

was kept for some time in Peale's Museum in Philadelphia. My drawing of the adult male, and that of the immature bird, were made from specimens also procured beyond our limits. It is said that the habits of this bird are very similar to those of the White Ibis, of which I give you a long account; but, as I have not had opportunities of observing them, I judge it better to abstain from offering any remarks on this subject.

SCARLET IBIS, *Tantalus ruber*, Wils. Amer. Orn., vol. viii. p. 41.

IBIS RUBRA, Bonap. Syn., p. 311.

SCARLET IBIS, Nutt. Man., vol. ii. p. 84.

SCARLET IBIS, *Ibis rubra*, Aud. Orn. Biog., vol. v. p. 62.

Adult, 29; wing,  $11\frac{1}{4}$ .

Accidental. Three specimens seen by me in Louisiana.

Bill, feet, and bare parts of head, pale lake; plumage bright scarlet, excepting the quills, which are white, and the terminal portion of the outer four primaries, which are bluish-black. Young in first plumage with the bill and feet brownish-grey, the bare parts of the head pale flesh-colour; plumage of head, neck, and upper parts, brownish-grey, of lower, white.

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## THE WHITE IBIS.

+IBIS ALBA, *Linn.*

PLATE CCCLX.—ADULT MALE AND YOUNG.

Sandy Island is remarkable as a breeding-place for various species of water and land birds. It is about a mile in length, not more than a hundred yards broad, and in form resembles a horse-shoe, the inner curve of which looks toward Cape Sable in Florida, from which it is six miles distant. At low water, it is surrounded to a great distance by mud-flats abounding in food for wading and swimming birds, while the plants, the fruits, and the insects of the island itself, supply many species that are peculiar to the land. Besides the White Ibis, we found breeding there the Brown Pelican, the Purple, the Louisiana, the White, and the Green Herons, two species of Gallinule, the Cardinal Grosbeak, Crows, and Pigeons. The vegetation con-

