

# THE AUK:

A QUARTERLY JOURNAL OF  
ORNITHOLOGY.

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VOL. XLVII.

OCTOBER, 1930.

No. 4.

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## NOTES ON THE NESTING OF THE AFRICAN GREEN HERON (*BUTORIDES ATRICAPILLA*) IN NATAL.<sup>1</sup>

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*Plates XIII-XIV.*

JUDGING by the records in available literature, observations on this species of Heron are not common, especially in South Africa, and it seems advisable to record the following observations which were obtained about ten miles from the mouth of the Umzumbi river on the small tributary stream, Umnambite.

Apparently the favorite nesting place of this small Heron is in the mangroves found growing in bays and other inlets near the sea. But they may also be found nesting on fresh water streams a considerable distance from salt water.

Only one nest was observed during a period of two years but young birds had been seen near this locality a year prior to the time when the following observations were made and it therefore seems that at least one pair customarily breeds in this locality. The nest under discussion was first observed on September 20, 1926, and, according to the native who reported it, there had been only two eggs in the nest three days previously. On the 20th however, three eggs were present, indicating that incubation had probably commenced not more than one or two days previous to this date. The nesting time coincides with that observed by A. D. Millar (*Annals of the Durban Museum*, Vol. I, part I, E. C. Chubb,

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<sup>1</sup>The work here recorded was carried on under the direction of Dr. A. A. Allen of Cornell University, as part of the requirement for the degree of Doctor of Philosophy.

pp. 29 and 47). The nest was placed about ten feet above the stream on some fairly stout branches overhanging the water and was rather loosely composed of twigs, and was without any lining. It was so shallow as almost to show the tops of the eggs when viewed from its own level. The eggs were pale blue, without markings of any kind and showed conspicuously, especially so since at the time of laying, and during incubation, the tree was practically denuded of leaves.

During the early stages of incubation, that is, until September 28, the parent was extremely shy and could be seen on the nest only by approaching with unusual caution. By September 30, the bird was becoming less shy and on this date was photographed from a blind placed about fifteen feet from the nest. By October 1, the parent Heron seemed to have lost most of its fear, or the incubation instinct had become firmly established. At any rate photography was more practicable and although it was raining the bird was so motionless that a short time exposure could be made. On October 5 the parent was extraordinarily tame and when flushed from the nest soon returned. Although tame, the bird showed considerable nervousness, principally by raising the crest until the profile was strongly serrated and the feathers almost vertical. In addition to this habit, when alarmed or curious, nervousness was evidenced by snapping the short tail rapidly up and down, a rather ludicrous performance when practised in conjunction with the erected crest. These habits of displaying nervousness seem to disappear as soon as the actual source of danger is seen, for upon actually observing an enemy approach the bird invariably lifted the bill until it pointed nearly vertically and became motionless except for an imperceptible turning of the head to follow the movements of the enemy. When attempting to escape observation by this "freezing," the outline takes on the appearance of anything but a bird. The shape of the head and neck, even of the body when held motionless, is deceiving and in addition to shape the coloring and the markings of the feathers fit the resemblance to inanimate objects perfectly. In fact it seems as though the nest is far more conspicuous without the incubating parent than with it. When observing the protective resemblance and coloration in this species one is struck by the



AFRICAN GREEN HERON.  
*Butorides atricapilla.*

UPPER: FEEDING YOUNG.

LOWER: STARTING OUT FOR FOOD.

similarity and adaptation to a reed-bed environment yet at the same time and more remarkable still is the way in which the bird fits into an environment which is obviously not that to which it is particularly adapted.

When the Heron is alarmed and watching an enemy, the peculiar situation of the eyes allows it to face the danger and yet see well. The eyes are so placed that when in this position, with the bill pointed almost vertically, they peer forward and the line of vision passes across the base of the bill. This binocular vision is doubtless a great aid in estimating the distance of an enemy or of prey. It is interesting to note that the young take this position and have the binocular vision developed long before they are ready to leave the nest. Although of great importance to the birds this habit does not enhance their beauty when viewed from the front. In fact the pugnacious glare of the adult and young is rather ridiculous owing to the closeness of the eyes to the base of the bill, and, in the young, whose eyes are of the pale hue common in young of many species, the apparent attempt to look ferocious becomes laughable. Anger was displayed by the adult on only one occasion, and was a demonstration against the repeated appearance of the camera "boy" near the nest. It was expressed by the raising of her crest, threatening motions and a few raucous squawks. The boy approached quite close to the nest and she remained until he was only a few feet away.

The eggs hatched about October 8, therefore the incubation period can be given as about eighteen days, four days more or less would probably cover the possible error. Unfortunately it was impossible to reach the nest and so study the birds at close range, and for this reason no careful observations were made of the development of the feathers, and other habits requiring the handling of the young. When first observed the immature birds were only slightly active, just able to lift up their heads, and were covered with a light grey down. The only variation in color at this stage was the presence of an almost white streak down the center of the throat. The bills which were short and stubby, almost conical, were yellow, while the skin about the eyes was a greenish yellow.

