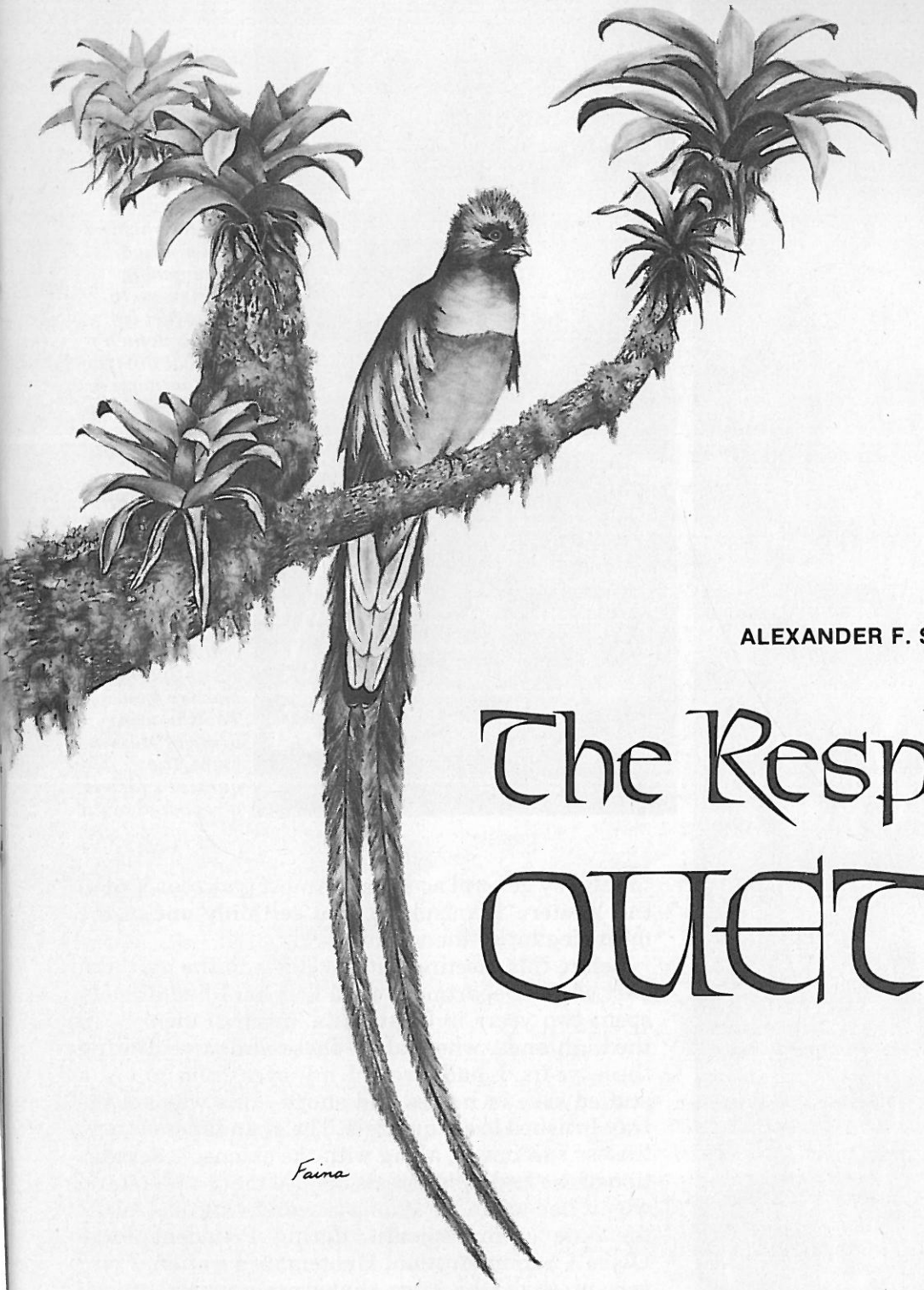


ALEXANDER F. SKUTCH

The Resplendent QUETZAL

Many years ago, while northern Guatemala was still a remote region devoid of highways, I struggled across an abrupt, forested mountain called Cerro Putul, leading my horse, because the steep, narrow trail, strewn with rocks where not deep in mud, was too rough for riding. As I descended the farther side of the mountain, through tall, broad-leafed forest where slate-colored solitaires sang enchantingly, a large bird shot out from the treetops high above me and flew across the deep ravine below the trail, to disappear in the leafy crowns of the trees on the farther side. His pigeon-sized body appeared black against the sky; his abdomen was deep crimson; the underside of his tail was white; and behind him two yard-long plumes rippled like slender pennants, in the rhythm of his undulating flight.