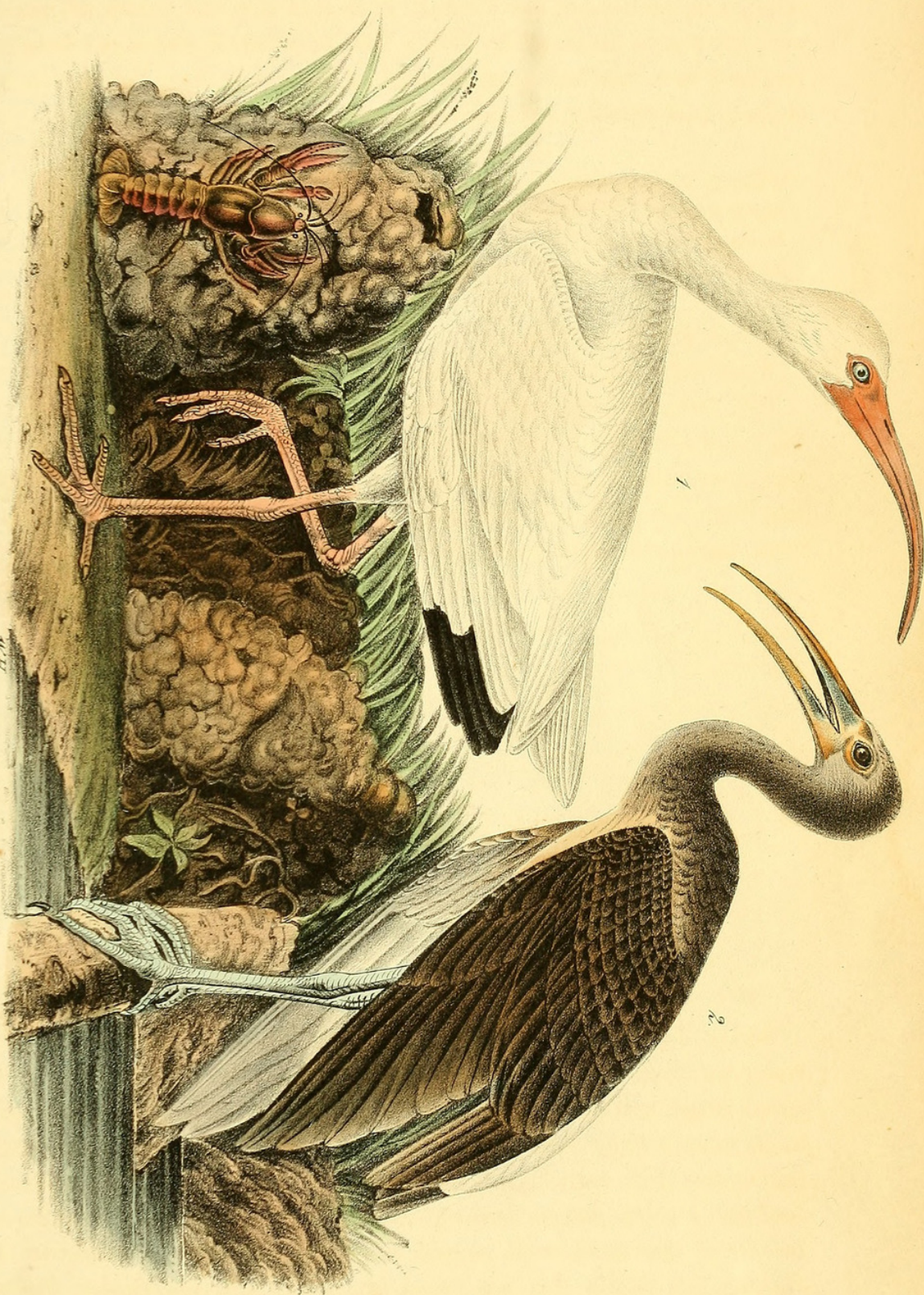












*White Ibis.*

1. Adult & Young in Autumn.







sists of a few tall mangroves, thousands of wild plum trees, several species of cactus, some of them nearly as thick as a man's body, and more than twenty feet high, different sorts of smilax, grape-vines, cane, palmettoes, Spanish bayonets, and the rankest nettles I ever saw,—all so tangled together, that I leave you to guess how difficult it was for my companions and myself to force a passage through them in search of birds' nests, which, however, we effected, although the heat was excessive, and the stench produced by the dead birds, putrid eggs, and the natural effluvia of the Ibises, was scarcely sufferable. But then, the White Ibis was there, and in thousands; and, although I already knew the bird, I wished to study its manners once more, that I might be enabled to present you with an account of them, which I now proceed to do,—endeavouring all the while to forget the pain of the numerous scratches and lacerations of my legs caused by the cactuses of Sandy Island.

As we entered that well-known place, we saw nests on every bush, cactus, or tree. Whether the number was one thousand or ten I cannot say, but this I well know:—I counted forty-seven on a single plum-tree. These nests of the White Ibis measure about fifteen inches in their greatest diameter, and are formed of dry twigs intermixed with fibrous roots and green branches of the trees growing on the island, which this bird easily breaks with its bill; the interior, which is flat, being finished with leaves of the cane and some other plants. The bird breeds only once in the year, and the full number of its eggs is three. They measure two inches and a quarter in length, with a diameter of one inch and five-eighths, are rough to the touch, although not granulated, of a dull white colour, blotched with pale yellow, and irregularly spotted with deep reddish-brown. They afford excellent eating, although when boiled they do not look inviting, the white resembling a livid-coloured jelly, and the yolk being of a reddish-orange, the former wonderfully transparent, instead of being opaque like that of most other birds. The eggs are deposited from the 10th of April to the 1st of May, and incubation is general by the 10th of the latter month. The young birds, which are at first covered with thick down of a dark grey colour, are fed by regurgitation. They take about five weeks to be able to fly, although they leave the nest at the end of three weeks, and stand on the branches, or on the ground, waiting the arrival of their parents with food, which consists principally of small fiddler crabs and cray-fish. On some occasions, I have found them at this age miles away from the breeding-places, and in this state they are easily caught. As soon as the young are able to provide for themselves, the old birds leave them, and the different individuals are then seen searching for food apart. While nestling or in the act of incubating, these Ibises are extremely gentle and unwary, unless they may have been much



disturbed, for they almost allow you to touch them on the nest. The females are silent all the while, but the males evince their displeasure by uttering sounds which greatly resemble those of the White-headed Pigeon, and which may be imitated by the syllables *crooh*, *croo*, *croo*. The report of a gun scarcely alarms them at first, although at all other periods these birds are shy and vigilant in the highest degree.

