. On the other hand, I have found it in Texas, and it is very abundant on the Columbia river, together with Hutchins' Goose. In the latter part of autumn, and during winter, I have met with it in every part of the United States that I have visited.

While residing at Henderson on the Ohio, I never failed to watch the arrival of this and other species in the ponds of the neighbourhood, and generally found the young Snow Geese to make their appearance in the beginning of October, and the adult or white birds about a fortnight later. In like manner, when migrating northward, although the young and the adult birds set out at the same time, they travel in separate flocks, and, according to Captain Sir GEORGE BACK, continue to do so even when proceeding to the higher northern latitudes of our continent. It is not less curious that, during the whole of the winter, these Geese remain equally divided, even if found in the same localities; and although young and old are often seen to repose on the same sand-bar, the flocks keep at as great a distance as possible.

The Snow Goose in the grey state of its plumage is very abundant in winter, about the mouths of the Mississippi, as well as on all the muddy and grassy shores of the bays and inlets of the Gulf of Mexico, as far as Texas, and probably still farther to the south-west. During the rainy season, it betakes itself to the large prairies of Attacapas and Oppellousas, and there young and adult procure their food together, along with several species of Ducks, Herons, and Cranes, feeding, like the latter, on the roots of plants,

W. T.

Swan Goose.

1. Adult male. 2. Young female.

and nibbling the grasses sideways, in the manner of the Common Tame Goose. In Louisiana I have not unfrequently seen the adult birds feeding in wheat fields, when they pluck up the plants entire. When the young Snow Geese first arrive in Kentucky, about Henderson for instance, they are unsuspicious, and therefore easily procured. In a half-dry half-wet pond, running across a large tract of land, on the other side of the river, in the State of Indiana, and which was once my property, I was in the habit of shooting six or seven of a-day. This, however, rendered the rest so wild, that the cunning of any "Red Skin" might have been exercised without success upon them; and I was sorry to find that they had the power of communicating their sense of danger to the other flocks which arrived. On varying my operations, however, and persevering for some time, I found that even the wildest of them now and then suffered; for having taken it into my head to catch them in large traps, I tried this method, and several were procured before the rest had learned to seize the tempting bait in a judicious manner.

The Snow Goose affords good eating when young and fat; but the old Ganders are tough and stringy. Those that are procured along the seashores, as they feed on shell-fish, fry and marine plants, have a rank taste, which, however suited to the palate of the epicure, I never could relish.

The flight of this species is strong and steady, and its migrations over the United States are performed at a considerable elevation, by regular flappings of the wings, and a disposition into lines similar to that of other Geese. It walks well, and with rather elevated steps; but on land its appearance is not so graceful as that of our common Canada Goose. Whilst with us they are much more silent than any other of our species, rarely emitting any cries unless when pursued on being wounded. They swim buoyantly, and, when pressed, with speed. When attacked by the White-headed Eagle, or any other rapacious bird, they dive well for a short space. At the least appearance of danger, when they are on land, they at once come close together, shake their heads and necks, move off in a contrary direction, very soon take to wing, and fly to a considerable distance, but often return after a time.

I am unable to inform you at what age the Snow Goose attains its pure white plumage, as I have found that a judgment formed from individuals kept in confinement is not to be depended upon. In one instance at least, a friend of mine who had kept a bird of this species four years, wrote to me that he was despairing of ever seeing it become pure white. Two years after, he sent me much the same message; but, at the commencement of the next spring, the Goose was a Snow Goose, and the change had taken place in less than a month.

Dr. RICHARDSON informs us that this species "breeds in the barren grounds

of Arctic America, in great numbers. The eggs, of a yellowish-white colour, and regularly ovate form, are a little larger than those of the Eider Duck, their length being three inches, and their greatest breadth two. The young fly in August, and by the middle of September all have departed to the southward. The Snow Goose feeds on rushes, insects, and in autumn on berries, particularly those of the *Empetrum nigrum*. When well fed it is a very excellent bird, far superior to the Canada Goose in juiciness and flavour. It is said that the young do not attain the full plumage before their fourth year, and until that period they appear to keep in separate flocks. They are numerous at Albany Fort in the southern part of Hudson's Bay, where the old birds are rarely seen; and, on the other hand, the old birds in their migrations visit York Factory in great abundance, but are seldom accompanied by the young. The Snow Geese make their appearance in spring a few days later than the Canada Geese, and pass in large flocks both through the interior and on the coast."