Before the surprise and delight of this unexpected encounter had faded, a second bird, equally splendid, followed the first across the ravine. Instead of diving into the foliage, he obligingly alighted on an exposed branch, where, through my binocular, I enjoyed a fleeting glimpse of his crested head and the wonderfully iridescent green plumage that covered most of his body. This was my first view of a living quetzal, the most splendid member of the beautiful trogon

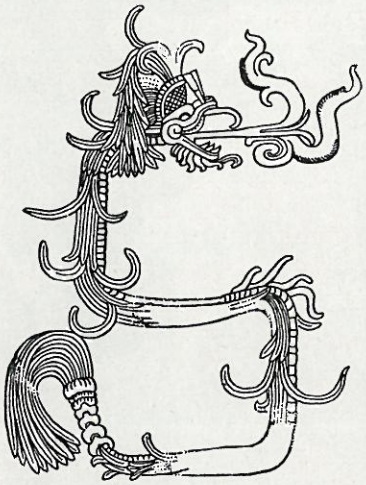
Drawing by Faina

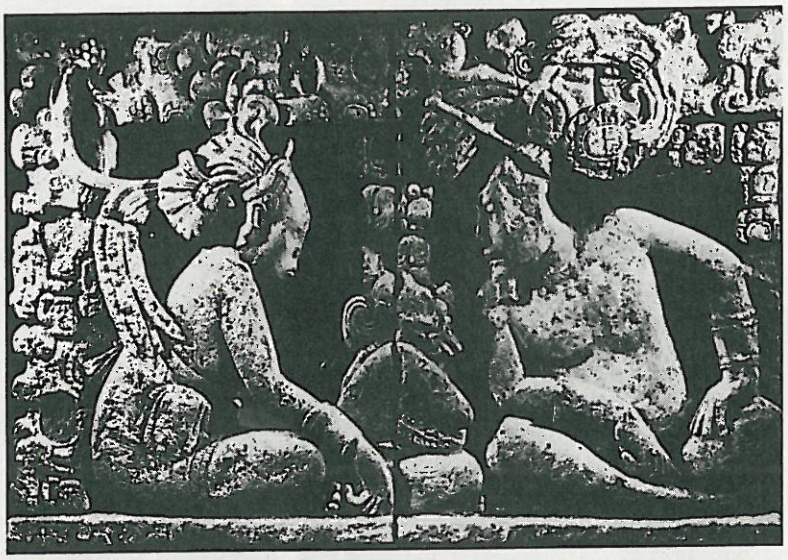
The crested male quetzal, far left, *glows with iridescent green plumage. Trailing behind him are two shimmering plumes, up to three feet in length, which conceal the true tail feathers. A duller version of the male, the female quetzal,* left, *lacks a crest and train, and has less crimson on her underparts. Quetzals figured prominently in pre-Columbian art. In the seventh century brazier from Teotihuacán, State of México,* right, *the quetzal's face is a repeated motif*

