THE CONDOR

VOLUME 45 JULY-AUGUST, 1943 NUMBER 4

THE ALTA MIRA ORIOLE AND ITS NEST

By GEORGE MIKSCH SUTTON and OLIN SEWALL PETTINGILL, JR.

The Alta Mira Oriole (*Icterus gularis tamaulipensis*) is a conspicuous, orange, black and white bird of eastern Mexico's coastal plain. It frequently is seen along the highway from Laredo to Mexico City between Linares, Nuevo León, and Tamazunchale, San Luis Potosí. It is larger than the other common nesting orioles of this region, the Hooded (*Icterus cucullatus*) and the Black-headed (*Icterus graduacauda*), being fully nine inches long. Its song is loud and repetitious. It is especially notable for two reasons: (1) The male and female are so alike in size as well as color as to be virtually indistinguishable in the field, a resemblance that certainly is not characteristic of the Icteridae in general. (2) The nest is customarily placed in such an exposed situation as to suggest that the instinct for hiding it has been lost, or perhaps has been supplanted by an instinct for advertising it. This is hardly true of most orioles of the genus *Icterus*.

On and about Rancho Rinconada, headquarters of the Cornell University-Carleton College Expedition to southwestern Tamaulipas in 1941, we saw the Alta Mira Oriole many times daily throughout our stay (March 12 to May 4), became familiar with its songs and call notes, and discovered several nests. The birds began going about in pairs about the first of April, and nest-building started shortly thereafter (Sutton and Pettingill, 1942:29). A nest that Pettingill observed more or less regularly as it was being built was only about 75 yards from the house in which we lived. In the present paper this nest is designated as the "headquarters nest."

Building of the headquarters nest.—April 5. Shortly after sunrise, Pettingill chanced to see an oriole carrying long strands of nesting material into a living, though leafless, 50-foot-high ear tree (*Enterolobium cyclocarpum*) almost directly above him. The bird was so bright he thought it must be a male. It was not accompanied by a mate. Without a note of alarm or protest it flew to a two-tined fork not far from the end of a slender branch about 35 feet from the ground, rather carelessly deposited what it had brought, then, perhaps because the observer was so near, chattered once or twice, flicked its tail, and flew off.

Within five minutes it returned with another load, sang vigorously on reaching the tree, and went straight to the nest. It paid no attention to the observer, who now stood in plain sight about 50 feet from the base of the tree.

In the ensuing hour it made ten more visits. At each visit it sang before unloading and interrupted its work with brief, clear whistles. It brought the material to the fork proper. Here it stood on the nest-beginning, grasped with the tip of its bill the end of a sturdy rootlet, forced this "needle" downward past the twig, reached around and under to grasp the strand again, and pulled it up over the opposite side. At the end of the hour, work stopped abruptly. A tangle of rootlets and palmetto fibres now crudely entwined the crotch.

April 6. No one watched the oriole on this date. So far as could be determined from a cursory glance in the evening, no material had been added to the nest.

April 7. In mid-morning Pettingill watched the oriole (he assumed it to be the same bird) for half an hour. During this period it brought in three loads; but it took this material to a new two-tined fork, paying no attention to nest-beginning No. 1. It sang clearly before and during building periods and scolded a bit after work, just as it had on April 6. Nest-beginning No. 2 was only about six feet from nest-beginning No. 1; it was about 35 feet from the ground. By evening the two nest-beginnings were of about equal size.

