An Adventure with Toucans

By ALEXANDER F. SKUTCH

Illustration by Katherine L. Howe

Among all the teeming bird-life of tropical America, the toucans, with their grotesquely huge bills, are quite unmistakable. This enormous beak, delicately tinted with the colors of the rainbow, or boldly painted with contrasting hues, attached to a bird heavy, angular and ungraceful in its movements, is the finishing touch in the makeup of an avian clown. As to the utility of so exaggerated an appendage, authorities disagree. Some have pointed out that it brings within reach fruits attached to the tips of slender branches, where the heavy bird could not conveniently alight. A bill at once so huge and so brilliant must also be useful in intimidating the victims of a predatory bird. Many members of the family prey insatiably upon the eggs and nestlings of smaller birds. So long as the nest-robber is perching, and with flexible neck can bring his great forceps to play on every side, not the most anguished parent, not the boldest flycatcher, dare brave the menace of a weapon so formidable in appearance. It is only after the plunderer has completed his depredations and taken wing, that he at times receives the drubbing he deserves. For the birds he torments have learned that the toucan, despite the size of his beak, cannot defend his back while he flies.

Toucans nest in holes in trees. Whatever the significance of the great bill, it is obviously not a wood-carving tool, hence its wearer, unlike the woodpeckers and barbets, must use such cavities as he finds ready-made. The smaller kinds of toucans at times take possession of woodpecker holes, if necessary forcibly turning out the industrious carvers, and managing to enlarge the doorway with their ill-adapted beaks. The biggest species, greatly exceeding in size any woodpecker in their range, are dependent upon cavities resulting from decay, usually in living trees. All toucans lay white eggs, from two to four in a set, which rest upon the wooden floor of the cavity, or upon a pavement of large seeds regurgitated by the birds as they sit.

The aracaris are middle-sized toucans, of which many species, some of great brilliance, inhabit South America. The northernmost species, the collared aracari, *Pteroglossus torquatus*, is widely distributed in

southern Mexico and through the forested regions of Central America, at lower altitudes, on both sides of the Cordillera, except on the Pacific side of southern Costa Rica and in adjacent regions of the Republic of Panama, where it is replaced by the more brightly colored Frantzius's aracari. Its upper plumage is generally blackish with a bright red rump, while the under parts are yellow, with a black-and-red belt across the middle. Its bill, pale yellow and black, is rather soberly colored for a toucan. The edges of the mandible are strongly toothed. These birds travel through the forests and adjacent clearings in straggling flocks, voicing a high, sharp *pitit pitit*—a call ridiculously weak for so big a bird — or else a staccato *penk*.

On an evening late in February, as I wandered in the dusk through the lofty rain-forest on Barro Colorado Island in Gatun Lake in the Panama Canal Zone, my attention was drawn by sharp calls to a flock of collared aracaris among the tree-tops high above me. By rare good fortune I managed to follow them with my eyes to the hole where they slept. This was situated a hundred feet above the ground, far out in a thick horizontal branch of an immense tree. The hollow in the limb, of undetermined dimensions, was entered through a small opening in the lower side, barely wide enough for the aracaris to force themselves through it. In the waning light I watched their colorless figures, silhouetted against the last glow of day in the western sky, flutter below their narrow doorway and often turn back, to try again and perhaps yet a third time before they succeeded in gaining a toe-hold on the edge of the aperture. Once the rim was firmly grasped, they squirmed laboriously in, with their long tails projecting stiffly outward after their body had vanished, then slowly following inward.

At the end of the night following this exciting discovery, I went out into the forest to watch the aracaris emerge and make an accurate count of them. After the crested guans had soared drumming over the moonlit tops of the forest trees, and just as the great rufous motmots were beginning their ghostly twilight hooting among the dusky foliage high above me, a long bill shot suddenly out from the hole in the lower side of the lofty branch, and a slender body fought its way out after it. Five bedfellows, one by one, squeezed through the doorway in the same labored manner. Then all six flew off among the trees, where I lost sight of them in the dense foliage of the forest.

