The Magnificent Quetzal

Among the birds of the Western Hemisphere, the quetzal occupies a unique position in legend, symbolism and popular interest. It ranks among the half-dozen or so most beautiful birds of the Americas, and some would place it first even in this select group. Before the Spanish Conquest, the long, slender, green plumes of the male bird’s train adorned the headdress of Aztec and Mayan kings and chieftains, as one may clearly see in modern restorations of ancient scenes. Emblem of the Republic of Guatemala, the quetzal is one of the few birds that has won a place upon a national coat of arms by virtue of beauty rather than of size or predatory fierceness. Yet through the centuries the quetzal, finding only in remote mountain fastnesses protection from the unrelenting persecution of man, has remained a bird of mystery.

My study of the home life of the quetzal, in the storm-beaten Costa Rican mountains where it nests, was the culmination of two decades of growing interest in this regal bird and its relatives. My awareness of its existence began when, as a schoolboy, I proudly added to my collection a highly colored Guatemalan postage stamp depicting a glittering green bird with a crimson abdomen, a narrow, ridged crest extending from its bill to the back of its head, and two slender, gracefully curving plumes that formed a train longer than the bird’s body. Later, the college professor of zoology, addressing our naturalists’ society, exhibited a mounted quetzal—a bird scarcely larger in body than a carrier pigeon—and explained that these splendid plumes were not the tail proper, but abnormally elongated feathers of the upper coverts, and that the female was far more plainly attired. He told us that the quetzal belonged to the trogon family, a magnificent group of birds found in the Tropics of both hemispheres, but most numerous in the New World, where one exceptional species ranges as far north as southern Arizona. He briefly related the little that was then known about the quetzal’s habits.

Years afterward, I made several long visits to Guatemala, where I found this bird much in evidence. Its gracefully conventionalized figure appeared in the coat of arms on the walls of most of the public buildings, and on the medallion in the center of the blue-

At the border of the sub-tropical forest, near the headwaters of the River Sarapiqui in Costa Rica. Here the author sought out the haunts of the quetzal and lived there a year to study its habits. This was a spot slightly more than a mile above sea level, a region swept by rain-laden winds and often shrouded in heavy mists.
and-white banner. As a traveller, I found it necessary to keep my pockets well filled with quetzales, which also seemed to have wings and fly as I paid hotel bills, railroad fares and Indian porters; for Guatemala has named its monetary unit for the national bird, as other Spanish-American countries have bestowed this questionable honor upon famous men. I learned that the name of the second city of the Republic, quaint, cold Quezaltenango, means "place of Quetzals"; but I looked in vain for the bird among the low, second-growth woods of oak and pine in the vicinity of the highland metropolis of western Guatemala. Stuffed specimens of the quetzal were shockingly abundant in shop windows and private homes, but mostly they were frowsy examples of taxidermy. No poor stuffed effigy with ghostly eyes of glass, nor any picture I have ever seen, conveys a just conception of the superb beauty of the living quetzal.

The great abundance of these lifelike travesties of the quetzal made it clear why I so seldom saw living birds in the forests. The Indians, while they ruled the land, snared the birds alive, removed their long ornamental plumes, then released them to grow these feathers anew, thereby providing for a continuous supply. Less foresighted, the white conquerors of the country permitted the unlimited slaughter of the quetzals, with the result that they soon vanished from the more accessible regions. Although described by some of the early Spanish historians of the New World, the quetzal was, as late as the 18th Century, so little known in Europe that some of the more cautious naturalists listed it with the phoenix and the roc among the birds of fable. It was not until 1832 that the French ornithologist De la Llave formally described the species under the name Pharomachrus mocinno. Soon countless thousands of these glittering creatures were sent across the Atlantic for the plume trade and the cabinets of collectors. Most of them were slaughtered in the Guatemalan Department of Alta Vera Paz. It was not until the early 1930's, when they already seemed in danger of extermination in Guatemala, that an earnest effort was made to protect them in that country. Now that General Ubico, fallen from power, is vituperated by his political adversaries, let us not forget that among other claims to the gratitude of the country he governed for so long was his attempt to save the quetzal.