By October 14 the young were considerably larger, and had

become quite active. All three were stretching and were busily engaged in preening while the two large ones were able to stagger about the nest using their wings in order to maintain their balance. These larger birds, and later the smaller one, habitually perched or moved about near the edge of the nest, and while stretching or preening were perpetually on the verge of falling to the water below.

At this stage the young were fed once every twenty minutes but as they grew older it was noticeable that feedings were not so frequent. One of the most interesting observations during this middle period of development was the fact that invariably, five minutes or so before the arrival of the parent with food, the sleeping young would waken, stretch and preen, stagger about the nest a few times, then the parent would announce her arrival in the vicinity with a harsh call followed a moment later by her appearance at the nest. The invariable habit of approach was to alight on the ends of the branches supporting the nest and to walk up these limbs to the nest itself. She was never observed to fly directly to the nest and alight. After looking about cautiously for a short time feeding would commence and proceed with only slight interruptions, followed by a short rest of five minutes or more before flying off in search of more food. The feeding process was interesting but apparently a painful procedure for both the young and parent. Just before reaching over the nest the parent utters a cluck almost exactly like the cluck of a setting hen, and at once the young rear to their full height and attempt to grasp the base of the parent's bill. As soon as one of them is successful the most interesting part of the feeding process commences. The successful fledgling grasps the parent's entire bill at the base in such a way as to bring her upper mandible against the part of his mouth nearest the gullet, i. e. the top of the parent's head is presented toward the young bird and the bills of the two are at right angles to each other. As soon as the proper position for feeding has been obtained, sometimes before, the parent and young bird, each sharing in the effort, writhe about and bob and twist as though in great pain, the process continuing until feeding has been completed. After disengaging, the young and parent preen, stretch, rest, and the young settles down as though asleep while the adult soon leaves on another expedition.



AFRICAN GREEN HERON.  
*Butorides atricapilla.*

UPPER: LEAVING NEST.

LOWER: INCUBATING EGGS. PARTLY CONSTRUCTED WEAVER BIRD'S  
(*Hyphanturgus*) NEST, AT LOWER LEFT.

On October 18, at 6:20 A.M. the parent was observed feeding the young and on this occasion was presenting a fish about four inches long to one of the fledglings. The young bird seemed unable to swallow a fish of such size in spite of its comparatively huge maw, and when the fish dropped into the nest one of the other birds picked it up. After turning it about a few times until the anterior end pointed towards the throat, it was successfully swallowed. The fish was shaped somewhat like a bass or bream and was partially digested, the head being missing and the rest of the body having the pulpy appearance common to fish found in the digestive tract of a bird. That the awkward motions carried on during feeding are produced by the young bird as well as the adult was plainly observed upon this occasion. The parent was nervous and apparently was through feeding, yet one of the young repeatedly reached up, grasped the adult's bill and in spite of the objections offered by the parent proceeded with the writhing and twisting motions. The decided difference in the motions indicated the lack of coöperation. The feeding operation observed at 6:20 A.M. was the last until 9:00 A.M. at least, and was probably the last of the early morning series of feedings. Contrary to the conditions observed earlier, feeding at this later date was noticeably more irregular and at longer intervals.

The young birds at this age show some well developed feathers, notably the primaries and wing coverts. These feathers have white or very pale margins so that the wings have a mottled appearance. Although the retrices may have been developing they were still invisible at a distance of about fifteen feet, nearer than which it was impossible to approach. The tail, in spite of the lack of retrices, and bearing so far as could be seen only the tuft of white down, is wagged up and down as industriously and nervously as that of the parent. The bill is pale yellow while the skin about the eyes, as well as the legs and feet are pea-green which in direct sunlight shows a yellowish tinge. Although the feathers on the rest of the bird were not well developed they were plainly visible on the neck and breast, but the belly and rump appeared to be covered with down only.

Although the weather during this period was never really cold, the young appeared to suffer from the lower temperature of early

morning, and before sunrise crouched low in the nest, huddled together for warmth. As soon as the sun appeared, however, they became exceedingly active and for a time kept busy flapping their wings, walking about the nest and nearby branches and even managed to hop from nest to branch and from branch to branch. Later in the day, even as early as 9:00 A.M. they appeared to suffer from heat, and became less and less active, while their breathing seemed to become more rapid or possibly appeared so owing to the fact that the bill was held open and respiration was rather gasping. In spite of their great activity and their propensity for wandering around in the vicinity of the nest, the fledglings still retired to the nest to sleep.

Unfortunately it was impossible to continue observations beyond October 18 and thus to determine the exact date upon which the nest was left but judging by the great activity of the young birds it is probable that the period during which they might be expected to remain in the nest would not exceed two weeks at most.

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