I must have discovered this high dormitory at about the same time as the aracaris themselves found it. The difficulty they experienced in entering, that first evening I watched them, stemmed from lack of practice, no less than from the inherent difficulties of the situation. A week later, on the last day of February, I again witnessed this flock retire. Now each of the six flew directly into the downward-facing doorway at the first attempt, and none fluttered below it only to return to a perch for a fresh start. Still, it was undoubtedly a tight squeeze for them; and as they wriggled in, their long tails, projecting out below, vibrated from their muscular exertions.

By mid-March, only five aracaris slept in the high hole. Toward the end of the month, the number of sleepers was reduced to two; and by the twenty-seventh, only a single bird occupied the cavity by night. Incubation appeared to be now in progress in this lofty, inaccessible nest; for if at almost any hour of the day I stood below and loudly clapped my hands, a great black-and-white bill would be thrust through the doorway, then an aracari would laboriously wriggle out and fly away. Despite the great height of their hole, these birds were shy and suspicious, and would desert the nest even if they saw me standing fifty yards away from the foot of the towering tree, whose smooth bole swept upward ninety feet without ever a limb to speak a word of encouragement to a climber. Doubtless male and female took turns at keeping the eggs warm, as with Frantzius's aracaris, blue-throated toucanets and rainbow-billed toucans. Whether more than two birds helped with the incubation, the difficulty of recognizing individuals made it impossible to learn. Only one bird stayed with the eggs during the night; but the other erstwhile occupants of the dormitory must have found new accommodations at no great distance, for they would sometimes appear at the nest very early in the morning.

The period of incubation of the collared aracari appears never to have been determined, but it is probably not greatly different from that of the blue-throated toucanet, which, in the Costa Rican mountains, I found to be sixteen days. Apparently the nestlings no sooner hatched than the taboo was removed from the nest-chamber; for by April 11, when I first noticed birds entering the hole with small particles of food in their bills, five aracaris were again sleeping in it. I surmised that all the five grown birds who slept with

Mockingbird on Parade

By M. CLIFFORD HARRISON

Gray-uniformed cadet,
White chevron on each wing,
Parade your tree-top parapet
And sing!

Your songs of countless score
Are mortal bard's despair.
They well from wordless, worldless store,
From inspirations felt of yore
That only your brave kind can pour
On air.

Cadet of Southern blood,
On dress parade so smart,
Pour forth your startling notes and flood
My Heart!

the nestlings would feed them; but since at a distance of fifty yards all looked exactly alike, and they did not all fly up in a squad with food, this was not easy to prove.

I early satisfied myself that four members of the flock were taking food into the hole. But it was only after the nestlings were over a month old and received frequent feedings, that I saw five aracaris enter the nest in rapid succession with food in their bills. Since the first to deliver their offerings lingered in the tree until the last had gone in, I was certain that I had not counted the same individual twice. I could only conjecture what was the relationship between the five attendants of the nestlings. Did the aracaris breed in communistic style, several females laying in the same nest, after the fashion of the black anis? Did they nest only when two years or more of age, as with many big birds, and did the yearlings, fully grown but not yet mature, help their parents in the care of younger brothers and sisters, in the manner of Central American white-tipped brown jays? Or was there a superfluity of males, who could not find mates, as with black-eared bush-tits? Only a long-continued study, with a number of accessible nests, could settle this fascinating question. But a knowledge of the number of eggs in this nest would help in reaching a conclusion. Since it was impossible to look into this lofty and otherwise inconveniently situated chamber, the next best thing would be to count the nestlings as they emerged. Eagerly I awaited their departure, so that I might learn how many there were.

The adults were excessively — but as it proved in the sequel, not unnecessarily — shy in approaching the high nursery. Flying up with food in its bill, each would pause among the upper branches of a neighboring tree and turn its great-beaked head from side to side, with bright yellow eyes looking all around for possible enemies. Then, if no danger was apparent, it would cautiously approach the doorway in one or two stages, and at last fly up beneath the branch and force its way through the narrow aperture. As I watched through my field glasses from the bottom of the forest so far below, I felt myself a most humble, harmless and insignificant earthbound dwarf. But the wary birds took a different view of me; and when I wished to see them follow their activities in a normal way, I was obliged to conceal myself in a little wigwam of brown cloth, set up amidst the undergrowth. What a contrast between these lowland aracaris and the blue-throated toucanets that I later studied among the high mountain forests. These would feed their nestlings in an easily accessible hole in a low stub in a pasture, while I sat in plain view a few yards away!