The change in the colouring of the bill, legs, and feet of this bird, that takes place in the breeding-season, is worthy of remark, the bill being then of a deep orange-red, and the legs and feet of a red nearly amounting to carmine. The males at this season have the gular pouch of a rich orange-colour, and somewhat resembling in shape that of the Frigate Pelican, although proportionally less. During winter, these parts are of a dull flesh-colour. The irides also lose much of their clear blue, and resume in some degree the umber colour of the young birds. I am thus particular in these matters, because it is doubtful if any one else has ever paid attention to them.

While breeding, the White Ibises go to a great distance in search of food for their young, flying in flocks of several hundreds. Their excursions take place at particular periods, determined by the decline of the tides, when all the birds that are not sitting go off, perhaps twenty or thirty miles, to the great mud flats, where they collect abundance of food, with which they return the moment the tide begins to flow. As the birds of this genus feed by night as well as by day, the White Ibis attends the tides at whatever hour they may be. Some of those which bred on Sandy Key would go to the keys next the Atlantic, more than forty miles distant, while others made for the everglades; but they never went off singly. They rose with common accord from the breeding-ground, forming themselves into long lines, often a mile in extent, and soon disappearing from view. Soon after the turn of the tide we saw them approaching in the same order. Not a note could you have heard on those occasions; yet if you disturb them when far from their nests, they utter loud hoarse cries resembling the syllables *hunk*, *hunk*, *hunk*, either while on the ground or as they fly off.

The flight of the White Ibis is rapid and protracted. Like all other species of the genus, these birds pass through the air with alternate flappings and sailings; and I have thought that the use of either mode depended upon the leader of the flock, for, with the most perfect regularity, each individual follows the motion of that preceding it, so that a constant appearance of regular undulations is produced through the whole line. If one is shot at this time, the whole line is immediately broken up, and for a few minutes all is disorder; but as they continue their course, they soon resume their former arrangement. The wounded bird never attempts to bite or to defend



itself in any manner, although, if only winged, it runs off with more speed than is pleasant to its pursuer.

At other times the White Ibis, like the Red and the Wood Ibises, rises to an immense height in the air, where it performs beautiful evolutions. After they have thus, as it were, amused themselves for some time, they glide down with astonishing speed, and alight either on trees or on the ground. Should the sun be shining, they appear in their full beauty, and the glossy black tips of their wings form a fine contrast with the yellowish-white of the rest of their plumage.

This species is as fond of resorting to the ponds, bayous, or lakes that are met with in the woods, as the Wood Ibis itself. I have found it breeding there at a distance of more than three hundred miles from the sea, and remaining in the midst of the thickest forests until driven off to warmer latitudes by the approach of winter. This is the case in the State of Mississippi, not far from Natchez, and in all the swampy forests around Bayou Sara and Pointe Coupée, as well as the interior of the Floridas. When disturbed in such places, these Ibises fly at once to the tops of the tallest trees, emitting their hoarse *hunk*, and watch your motions with so much care that it is extremely difficult to get within shot of them.