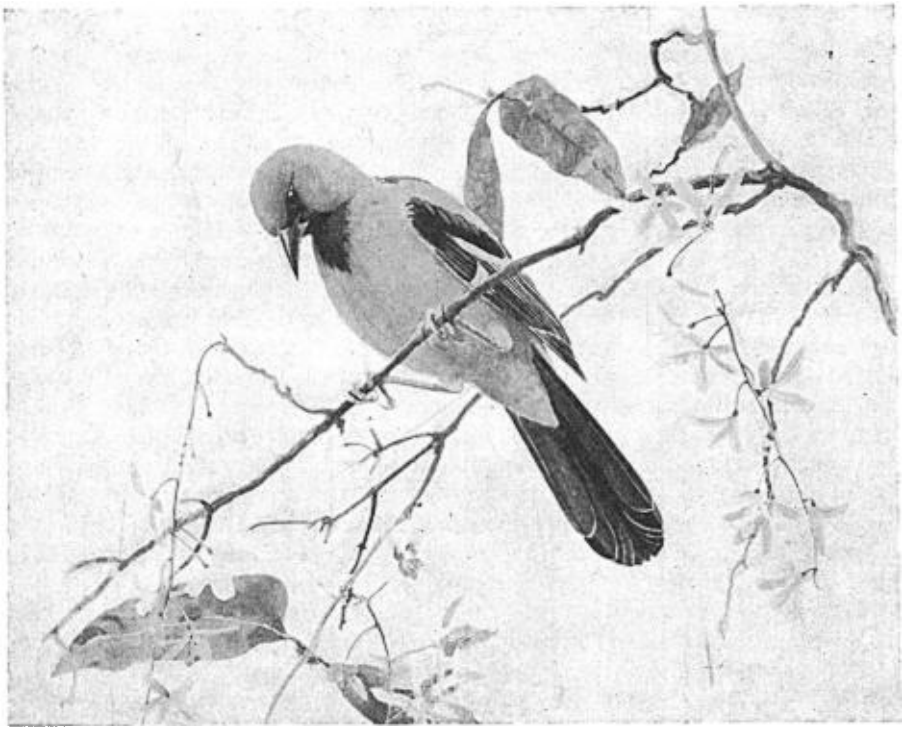

Fig. 32. Alta Mira Oriole (*Icterus gularis tamaulipensis*). A sketch in water color by George Miksch Sutton, drawn from a freshly-killed specimen taken near Rancho Rinconada, southwestern Tamaulipas, in April, 1941.

April 8 and 9. The oriole was seen and heard only infrequently on these days, it was not seen to bring in material, and, judged from the appearance of the two nest-beginnings, little or nothing had been added to either of them.

April 10. Early in the morning there was no oriole in or about the ear tree; but toward noon, on his return from the field, Pettingill found the bird hard at work and singing volubly at nest No. 2, which was now a shaggy mass a foot or more long. The original nest-beginning apparently had been abandoned.

In fifteen visits during the subsequent hour and a half, the bird occupied itself primarily with extending the nest-rim out from the fork. It wound strand after strand round one twig or the other, allowing many of the long, loose ends to dangle. Its movements were hurried and jerky. Occasionally it beat its wings to increase its pulling power. Not infrequently it lost track of the strand with which it was working, forcing one fiber downward past a twig but pulling another one up and over. It sang loudly and repeatedly, almost as though trying to call attention to itself or the nest.

By evening a thin sort of curtain, attached for about 8 inches along each twig, hung from the fork. Two-thirds of the nest's rim was thus outlined, if not completed. Only directly beneath the fork proper did the curtain appear to be tightly matted. The tree's lacy new leaves were now expanding rapidly.

April 11 to 13. Pettingill did not observe the oriole at work, but he noted that the "curtain" gradually became longer and appeared to be more tightly interwoven. The nest was still flat, however, rather than cylindrical or bag-shaped.

April 14. The curtain had "not much changed in appearance" when, with binoculars, it was inspected shortly after sunrise.

In mid-afternoon, however, the bird was working diligently at the remaining third of the rim. Now it straddled the fork as it added material to the curtain below it, and hung long, tough "cables" from one twig across to the other. These extra-heavy rootlets, which would support a mass of material similar to that borne by the twigs themselves, were attached with special care.

Often the oriole appeared to be standing on its head as, hanging by its toes, it tugged at one side of the curtain or the other. So firm was its toe-hold when grasping the nest's rim that it did not hesitate to stretch downward full-length. Occasionally it was thrown off its balance when a hard-pulled rootlet broke under the strain.

By evening the final third of the rim was virtually finished. From directly below, the nest now appeared to be a simple ring. It was not yet full length, by any means, being entirely open at the bottom. Viewed from the side, the recently completed part of the rim looked like a tiny hammock swung loosely between the two tines of the fork.