During my years in Guatemala, not only did I see much of the quetzal—in its conventionalized or decentralized form, if not flying through its native forests—but I heard a good deal about it as well. Guatemalans were proud of their national bird, and eager to point out to the stranger those lofty qualities that made it the fit symbol of their aspirations. Its noble spirit would not submit to captivity; if placed in a cage it would refuse all food and die. I have heard of quetzals from Honduras and Costa Rica, taken as nestlings and reared by hand, that survived long periods in a cage; but I sincerely hope that none hatched on Guatemalan soil have so lamentably betrayed the Republic’s ideals.

On every hand I was told, too, that the hole in a decaying trunk in which the quetzal nests is provided with two doorways, situated on opposite sides, so that the male, when he came to take his daily turn at incubation, could enter by one and leave through the other, thereby avoiding the necessity to turn around in the confined space, bending and damaging the long plumes of his train. But none of my informants claimed to have seen a quetzal’s nest with his own eyes. Searching through the books on Central American birds, the only scientifically competent record of the quetzal’s nest that I could find was one published as long ago as 1861 by Osbert Salvin, the Englishman who deserves the title "Father of Guatemalan Ornithology." In the mountains of Vera Paz, his Indian hunters showed him a quetzal’s nest, situated in what he supposed to be an old woodpecker’s hole, which had but a single doorway. Because in those days most ornithologists were too eager to shoot the birds to learn much about their habits, he carried away the impression that incubation was performed by the female alone.

The geographic range of the quetzal extends from the Mexican state of Chiapas to western Panamá. Like nearly all birds of tropical regions, it is not uniformly distributed throughout its range, but is re-
stricted to a definite altitudinal belt. In Guatemala it inhabits the zone between about 4000 and 7000 feet above sea-level, while in Costa Rica, nearer the equator, it dwells somewhat higher. Even within these vertical limits, it is confined to districts where there are considerable areas of the heavy rain-forest in which it finds food, nest-sites, and protection from the persecution of man.

On my early visits to Central America, I studied the birds in regions too low for the quetzal, or, during one year, on mountains too high for it. Yet year after year I learned something more about the ways of the trogons, that glorious family of which the quetzal is the most distinguished member. I found them nesting in the most surprisingly varied situations: in cavities in rotting trunks; in dark chambers that they carved deep into the big, hard, blackish, arboreal nests of termites; and even in large, papery wasps’ nests attached to lofty branches. With all these trogons, so far as I could learn, the male bird took a large share in carving out the nest-chamber, and aided in the incubation of the two or three white or bluish eggs, often sitting with admirable patience through half the day in one continuous session. These trogons’ nests, in whatever medium, had but a single doorway. None of the male trogons that incubated in them, however, bore the long train and other ornamental plumage of the male quetzal. Did this bird share in the duties of the nest like his less elaborately attired cousins, or had his more gorgeous regalia led to an aloofness from domestic affairs? And if he did indeed sit in the nest, was this provided with a second doorway for the better preservation of his plumes? These were questions that recurred to me again and again as I continued my studies of the trogons.

I had already spent nearly four years in Central America before I saw my first living quetzal. In company with a young student from the agricultural college in Guatemala City, who was going to spend his vacation with a brother on an isolated farm in the northern part of the Department of El Quiché, I made a long horseback journey through the wild, forested mountains lying north of the Sierra Cuchumatanes. As we rode along a narrow trail winding down a precipitous mountainside, my companion was telling me how on an earlier journey he had seen a quetzal on this same descent. This information caused me to look sharply among the tree-tops. Before long, a splendid male quetzal darted forth from one of the great trees that towered above us and winged across the deep ravine to our right. His flight, like that of other trogons, was somewhat undulatory; and the long, slender feathers of his train, carrying out the rhythm of his movement, rippled gracefully like long ribbons trailing behind him. Before I had time to recover from the surprise and delight of this sudden meeting, a second male quetzal, equally magnificent, followed after the first. Instead of disappearing at once into the forest on the far side of the ravine, this one came to rest for a few seconds on an exposed bough, where I enjoyed a fleeting glimpse of him through my field glasses. What a glorious sight he made! This meeting with the quetzals was the most memorable incident of the entire two weeks’ journey.

