

THE WILSON BULLETIN

NO. 84.

A QUARTERLY JOURNAL OF ORNITHOLOGY

VOL. XXV

SEPTEMBER, 1913.

NO. 3

OLD SERIES VOL. XXV. NEW SERIES VOL XX

HOME LIFE OF THE GLOSSY IBIS (*Plegadis autumn- olis Linn.*).

BY OSCAR E. BAYNARD.

Early in May of 1909 was the first time that I ever saw a Glossy Ibis alive. Mere words cannot begin to describe the feelings I experienced as I saw this beautiful graceful bird spring up from her nest fifteen feet up in a willow tree and take wing, the bright sun glistening on her beautiful iridescent plumage was a sight that I will always remember with joy. Examination showed that she was incubating three beautiful dull greenish-blue colored eggs. These I collected. On arriving home I immediately got out all my bird books and began reading up on this bird. As everyone is aware this was not much of a job because information on either of the Glossy Ibises is conspicuous by its meagerness. A few days later I visited the island again and found another nest of this bird with the old one dying on her nest. I took her home along with this set and made a good skin of her. I then decided I had collected a specimen of the White Faced Glossy Ibis instead of the Glossy Ibis, due to the white skin at the base of the bill, this I will explain more fully later.

In studying up what has been written of the Glossy Ibis I find that this species remained unknown in the United States until 1817 when a specimen was taken in New Jersey and



Adult Glossy Ibis (*Plegadis autumnalis*) and four young on nest.
The reward of 22 days' continuous waiting.
(Photo by Oscar C. Baynard.)

announced and described by Mr. Ord. Since then it has been found at irregular intervals along the coast. The A. O. U. Check List gives its range as, "Tropical and subtropical regions, mainly of Eastern Hemisphere. Rare and local in Southeastern United States from Louisiana to Florida, and in the West Indies; casual north to Missouri, Wisconsin, Michigan, Ontario and Nova Scotia." This very, very rare bird is most abundant in Florida, but abundant is hardly the word to describe it as nine pairs in 1912 bred in a protected rookery that I was guarding and this is a greater number than I can learn of anyone knowing of at any other place and time.

Glossy Ibis bred on Orange Lake for four years of the five since I first saw it there, this year they did not nest there for some cause. I have seen Glossy Ibis once in 1912 in the month of November on the flats of the Miakka River and on two occasions on the Canal that is the extension of the Caloosahatchee River leading into Lake Okeechobee. I have heard of it being seen by a hunter and trapper on the Kissimmee River, but it must be considered very rare in Florida. I have talked with scores of hunters and trappers, men who are observant and know their birds well and but two have described the "Black Curlew" to me, and neither of them saw it in the nesting season, so no doubt the only nesting records for Florida are from Alachua County where for four years I have found them nesting on Orange Lake. For the four years previous to 1909 I know it did not nest on Orange Lake as I spent too much time there to miss seeing it. It must have bred there formerly though, as I understand a set was taken in that section about a dozen or more years ago by a gentleman who was staying in Micanopy.

At this point a technical description might not be amiss. General color rich dark purplish-chestnut, opaque, changing on head, back, wings (excepting lesser coverts), and tail, to glossy dark purplish-green; sides and lining of wings and crissum dusky greenish; primaries greenish black. Bill blackish; legs brownish-black; iris brown; bare skin of head dark slate, with exception of being pure white where the feathers join the skin for the full length across the front of the head



