

NOTES ON THE NESTING HABITS OF SEVERAL
BIRDS AT SAN JOSÉ, COSTA RICA.

BY GEORGE K. CHERIE.

Todirostrum cinereum (LINN.).

AT SAN JOSÉ I first met with this active and curious little Fly-catcher early in April, 1889, when I secured two fine specimens, after having watched them as they searched diligently among the leaves and smaller branches for their insect food, all the time uttering a sharp, jerky, and to me unmusical, note. Arriving at the end of the branch they would pause for a moment, and then perhaps dart off, taking their prey on the wing. Flying from tree to tree, they kept close by the river, and indeed thus far in my observations I have not seen one go twenty feet from its bank.

On April 26 I found the first nest, evidently just completed. But, unfortunately, before I could prevent it, the boy who was with me had torn it down. At that time I was ignorant who the owner might be, and not a little vexed at the proprietors for not claiming their property. The peculiar construction and location interested me—hanging at the extreme end of a long, delicate, leafless branch that swung out over the river about five feet above the water, apparently a handful of dried grass that had been entangled there during high water. On closer examination it is seen to be constructed of very fine plant fibers and dried grass, the whole neatly covered with the downy plumed seeds of some plant. In shape it can best be described by supposing the two poles of a hollow sphere to be drawn in opposite directions until we have a figure something like two cones base to base. The hollow of the nest is exactly in the centre. The entrance is on one side and from below, formed by a covered passage, so that looking from above or at the sides no means of entrance can be seen.

From April 26 until May 12 I occasionally saw one or two birds busily hunting after insects in the low trees along the river bank. On the latter date I found a second nest, apparently completed on the outside. I saw the bird with a mouthful of soft material fly to the shrub in which the nest was situated; but, see-

ing me, the material was immediately dropped and a vigilant search for insects commenced. Not wishing to intrude any farther at that time, I took my departure, and returned on the 17th for the nest. I found it completed and containing one egg. Unfortunately, after cutting the branch which held the nest, my footing slipped, and in the endeavor to avoid falling the egg was thrown out and broken. The half shell that I brought away is pure white. The nest was situated about eight feet above the water at the extreme end of the long, overhanging branch of a rose bush, with no green leaves within three feet of it, and not concealed in any way save by its resemblance to a bit of drift grass. From the point on the branch at the apex of the upper cone to the extreme lowest point is fifteen inches. The diameter at the centre is two and a half by three and a half inches, the greater diameter being caused by the entrance passage which is round and one inch in diameter. In taking this nest I was severely bitten and stung by the vicious little black ants that had the hollow stem of the rose for a nest. Mr. Anastasio Alfaro informs me that he has noted nests in the vicinity of Alajvela protected in the same manner. During the time I was taking the nest I did not see or hear anything of the owners. On going away I saw the female quietly hopping about in search of insects in a tree near by, seemingly taking no concern in what I was doing. A short distance down the river the male was to be seen darting here and there, a noisy and most pugnacious little fellow.

I saw no more of the birds until May 26, when I found a nest just completed, but not containing eggs. I visited the spot again on the 30th of the month and secured the nest and two fresh eggs. As with the others the nest hung at the extreme end of a small, delicate branch about four feet above the water and was not concealed in any way by leaves or by surrounding branches. It measures as follows: extreme length, fourteen inches; diameter at centre, three and a half by two and a half inches; entrance, one inch. The two eggs measure each $.62 \times .45$ inch. One is a pure, delicate white; the other has a few very pale, scarcely visible ochrous buff spots about the larger end. While I was taking the nest the bird was nowhere to be seen, and not a sound came from her. But on going away I noticed her acting precisely as in the case before described. It seems to me probable that the three nests were built by the same birds. After my taking this last nest

the birds seem to have deserted the locality. I saw no more of the species until July 12, when I took a fine male, but a very quiet, different bird from the pugnacious, restless, noisy fellow of six weeks before.

Myiozetetes texensis (GIRAUD).

I have been able to make but very few notes on the habits of Giraud's Flycatcher, as the bird cannot be said to be common in the vicinity of San José, yet, as I believe the eggs are unknown, I will give a description of a nest and three eggs which I took on May 1, 1889. The nest was found on April 26. It would never have been observed had not the bird manifested great concern, flying repeatedly back and forth to the nest while I remained watching. As at that time it did not appear completed, I did not tarry long, but returned on May 1 for the prize.