The young birds of this species begin to acquire their whiteness about the head and neck after the first year, but the upper parts remain of a dark bluish colour until the bird suddenly becomes white all over; at least, this is the case with such as are kept in captivity. Although it is allied to the White-fronted or Laughing Goose, *Anser albifrons*, I was surprised to find that WILSON had confounded the two species together, and been of opinion that the Bean Goose also was the same bird in an imperfect state of plumage. That excellent ornithologist tells us that "this species, called on the sea-coast the Red Goose, arrives in the river Delaware, from the north, early in November, sometimes in considerable flocks, and is extremely noisy, their notes being shriller and more squeaking than those of the Canada, or common Wild Goose. On their first arrival, they make but a short stay, proceeding, as the depth of winter approaches, farther south; but from the middle of February, until the breaking up of the ice in March, they are frequently numerous along both shores of the Delaware, about and below Reedy Island, particularly near Old Duck Creek, in the State of Delaware. They feed on roots of the reeds there, which they tear up like hogs."

This species is rare both in Massachusetts and South Carolina, although it passes over both these States in considerable numbers, and in the latter some have been known to alight among the common domestic Geese, and to have remained several days with them. My friend Dr. BACHMAN, of Charleston, South Carolina, kept a male Snow Goose several years along with his tame Geese. He had received it from a friend while it was in its grey plumage, and the following spring it became white. It had been procured in the autumn, and proved to be a male. In a few days it became very gentle, and for several years it mated with a common Goose; but the eggs produced by

the latter never hatched. The Snow Goose was in the habit of daily frequenting a mill-pond in the vicinity, and returning regularly at night along with the rest; but in the beginning of each spring it occasioned much trouble. It then continually raised its head and wings, and attempted to fly off; but finding this impossible, it seemed anxious to perform its long journey on foot, and it was several times overtaken and brought back, after it had proceeded more than a mile, having crossed fences and plantations in a direct course northward. This propensity cost it its life: it had proceeded as far as the banks of the Cooper river, when it was shot by a person who supposed it to be a wild bird.

In the latter part of the autumn of 1832, whilst I was walking with my wife, in the neighbourhood of Boston in Massachusetts, I observed on the road a young Snow Goose in a beautiful state of plumage, and after making some inquiries, found its owner, who was a gardener. He would not part with it for any price offered. Some weeks after, a friend called one morning and told me this gardener had sent his Snow Goose to town, and that it would be sold by auction that day. I desired my friend to attend the sale, which he did; and before a few hours had elapsed, the bird was in my possession, having been obtained for seventy-five cents! We kept this Goose several months in a small yard at the house where we boarded, along with the young of the Sand-hill Crane, *Grus Americana*. It was fed on leaves and thin stalks of cabbage, bread, and other vegetable substances. When the spring approached, it exhibited great restlessness, seeming anxious to remove northward, as was the case with Dr. BACHMAN's bird. Although the gardener had kept it four years, it was not white, but had the lower part of the neck and the greater portion of the back of a dark bluish tint, as represented in the plate. It died before we left Boston, to the great regret of my family, as I had anticipated the pleasure of presenting it alive to my honoured and noble friend the Earl of DERBY.

There can be little doubt that this species breeds in its grey plumage, when it is generally known by the name of Blue-winged Goose, as is the case with the young of *Grus Americana*, formerly considered as a distinct species, and named *Grus Canadensis*.

SNOW GOOSE, *Anas hyperborea*, Wils. Amer. Orn., vol. viii. p. 76.

ANSER HYPERBOREUS, Bonap. Syn., p. 376.

SNOW GOOSE, Nutt. Man., p. 344.

ANSER HYPERBOREUS, *Snow Goose*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 467.

SNOW GOOSE, *Anser hyperboreus*, Aud. Orn. Biog., vol. iv. p. 562.

Male, 31 $\frac{3}{4}$, 62. Female, 26, 55.

Western and Southern States, in autumn and winter. Breeds in the Arctic Regions. Abundant.

Adult Male.

Bill about the length of the head, much higher than broad at the base, somewhat conical, compressed, rounded at the tip. Upper mandible with the dorsal line sloping, the ridge broad and flattened at the base, narrowed towards the unguis, which is roundish and very convex, the edges beset with compressed, hard teeth-like lamellæ, their outline ascending and slightly arched; lower mandible ascending, nearly straight, the angle long and of moderate length, the dorsal line beyond it convex, the sides erect, and beset with lamellæ similar to those of the upper, but more numerous, the unguis obovate and very convex. Nasal groove oblong, parallel to the ridge, filled by the soft membrane of the bill; nostrils medial, lateral, longitudinal, narrow-elliptical, open, pervious.

