

## FROM FIELD AND STUDY

**The Dive Note of the Anna Hummingbird.**—To watch a male Anna Hummingbird (*Calypte anna*) make a "power dive" is a common but always thrilling experience to bird observers. Usually the dive is executed near or over a mate or an intruder. Hunt described the character of the dive in 1920 (Condor, vol. 22, pp. 109-110, fig. 27). The ascent before the dive usually is accompanied by vocal notes fittingly described as "zeezy-zeezy-zeezy-zee" by Grinnell and Storer (Animal Life in the Yosemite, 1924, p. 353). In the steep drop of the dive no sound is made, but the instant the bird turns upward, a sharp note is produced. Various writers have described this note as *kūlp*, *plip*, and *speek*. The origin of this note has been the subject of considerable speculation. However, the consensus of opinion is that it is produced by flight or tail feathers.

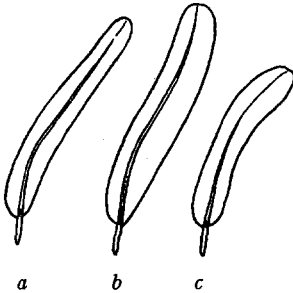


Fig. 24. Ventral side of outermost (a) and next to outermost (b) tail feathers of adult male Anna Hummingbird; c, outermost feather of juvenal male. All from left side of tail.

Assuming this to be correct, I conducted a series of experiments with various feathers. Individual feathers and whole tails and wings were held in a swift current of air. The only promising response in these tests came from outermost tail feathers, which are narrower than the others (fig. 24). Then, in an effort to duplicate the conditions at the bottom of the dive, I attached an outer tail feather to a slender strip of bamboo. By whipping this through the air a note was produced, which was almost identical with that produced by the bird. No other feathers produced this note. This experiment was demonstrated before the Cooper Club at its annual meeting in Fresno, on April 16, 1938.

In the autumn of 1939, it was called to my attention that some Anna Hummingbirds, presumably immature males, were executing the dives but were not producing the note. I have since watched the performance, and, although the dives were usually not as steep as those of the adult male, some of them should have produced the note had the character of the dive alone been responsible for its production. To ascertain if the absence of the note might be due to lack of properly shaped outer tail feathers, museum specimens were examined. It was found that the outer tail feathers of juvenal males are broader, especially toward the tip, than those of the adult (fig. 24), and have a softer vane. I was unable to produce the note with these feathers on the bamboo whip.

Thus, the note at the bottom of the dive of the adult male Anna Hummingbird is apparently produced by the vibration of the outer tail feathers, and although young males still in juvenal plumage may execute the dive, their outer tail feathers are not fitted to attain the vibrations necessary to produce the note.—THOMAS L. RODGERS, *Museum of Vertebrate Zoology, Berkeley, California, October 21, 1939.*

**Starlings Arrive in the Rio Grande Valley of New Mexico.**—On November 3, 1939, at about 5 p.m., Mr. Luna Leopold and I saw seven Starlings (*Sturnus vulgaris*) one mile east of the Rio Grande and five miles north of Albuquerque, Bernalillo County, New Mexico. While driving slowly, we first saw three starlings, followed promptly by another group of three, all flying east. We stopped the car and, while watching the disappearing birds through binoculars, a lone starling flying west passed directly overhead and not more than one hundred feet above us. This observation provides the first record of the starling in the Rio Grande Valley of New Mexico. Starlings were seen again in the same locality on November 12 when four were observed as they foraged with several meadowlarks in an alfalfa field. They were wary and would not permit me to approach near enough to obtain a specimen. On November 26 in an alfalfa field twenty miles south of Albuquerque a flock of thirty starlings was seen foraging with a much larger flock of Red-winged Blackbirds. Two of the starlings were collected.

The small farms and the many old cottonwood trees along the Rio Grande should provide suitable environment for starlings. Their spread up and down this valley, which extends the full length of the State, will be interesting to follow. Starlings have been recorded in the eastern part of New Mexico at Texico on March 7 and at Clovis on March 7 and 8, 1939, by P. S. Allan (Condor, vol. 56, 1939, pp. 477-478).—A. E. BORELL, *Soil Conservation Service, Albuquerque, New Mexico, November 30, 1939.*