Finally, I determined to spend a year in the haunts of the quetzal, and make an intimate study of its habits. I was now living in Costa Rica, and in July, 1937, found a suitable lodging on the northern slopes of the Cordillera Central, between the volcanoes Barba and Poás, at an altitude of a little more than a mile above the Caribbean Sea, which from my dwelling I could see far in the northeast, over a vast extent of almost unbroken forest. The woods close about the little cottage were dominated by trees well over a hundred feet in height, whose lofty branches bore up huge quantities of air-plants, ranging in size from mosses and diminutive ferns to bushes and even large epiphytic trees. A profusion of orchids of all sizes and colors, handsome flowering shrubs, stately tree ferns and palms, with bright meadow flowers in the clearings, made this a region of unimaginable beauty. But the climate was a sore
A clearing in the forest near Vara Blanca, Costa Rica, where the author carried on his study of the quetzal. A pair of the birds nested at the edge of the forest at the lower end of this clearing.

trial. For weeks together, the winds sweeping over the Caribbean and the great forested plains to the northeast would drive the rain-laden clouds against this exposed mountainside. Day after day I lived enveloped in gray mist, until the sun became but a distant memory, and the moisture-laden air chilled me to the marrow. During the stormy months of the northern winter, it was hard to persevere in my resolution to pass a year in these cool, damp, mist-shrouded haunts of the quetzal. These birds now seemed so rare in the vicinity that, in the fits of gloom that would come over me after many days of solitude and rain, I would despair of ever finding their nests.

But toward the end of February, when the weather was somewhat drier, I began to hear the mating calls of the quetzals floating up from the surrounding forests. During March these calls grew more frequent, and it became clear that quetzals were quite abundant in the neighborhood. They were beautiful notes, soft and mellow, yet full, deep and powerful, in character somewhat like the calls of some of the smaller trogons, yet surpassing these in strength and beauty, even as the quetzal excels his smaller relatives in splendor of plumage. Other utterances of the quetzals were of a very different nature. There was a loud, startled-sounding  

\[\text{waa-waa}, \text{waa-waa}\], often voiced in flight, not merely during the breeding season, but throughout the year. Rarely, at the height of the nesting period, I heard a high, soprano, sliding  

\[\text{whe-woo-ooh}\] —a surprising performance that at first I was inclined to attribute to a mammal rather than a bird.

Early in April my dream of years came true—I found my first quetzal’s nest. During the following weeks I discovered three more occupied nests and two others that had been recently abandoned. All were situated in decaying trunks standing in the forest or in shady pastures not far from its edge. In height they ranged from fourteen to about sixty feet above the ground. In form they resembled the nest-cavity of a woodpecker; but if originally made by woodpeckers, they had at least been considerably enlarged by the quetzals, for no woodpecker at this altitude is big enough to require so capacious a hole. At the top of each cavity was a single, roughly circular doorway, about four inches in diameter. One nest-chamber extended eleven inches below the entrance and was about six inches wide. A single nest, which I did not see until after some predatory creature had broken the eggs, was more shallow than the others and appeared to have been freshly carved. The man who showed it to me said that he had seen the male and female quetzals take turns at digging into the wood—which is the way other kinds of trogons make their nest-cavities. The other nests were in holes that seemed to have been dug out the preceding year, if not earlier. Some were in wood that had already reached the last stages of decay. Because of the danger of climbing up to them, I waited until the nestlings had flown, then pulled over two of the trunks, hoping to examine the nest-cavities. But upon striking the ground, these trunks crumbled into formless heaps of rotten wood, in which no trace of the chamber remained. No woodpecker that I know would nest in wood that was so far advanced in decay.