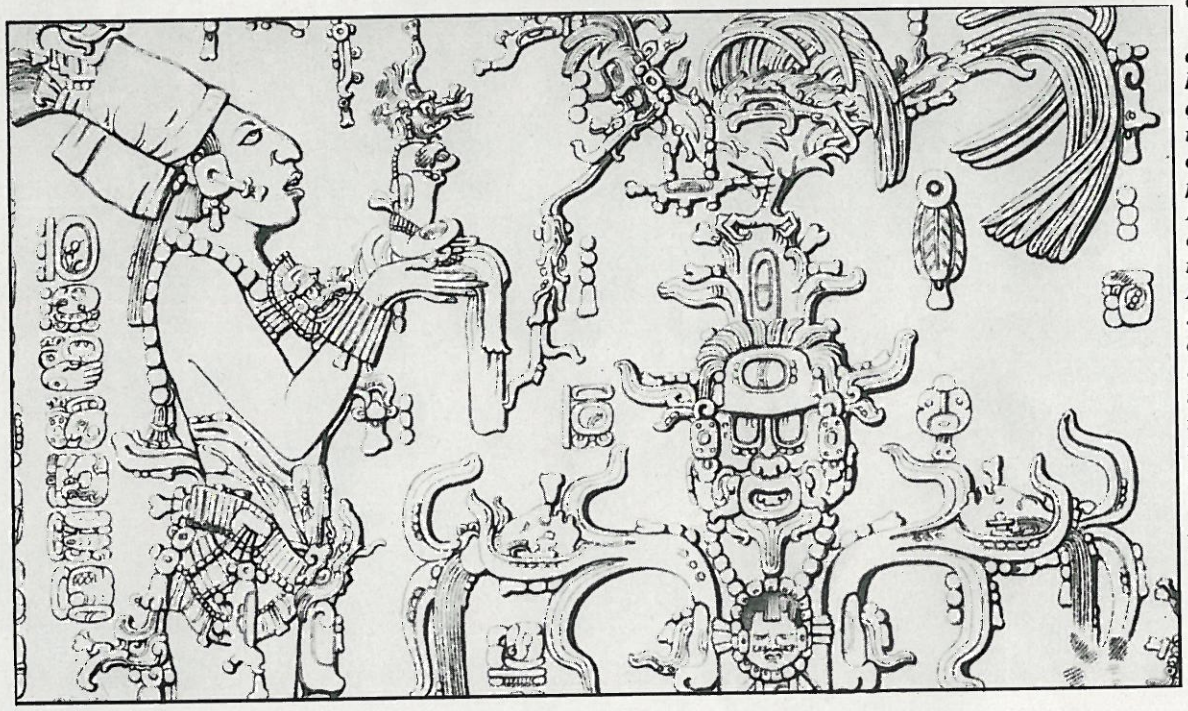
family, by general acclaim the most gorgeous bird in the Western Hemisphere, and certainly one of the most elegant in the whole world.

Before this meeting with quetzals in the northern part of the Department of El Quiché, I had already spent two years in Guatemala, much of the time in the highlands, where alone these birds live. During these years I had averted my eyes from many a stuffed skin in homes and shops—this was not the way I wished to see quetzals. The abundance of these lifeless specimens, along with the extensive destruction of the highland forests, helped me to understand why it had taken me so long to see a living quetzal. At the date of my sojourn, during President Jorge Ubico's administration, Guatemala's national bird was protected by laws that were apparently well enforced; but, as too often happens, the species was not given legal protection until hunting it for its glittering plumage had made it rare.

In addition to the stuffed quetzals, I saw countless images of the graceful birds: on the medallion in the center of Guatemala's blue-and-white banner, on its postage stamps, on the walls of its public buildings, and, in more stylized form, on the lovely fabrics woven by Indian women and in textile factories. Guatemala had chosen as its national emblem a beautiful, peaceful creature that contrasts refreshingly with the fiercely predatory animals and fire-breathing monsters that other countries have selected to symbolize their national spirits. Moreover, it is







Highly valued by the Indians of Middle America, the quetzal, not surprisingly, appeared frequently in their symbolism and decorations. Clockwise from top left: *Long plumes from the quetzal's train adorn the great god Quetzalcóatl, or Feathered Serpent, as shown in the drawing of a fresco at Chichén Itzá, Yucatán; a royal couple wear headdresses of quetzal feathers in the limestone openwork relief from southern Mexico, late eighth or early ninth century A.D.; and a stylized quetzal crowns a branching world-tree in the sanctuary of the Temple of the Foliated Cross at Palenque, in Chiapas*

one that lends itself exceptionally well to decorative design and Guatemalan decorators had made the most of it. Guatemala has named its monetary unit for its national bird, as other nations have named theirs for famous men, such as Columbus (Colón in Spanish), Balboa, Bolívar, and Sucre. On my travels about the country, I had carried many quetzals in my pocket, to pay hotels, fares, and porters, before I set eyes upon a living quetzal. Some were spent in Quezaltenango—the "place of quetzals"—the attractively quaint metropolis of the western highlands. But I failed to see a single flying quetzal in the neighborhood of Guatemala's second largest city.

