

tidewater marsh at Knik, Alaska, by Mr. Geo. G. Cantwell, of Puyallup, Washington. At that point, Mr. Cantwell tells me, the Western Savannah Sparrows were still migrating, either to interior Alaska or to some point north of Knik, as none remained to breed in that section.

The Western Savannah Sparrow (*P. s. alaudinus*) reaches Tacoma about April 20 on its northern migration, remaining until about May 10, at which time our little Washington bird (*brooksi*) is busy with nests and eggs. I am uncertain as to what route *alaudinus* takes on the fall migration. Still another form of this sparrow is found during the breeding season in eastern Washington, namely the Nevada Savannah Sparrow (*P. s. nevadensis*), giving the state of Washington five very easily distinguishable forms. Recurring once more to *alaudinus*, it would seem that this form should be given a new English name, at least, as the present one is not only misleading, but also not in accordance with existing conditions.—J. H. BOWLES, Tacoma, Washington, January 3, 1920.

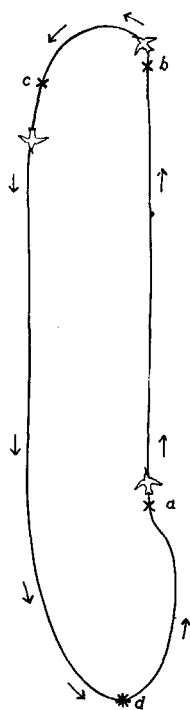


Fig. 27. DIAGRAM ILLUSTRATING THE NUPTIAL FLIGHT OF THE ANNA HUMMINGBIRD.

Nuptial Flight of the Anna Hummingbird.—On January 13, 1918, I was fortunate enough to be present at a finished performance of the nuptial flight of a male Anna Hummingbird (*Calypte anna*), and to observe the affair so clearly that I could diagram it with accuracy. I have been present at the performance many times since, but never under conditions permitting a full and clear observation. I do not know, therefore, whether, typically, the Anna Hummer adheres rigidly to the evolutions here described, or whether he varies them somewhat.

The phenomenon was observed over chaparral in a small ravine several hundred yards uphill from the University of California swimming pool, Berkeley. It consisted of set aerial evolutions with vocal demonstrations occurring at mechanically exact points in space and time. The phases of the affair were as follows (see fig. 27):

The bird hovered in one spot, *a*, long enough to utter its common song, *zeed'l-zeed'l-zeed'l*, *zeed'l-zeed'l-zeed'l*, *zeed'l-zeed'l-zeed'l*. I can best convey an idea of the timbre of this utterance by asking the reader to think of the loose-rattling plus glassy-singing sound-quality of small shot made to roll round the inside of a thin bottle or flask. But there is also a dry element involved, as if fragments of crisp thorny-edged leaves were mixed with the shot, scratching the glass on their way round and lending a sort of continuous high squeaky ring to the effect, like a thread of tonality running throughout. The utterance is rather faint and whisper-like, and does not come out into full tonality. It is not rapid. It consists of nine syllables in three sections of three each.

From *a* to *b* the bird climbed with great rapidity straight into the air, hovering a moment at *b*, without, however, vocalizing.

The line from *c* downward represents a bullet-swift dive, head-first, with an upward swoop just clear of the bush-top at a specifically aimed-at point, *d*. Within a few inches of *d* the female was doubtless perched, though she was so well concealed that I could not see her from where I stood.

At *d* the bird uttered an abrupt, explosive, ringing *kilp* or *pilp*. Mr. J. Grinnell spells it *plop*, which is the same in essence. The vowel-sound varies with the intensity of the utterance, sometimes being lower and nearer "o". There is certainly a musical "l" involved, which my ears persist in hearing after the vowel-sound. As a matter of fact, all of the sound elements concerned are nearly, if not quite, simultaneous. The note is remarkable: tonal and clear, and louder and more violent than one would expect from a bird of the humming size. It is a sort of clank. It rings out like a good live blow on musical glass or metal, but the ring dies instantly as if gulped down into some cavern of dead silence.