The quetzal’s two light blue eggs rested upon fragments of wood at the bottom of the cavity, for no softer lining was taken in. The male took an important share in incubation. It was easy to see, even from a distance, that he was in the nest; for the terminal eight or ten inches of the long plumes of his train projected through the doorway and waved gracefully in the passing breezes. Apparently he sat in the chamber like other trogons, facing forward, with his tail (which is of ordinary length) held upright against the rear wall, and the long, elastic plumes of the upper tail coverts bent forward at the top of the cavity, passing above his back and head and continuing through the entrance-way, against whose upper edge they pressed. The Guatemalan story of the two doorways proved to be only a myth, although based, perhaps, upon some exceptional nest, which, through the falling away of part of the crumbling wall, did have two apertures by chance rather than design.

Long-continued vigils at several nests showed that the female quetzal occupied the hole through the night and during the middle of the day, while the male took a long spell on the eggs each morning and afternoon. Together, his (Continued on page 330)
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two turns at incubation accounted for about half the hours of daylight. Upon leaving the eggs when his mate came to replace him he would sometimes rise from the doorway of the nest on a long upward flight that took him well above the tree-tops, shouting as he rose syllables that sounded to me like very good, very good, very good. Then he would circle about and dive down into the sheltering foliage. These soaring flights seemed an outlet for his exuberant spirits, a release of the energy so long pent up as he sat motionless upon the eggs.

After seventeen or eighteen days of incubation, the eggs hatched. Like other new-born trogons, the young quetzals were blind and utterly naked, with no trace of down upon their pink skins. At first they were brooded much by both parents, and nourished chiefly with small insects. As they grew older and began to acquire plumage, they were given an amazing variety of food. There were large winged insects, including beetles that seemed to be made of solid gold; green larvae; small green and yellow frogs; small lizards; land snails, swallowed in the shell, which was later regurgitated; and fruits of several kinds, prominent among which were the hard-fig-seeded, green-skinned fruits of the ira rosa (Ocotia pentagona), and other trees of the laurel family. While the nestlings were still naked and required much brooding, their parents kept the nest perfectly clean. But later, when the young quetzals could reach up and take their nourishment through the doorway and it was no longer necessary to enter the hole to feed them, the old birds ceased to pay attention to sanitation. Then the big, regurgitated seeds of these fruits, mixed with a smaller bulk of other waste materials, accumulated in the bottom of the cavity to such large quantities that they gradually raised the level of the floor, and each day the nestlings rested higher in the nest, nearer the doorway. At one nest, the litter was 3½ inches deep when the young birds departed.

In two high, inaccessible nests, the young quetzals lingered about a month before taking wing. But those reared in the lowest nest were removed for occasional examinations and to pose for their photographs, and probably as a result of these premature experiences in the open, departed at the age of only twenty-three days, when they were beginning to become green like their parents, and could fly very well.

Each of the three pairs of quetzals to which I devoted most attention reared, or attempted to rear, a second brood. Two of them laid the second time in the high, inaccessible holes where their first brood grew up, cleaning it out to receive the new set of eggs. But the third pair, whose lower nest had been destroyed after the successful departure of the fledglings, laid their second set in a very old and dilapidated hole in a neighboring dead trunk. This was the lowest nest of all, and here at last I could see the eggs and follow the development of the young birds. The mother of these nestlings unaccountably neglected them after they were about two weeks old, and upon their father fell the entire burden of feeding during their last week in the nest. He alone was seen to attend them after their successful exit.

And what happened to the gorgeous plumage of the male quetzal during this long breeding season that extended from the end of March to July or even early August? How did those long, delicate plumes of his train stand up through all the wear and tear of rearing two broods of young birds? For the most part, his ornamental plumes fared very badly. The constant flexing they received in innumerable passages into and out of the nest-hole, the friction against the rough edges of the single doorway, soon began to tell. Even before the young of the first brood were a-wing, some of the males had their plumes broken off short. So, while they incubated their second set of eggs, they failed to display the two green pennants which earlier had waved so proudly before the doorway, whenever they were within the nest performing their parental duties. They might show only the stub of a single plume, or
none at all. When I took leave of the quetzals in August, after more than a year amid their beautiful but uncomfortably wet forests, they wore only the tattered remnants of their nuptial splendor.

But soon they would melt again into fresh plumage, bright and untarnished, proving that the loveliest of living things may engage in humble and exhausting tasks, yet in the end recover all their grace and refugence.

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