Before the Europeans arrived, the quetzal figured prominently in the myths, symbolism, and decorations of the Indians. The great god Quetzalcóatl, rain deity of the Toltec, is an intriguing image. On his back waved long plumes from the quetzal's train; in his hand he bore a peculiarly shaped staff, sometimes in the shape of a serpent; and his name is often translated as "Feathered Serpent," although more literally it is "Quetzal Serpent." In all nature no strife is more widespread and relentless than that between birds, many of the larger of which eat snakes, and snakes, the chief predators upon the eggs and nestlings of birds. Why this union of creatures so antagonistic as bird and serpent—as though one were to make a single deity of God and Satan, or of the old Persian Ormazd and his opposite, Ahriman? Could it be that, as the prophetic vision of Isaiah saw the lamb dwelling peaceably with its enemy, the wolf, and the baby playing unharmed on the asp's hole, the old Toltec symbolized by this puzzling combination an end of the strife of nature and the peaceful coexistence of all creatures? In any case, Quetzalcóatl, who gave the people maize, was a god of peace and plenty.

Until his expulsion by the warlike Aztec deity Tezcatlipoca, the ancient inhabitants of Mexico enjoyed a "golden age" worthy of the pacific quetzal.

The quetzal plumes that reached Moctezuma's capital, now the site of Mexico City, must have come from the southern parts of his dominions, for in Mexico the bird is now found only in the states of Oaxaca and, chiefly, Chiapas. The use of these plumes was restricted to royalty and nobility, who wore them in elaborate headdresses, as one can see on carvings and representations of ancient scenes.

To obtain these long plumes, male quetzals, who alone produce them, are said to have been caught, deprived of their coveted feathers, and then released to grow new ones. Thus, the Indians showed more concern for conservation than did their white conquerors, who before long began to exploit the quetzal mercilessly. Apparently because it had already become so rare as to be regarded as mythological, it was neglected by Linnaeus when, in the middle of the eighteenth century, he gave scientific names to the plants and animals known to him. It did not receive such a name until the year 1825, when Temminck published a painting of it with the designation *Trogon pavoninus*. Seven years later, the French ornithologist De la Llave gave it the name by which it is now known, *Pharomachrus mocinno*. The publicity the quetzal received by this scientific recognition did it no good, for museums and private virtuosi now desired this spectacular bird for their exhibits and cabinets. To supply the demand, hunters ransacked remote mountain forests, especially the Alta Verapaz of Guatemala, sending to Europe a stream of dry "skins" that further depleted the remaining populations of living quetzals.

While I traveled about their country, Guatemalans proudly told me that their national bird, symbol of liberty as well as peace, invariably wasted away when deprived of its freedom. The myth was too beautiful to be shattered; but, unfortunately, quetzals died in captivity only because they were not properly nourished. With greater knowledge of the bird's nutritional needs, modern zoological gardens exhibit them for long periods, far from their native forests.

As often as Guatemalans told me that the quetzal would not live in captivity, they volunteered the information that it nested in a hole in a trunk, with two openings, so that the male, who helped to incubate the eggs, could enter by one doorway and, when his turn of sitting ended, leave by the other, without turning around in the cavity, to the detriment of his plumes. On the other hand, the only account of the quetzal's nesting by an ornithologist that I could find told of a nest in what appeared to be an old woodpecker's hole. It had a single entrance, and its discoverer, Osbert Salvin, opined that only the female incubated. To complicate the picture further, a Costa Rican farmer told me that the male sits in the nest, presumably with head inward, with his long plumes projecting through the single doorway. Accordingly, when I left Guatemala in 1935, much myth and misinformation had gathered around the famous quetzal, but scarcely any accurate information was available about its life as a bird that breathes, eats, lays eggs, and rears young.