This *kilp* is uttered en route from *c* to *a*. Hardly has the sound emanated from *d* when the bird may be descried at *a*, hovering as before and uttering the nine-syllabled note already described. Incidentally it may be mentioned that this *kilp*-note may prove very mystifying when heard for the first time, since it is always uttered in rapid transit from one place in air to another, but, because it always comes from the same spot in the bushes, one is led to assume that the author thereof must be stationary.

The Anna Hummer went through the performance described, eleven times. Not once did the thing vary in any degree or detail that I could detect. The distance from *b* to *d* I estimated at 75 feet.

It may not be amiss to comment briefly on some utterances of this hummingbird not necessarily connected with the nuptial flight. The nine-syllabled song is also used for ordinary purposes, without other demonstrations, and may be heard when the bird is on the wing, or perching. It is subject to irregularities in form, and is not always nine-syllabled. Another note is a rapid shaking utterance—*chicker-chicker-chicker-chicker-chicker*—not unlike the trill of the Chipping Sparrow in its more strident and untional phase. This shaking note sometimes follows the *kilp*-note. Under ordinary conditions, i. e., not during the nuptial flight, the nine-syllabled note is sometimes followed by a brisk *thip! thip! thip!* (th pronounced as in "other"). It is a tiny note, yet violent and forced-sounding. The bird also has a sharp smacking *tip*-note, like that of the Junco and Fox Sparrow. It is sometimes uttered on the wing, in a series: *tip, tip, tip-tip-tip*, etc.—RICHARD HUNT, *Museum of Vertebrate Zoology, Berkeley, California, February 26, 1920.*

The Northern Bald Eagle a Probable Californian Bird.—The northern form of the Bald Eagle (*Haliaeetus leucocephalus alascanus*), as far as I am aware, has not been recorded from California, though it should occur at least as a migrant. The resident form in the Upper Sonoran regions of the state is no doubt the Southern Bald Eagle (*H. l. leucocephalus*), but a specimen in my collection (no. 24854, male adult, Lakeport, Lake County; February 2, 1893; Walter Brett, collector), with a wing measurement of 595 mm., is large enough to be *alascanus*. Though the material available is not sufficient to decide the point, I have been able to examine two adult females of the southern form, in the Dwight collection, one from Fauquier County, Virginia, and one from Safety Harbor, Hillsborough County, Florida, having wing measurements respectively of 586 and 565 mm. The Lakeport male is thus a little larger than either of these southern females, and not much smaller than an adult of undetermined sex (though presumably a male), in my collection from Douglas Island, Alaska, with a wing measurement of 623 mm. The two forms of the Bald Eagle have never been well differentiated. The sexes vary a good deal in size among themselves, and the geographical ranges of the two forms are not well understood; but an examination of the material available from California will probably show the occurrence of both forms in the state.—J. H. FLEMING, *Toronto, Ontario, December 15, 1919.*

A New Bird for the Pacific Slope of Southern California.—The Bohemian Waxwing (*Bombycilla garrula*) is a rare bird in California, and there are but two published records for the southern part of the state, I believe. One bird was taken near Victorville (CONDOR, VII, p. 77), and another near Daggett (CONDOR, XIII, p. 34). There appear to be no recorded instances for the Pacific slope of southern California.

This present winter (1919-20) I have observed numbers of these birds in Claremont during January and February, and specimens of both sexes were collected on February 15, 16, 17 and 18. The birds collected were with flocks of Cedar Birds (*Bombycilla cedrorum*), and seemed to be feeding exclusively on pepper berries, with which their throats were gorged; one, by actual count, had thirty-nine berries in its throat. To show how abundant these birds were here, on February 22 I carefully counted the Bohemian Waxwings in a rather large flock. There were over a hundred in a pepper tree, while at the same time there were many others sitting in a tall blue gum nearby, so that I am safe in saying that there were at least a hundred and fifty of the Bohemian Waxwings present at that time. In fact these birds outnumbered the Cedar Waxwings three to one.