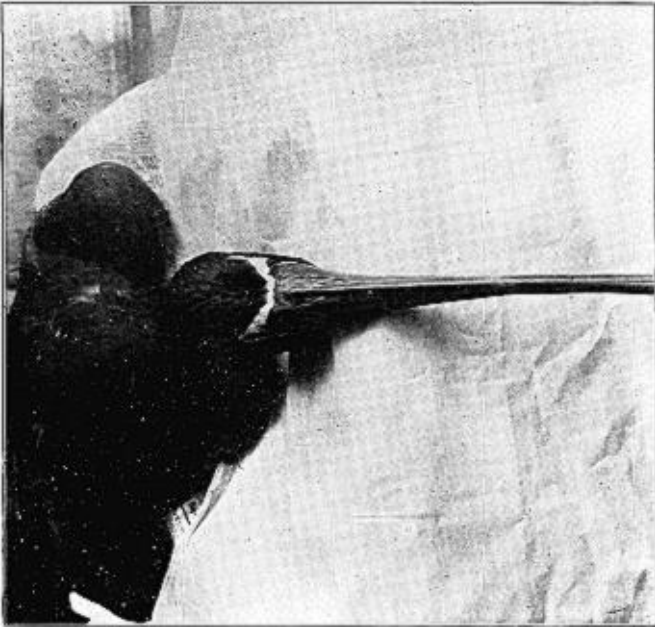
Glossy Ibis (*Plegadis autumnalis*), nest and eggs in situ.

extending down to the upper corner of the eye, where the feathers come all the way down to the corner of the eye for a space of about one quarter of an inch, starting at the lower corner of the eye the white streak extends down to the lower side of the lower mandible. The band of white is broadest across the top of the head, being over three-sixteenths of an inch wide, while the strip below the eye is barely an eighth of an inch wide. In an adult bird in the breeding season this skin is pure white and in the one mounted specimen I have it stayed nearly full color for over seven months and had not faded out over one quarter of its color when fresh. How long this would have retained any whitish color is not known as I had the part colored on the mounted bird just as it appeared in the fresh skin. A good idea of this white space at the base of the feathers can be seen from the two accompanying photographs which were taken of the bird's head about two hours after being captured. I can find no record of anyone describing this feature of the Glossy Ibis, with the exception of Audubon who mentions about the skin being purplish white in fresh specimens. The age of the bird has a lot to do with the amount of white skin. An old bird will be conspicuous at a distance of one hundred feet while a bird a year old will appear not to have any white at all until within a distance of fifteen feet or less. Whether this white appears only in the breeding season or not I am unable to tell, am inclined to believe that it is present only during the breeding season, but like the White Ibis, which has the carmine bill and feet and legs only in the breeding season. For a year after securing my first specimen I was under the impression that I had the White Faced Glossy Ibis, not ever having particularly observed any specimens of that species. R. D. Hoyt of Seven Oaks, Florida, put me right on this point, however, and explained that the White Faced Glossy Ibis had white feathers around the base of the bill, while the Glossy did not.

The following observations were made during a period of eight weeks, during which time I had two pairs of these birds under daily surveillance. In looking for a suitable place to

put up my photographic blind I stumbled onto these two pairs just beginning to build their nests, the second for the season as all of the first built nests had been abandoned after being looted by the Fish Crows which swarmed in the rookery. While set up on a nest of the "Long Whites" (American Egret) I had a good opportunity to watch the actions of these two pair of birds. They evidently worked faster than they did on their first nests as time was flying and it behooved them to get the nest built before it became time for them to "hike" to other feeding grounds.

Both parent birds aided in the construction of the nest and I could not see that one bird did any more of the work than the other. I did note, however, that in one case the female selected the site and in the other the male did the selecting. Both nests were built at a height of about ten feet in thick elder bushes, and about three feet from the tops of the bushes, as plainly shows in the accompanying photographs. The nests were ready for eggs at the end of the second day, although the nests were not finished by any means. Glossy Ibis have the same characteristics as the White Ibis in that they continue to add to their nest even up to the time that the young are able to leave it, so that by the time the eggs are ready to hatch the nest will be almost double the size that it was when the first egg was laid. An egg was laid each day until one nest contained four and the other three. Incubation did not start until after the last egg had been laid a full day. After the first egg was laid, however, the nest was never without one or the other of the pair close by, something that was very necessary in this Rookery on account of the thieving Fish Crows. During the period of incubation, which lasted in each case exactly twenty-one days, I noticed that the female did most of the incubating; the male, however, put in about six hours out of the twenty-four covering the eggs. The female sat all night and until about 8:30 or 9:00 a. m. when the male came in from his morning hunt for food; on his approach to the nest he would give his call when about fifty feet away and his mate would immediately answer and spring up from the nest and