The subject of this sketch is now known as the Resplendent Quetzal, to distinguish it from four related species, beautiful birds but less magnificent, that inhabit South America, three in Andean cloud forests and the fourth in warm Amazonian rain forests. From southern Mexico, the Resplendent Quetzal ranges through the mountains to western Panama. Like many highland birds with this distribution, the populations separated by the belt of lowlands across southern Nicaragua and northern Costa Rica have, over the ages, diverged so much that they are now considered to be different races or subspecies. The quetzals to the south of the Nicaraguan Gap differ from the northern race chiefly in having the long plumes of the male's train—not properly tail feathers but two of the upper covert feathers—substantially shorter and narrower. Nevertheless, they are hardly less breathtakingly lovely than their northern cousins. Not only do the Costa Rican quetzals continue to be more abundant than their relatives in Guatemala, but their prospects of survival are better, for they are protected in national parks and reservations that preserve much mid-level and highland forest, especially Chirripó National Park in the Cordillera de Talamanca.

By 1937, when I was living in Costa Rica, I had found nests of seven other species of trogons, and I was eager to include in my studies the most distinguished member of the family, especially since I could not believe much that I had heard about it. Forty years ago forests still covered most of Costa Rica, but they could be reached only by trails that much of the time were forbiddingly muddy; to find a place to live in or beside them, and study the quetzal, was far from easy. After much searching, I had the good fortune to rent an unexpectedly comfortable little cottage that stood on a ridge overlooking a vast expanse of primeval forest, on the northern slope of the Cordillera Central, at an altitude of 5,500 feet.

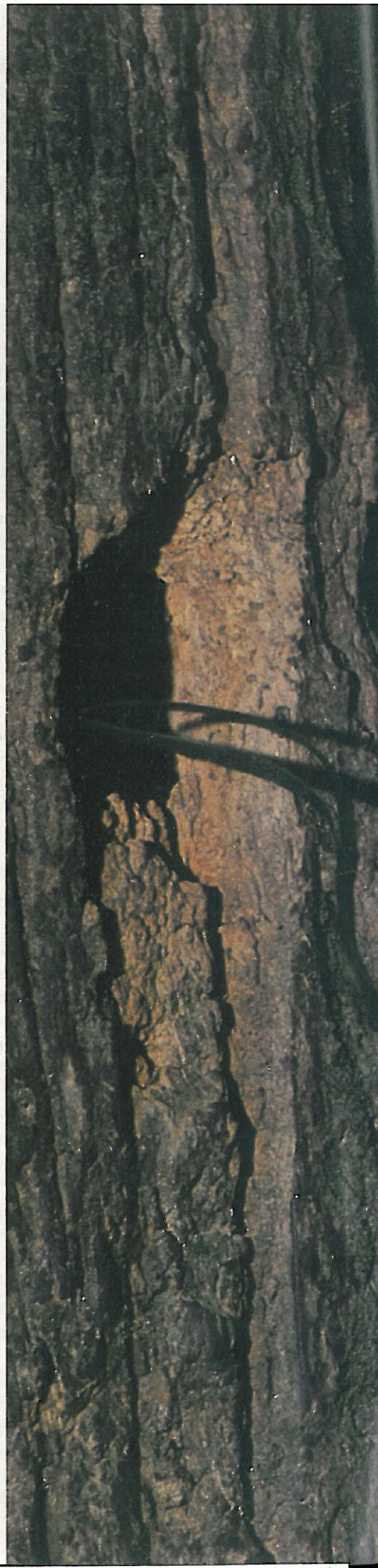
In the year that I dwelt there not only did I learn much about the quetzal and other birds of the highland forests, but, equally important for a proper understanding of their lives, I felt in my own flesh the climate in which they dwelt. Through much of the year the northeast trade winds, sweeping in from the Caribbean Sea, drove the clouds over our mountain, for weeks together obscuring the sun and bathing everything in their cold mist. Although at this altitude frost did not form, the saturated atmosphere was so penetratingly chilly that I repeatedly consulted the thermometer to convince myself that the temperature was well above the freezing point. In this almost perpetually damp climate the larger trees were burdened with tons of air plants, from mosses, ferns, aroids, and bromeliads to shrubs and trees perched high upon other trees. When they rested

silently amid this massed verdure, the quetzals, despite their brilliance, were not easy to detect.