The nest was situated near the end of a slender branch growing out over the water from a small shrub on the river bank. As there were no leaves, it was in plain view from any quarter, yet from its bulky, ragged appearance it would hardly have drawn attention as being more than a handful of dry grass and weed stems. It was about six feet above the water. Placed at the fork of the branch, it neither rests on the forks nor can it properly be said to hang between them. It is a hollow sphere, divided and supported at the middle by the horizontal branches of the fork. The entrance, in the upper half, is arched over forming a dormer-window-like doorway; it measures two and three quarters inches wide by two deep. The nest proper measures seven inches vertically by six horizontally.

The eggs, three in number, perfectly fresh, are white speckled with walnut and seal brown, very thickly at the larger end. They measure $.86 \times .65$, $.90 \times .67$ and $.90 \times .68$ inch.

Elænea pagana SCL.

Within six feet of the nest of *Myiozetetes texensis*, just described, was a nest of *Elænea pagana*. The two birds were evidently living on the best of terms. The nest, a beautifully delicate, lichen-covered affair very closely resembling the nest of *Contopus*

virens, was about four feet above the water in the thick bushes on the river bank, and was completely concealed by leaves. It rested on a small horizontal branch, and was held in place by three ascending twigs. It is rather small and compact, covered on the outside with gray lichens and some few spider-webs, the latter binding the lichens. A green leaf is bound to the upper edge on one side. The inside is carefully lined with soft feathers. Inside its diameter is two inches (in the direction of the branch) by one and three quarters, by one inch deep. Outside it is three and three eighths by three and one eighth, by two inches deep. The eggs, two in number, were slightly incubated. They are cream white, speckled, chiefly about the larger end, with spots varying in color from a dark chestnut or livid brown to orange rufous. The eggs measure $.82 \times .64$ and $.82 \times .62$ inch. While I was engaged in taking the nest the parent bird flew restlessly from branch to branch of the trees near by. When resting she sat bolt upright with crest erected, calling out her discontent in short, sharp, quickly repeated chirps. She seemed much more annoyed than the *M. texensis*. I did not see the male at all. This was the first nest I found.

On the 5th of the month I found another nest about two thirds completed. Almost all the outside was covered with lichen, but it had not yet any lining. The birds were quite solicitous while I was there. It was but nine feet from the ground, situated at the horizontal forks of a very small limb and not in any way concealed, save by its lichen-covered sides resembling a part of the limb. On May 12 I found the nest completed and containing two young birds at least a day and a half old.

On June 2 I found a third nest, containing two fresh eggs, in a small tree close by the river bank. It was situated about ten feet from the ground, far out on a limb at a point where it divided into four ascending shoots which gave excellent support. It was well shaded by leaves from above, and owing to its covering of lichens was not conspicuous from below. The nest is compact and well built, and is almost round. It is lined with half a dozen feathers, a few long horse-hairs, and several pieces of lichen. The rim is slightly contracted. Outside it measures three and a quarter inches in diameter by one and a half in depth. Inside its diameter is two and a quarter inches, its depth one inch. The two

eggs measure respectively $.87 \times .62$, and $.90 \times .63$ inch. They are creamy-white, thickly speckled, chiefly about the larger end, with irregular spots varying in color from liver brown to orange rufous. On finding the nest I waited a few minutes. The female flew quickly to a tree near by, but gave no note to indicate her presence.

On this same date I took the first fully fledged young. It differed from the adult only in the absence of the concealed crown patch and in much softer plumage.

I took a fourth nest June 11. It was placed about twelve feet from the ground in the upright forks of a small tree that stood alone in a large field. It is a little unusual in shape, being oval in form, while ordinarily they are almost round. The measurements inside are 2.38 by 1.38, by 1.12 inches deep; outside 3.50 by 3.00, by 1.75 inches deep. It is beautifully covered with lichens, and is lined first with a few horse-hairs, and then completely with white chicken feathers. The eggs measure $.87 \times .65$ and $.88 \times .66$ inch, and in color are like those already described.

The last nest I took was on June 14. With this the birds were as unexpectedly slow in the use of their nest as the owners of the nest of May 5 were quick. I found it just completed, but without eggs, on June 7. On June 9 it was still empty. On June 14 it contained two fresh eggs. The nest was about seven feet from the ground in a tree that grew at an angle of about 45° with the ground; at the first branches there was formed a broad, flat space, and there the nest was placed. None of the materials of construction went around the branch to bind it there, but it was attached quite firmly with lichens and spider webs. It measures inside 2.25 inches in diameter by 1.38 inches deep; outside 3.50×3.00 inches by 1.50 deep. It is lined first with horse-hairs and then with soft light-colored feathers. The eggs measure $.84 \times .65$ and $.85 \times .66$ inch, and are marked like the preceding. While I was at the nest both birds remained close at hand, flying restlessly back and forth. Whenever they alighted they stood very erect with the crest fully expanded. They seldom uttered a note.