The manner in which this bird searches for its food is very curious. The Woodcock and the Snipe, it is true, are probers as well as it, but their task requires less ingenuity than is exercised by the White or the Red Ibis. It is also true that the White Ibis frequently seizes on small crabs, slugs and snails, and even at times on flying insects; but its usual mode of procuring food is a strong proof that cunning enters as a principal ingredient in its instinct. The cray-fish often burrows to the depth of three or four feet in dry weather, for before it can be comfortable it must reach the water. This is generally the case during the prolonged heats of summer, at which time the White Ibis is most pushed for food. The bird, to procure the cray-fish, walks with remarkable care towards the mounds of mud which the latter throws up while forming its hole, and breaks up the upper part of the fabric, dropping the fragments into the deep cavity that has been made by the animal. Then the Ibis retires a single step, and patiently waits the result. The cray-fish, incommoded by the load of earth, instantly sets to work anew, and at last reaches the entrance of its burrow; but the moment it comes in sight, the Ibis seizes it with his bill.

Whilst at Indian Key, I observed an immense quantity of beautiful tree snails, of a pyramidal or shortly conical form, some pure white, others curiously marked with spiral lines of bright red, yellow and black. They were crawling vigorously on every branch of each bush where there was not a nest of the White Ibis; but wherever that bird had fixed its habitation,



not a live snail was to be seen, although hundreds lay dead beneath. Was this caused by the corrosive quality of the bird's ordure?

There is a curious though not altogether general difference between the sexes of this species as to the plumage:—the male has five of its primaries tipped with glossy black for several inches, while the female, which is very little smaller than the male, has only four marked in this manner. On examining more than a hundred individuals of each sex, I found only four exceptions, which occurred in females that were very old birds, and which, as happens in some other species, might perhaps have been undergoing the curious change exhibited by Ducks, Pheasants, and some other birds, the females of which, when old, sometimes assume the livery of the males.

Much, as you are aware, good reader, has been said respecting the "oil bags" of birds. I dislike controversy, simply because I never saw the least indications of it in the ways of the Almighty Creator. Should I err, forgive me, but my opinion is, that these organs were not made without an object. Why should they consist of matter so conveniently placed, and so disposed as to issue under the least pressure, through apertures in the form of well defined tubes? The White Ibis, as well as the Wood Ibis, and all the other species of this genus, when in full health, has these oil bags of great size, and, if my eyes have not deceived me, makes great use of their contents. Should you feel anxious to satisfy yourself on this subject, I request of you to keep some Ibises alive for several weeks, as I have done, and you will have an opportunity of judging. And again, tell me if the fat contained in these bags is not the very best *lip-salve* that can be procured.

When any species of Ibis with which I am acquainted falls into the water on being wounded, it swims tolerably well; but I have never observed any taking to the water and swimming either by choice or to escape pursuit. I chanced one morning to be on the look-out for White Ibises, in a swamp not many miles from Bayou Sara. It was in the end of summer, and all around was pure and calm as the clear sky, the bright azure of which was reflected by the lake before us. The trees had already exchanged the verdure of their foliage for more mellow tints of diversified hue; the mast dropped from the boughs; some of the Warblers had begun to think of removing farther south; the Night Hawk, in company with the Chimney Swallow, was passing swiftly towards the land of their winter residence, and the Ibises had all departed for the Florida coasts, excepting a few of the white species, one of which we at length espied. It was perched about fifty yards from us towards the centre of the pool, and as the report of one of our guns echoed among the tall cypresses, down to the water, broken winged, it fell. The exertions which it made to reach the shore seemed to awaken the half-torpid alligators that lay in the deep mud at the bottom of the pool. One



shewed his head above the water, then a second and a third. All gave chase to the poor wounded bird, which, on seeing its dreaded and deadly foes, made double speed towards the very spot where we stood. I was surprised to see how much faster the bird swam than the reptiles, who, with jaws widely opened, urged their heavy bodies through the water. The Ibis was now within a few yards of us. It was the alligator's last chance. Springing forward as it were, he raised his body almost out of the water; his jaws nearly touched the terrified bird; when pulling three triggers at once, we lodged the contents of our guns in the throat of the monster. Thrashing furiously with his tail, and rolling his body in agony, the alligator at last sunk to the mud; and the Ibis, as if in gratitude, walked to our very feet, and there lying down, surrendered itself to us. I kept this bird until the succeeding spring, and by care and good nursing, had the pleasure of seeing its broken wing perfectly mended, when, after its long captivity, I restored it to liberty, in the midst of its loved swamps and woods.