From the cottage on the ridge, I watched quetzals emerge from the forest in the ravine to eat the large, green, one-seeded fruits of a huge *ira rosa* tree, a member of the laurel family, whose many species in mountain forests contribute substantially to the birds' diet. The quetzals plucked the fruits in the usual manner of trogons, by darting up, seizing one in the bill, and pulling it off, without alighting. Such fruit-catching, spectacular in any trogon, was especially exciting to watch when practiced by a male quetzal with a long, rippling train. I noticed that when a male left his perch he did not fly forward, as most birds do, but dropped off backward. Thereby he avoided dragging his long plumes over rough bark, which would soon have frayed them. Females, whose plumes scarcely extend beyond the ends of their tails, sometimes took flight in the same way.

From my arrival in July until late the following February, I heard only one kind of note from the quetzal, a loud, startled-sounding *wac-wac, wac-wac,* usually delivered in flight. But in March, as their nesting season approached, the quetzals became more vocal, uttering a variety of notes, including some of rare beauty, deep and full, yet soft and mellow. Just as the quetzal surpasses other trogons in the elegance of his plumage, so he excels them in the richness of his voice. From time to time, he flies upward until well above the highest treetops, shouting notes that sound like *very-good, very-good,* then dives sharply downward into the foliage — the only trogon that I have seen take such flights.

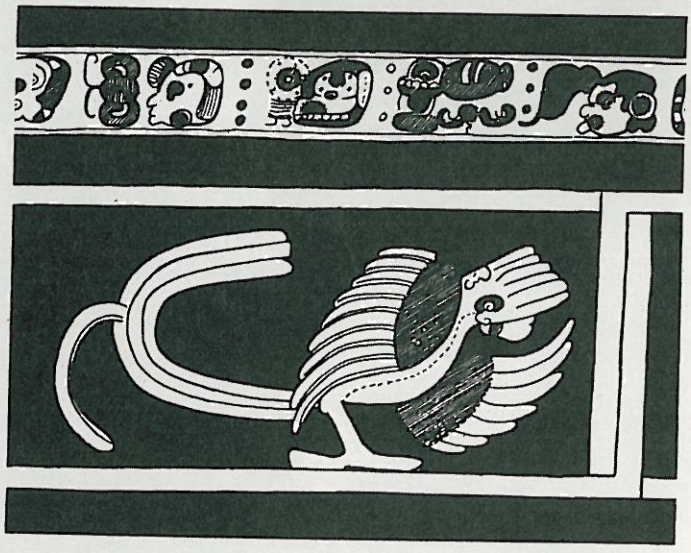
In early April I was elated to find a male quetzal in a cavity high in a massive, decaying trunk at the forest's edge, beside a pasture. The hole, which resembled that of a large woodpecker, had a single entrance. The bird sat facing outward, with the long plumes of his train doubled over his back and head, their ends projecting through the doorway. Here, at last, was the answer to a question of long standing. Contrary to what I had so often heard in Guatemala, quetzals usually nest in a deep hole with a single opening. Apparently, like other trogons, they are able to carve their nest chambers in wood softened by decay, or at least to enlarge cavities made by woodpeckers or barbets smaller than themselves. However, they prefer to avoid this labor by using the same hole repeatedly. With one exception, all the nests I found were in cavities that already seemed old, in trunks so rotten that, after the young flew, we easily pulled one over, in order to examine and measure the high, inaccessible chamber. When it struck the ground, the trunk shattered so throughly that no trace of the nest cavity remained. Possibly at times a second opening breaks through such badly decayed wood, giving rise to the story of



A male quetzal, one of the most beautiful birds in the world, darts out of his tree hole in graceful flight, baring his scarlet abdomen and snowy tail feathers. Quetzals usually nest in a deep hole with a single opening, often in rotten tree trunks

Detail from a mural painting at Teotihuacán, right, *depicts a jaguar with quetzal feather headdress*

Finely painted polychrome bowl from Copán, Honduras, detail below, *shows a stylized representation of the quetzal*



two entrances; but this appears to be at most a rare accident.