The pause that the aracaris habitually made to survey their surroundings, before entering the nest, allowed me to see what they held in their great bills. While the nestlings were still very young and required much brooding, their meal, as I could easily discern through eight-power binoculars, was usually a small insect, held daintily in the tip of the long bill, with wings and feet projecting outside. After the young aracaris were a month old, the attendants carried the food in the mouth or throat, and it was no longer possible for me to distinguish its nature. But occasionally the last winged insect or bright red berry was held conspicuously between the tips of the mandibles. I never saw them bring a nestling of another kind as a meal for their own — I wish that I might say the same of the other toucans that I have watched. It now became evident that the attendants were removing large billfuls of waste matter from the cavity. Doubtless they had long been cleaning the nest, but the smaller quantities of refuse from the younger nestlings had not been visible from the ground. This was an important point, for the aracaris could hardly have continued to sleep in the hole had they not seen to its cleanliness.

When the nestling aracaris were at least thirty-five days old, the attendants would sometimes pass food to them while clinging below the doorway, without themselves entering. This told me that the youngsters had moved up nearer the orifice. The new mode of feeding aided my desire to identify the articles of food. In its inverted position, the attendant found itself unable to regurgitate the accumulation it carried in its throat. After delivering the most readily available particles, it was obliged to leave the entrance and fly up to a perch, where standing erect it could bring up the remainder of the food. This sometimes cost the bird considerable effort, to judge by the contortions of its neck. The newly regurgitated food was then carried to the doorway for transfer to a nestling.

Thirty-seven days after I had first seen food carried into the nest, a young bird stuck its head through the doorway to take its meal. This was my first view of a nestling aracari. Its bill seemed almost as big as that of its attendants. During the following days, the youngsters, one by one, spent much time looking out of their high doorway, and occasionally would voice a weaker version of the *pitit* call of the old birds. Now that the young family was on the point of departure, their attendants had become excitable and nervous, and more wary than before. (Continued on page 440)

Silver Symphony

By MAY ALLREAD BAKER

I hear a silver thread of song
Along the pasture fence,
Where saw-tooth briars the grasses lace,
And hazel shrubs grow dense.
And there I spy the soft, gray breast
Of a field sparrow on her nest.

While higher up, among the leaves,
In measures short and long,
Needling a pattern in and out,
A feather stitch of song,
Her mate pours out his silvery lay
To edge the bright-green gown of May

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They called much during the day; and by night all five still slept in the nest.

On May 24, forty-three days after the parents had first been seen carrying food into the nest, one of the young aracaris emerged. When I arrived in the evening, the attendants were showing it how to return to the hole for the night. One of them clung upside-down below the doorway, while the fledgling came and hung momentarily to this bird's back. It reminded me of a scene that I had witnessed some years earlier in the Guatemalan highlands, when banded cactus wrens were helping their newly emerged fledglings to enter the sleeping-nest at evenfall. But that earlier scene had ended more happily.

The leaves were fast falling from the aracaris' nest-tree and left the birds exposed to the open sky — which perhaps explains in part their growing nervousness of the past few days. I had just slipped into my little wigwam to watch the aracaris without alarming them, when suddenly and quite without warning a big white hawk, with black wings and black-banded tail, swooped down from above and seized one of the unsuspecting aracaris in its talons. The impetus of the hawk's descent carried it down among the foliage of another tree. Meanwhile all the aracaris had dispersed, together with a Pucheran's woodpecker and a pair of big Malherbe's woodpeckers, who had been idly pecking among the branches of the nest-tree. As the Ghiesbrecht's hawk arose with the aracari in its deadly grasp, the cries of the doomed bird were piteous to hear, reminding me of the wailing of a broken-hearted child. They continued, growing fainter, as the bird of prey flew over a deep ravine, followed by all the surviving aracaris, who had rallied to the defense of their comrade — as, long before, the toucans had gathered around Walter Bates, when in the Amazonian forest he had seized one of their band wounded by gunshot. But the trees soon intercepted their forms. Doubtless the aracaris availed nothing against the bigger and more powerful hawk.