The young bird of this species, which I kept alive for some time, fed freely, after a few days captivity, on soaked Indian corn meal, but evinced great pleasure when cray-fishes were offered to it. On seizing one, it beat it sideways on the ground, until the claws and legs were broken off, after which it swallowed the body whole. It was fond of laying on its side in the sun for an hour or so at a time, pluming its body and nursing the sore wing. It walked lightly and very gracefully, though not so much so as the Heron. It did not molest its companions, and became very gentle and tame, following those who fed it like a common fowl.

The Creoles of Louisiana call this species "*Bec croche*," and also "*Petit Flaman*," although it is also generally known by the name of "Spanish Curlew." The flesh, which, as well as the skin, is of a dull orange-colour, is extremely fishy, although the birds are often sold in our southernmost markets, and are frequently eaten by the Indians.

The White Ibis has been shot eastward as far as New Jersey. Of this I have been made aware by my generous friend EDWARD HARRIS, Esq. I never saw one farther up the Mississippi than Memphis.

WHITE IBIS, *Tantalus albus*, Wils. Amer. Orn., vol. viii. p. 43.

IBIS ALBA, Bonap. Syn., p. 312.

WHITE IBIS, Nutt. Man., vol. ii. p. 86.

WHITE IBIS, *Ibis alba*, Aud. Orn. Biog., vol. iii. p. 173; vol. v. p. 593.

Adult,  $24\frac{1}{2}$ , 40.

Constant resident in South Florida, where it is abundant. Breeds along the coast to Texas, westward, and occasionally as far as New Jersey east-



ward, inland as far up the Mississippi as Natchez and Red river. Returns to the Floridas in autumn.

Adult Male.

Bill very long, slender, deeper than broad, compressed, tapering, arcuate, obtuse at the tip. Upper mandible with the dorsal line arched in its whole length, the ridge convex, broader towards the end, the sides at the base nearly erect, towards the end very convex and narrow, the ridge separated in its whole length from the sides by a deep narrow groove, the edges inflected and sharp. Nostrils basal, dorsal, linear, direct. Lower mandible nearly equal to upper, its angle very narrow, and protracted in the form of a groove to the tip, the sides convex, the edges sharp, but strong.

Head small, compressed; neck long and slender; body slender, deeper than broad; wings rather large. Feet very long, slender; tibiae long, bare about half their length, and covered all round with hexagonal scales; tarsi long, slender, anteriorly covered with numerous broad scutella, the rest with hexagonal scales; toes slender, the first much smaller, the third longest, the fourth considerably shorter, the second very little shorter than the fourth, all covered above with numerous scutella, laterally with angular scales, beneath flattened, with thick soft margins; the anterior connected at the base by membranes, of which the outer is longer; claws small, arched, compressed, obtuse, the middle one with a sharp thin edge.

Head and throat bare to beyond the eyes, as are the tibiae nearly half way up. Plumage in general soft, unglossed, the feathers rather blended, those of the head and neck narrow and more blended. Wings long, ample, some of the secondaries as long as the longest primary when the wings are closed; third quill longest, but second and fourth almost as long, first longer than fifth; secondaries broad and rounded. Tail short, slightly emarginate and rounded, of twelve rounded feathers.

Bare parts of the head light orange-red; bill the same, but towards the tip dusky. Iris of a fine pearly blue. Legs and toes paler than the bill; claws dusky, tipped with horn-colour. Plumage pure white, excepting the ends of from three to five of the outer primaries, which are deep black, with blue and green reflexions.

Length to end of tail  $24\frac{1}{2}$  inches, to end of wings 27, to end of claws  $31\frac{1}{2}$ ; extent of wings 40; wing from flexure  $12\frac{1}{2}$ ; tail  $4\frac{3}{4}$ ; bill along the back  $5\frac{1}{4}$ , along the edge  $5\frac{3}{4}$ ; bare space of tibia  $1\frac{3}{4}$ , tarsus  $3\frac{1}{4}$ , middle toe  $2\frac{1}{8}$ , its claw  $\frac{3}{8}$ . Weight 2 lbs.