Head of moderate size, oblong, compressed. Neck rather long and slender. Body full, slightly depressed. Feet rather short, strong, placed about the centre of the body; legs bare a little above the joint; tarsus rather short, strong, a little compressed, covered all round with hexagonal, reticulated scales, which are smaller behind; hind toe very small, with a narrow membrane; third toe longest, fourth considerably shorter, but longer than the second; all the toes reticulated above at the base, but with narrow transverse scutella towards the end; the three anterior connected by a reticulated membrane, the outer having a thick margin, the inner with the margin extended into a two-lobed web. Claws small, arched, rather compressed, obtuse, that of the middle toe bent obliquely outwards, and depressed, with a curved edge.

Plumage close, full, compact above, blended beneath, as well as on the head and neck, on the latter of which it is disposed in longitudinal bands, separated by narrow grooves; the feathers of the lateral parts small and narrow, of the back ovato-oblong, and abruptly rounded, of the lower parts curved and oblong. Wings rather long, broad; primaries strong, incurved, broad, towards the end tapering, the second longest, but only a quarter of an inch longer than the first, which scarcely exceeds the third; the first and second sinuate on the inner web, the second and third on the outer. Secondaries long, very broad, rounded, the inner curved outwards. Tail very short, rounded, of sixteen broad rounded feathers.

Bill carmine-red, the unguis of both mandibles white, their edges black. Iris light brown. Feet dull lake, claws brownish-black. The general colour of the plumage is pure white; the fore part of the head tinged with yellowish-red; the primaries brownish-grey, towards the end blackish-brown, their shafts white unless toward the end.

Length to end of tail $31\frac{3}{4}$ inches, to end of claws $33\frac{1}{2}$, to end of wings $31\frac{3}{4}$, to carpus 14; extent of wings 62; wing from flexure $19\frac{1}{2}$; tail $6\frac{1}{4}$; bill along the ridge $2\frac{5}{8}$, along the edge of lower mandible $3\frac{1}{4}$; bare part of tibia $\frac{3}{4}$; tarsus $3\frac{5}{8}$; hind toe $\frac{1}{2}$, its claw $\frac{4\frac{1}{2}}{12}$; middle toe 3, its claw $\frac{4}{12}$. Weight $6\frac{3}{4}$ lbs.

Young female, in first winter.

The colours of the young bird, in its first plumage, are unknown; but in its second plumage, in autumn and winter, it presents the appearance exhibited in the plate. The bill is pale flesh colour, its edges black, and the unguis bluish-white; the feet flesh-colour, the claws dusky. The head and upper part of the neck are white, tinged above with grey, the lower part of the neck all round, the fore part of the back, the scapulars, the fore part of the breast, and the sides, blackish-grey; paler beneath. The hind part of the back and the upper tail-coverts are ash-grey; as are the wing-coverts; but the secondary coverts are greyish-black in the middle; and all the quills are of that colour, the secondaries margined with greyish-white; the tail-feathers dusky-grey, broadly margined with greyish-white. The dark colour of the fore part of the breast gradually fades into greyish-white, which is the colour of the other inferior parts; excepting the axillar feathers, and some of the lower wing-coverts, which are white.

Length of an individual in this plumage, kept four years—to end of tail 26 inches, to end of claws 25; extent of wings 55; bill along the ridge $2\frac{1}{4}$, from frontal angle $2\frac{1}{2}$; tarsus $2\frac{7\frac{1}{2}}{12}$; hind toe $\frac{6}{12}$, its claw $\frac{4\frac{1}{2}}{12}$; middle toe $2\frac{1}{4}$, its claw $\frac{4}{12}$. Weight 2 lbs. 13 oz. The bird very poor.

In an adult male preserved in spirits, the roof of the mouth is moderately concave, with five series of strong conical papillæ directed backwards. The posterior aperture of the nares is linear, margined with two series of extremely slender papillæ. The marginal lamellæ of the upper mandible are 25, of the lower about 45. The tongue is 2 inches 5 twelfths long, nearly cylindrical, with strong pointed papillæ at the base, and on each side a series of flattened, sharp lamellæ, directed backwards, together with very numerous bristle-like filaments. It is fleshy, has a soft prominent pad at the base above, and towards the end has a median groove, the point rounded, thin, and horny. The œsophagus, which is 17 inches long, has a diameter of 9 twelfths at the upper part, and at the lower part of the neck is dilated to 1 inch. The proventricular glands are cylindrical, simple, and arranged in a belt nearly 1 inch in breadth. The other parts were removed.

The reddish tint on the head affords no indication of the age of the bird, some individuals of all ages having that part pure white, while others have it rusty. The same remark applies to our two Swans.

W. T.

Swan Goose.

1. Adult male. 2. Young female.

Audubon, John James. 1843. "Snow Goose, *Anser hyperboreus*, Gmel. [Pl. 381]." *The birds of America : from drawings made in the United States and their territories* 6, 212–217. <https://doi.org/10.5962/p.319495>.

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