April 15. It rained, heavily throughout the morning, less heavily in the afternoon. All this time the oriole worked steadily, devoting its attention primarily to attaching strands to the new third of the rim, secondarily to strengthening the curtain just below the fork. Here its technique called to mind the "shuttle movements" of the nest-building Baltimore Oriole (*Icterus galbula*) as described by Herrick (1911: 359). All work was done *inside* the nest. When the bird hung downward, it did so invariably inside the rim. When it sought the dangling end of a rootlet it stuck its bill through the nest-wall and pulled the rootlet in. The curtain below the fork was now more than strong enough to support the active bird.

Pettingill noticed one striking change in the oriole's behavior: it was silent. Although diligent as usual, it did not sing as it approached the tree with material and when it reached the nest, it slipped quickly inside, as if in haste to be out of sight. Here its moving form could be made out faintly. It clung to the lengthening wall, probably straddling most of the time, tugging and poking at the pendant fringe at the bottom, working so hard that the whole nest, branch and all, frequently shook. Not once did it fly out from the bottom. Invariably it clambered to the rim and departed promptly without a chatter or whistle. The nest was now 15 to 18 inches long and shaggy at the bottom.

April 22. The nest was now full-length, rounded neatly at the bottom, but wholly without lining. Light could be seen plainly through the walls and bottom.

Toward noon Pettingill saw the oriole bring three loads of material. It popped into the nest, making its way quickly to the bottom. Here it set to work, presumably on the lining.

On its third trip it was followed by another oriole, almost certainly its mate. The new bird did not fly into the ear tree, but lingered close by. It was not noticeably brighter than the bird at the nest. The two called to each other until the first one entered the nest. Then the second flew off.

April 24. In mid-morning Pettingill watched at the nest long enough to see the

oriole bring two loads of material. Each time it stayed in the nest about ten minutes. Presumably it was at work on the lining. The "mate" was not seen.

April 29. The nest was visited several times, but neither oriole was seen.

May 3. The ear tree was now well leafed out. The nest was plainly visible 30 or 40 paces away, however, for the foliage was thin. At about 8 a.m. Robert B. Lea carefully collected the nest for us. It contained one egg, which proved to be fresh. We did not even see an oriole anywhere close by!

Fig. 33. The headquarters nest of the Alta Mira Oriole, photographed April 22, 1941, on the sixteenth day of building.

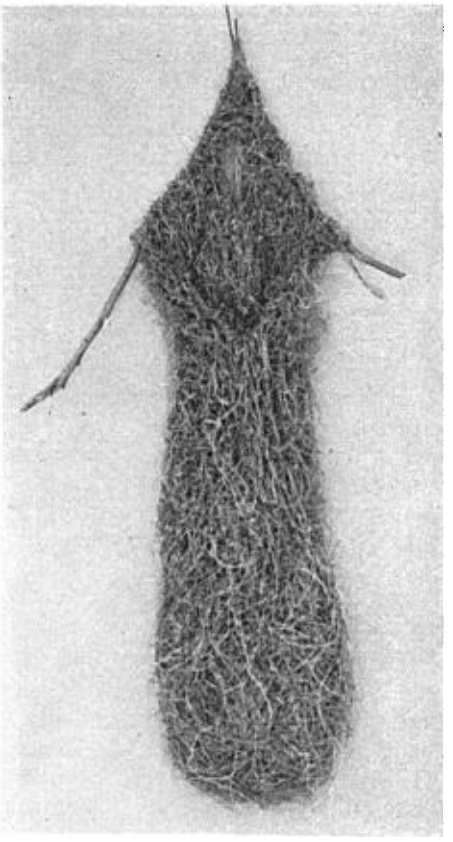

Fig. 34. The completely built headquarters nest after its removal from the ear tree.

Description of the nest.—The nest's greatest outside length, from the fork to the bottom, was 25 inches. The greatest outside diameter (not far from the bottom) was 6½ inches. It was symmetrical and quite smooth, the material being well tucked in. It was made almost entirely of air-plant rootlets, most of them several inches long, and fiber stripped from palmetto leaves. The lining, which covered the bottom only, was of palmetto fiber and horsehair. Nowhere about the nest was there a feather, bit of wool or cotton or kapok fluff, or other soft material.