The adults vary considerably in size, and remarkably in the length of the bill. The extent of the bare space on the head varies according to age. In the breeding season the bill and legs are bright carmine; during the rest of the year paler.



Young bird killed in September.

In its first plumage this species is of a dull brown colour all over, excepting the rump, which is whitish, and the tail, which is tinged with grey.

After the first moult, the bill is pale yellowish-orange, toward the base greenish; the naked parts of the head are pale orange-yellow, inclining to flesh-colour; the eye dark brown; the feet pale blue. The plumage is of a dull olivaceous-brown, the quills darker, the tail rather lighter, the hind part of the back white, the breast and abdomen white.

In a female preserved in spirits, the roof of the mouth is flattened, with an anterior median longitudinal ridge; and the two sides or crura of the lower mandible are united for more than half their length from the tip. The tongue is triangular, extremely short, being only  $5\frac{1}{2}$  twelfths in length, flat, and extremely thin, broadly emarginate and papillate at the base, the two lateral papillæ much larger, its upper surface covered with numerous small crypts, its tip obtusely pointed. The posterior aperture of the nares is linear, with an anterior slit. The mouth is rather narrow, being only 7 twelfths in width. The tongue and the general form of the mouth are thus similar to those of the Spoonbill; and the former is entirely different from that of the Curlews and Snipes, to which this genus approaches in the form of the bill. The aperture of the ear is remarkably small, its diameter being only  $1\frac{1}{2}$  twelfths.

The œsophagus, Fig. 1, *a b c d*, is 11 inches long, wide, like that of a Heron, its diameter varying from 1 inch to  $1\frac{1}{4}$  inches, being greater at the lower part of the neck, and contracting to 9 twelfths as it enters the thorax. The stomach, *d e f g*, is large, muscular, broadly elliptical,  $2\frac{1}{4}$  inches long, 1 inch 10 twelfths in breadth; the lateral muscles strong, the inferior very large. The duodenum, *g h i*, curves in the usual manner, returning upon itself at the distance of  $3\frac{1}{4}$  inches; its width  $4\frac{1}{2}$  twelfths. There is a small gall-bladder about  $\frac{1}{2}$  inch long, and two biliary ducts; beyond the entrance of which the intestine forms several convolutions, and preserves a nearly uniform width throughout. The rectum is 3 inches long, and the cœca, Fig. 2, *c c*, are reduced to the minimum size, being only  $1\frac{1}{2}$  twelfths in length. In this respect, as well as in the structure of the stomach, this bird differs entirely from the Heron, to which it approximates in the form of the œsophagus, although not in that of the tongue. The contents of the stomach are remains of cray-fish and aquatic insects. Its epithelium is thick, tough, longitudinally rugous, but not presenting two distinct grinding plates. The proventriculus, *c*, is 10 twelfths in breadth, and its glands are of a cylindrical form, about 2 twelfths long, with wide apertures. The length of the intestine is 3 feet 9 inches.

The trachea is  $9\frac{1}{2}$  inches long, of the nearly uniform breadth of 4 twelfths;



Fig. 1.