Glossy Ibis head showing the forehead marking.

pass him in the air sometimes twenty-five feet from the nest. The male would always fly directly to the highest twig above the nest and after about five minutes of careful preening his feathers he would give three or four calls in a medium tone and spring down to the nest, stand a few minutes examining the eggs and then go stalking through the bushes until he found a twig that suited him, break it off with his bill and take it back to the nest and after placing it on top settle down to a three hour job of incubating, getting off the nest, however, usually once during that time and getting another twig to add to the nest. The female would return and give her bleating note about fifty feet from the nest when the male would stand up and wait for her to alight in the bush over the nest, then would ensue about fifteen minutes of as neat courting and billing and cooing as one will ever see being done by a pair of doves. This loving disposition towards each other seems to be characteristic of the Glossy Ibis as every pair that I have observed have done it. The White Ibis will occasionally do it but not for any such length of time as the Glossy. They will stand erect and seem to rub their bill against the other one, all the time making cooing (gutteral, I must admit) notes of endearment, they will preen each others feathers and act just like a couple of young humans on their honeymoon; these loving scenes continued until the young were able to fly, never seeming to diminish at all. This trait I certainly admire and while it is known to exist in birds that mate for life, is seldom seen in birds that are *supposed* to mate only for a season.

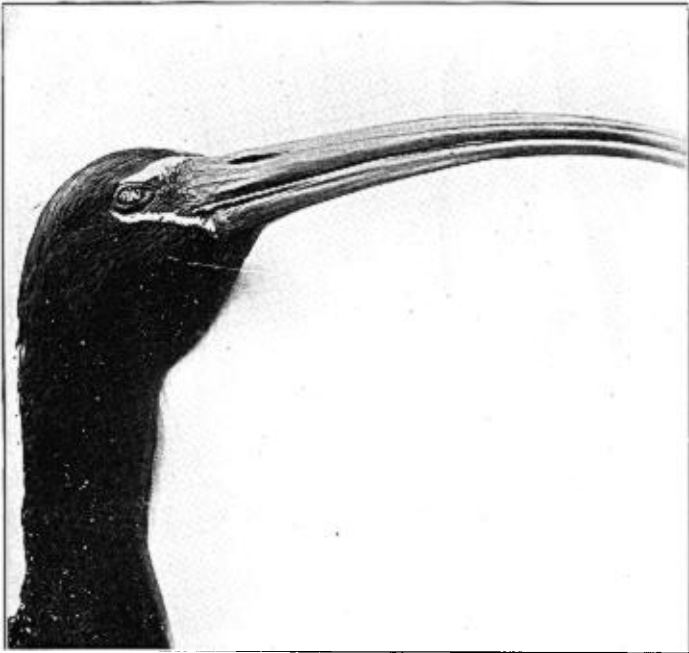
After the pair that laid only three eggs had been sitting five days the female laid her fourth egg. This seemed to me to be very unusual. After this episode I decided to devote all my time to this pair and moved my blind to a point of vantage at a distance of about ten feet. I still had the other nest in view but not in a position where it could be conveniently photographed, so all these photographs were taken from the pair that had originally had three eggs.

After twenty-one days had elapsed three of the eggs hatched. The same routine was carried on, however, as when

they were incubating; the female doing most of the covering, but both birds doing the feeding of the young. Until the young were five days old one bird always stayed at the nest and it was at this period that the last egg laid hatched. I hardly expected it to hatch. This last hatched bird was considerably smaller than the three others were at time of hatching and always seemed to me more or less dwarfed until about time for them to leave the nest, when there was little difference to be seen in the size, but lots of difference in their activity, the last hatched one being the most active of the entire lot.