In April the quetzals started to incubate their light blue eggs, which in the few accessible nests that I and others have examined were in sets of two. As I had expected from my studies of other trogons, the male, for all his splendor, did not shirk the task of incubation. However, he did not, like the other species, take one long session each day, as pigeons do, but around the middle of the day he took a long recess, while his mate warmed the eggs. The male's two spells of incubation covered about half the daytime, and his mate was in the nest nearly all the rest of the time, including the night. I could always tell when a male was in the nest by seeing the ends of his two long, green plumes projecting through the doorway and waving in the breezes. Amid so many green epiphytes, they were not conspicuous. After seventeen or eighteen days of incubation, the eggs hatched.

Each of the three pairs of quetzals that I watched most carefully nested again soon after their first brood took wing. Two pairs, whose sixty-foot-high holes remained intact, cleaned them out and laid in them again. The pair whose rotting trunk we pulled over chose a much lower hole for their second brood and here, at last, I could examine eggs and nestlings. Like other newborn trogons, they bore no vestige of down on their pink skins, and their eyes were tightly closed. Near the tip of the upper mandible was a prominent white egg tooth that helped them to break out of their shells. As in other nestlings that grow up in a cavity with no lining on its hard floors, their heels were protected from abrasion by callous pads studded with low projections.

Just as they had taken turns incubating the eggs, so now both parents brooded the nestlings while they were still naked. Both fed them, at first mostly with small insects, but with increasing amounts of fruits as they grew older. Soon the young quetzals were receiving big green fruits from trees of the laurel family, as well as other kinds. Their diet was varied by insects that were often large caterpillars, small lizards, little green-and-yellow frogs, and small land snails. Among the insects were beetles that appeared to be made of shining gold, and others, slightly larger, that were greenish gold, both of which seemed a proper diet for birds that would have golden glints in their iridescent plumage. The parents brought the food in their bills, with sometimes an additional item in the throat.

Although other trogons neglect the sanitation of their nests, the quetzals kept theirs clean by removing the empty shells and all the nestlings' droppings, at least during the first ten days or so of their lives. After this, they permitted wastes to accumulate. Droppings, regurgitated beetle shards, snail shells,

and, above all, the big seeds of lauraceous fruits gradually accumulated on the floor until they raised its level about three and a half inches, so that the nestlings rested higher and it was easier for the parents to pass their food through the doorway while they clung outside.

At the age of two weeks the young quetzals' bodies were well covered with feathers, although their heads were still naked. About this time, their mother began to behave queerly. She would bring food but delay to deliver it, while she perched nearby for long intervals, holding it in her bill. Soon she disappeared. To their father, then, fell the whole task of feeding the nestlings during their last five or six days in the nest, and apparently also after they left it, at the age of twenty-three days. Probably they departed this low nest prematurely, because they had been removed for examination and photography. In high, inaccessible nests, the young remained for about a month.

While the males attended their nests, their ornamental plumes suffered severely from constant bending and friction against the rough edge of their single doorway. Often they broke off, at a point just beyond the tip of the tail proper. By the time their second brood took wing, some of the males had lost their long plumes. Soon, however, they would molt and regain their splendor. Although the males of manakins, most hummingbirds, most birds of paradise, and many others less resplendent than the quetzal fail to help at the nest, the most magnificent bird in the Western Hemisphere takes his full share of all domestic tasks.

The many bird-watching tourists who now visit Central America desire, above all, to see the quetzal, and in Costa Rica their wish is often fulfilled. No other bird so holds the eye. Not long ago, I sat with a class in ornithology on a steep slope high in the Cordillera de Talamanca. A most interesting variety of birds flitted through the fine old trees that had thoughtfully been left standing above lush pasture grass. Presently a splendid male quetzal appeared, and for the next half hour the students could look at nothing else. Someone remembered that this was Guatemala's national bird. "Poor Costa Rica!" exclaimed one of the boys, thinking how drab the *yigüirro,* a plain brown thrush that is Costa Rica's national bird, appeared beside this resplendent creature. I reminded the group that the *yigüirro* earned his distinction by his profuse singing, just as the quetzal did by his glittering plumage. Among birds, as among men, diverse paths lead to fame. ■

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Guatemala's national currency is named for the quetzal, the country's national bird. This lovely creature graces both coins, above, *and bank notes,* left