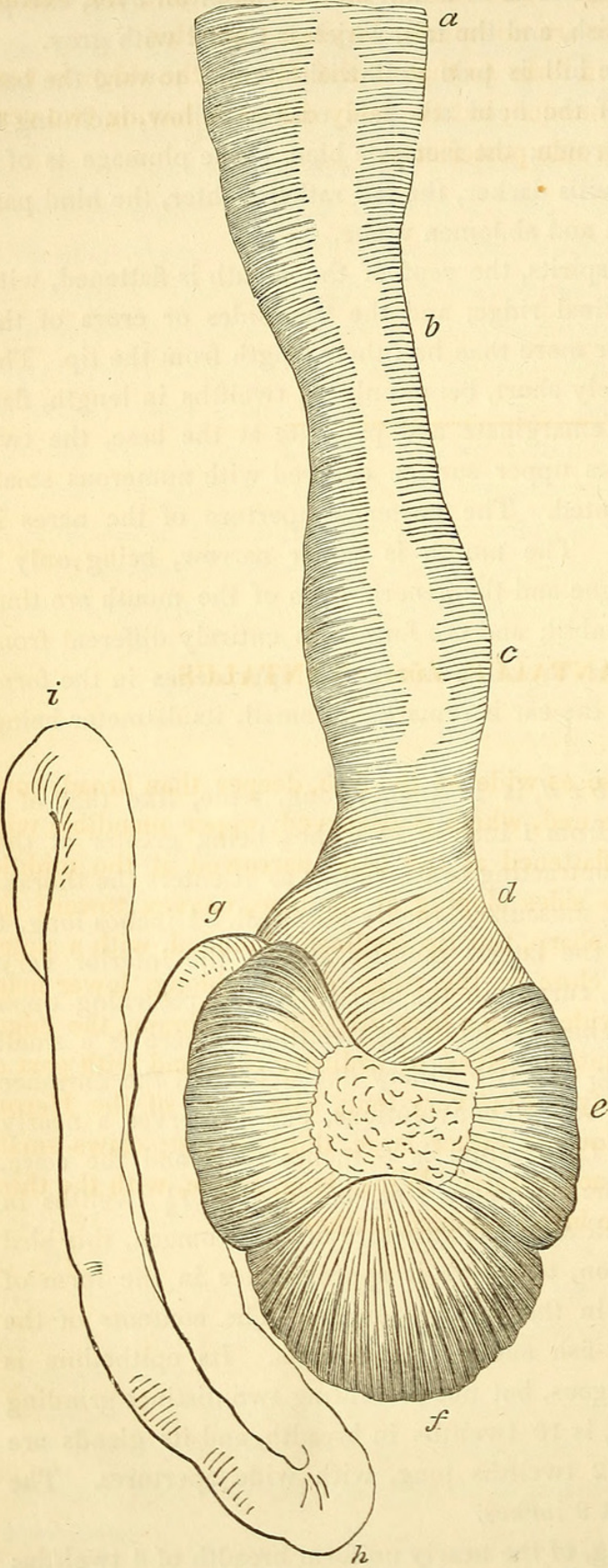
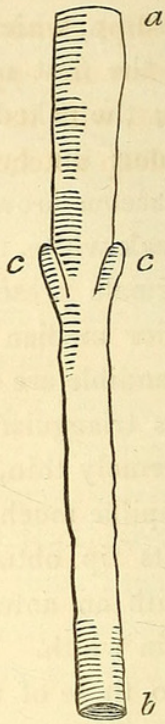


Fig. 2.





the rings 132, broad, but very thin and unossified. The bronchi are very short, of about 15 half rings. The lateral muscles are thin; the sterno-tracheal slips slender. There are no inferior laryngeal muscles.