About 250 strands of rootlet or palmetto fiber passed over each eight-inch length of supporting twig. The remaining third of the nest-rim consisted of four or five tough rootlet "cables" hung from one tine to the other. About these, slenderer rootlets were

twisted tightly, giving the edge a somewhat rope-like appearance. This third of the rim was notably thin and strong.

The rootlets of the nest wall ran downward more or less parallel to each other, as if they had purposely been allowed to dangle while the bird wove other strands about them. Some of these meridional rootlets extended the entire length of the nest, but most of the material was obviously woven in and out crosswise into a sort of rough fabric. No rootlet or fiber encircled the outside of the nest.

The wall was thickest at the bottom. Here the material was tightly interwoven and matted. The lining was not attached either to the bottom or to the sides. It could be lifted *en masse* without difficulty, evidently having been laid with some care and pressed into final position by the bird's body.

Discussion of the headquarters nest.—We are not sure that the same oriole built nest-beginnings 1 and 2. We believe that the completed nest was built by one bird only and that during most of the building period it was wholly unattended by a mate. We do not know the sex of the bird that did the building.

Building the nest required at least eighteen days (April 7-24) and possibly as many as twenty-six days (April 7-May 2). From April 7 to 14 the work progressed irregularly; from April 14 to 17 much material was added; from April 17 to 22 the structure took on its final shape; but from that date on, work was desultory. We believe the first egg was laid on May 2.

The trail nest.—Sutton discovered a partly built Alta Mira Oriole nest on April 6. It was almost directly above one of the paths leading from the Rio Sabinas to the main trail to Gomez Farias and was about 30 feet from the ground on a *dead* branch in a living tree at the edge of a good-sized clearing. Here *one* brightly colored bird was noted repeatedly, never two. This bird sang, brought nest material, scolded and drove off Brown Jays (*Psilorhinus morio*), and occasionally scolded the observer as he stood under the tree. We spent very little time observing this nest, but regard the bird's (or birds') choice of a dead branch as significant. Any number of apparently suitable living branches were available close by.

The river nest.—An Alta Mira Oriole nest overhung the Rio Sabinas not far from the Rancho. We found it on April 3, but we do not know how many birds worked at it. It was in a cypress and must have been fully 50 feet above the water. It was in plain sight for many rods both up and down stream and was not far (possibly 25 feet) from an occupied nest of the Rose-throated Becard (*Platypsaris aglaiae*) and one of the Giraud, or Social, Flycatcher (*Myiozetetes similis*).

The field nest.—This nest was far out on one of the uppermost branches of a large (50 feet high), *completely dead* tree that stood quite by itself in a well cleared field just north of the headquarters house. We saw a single bird at work building from time to time in the latter half of April. It brought material from the nearest woods. Here the trees were tall and well foliaged. Close to the nest, although on different branches, there were two nest-beginnings. We never saw two birds at the nest.

The Cañon de Galeana nest.—As we drove northward on May 4, we passed an Alta Mira Oriole nest that hung from a leafless, perhaps dead branch, almost over the main highway, about 30 feet from the ground, and not far from the highway marker calling attention to the canyon itself. The general impression was that this nest had been placed in the most exposed situation that could be found thereabouts.

The telephone wire nest at Tamazunchale.—Sutton has already reported on a nest seen by John B. Semple and him near Tamazunchale, San Luis Potosí (see Sutton and Burleigh, 1940:231). This nest was swung from a single telephone wire that ran above a wooded gully and was 80 or more feet from the ground. The poles were many rods off,

on ridges at either side of the gully. It would be hard to imagine anything in the line of birds' nests more visible than that nest was!

Nest of Icterus gularis in El Salvador.—Dickey and van Rossem (1938:526) call attention to the fact that nests of *Icterus gularis gularis* "are hung from telephone wires, particularly if there happen to be a few tufts of epiphitic growth to provide a starting point."