One thing I noticed about the downy young and that was that they were entirely black, with the exception of the top of the head, which was a bright orange color crossed with a band of black about midway of the orange patch. The bill of all the young was bone colored and crossed by a band of almost black about half way the length. This shows up very well in cut No. 7 and No. 8. They carried these colors, both on the top of the head and on the bills, until the time they could fly and left the nest. Two of the young in each nest had a white patch on their throats about three inches from the head. This shows up nicely in cut No. 7 also. These patches were plainly visible when they could fly. Whether this was a mark of the sexes I am unable to say, but believe it to be.

The disposition of the young at all times in both nests was fine. All were very active and restless after a week old, and at the age of two weeks would not stay in the nest at all but stray out to the ends of the limbs of the bushes in which the nest was placed, returning, however, to the nest to be fed, as I never observed on any occasion the old one feeding the young any place but on the nest. In this they differ from the White Ibis as they will feed the young wherever they find them and seem to let the youngsters tyrannize over them. On several occasions I noticed one or the other of the young when at the age of about three weeks try to make his parents come to him to feed him, but it never worked, as the old one would pay not the slightest attention to him, and when it looked as though the parent was through feeding and about ready to



Glossy Ibis. To show the marking of the head.

go away the youngster would give in and come climbing down to the nest, where the old would treat him just as if he had been there all the time. I never noticed any of the young fighting among themselves like the Herons will sometimes do, but at all times they acted like well behaved children, the only exceptions being that the three older birds would often take turns in trying to apparently swallow the last hatched baby. He was sure a hardy scamp or he would never have lived through the treatment he had to undergo.

Right here is the time to record the feeding habits of the Glossy Ibis. They feed like the White Ibis, principally on crayfish, cut worms, grasshoppers and other insects, and young moccasins. When the young are over three weeks old over half the food of these Glossy Ibis would be moccasins. I kept a record of the food by making the young disgorge after the old ones had fed them. This itemized record will appear further along. The manner of the Glossy Ibis in feeding is to regurgitate the food up in the throat or mouth and for the young to put his bill, and many times head, down the old one's throat and take his portion. After one bird has been fed the second and third will get their turns, never longer than three minutes apart and usually immediately. I have seen the three young get two portions each in about seven minutes. Quick work this. They would each get four to five portions at each visit of the parent; when young, however, they would get as high as seven and eight turns. They would, of course, at this tender age, be unable to take on a very large quantity, and it would also be in a finer state of digestion, as many times I have seen the parent return from feeding and stand around and caress the young and not offer to feed until an hour had elapsed. This no doubt was to allow the food to digest to a point where the young would be able to eat it. But after the young had reached the age of two weeks and more this was never necessary, as they could at that age take anything from a portion of a half grown moccasin to a grown crayfish. At this age of the young the meal, if a moccasin, would be disgorged into the nest, and being half digested, be

pulled into small enough portions to be capable of being swallowed by the young, who would take this up from the nest themselves. In no other instances did I ever see them pick up any food themselves until after they were quite large, when they would re-eat the disgorged food that I had made them "cough up." In every case, however, the old bird fed from her throat, with the exception of the moccasins.

The old birds showed a great deal of intelligence in the feeding of the last hatched chick. They would feed the oldest three in every case three or four portions before they would ever notice the baby. This was no doubt due to the fact that it was unable to assimilate the food in as coarse a stage of digestion as its older brethren and apparently the parents knew this, because when they started to feed the baby they would give him as many meals as he cared to take and would never offer to give the older ones any more until another visit from the feeding grounds. As the young grew it necessitated many visits to the marshes for food because they were a hungry bunch all the time. I spent usually eight to ten hours a day in the blind photographing and making notes and no day during the four weeks after the young hatched did the parents make less than six trips each with food for the young and they made on some days as high as eleven trips each, the last ones being late, sometimes after dark. These last trips, however, were usually for their own food, as only on three occasions did I ever see the old ones offer to feed the youngsters when returning late.