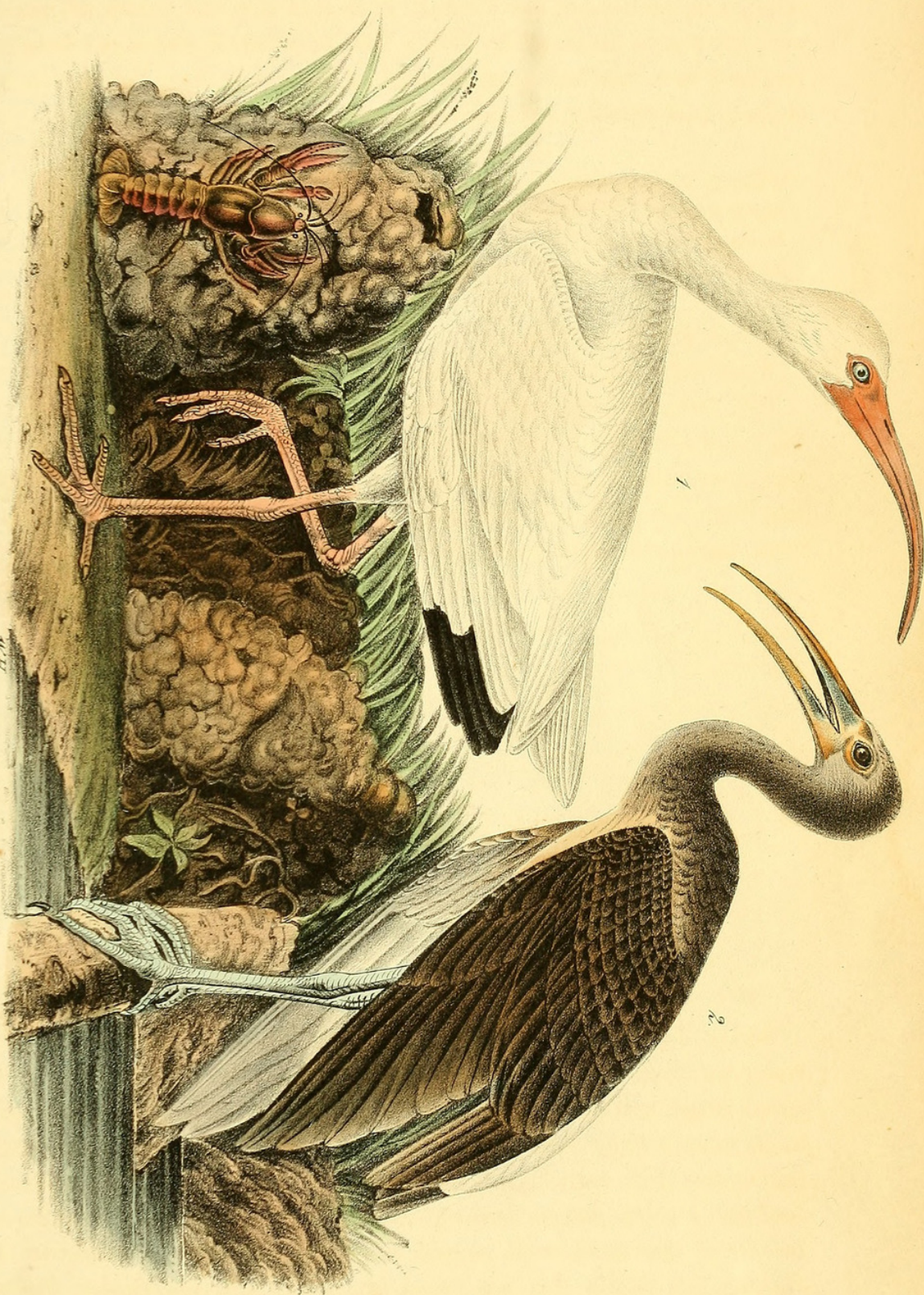
The sternum approaches in form to that of the Heron, the ridge is very prominent, with its outline rounded; but the body differs in having two very distinct deep notches on each side posteriorly.

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GENUS II.—TANTALUS, *Linn.* TANTALUS.

Bill long, stout, at the base as wide as the face, deeper than broad, compressed, tapering towards the end, which is decurved; upper mandible with the ridge rather broad and flattened at the base, narrowed at the middle, convex toward the end, the sides sloping at the base, convex toward the end, the edges inflected and sharp, the tip declinate, rounded, with a notch on each side; nostrils basal, close to the ridge, direct, oblong; lower mandible with the angle rather wide, with a bare dilatable membrane, the edges erect and sharp, the tip blunted. Head of ordinary size, and with part of the hind neck bare and scurfy. Feet very long, like those of the Heron; tibia and tarsus reticulate; hind toe rather large, third longest; claws small, arched, that of the third toe not serrate. Wings long, ample, with the third quill longest. Tail of twelve broad rounded feathers.





*White Ibis.*

*1. Adult & Young in Autumn.*

W.H.





Audubon, John James. 1843. "The White Ibis, *Ibis alba*, Linn. [Pl. 360]." *The birds of America : from drawings made in the United States and their territories* 6, 54–63. <https://doi.org/10.5962/p.319474>.

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