Advantages of an exposed nest site.—From data presented thus far it is obvious that the Alta Mira Oriole makes no attempt whatever to hide its nest. It is not unique among the icterids in this respect, although it apparently is the most northward ranging of what we may call the "nest-advertising orioles," and it definitely is not colonial. Relying to some extent on the strength and depth of the structure, it chooses a conspicuous site that is not readily accessible to quadrupeds and snakes and proceeds to fly directly back and forth, singing loudly as it builds. Whether an unmated bird may choose a conspicuous nest-site, start a nest, and actually attract a mate through its bright colors and loud singing is, of course, a moot question. For a time we were confident that the bird at work on the headquarters nest was an unmated male, but we doubt this now.

Certain it is that a conspicuous nest site is advantageous to the owner insofar as it forces enemy species to use exposed avenues of approach. How easy it is, when we focus attention on any one bird to forget that this bird's enemies all have enemies themselves! Any predatory creature that makes its way to an Alta Mira Oriole's nest, either by day or by night, is certain to expose itself to its own enemy species whether these happen to be enemy species of the oriole or not.

The oriole's nest must meet certain specifications if it is to be boldly advertised, of course. It must provide proper conditions of temperature and air for the eggs and young birds in spite of hanging, hour after hour, exposed to the sun. It must be tough enough, long enough, far enough out on the branch, and far enough above the ground to make a coati-mundi (*Nasua*) "think twice" before attempting a raid. It must be too deep for Brown Jays to rob easily, too tough to tear apart, too much like a trap to appeal to the female Red-eyed Cowbird (*Tangavius aeneus*). The fact that *Icterus gularis* is common proves it to be a successful species. We may believe, therefore, that its own peculiar method of nest-advertising is advantageous rather than otherwise.

Nidification of Icterus gularis and other orioles compared.—The nest of *Icterus gularis* is, like that of *I. pectoralis, I. sclateri,* and *Zarhynchus wagleri* deep and entirely pensile, without any support at the sides or bottom. That of *I. cucullatus* is pensile, but extremely shallow by comparison. The other orioles that breed in the United States (*I. galbula, I. bullockii, I. graduacauda, I. spurius,* and *I. parisorum*) all build semi-pensile nests.

Nests of *Icterus gularis* observed in El Salvador are 15 to 20 inches long (Dickey and van Rossem, 1938:526); our two nests from Tamaulipas, measuring 25 and 27 inches, were somewhat longer. Nests of *Icterus galbula* exhibit a similar variability in length, many specimens being 5 or 6 inches deep, some as much as 9 inches (Bendire, 1895:485). Nests of *Zarhynchus wagleri* range from 22 to 40 inches in length (Chapman, 1928: 146). *Icterus gularis* is not a very much larger bird than *I. galbula,* yet it builds a nest fully twice as deep.

The oriole (or orioles) at our headquarters took at least eighteen days and possibly as many as twenty-six days to finish the nest, less time, in other words, than the "about one month" required by the Wagler Oropendola of the Canal Zone (Chapman, 1928: 165). The Baltimore Oriole, which nests in more northerly latitudes where the breeding season is shorter (see Pettingill, 1942:94-95), takes only two to three days (Nauman,

1930:295), "about 4½ days" (Herrick, 1911:295), five to eight days (Bendire, 1895: 484), two to six days for "the external part" of the nest (Forbush, 1927:446), or as much as eleven or twelve days (Brewster, 1937:44).

We have shown that our Alta Mira Orioles did not work at all steadily. In this respect *Icterus gularis* must differ from *I. galbula,* for Herrick (1911:356-364) comments on the steadiness with which the Baltimore Oriole works, calling attention to the fact that building does not slow down perceptibly until the next to the last day. Wagler Oropendolas, according to Chapman (1928:140) "work regularly and persistently, giving the greater part of each day to their task" with "correspondingly little variation in the birds' working hours."