Like the White Ibis there are six stages in the life of the young Glossy Ibis.

First stage, which is usually the first week, they are downy and very sluggish, sleeping most of the time.

Second stage, usually the whole of the second week they are beginning to feather out and are very alert, beginning towards the last of the week to show fear of man.

Third stage, during the third week, and with the Glossy, the fourth week is spent in traveling about among the bushes, returning to the nest to be fed. The White Ibis, during the



Glossy Ibis building.



Glossy Ibis shielding young from sun.

fourth stage, lives on the ground during the daytime, running around by the thousands like rabbits. It is during this period that the old White Ibis have the hardest time of their lives in hunting up their own offspring. The Glossy I never found on the ground except when they had sprung there in fright at my approach.

Fifth stage is spent among the tree tops away from the nest, venturing sometimes as much as fifty feet, returning, however, to be fed as related before.

Sixth stage, which is usually the latter part of the sixth week, is when they begin to fly, making short excursions at first, returning to the nest when the old one returns and calls to them. After the end of the sixth week the young spend all their time flying down to the edge of the island and wading and feeding in the shallow water, returning, however, at night to roost on the old nest. The old ones, at this stage, will feed them wherever they can find them, and after the young are about seven weeks old they will leave with the parents to their feeding grounds and stay with them, returning at night to roost. At about this time all the Ibis of both species are usually able to fly and it is not long then when some day they all leave as suddenly and mysteriously as they came in. They have probably pretty well cleaned up the hunting grounds of all the crayfish, etc., and move of necessity rather than choice. It is at this period that they are found in the northern states. At what time they return south I am unable to state.

The disposition of the old Glossy Ibis towards the other Ibis and Herons is not good. I will have to admit that the Glossy is pugnacious towards them, and one will never find an occupied nest of any other species as near as ten feet to a Glossy nest when they have reached the point where it is about time for the young to hatch. They will run off Ibis and Herons regardless of size and all the other birds seem to recognize their superiority and leave. Then happens a peculiar thing. The Fish Crows will, of course get the deserted eggs at once and then the Glossy Ibis will begin dis-

mantling these old nests, pulling them apart and dropping the sticks down on the ground, or in the water, whichever happens to be underneath, saving any sticks that appeal to them and taking them back to their own nest. I noticed that it took six days for this pair to dismantle fourteen White Ibis nests and three little Blue Heron nests that they had made leave. The worst of it was that one of the White Ibis had baby young in and when they died the Glossies threw them out of the nest. It is barely possible, however, that the pair of White Ibis that had used this nest were killed on their feeding grounds and failed to return, as this is the only instance where I ever noted the Glossy dismantling a nest occupied by young.

The notes of the Glossy Ibis are very hard to explain so that any one would have the least idea how they sounded. The note of the White Ibis is three grunting notes, sometimes uttered distinct, but more often sounding like a continuous note. The Glossy starts off exactly like the White Ibis with a grunting sound and then uttering four distinct notes resembling, what to my mind best explains them, the bleating of a young calf or sheep. The Ibis sounds as though there was something in the throat that gives a guttural sound. I became quite expert in imitating them, so much so that I could many times fool the young, but as for writing it, that is beyond me. This note is usually used in all cases when they approach the nest and when they are leaving and just as they take wing. They have another series of notes they use when caressing each other and when caressing the young and the female has a very soft note, sort of cooing, that she uses when feeding the young when they are only a few days old. The young themselves never appear to make any notes except when trying to avoid a person, when they utter a squawking note of fear. The two nests in question were placed quite close to each other and as the young arrived at the age of two weeks and more they could always recognize their parents' notes even before I could distinguish them. I always knew which old birds were approaching by the actions of the young birds



Glossy Ibis feeding young.

in the nest. They never in all the time I observed them made a mistake and put on the alert and expectant look for the parents of the other nest. I could not distinguish any material difference in the notes of the four adult birds, with the possible exception of the female of the nest photographed; she appeared to have a coarser tone to her calls.

