

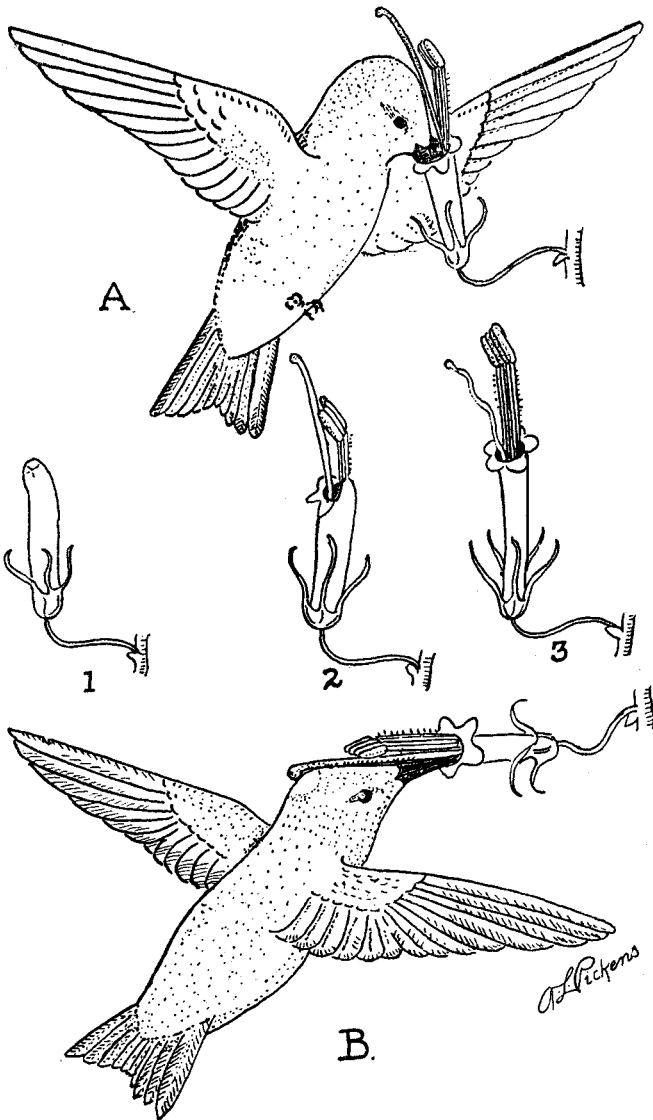
UNIQUE METHOD OF POLLINATION BY THE RUBY-  
THROAT.

BY ANDREW L. PICKENS.

INTERESTED in Hummingbirds, as I have been for twenty years, I could hardly avoid some study of the various methods employed by different flowers, in forcing the Ruby-throat (*Archilochus colubris*) to bear pollen from one flower to another. Some appear to use the bill, some the forehead, some perhaps to a limited degree the feathers of the back, and one at least those of the throat.

When I began studying out-of-door forms on the gulf coastal plain, however, I encountered a flower that caught my eye, and puzzled me greatly. The stalk stood erect, carrying the top in some specimens as high as six or eight feet above ground. The flowers had a prim conventionality about them that one rarely sees in nature. Bright orange in color, each was erect in the calyx, which by a springy, curved stem was joined to the branches of the plant. Each gave something of the appearance of a candle stuck in the socket of a candelabrum (fig. 1). The flower would not be fully opened, before the pistil would thrust itself out and stand stiffly erect as shown in the middle figure. Returning in a day or two this would be found dying and withered (fig. 3), but the stamens which had stood in a stiff military line one beside the other, and just back of the pistil would be found to have grown up to the former height of the now dead and drooping pistil. The anthers too were uniquely arranged. There was none of the usual careless balancing on the stamen that one usually finds in this part of the flower. The pollen-bearing surface in each one turned toward the front. There was something about the arrangement that suggested the fingers of a hand raised heavenward, ready to descend in blessing on someone's head.

The funnel-form of the flower should have suggested a clue to me, but I had to see this, one of the most cleverly arranged flowers outside of the orchid family in regard to the matter of cross-pollination, actually being manipulated before I realized what a remarkable find I had come upon.



Then I found, what appears to me to be, the most delicately adjusted of the various flowers of the United States that cater to the Ruby-throat. I found one large patch of these brilliantly colored flowers in the edge of a small swamp, and such twittering hordes of Ruby-throats I have seen about no other flower, not even excepting, what I had considered Hummingbird-beloved, buddleia. It was note-worthy that practically each bird had a yellow spot just above the nape.

A Ruby-throat would come flying to a flower which stood up stiff and erect like a candle on its bracket. Dropping the beak along the breast, it would thrust it down into the tube of the flower as shown in the top figure. This was of course an uncomfortable position for a bird that prefers its nectar served in a horizontal flower, as seems to be the case with these honey seekers, so it would begin settling toward the earth, pulling against the front side of the flower until it came to the wonted position, a thing made possible by the elasticity of the spring-like bracket of a stem. As it did so the pistil sank down over the forehead and along the crown, until at last it touched the yellowish spot at the back of the bird's head lightly and for just a moment. The yellow spot was of course a patch of pollen brought from older flowers, for as seen in the figure the pollen-producing parts of the flower now being visited were only partly grown and came far short of the spot, and what is more they were immature and moist, and not ready to shed pollen. A later visit is necessary.

Having received its gift of pollen from another flower the pistil, soon dries up and gets out of the way, while the stamens, standing in their stiff, military line begin growing at a great rate. Having reached their utmost height, they stand side by side and bent slightly at the tip. The brilliant orange in spots is growing black, and one almost feels as if the flower might fail of its mission in a too early death. But again a Ruby-throat comes. It drops its beak into the now dying tube, pulls with its lower mandible, draws the flower down to the horizontal position and drains the remaining nectar. As it does so, the now-lengthened stamens descend in a curve lower and lower, until they rest very lightly on the spot just above the nape like fingers coming down in a patriarchal caress of blessing. But it is a Jacob-like patriarch, this floral schemer,

forcing its guest to render value-received in transportation of pollen to some other younger flower, the pistil of which is now in the position of this one when last visited,—waiting the gift of the magic powder. Already blackening, the tube soon dies, but other buds are opening higher on the plant and for days and weeks the edge of the swamp is a riot of Hummingbirds.

The flower is *Macranthera LeContei*. I am sorry that such an interesting species, has so far as I know, no popular name. It is found along the gulf plain from Georgia to Mississippi, and blooms in summer and fall.

Of all the forms that I have studied this is the most exclusively Hummingbird flower, and I recall seeing no other honey-gatherers in its vicinity. I do not think it would be possible for a bee or a moth to effect cross-pollination, so elaborately is the whole scheme adapted to bird-pollination. Another striking thing, I noted. Red has, heretofore, been regarded as the favorite color of the Hummingbird, yet here is a flower seemingly adapted only to the bird and so to no other creature, and yet it is a bright orange, suggesting yellow rather than red.

202 Grove St.,  
Greenville, S. C.