Among orioles in general it appears to be the rule for the female to build the nest, although she does not usually go about entirely unattended by her mate. This certainly is true of the Baltimore Oriole (Herrick, 1911:357; Forbush, 1927:444; *et al.*) and of other species of the genus *Icterus* in the United States, as well as of the Wagler Oropendola. Sutton has observed the Orchard Oriole repeatedly about his boyhood home at Fort Worth, Texas, and at Bethany, West Virginia from 1914 to 1941, and has seen the female secretively building, with the male singing boisterously not far away. As for the Hooded Oriole, we observed the building of two nests at Rancho Rinconada in the spring of 1941. In both instances the female did all the work, although the male frequently sang close by. Chapman (1928: 165) tells us that the male Wagler Oropendolas are "in constant attendance on the females whether as wooers or accepted mates until the eggs are laid."

In all species of the genus *Icterus* of the United States save one, the female (the nest builder) is much less brightly colored than the male and the nest is more or less hidden. The one exception is *I. graduacauda,* in which neither the male nor female is very bright and the nest is well hidden as a rule. How strikingly different is *Icterus gularis* in this respect! In this species the female is as brightly colored as the male and there is nothing in the least secretive about nest-building. The nest itself is to be advertised, so why not advertise the builder as well?

SUMMARY

1. Five occupied nests of the Alta Mira Oriole (*Icterus gularis tamaulipensis*) found in the spring of 1941 in the vicinity of the Rancho Rinconada, near Gomez Farias, Tamaulipas, were placed in much exposed situations. Nests of *Icterus gularis* reported from San Luis Potosí and El Salvador were placed in similarly exposed situations.

2. Alta Mira Orioles were not secretive in their building activities; they flew directly back and forth, singing loudly as they worked, giving a definite impression that they were calling attention to themselves and their nests. Never was more than one bird seen actually working at a nest at any one time, however.

3. The fact that the female Alta Mira Oriole is brightly colored suggests that there may be a definite correlation between exposure, or "advertising," of nest and brightness of nest-builder.

4. Exposure of nest and brightness of nest-builder is advantageous, or at least not disadvantageous, to *Icterus gularis* in that it forces enemy-species to expose themselves whenever they approach the nest; but the nest must be tough, well ventilated, deep, far from the ground or water, and far out from the main trunk (or telephone pole!) if it is to be so exposed.

5. The building of an Alta Mira Oriole nest required at least 18 and perhaps as many as 26 days. This is a much longer nest-building period than that of the Baltimore Oriole, whose breeding season is much shorter; it is not quite so long as that of the Wagler Oropendola, whose breeding season is probably longer.

6. The oriole, or orioles, that built the above-mentioned nest worked far less steadily than Baltimore Orioles or Wagler Oropendolas are reported to do.

LITERATURE CITED

Bendire, C.
1895. Life histories of North American birds, from the parrots to the grackles, with special reference to their breeding habits and eggs. Smithsonian Inst., U. S. Nat. Mus., Special Bull. (No. 3), x + 508 pp.
Brewster, W.
1937. Concord River (Cambridge, Harvard Univ. Press), x + 259 pp.
Chapman, F. M.
1928. The nesting habits of Wagler's Oropendola (*Zarhynchus wagleri*) on Barro Colorado Island. Bull. Amer. Mus. Nat. Hist., 58:123-166.
Dickey, D. R., and van Rossem, A. J.
1938. The birds of El Salvador. Field Mus. Nat. Hist., Zool. Ser., 23:1-609.
Forbush, E. H.
1927. Birds of Massachusetts and other New England states (Boston, Mass. Dept. Agric.), 2:l + 461 pp.
Herrick, F. H.
1911. Nests and nest-building in birds: part III. Jour. Animal Behavior, 1:336-373.
Nauman, E. D.
1930. The nesting habits of the Baltimore Oriole. Wilson Bull., 42:295-296.
Pettingill, O. S., Jr.
1942. The birds of a bull's horn acacia. Wilson Bull., 54:89-96.
Sutton, G. M., and Burleigh, T. D.
1940. Birds of Tamazunchale, San Luis Potosí. Wilson Bull., 52:221-233.
Sutton, G. M., and Pettingill, O. S., Jr.
1942. Birds of the Gomez Farias region, southwestern Tamaulipas. Auk, 59:1-34.

Laboratory of Ornithology, Cornell University, Ithaca, New York, and *Department of Zoology, Carleton College, Northfield, Minnesota, March 29, 1943.*