Glossy Ibis appear to have less enemies than any other of the birds in the Rookeries. Fish Crows appear to be the only thing that bothers them and they in nearly every case secured the first sets. Man, of course, is their next enemy, as is usually the case with any species, but here in this Rookery they were not molested by man at all.

I would say that the first sets of eggs are deposited the latter part of April and the second sets usually about the middle to last of May, and practically all I noted laid their second sets and successfully reared their young. In the four years I have studied them I have found twenty-six nests in which young were successfully reared. The first year there were two nests, the second year six, and the next two years there were nine each. This year, 1913, I observed three pairs about the Rookeries, but as the White Ibis did not nest on the lake this year the Glossy Ibis did not either, there being in all probability a lack of the proper amount of food to accommodate the great army of Ibis. It is to be hoped that they will stick with the White Ibis and return in a few years again with them, as the White Ibis will return as soon as the food supply becomes sufficient again.

In the twenty-six nests my records show that there were raised four young in fourteen of them and in eight nests three young were reared and in the remaining four nests only two young were raised, these last two nests probably being raided by Fish Crows. I should say that half of the full sets of this species would be four eggs and the other half three eggs. In contrast to this set of the White Ibis in ninety-nine per cent of the sets will be three eggs. The eggs are dull greenish blue, Prussian Blue being the color that best describes them.

The amount of food consumed by these birds is immense,

almost beyond belief, and from the nature of the food collected showed that they had to be alert and capable of doing all kinds of hunting. From the following list it will be readily seen what great good these birds do to any section they decide to nest in.

An itemized summary of the food of the Glossy Ibis. First six days of the life of the young in the nests I did not investigate their food because of its being so nearly digested by the parent bird that it would be almost impossible to determine the number of any one kind of food. In the following list the first six days' record is of the three oldest nestlings, and commencing with the 12th day is a record of all four youngsters, and of two full meals of each, one in the morning and one in the evening, with the exception of the last three days, when I took a meal each in the morning and two in the evening. In this way I did not cause the youngsters much inconvenience as they soon became used to me and did not in the least object to being handled, and toward the end they would immediately eat the disgorged food if I put it back in the nest for them, which I usually did when the meals were in a state of digestion that did not necessitate my taking them back to camp to analyze.

Age days	Cut Worms	Grasshoppers	Crayfish	Snakes	No. of Meals
7	28	24	47	2	6
8	33	17	19	5	6
9	67	11	28	2	6
10	27	28	42	3	6
11	36	23	61	1	6
12	56	48	96	6	8
13	78	12	77	3	8
14	67	29	32	3	8
15	18	101	98	4	8
16	2	132	87	3	8
17		169	81	4	8
18		158	39	3	8
	412	752	707	39	86



Glossy Ibis feeding young. Shows the orange patch on head of young.

Age days	Bro't forward.	412	752	707	30	86	No. of Meals
	Cut	Worms	Grasshoppers	Crayfish	Snakes		
19			162	71	1		8
20			172	81	5		8
21			160	72	3		8
22			193	37	7		8
23			208	30	6		8
24			47	96	9		8
25			23	77	8		8
26			108	23	10		8
29			13	29	18		12
27			76	93	9		8
28			16	38	17		12
29			13	29	18		12
30			34	37	15		12
		412	1964	1391	147		194

