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CHOICE OF NESTING SITES BY HUMMINGBIRDS

WITH TWO ILLUSTRATIONS

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A number of years ago, while tabulating data on the nesting of the Costa Hummingbird (*Calypte costae*) on my home place, I was impressed by an apparent tendency of the majority of the birds to change the nature of their nesting sites from year to year. Some years this action seemed too concerted to be satisfactorily explained through mere chance or by any conceivable environmental change.

For several years the nests of this species were found most plentifully in an area of about four acres planted to avocados, which were in part interset with guava bushes (*Feijoa sellowiana*). The latter were smaller and less densely foliaged, with smaller leaves and more rigid branches. The following figures will show the yearly shift back and forth between these two types of nesting sites:

	1923	1924	1925	1926	1927
Nests in avocados	1	9	3	2	12
Nests in feijoas	4	2	5	0	0

In 1927 the twelve nests found in this area were not only all in avocado trees, but nearly all were placed near the ends of long, projecting, lower branches of trees of the fuerte variety, of which this type of growth is characteristic. Since that year comparatively few nests have been found, for reasons, perhaps various, which might be guessed at but cannot be stated definitely.

In 1935 and 1936 the Black-chinned Hummingbird (*Archilochus alexandri*), hitherto a spring and late summer migrant in this particular locality, seems in a measure to have taken the place of the Costa as a breeding species, possibly because of the growth of the trees and the increase in verdure in this originally arid district. In the course of a rather thorough inspection of the avocado trees this spring, I discovered the two nests here illustrated, both believed to be of the Black-chinned Hummingbird, and I was struck by the almost exact similarity of the sites chosen. (See figs. 42 and 43.)

The two nests were in avocado trees of the puebla variety, situated 528 feet apart. Both were on slender branches which hung almost vertically downward, a type of growth prevalent in this variety of avocado. In each case the branch was in the northeast quarter of the tree, and the end of the twig curved toward the east, the nest being set in the curve and partly supported by the bases of adjacent leaves. Tree no. 2 is several times as large as no. 1, but nest no. 1 was 56 inches from the ground, and nest no. 2 was 55 inches. The nests themselves were similar, being smoothly and compactly constructed of yellowish plant down, without feathers

Fig. 42. Nest of Black-chinned Hummingbird in avocado tree at Azusa, California. Photographed on June 9, 1936.

in the lining and with little or no attempt at ornamentation of the exterior. Nest no. 1 (fig. 42) was evidently built a few days earlier than no. 2, but some mishap which overtook the eggs in the latter shortly after the hatching of those in the former prevented a more accurate determination.

Subsequently I found another nest about equidistant from the two described, containing young a week farther advanced than those in nest no. 1. Its site differed from the foregoing description only in that the tip of the branch turned toward the north and the nest was only 40 inches from the ground. This nest and its owner appeared typically Costa, but I could not say with certainty that it was not another Black-chinned.

The only other nest found was built earlier in the season, in a site about 80 feet from that of nest no. 1, but unlike that situation in every respect. The nest and its eggs were destroyed, presumably by a jay. If this nest and nest no. 1 were built by the same individual, as seemed probable, it would show that she had no predilection for any one type of nesting site.

While these incidents are not sufficient to serve as a basis for any definite conclusion, it is at least interesting to speculate on the possible causes which might be responsible for an apparent unanimity of choice on the part of several hummingbirds nesting at the same time. The same causes might also account for the

Fig. 43. Nest of Black-chinned Hummingbird in situation similar to that shown in figure 42 and photographed on the same day.

pronounced local fluctuations in number often experienced from year to year, and which, in a bird of such low reproductive capacity, cannot well be attributed solely to the fortunes of the previous year's nesting.

The similarity noted in the nesting sites might be considered mere coincidence, but this would seem rather a severe strain on the laws of chance. Or the birds' instinct might be responsive to subtle changes in external conditions unnoticed by human perceptions. However, it is difficult to imagine what these changing conditions could be, or how they would be met by one rather than another of the various types of nesting site.

Again, these resemblances might be the result of conscious imitation; but on only one occasion have I seen a hummingbird which appeared to be interested in another hummingbird's nest (Condor, vol. 24, 1922, p. 190). The distance between these nests would make this alternative seem unlikely, even if any motive for such imitation could be conceived.

Finally, it is necessary to consider the possibility of the sort of communal thinking which alone seems capable of accounting for some of the simultaneous or cooperative actions of many socially organized animals. Concerning this, of course, little can be said, either of its nature or of its possible utility in the case of nongregarious species; but further study along this line might yield interesting results.

Azusa, California, July 2, 1936.