The onslaught of the hawk had been so sudden that I was not sure whether it had captured the young aracari or one of the grown birds. But later, when the sky had become very dim, all five of the old birds cautiously returned to the nest-tree, and dashed into their dormitory as fast as its narrow doorway would allow. It was the young bird who had emerged from its cradle only to fall into the waiting arms of death. But it had at least taught me that young aracaris, like young woodpeckers, barbets, swallows and wrens of various species, are led back to sleep in their nest; and that Ghiesbrecht's hawk, for all the snakes and lizards it devours, preys at times upon birds.

Next morning the aracaris left their nest most cautiously. Three darted out very early, in the dim light when the motmots began to hoot, while the other two delayed within for a far longer interval than customarily separated the exits of the several birds, then stuck their heads through the doorway and peered around long and carefully before venturing forth from their safe retreat. But in spite of fear, all returned promptly with food for the remaining nestlings, bringing them many seeds of the wild nutmeg, as large as an olive, each closely embraced by its pretty, coral-red, branching aril, spicy in flavor and the only digestible portion. The aracaris now approached the doorway even more warily than before. At times, for no reason that I could discover from my post amidst the underwood, all those in the nest-tree would be seized by a sudden panic and dart madly off together, calling *pitit pitit pitit* as loudly and as rapidly as the structure of their vocal organs would allow. Probably they had seen their enemy lurking in the vicinity; for that evening the hawk returned, its appetite all on edge, no doubt, for another aracari fledgling. But today the aracaris had no newly emerged youngster to lead back into the cavity. While the white hawk perched on one of the lower boughs of a neighboring tree, they rested higher up to watch it. Apparently they felt themselves well able to avoid the snake-eater, by no means one of the swiftest of birds of prey, and were concerned chiefly for the safety of the fledglings. I drove the intruder away; but only two grown aracaris entered the nest that evening, going in after the sky was nearly dark.

The following morning I again found it necessary to drive the white hawk from the vicinity of the aracaris' nest. A friend, who kept watch for me while I was busy with the hawk, saw another fledgling depart. Later I found it resting high up in the nest-tree, with an attendant on either side, both offering it something to eat at the same time; while a third delivered food to another youngster still in the nest. Thus there had been at least three eggs and nestlings. That evening two grown birds entered to sleep in the hole with the remaining nestling. The following day the last fledgling flew forth; and for the first time in over six weeks the parents carried no food into the nest.

On the night after the departure of the last of the young birds, a single adult slept in the hole. The following night two slept there; and four days later I saw four aracaris enter the lofty cavity in the evening. I never discovered where the surviving youngsters found lodging. But from what I saw before the hawk interfered, I have little doubt that, but for this inconsiderate intrusion, the whole family would have continued to roost together in the high hole with the narrow doorway, making no less than eight sleepers in all.

From February until June, some holes high in a badly decayed trunk standing in the water near the shore of the island were used as dormitories by collared aracaris. On various evenings, I saw from two to four of the toucans enter to sleep in this branchless trunk, which possibly contained one central cavity enlarged by decay and opening to the outside by the several irregular doorways, which apparently had been made long before by woodpeckers. So far as I could learn, the aracaris never laid eggs in this half-submerged standing tree, but used it only as an occasional lodge. Doubtless these four birds had, during the same period, other dormitories conveniently situated in the vicinity, so that if an enemy lurked in sight of one when they came to bed, they might fly off and rest more securely in another of their scattered chambers. This is the way of the red-billed Frantzius's aracari.

If one watches carefully as aracaris enter the hole where they sleep, he may sometimes see one fold its loosely hinged tail upward over its back. When Frantzius's aracaris go to rest in a crowded dormitory, I have at times seen the last of the flock push backward into the scant remaining space, folding its tail over its back as it passed through the doorway. Those who have kept a captive toucan describe how the bird, as it prepares to sleep, turns back its head, resting the lower mandible of its great bill upon the feathers of its back, then brings forward its tail until it covers over the bill. Ruffling out its feathers, the slumbering toucan then resembles a feather-ball devoid of appendages. This folded-up sleeping posture effects a great economy of space, and helps us to understand how so many of the big birds can pack themselves into a relatively small cavity.