Total of 3914 vermin in 194 meals, or an average of 20 to each meal. As the young would average seven meals apiece each day this would mean twenty-eight meals, and twenty vermin to the meal would make 560 vermin for a day's feed for the young alone. The parents fed these young for about fifty days, making the total of vermin destroyed by this one nest of birds about 28,000, and this is saying nothing of what the old birds ate, which would be at least half of what the youngsters devoured, making a total of 42,000 vermin eaten while rearing one nest of young. When we stop to think that there were about nine thousand pairs of Ibis, including both the White and Glossy on this lake in 1912 that successfully reared nests of young, one can hardly conceive of the many millions of noxious insects and vermin of all kinds destroyed. The vast amount of good to any section of the country where this vast army of Ibis nests can hardly be reckoned in dollars. The cut worms and grasshoppers we all know what great damage to growing crops they do; the crayfish destroys the spawn of fish, which in turn live off the eggs and young mosquitos. The deduction is self-evident to anyone

when we consider the vast amount of territory in Florida that is covered with water. The crayfish also destroy levees on the rivers and cause the destruction of millions of dollars damage to growing crops.

Snakes, especially the moccasins, which by the way comprised 95 per cent of the snakes captured by the Ibis, do lots of harm. Moccasins in Rookeries destroy thousands of eggs and young birds, and even if they didn't they are so deadly poisonous that anything that helps to keep them down to reasonable numbers is welcome.

My observations show the Ibis with a clear record of doing 100 per cent of good, not a bad thing can be laid to his door, this fact in conjunction with its beauty makes it a bird that should be given the very strictest protection by all persons. Alas, though, the Ibis, or "Curlew," as it is called here in the South, is considered good eating and thousands of them annually fall victims to the guns of negroes, and the whites also who prize them highly as an article of diet in the summer. However, I never yet found a nest of young of the Glossy Ibis that had had the parents killed, although I have seen hundreds of nests of White Ibis that were left to starve for the reason of the fact that the old were killed on their feeding grounds. This is due to the fact that the Glossy Ibis is more alert and more suspicious than the White Ibis, and naturally harder to approach.

I trust this digression from the Glossy Ibis to the White Ibis will be pardoned because of the fact that the food habits of the two Ibises is so nearly alike that I feel that it is perfectly justifiable in noting the facts in the case.

I don't much blame the Glossy Ibis for putting on airs and being exclusive, as he is a handsome bird — none prettier as he stands proudly on his nest on his return from his breakfast with the early rising sun glistening on his damp, beautiful and iridescent plumage. It is a sight that few have seen, but one that would do any man's heart good to see. I waited twenty-two days to get the frontispiece picture, which is the



Young Glossy Ibis. To show the white patch on the throat.

adult pair and four young at the nest. I had plenty of opportunities of catching one at the nest with the young, as is shown in some of the other cuts, and on several occasions both adults were together above the nest in the top of the bushes, but were out of camera range on account of tree tops. I waited, though, as I felt that I would finally get it if I could stick it out, and the cut is evidence that anything will come to the fellow that will wait, if he will only wait long enough. This picture is one I prize very highly, of course, not only as a monument to my patience, but as showing the whole family of a bird that is practically unknown in life to any of our ornithologists, and one that has never been photographed before. I shall always remember the morning that I took it. I had shot off eleven of my plates and saved the twelfth, the last, for this picture, as I had been doing daily for twenty-one days. The female had been longer than usual in returning to feed and the young had become very restless and impatient when she at last arrived. She had just given them one round apiece, when with a guttural grunt and usual call the male lit down into the nest beside the female. She immediately stopped feeding the young, and putting her bill up to his rubbed them together and made the cooing noise that I never heard except at such times. Waiting to get them broadside on so as to show up well I shot the shutter and the deed was done and at that moment I would not have traded that plate, as yet undeveloped, for a pass to Paradise. How I wish I were an artist so that I could paint that scene at the nest that morning — the dark green background, spotted thickly with elder blooms and the beautiful pair of Glossy Ibis with the bright sun scintillating on their beautiful iridescent plumage — it is a picture worthy the admiration of the gods. Well, I have seen what possibly no other ornithologist has seen, and am content.